ASEAN MALAYSIA 2025
INCLUSIVITY AND SUSTAINABILITY

CONSAL XIX MALAYSIA 2025

16 – 19 JUNE 2025

19th Congress of Southeast Asian Librarians
General Conference and Meeting

e-Proceedings



PARTNERS:

MINISTRY OF NATIONAL UNITY

PERPUSTAKAAN NEGARA MALAYSIA

Visit Malaysia 2026 Truly Asia

MALAYSIA MADANI kesejahteraan

Kementerian PERPADUAN

KEMENTERIAN PERPADUAN NEGARA

ACCESS DUNIA

Malaysia Convention & Exhibition Bureau

Futurenuri

CONSAL XIX MALAYSIA 2025

16 - 19 June 2025

19th Congress of Southeast Asian Librarians

General Conference and Meeting

World Trade Centre Kuala Lumpur

"Inclusive Knowledge: Bridging Divide, Empowering All"

e-Proceedings

Kementerian Perpaduan Negara Malaysia

Persatuan Pustakawan Malaysia



All rights reserved.

No part of this book may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and recording, or by any information storage or retrieval system, without permission in writing form the Persatuan Pustakawan Malaysia.

PERSATUAN PUSTAKAWAN MALAYSIA
P.O Box 12545
50782 Kuala Lumpur
Malaysia

Edited, compiled and formatted by:

Dr. Nor Edzan Che Nasir
Dr. Ranita Hisham Shunmugam
Dr. Imilia Ibrahim
Dr. Mohd Ikhwan Ismail
Dr. Rosnani Ahmad
Cik Ramlah Che Jaafar
Noor Adilah Azmi
Dr. Noor Masliana Razlan
Dr. Saidatul Akmar Ismail



Cataloguing-in-Publication Data

Perpustakaan Negara Malaysia

A catalogue record for this book is available from the National Library of Malaysia

eISBN 978-967-25842-3-0

CONTENTS

FOREWORD **i**

INTRODUCTION **iii**

KEYNOTE SPEAKER **vii**

Sub-Theme 1: The Changing Roles of Libraries from Gatekeeping to Empowerment and Fostering Inclusivity in Society

Best Practices: A Showcase of Library Inclusivity and Innovation in Southeast Asia and Around the World 1

Tegal Harum Village Library Innovation, Denpasar City Through the SIPESAT Program 14

The Provenance of Phya Anuman Rajadhon's Book Collection: Unlocking A Hidden Memory in National Library of Thailand 24

Libraries As Hubs of Action: Enhancing Biodiversity Awareness Via Citizen Science Project AICSBC 2024 51

Spark!Lab™ Singapore: Fostering Inclusive Innovation Through Tinkering 61

Religious Libraries as Gateways to Inclusivity: Insights from Mosque and Church Libraries 73

Transforming Academic Libraries into Dynamic Learning Hubs: The Role of Immersive Learning in Enhancing STEM Education in Perak, Malaysia 89

Impacts Of Innovative Applications of Immersive Technology in Vietnamese Academic Libraries: A Case Study of VinUniversity Library 98

Technology Integration into Library Operation and Services 120

Transforming University Libraries in The Yangon Region: Exploring Digital Services and Operations for Empowerment and Inclusivity 141

Generative AI And Library Services: How AI Could Support Reference Services 155

Elevating Literacy: The Role of Librarians in Building Digitally Inclusive Library Spaces 189

Enhancing Systematic Search Support Across Disciplines: A Case Study from NTU Library 204

The Library Transformation Based on Social Inclusion Program in Indonesia: A Media Monitoring Perspective Using Machine Learning 213

Empowering Inclusive Access for People with Disabilities: A Comprehensive Accessibility Analysis of Southeast Asian National Libraries' Social Media 229

Words Matter: Evaluating Inclusive Language on Malaysian and Philippine Library Websites 253

Community Service: Equipping Teachers and Librarians in Improving Students' Digital Literacy in the Mentawai Islands 275

Innovating Library Services and Spaces: Towards an Interactive Approach 286

Evaluating The Impact of Read Aloud Programs in Indonesia: A Case Study on Inclusivity and Empowerment in Library Services 296

Sub-Theme 2: Bridging Divides Through SDGs As Libraries Make the Impossible, Possible

A Strategic Framework for Inclusive Libraries in Malaysia: Bridging Gaps and Empowering Equality 313

Advancing Towards Sustainable Philippine Libraries: An Exploratory Study on SDG Initiatives and Librarians' Perceptions 338

PKI and 1965: Libraries as Gateways to Justice and Peace Under SDG 16 355

Empowering Sustainable Development Goals Through Library Programs: National Library of Malaysia's Approach 369

Implementation Of SDG 10 (Reduced Inequality) in the Library of UIN Sunan Kalijaga Yogyakarta, Indonesia 396

USM Library SDG's Initiative in Preserving the Cultural Identity and Heritage of Melayu Tanjong/Jawi Pekan in Pulau Pinang 412

Achieving Quality Education (SDG 4) Through Literacy: Story From #Sepekan1Buku Program 429

From Gaps to Growth: Advancing SDGs Through Academic Libraries in Brunei Darussalam 453

Beyond The Screen: Academic Libraries in the Philippines Navigating the Digital SDG Landscape 472

Library Websites as Catalysts for Open Science: Exploring SDG Connections in Selected Academic Libraries in the Philippines 473

Divides In Malaysian Academic Libraries: Integrating Waqf, Green Management, And SDGs Awareness for Inclusive Sustainability 486

Some Solutions for Implementing and Open Educational Resources Model in Vietnamese Academic Libraries 507

AI For SDG Data: Enhancing Decision-Making in Sustainable Development Through Data Analytics in Academic Libraries 524

Malaysian Reading Profile: A Comprehensive Study 541

Reenergizing School Libraries to Make the Impossible, Possible: The Experience Of Myanmar 556

Resilience In Action: The Evolution and Struggles of Summer Shelter Library in Fostering Community and Educational Reform. 570

Libraries Empowering SDG Through Citizen Science: Insights from The Borneo Adventures Program 586

Citizen Science and Myanmar Community Libraries: Advancing the Sustainable Development Goals (SDGs) 606

Sub-Theme 3: Building Knowledge Ecosystems for The Disabled and Marginalised

Empowering, Enabling and Enriching Persons with Disabilities Through Co-Creation and Inclusive Services at National Library Board Singapore 621

Shelves, Skills, And Inclusion: The Development of a Workplace Immersion and Literacy Project of Henry Luce III Library for Individuals with Developmental Disabilities 638

From Trends to Practice: Exploring the Role of Disabled Librarians in Building Inclusive Knowledge Ecosystems for Persons with Disabilities 660

Library And Information Services for Students with Special Educational Needs 689

From Marginalization to Inclusion: National Library of Indonesia (NLI) Bridges the Gap for Street Children in Supporting SDGs 716

A Research Study on The Challenges Faced by Students with Disabilities Enrolled in Bachelor of Library and Information Science (BLIS) In Terms of Physical Barriers, Stigma and Discrimination, And Inadequate Accommodations During On-The-Job Training (OJT) 736

Enhancing Access to Reading Materials for Visually Impaired Individuals: Implementation and Implications of The Marrakesh Treaty at The National Library of Malaysia 747

General Sciences Library Of Ho Chi Minh City: Activities and Services to Support the Visually Impaired Access to Knowledge and Integration into The Community 765

Access To Information and Knowledge for Blind Users: Case Study at The Mitra Netra Indonesia Foundation Library 778

Developing School Library as Knowledge Ecosystem for Deaf Students: A Case Study in Sekolah Luar Biasa Negeri 1 Cicendo, Bandung, Indonesia 798

Mainstreaming Sign Language Skills for Indonesian Librarians 815

Sticker Stories: Unleash Your Imagination, One Peel at A Time! 830

Implementation Of the Gema Arca Program in Growing Community Literacy in The Klungkung District, Bali 841

Empowering Education for Indigenous People at Chenan Cherah, Cameron Highlands: A Case Study from Tuanku Bainun Library 852

Foot Librarians: Collaborative Exploration and Exchange of Knowledge with Indigenous Communities 871

Driving Change: The National Information Literacy Agenda for Marginalized Communities 896

Bringing Knowledge and Empowerment to People with Disabilities in Vietnam 912

Sub-Theme 4: Libraries as Partners Forging New Synergies in Community Development

Transit-Friendly Library - Why We Do It 927

Social Responsibility: Paving The Way for Library and Society Partnership 936

Public-Private Partnership: The Way to Build and Share Benefits for The Community of The National Library of Vietnam 951

Public Libraries as Catalysts for Health Literacy: How Public Libraries Can Collaborate with Stakeholders for Community Health and Well-Being 968

The Role of Library in The Development of Social Capital in Local Communities: A Case Study in Bukit Village Library, Karangasem, Bali, Indonesia 993

Cultural Connections in Action: Collaborative Partnerships for Sarawak Cultural Heritage Preservation 1006

Nurturing Artistic Embryos in Libraries: The Creative Residency Programme in The National Library of Singapore 1015

Beyond Book Clubs: Seeding And Sustaining 130 Learning Communities in Singapore 1038

Leveraging Knowledge Management, Innovative Technology, And Public-Private Partnerships for Sustainable Community Development 1053

Redefining Library Roles: A Case Study of Mobile Makerspaces for Community Empowerment and Inclusivity 1074

The Children’s Biodiversity Library by S.E.A. Aquarium: A Public-Private Partnership 1087

Collaborating For Impact: The Power of Volunteering 1101

Developing Reading Habits Among University Students Through Collaboration with Book Club and Library: A Case Study at The University of Science, Vietnam National University, Ho Chi Minh City 1113

Jepara Regency Library Stakeholder Synergy in Leveraging Library Transformation for Social Inclusion 1128

General Science Library Of Ho Chi Minh City Is an Essential Partner in Community Development 1142

Of Comics, Garfield, And the News: Innovating Library Services Through Public-Private Partnerships 1157

Libraries and Art Studios: The Relationship of Libraries as Centers of Innovation and Creativity in Tampaksiring, Bali 1167

Pecha Kucha Forum

An Overview of Library Development Trends Towards SCOPUS Database Sustainable Development Goals: A Bibliometric Analysis 1177

Research Data Management Service Sustainability: A Framework for Malaysian Universities 1191

Research Data Management in Citizen Science Project: A Case Study of Practices, Challenges and Strategies at Malaysian Research University 1206

Bridging Knowledge: The Evolving Role of Academic Libraries in Citizen Science 1219

Forging Synergies Between Libraries and Educational Institutions to Develop Digital Skills: Universities' Central Library 1232

How Do Transparency and Openness in Scholarly Publishing Improve the Reproducibility of Social Science Research? 1241

How Academic Libraries Drive OER Adoption in Malaysian Universities: Insights from OER Experts? 1257

The Road Less Travelled: A Comparative Study of Information-Seeking in Special Education Teachers Across Four States 1272

The Urban Digital Divide and Access Challenges: Experiences of Brgy. Camputhaw, Cebu City Residents 1281

Conceptualizing Health Literacy Programs in Public Libraries for Older Adults with Chronic Diseases 1298

Exploring The Role of Popular Burmese Picture Books in A Suburban Library: A Case Study in Seikkyi Khanaungtoe Township, Yangon 1311

Exploring Digital Asset Management (DAM) For Film Collections in The Malaysian State Libraries 1319

Information Seeking Behaviour of MLBB Players 1239

Sabariah Abdul Samad & Imilia Ibrahim (Malaysia) Reviving Inclusivity Through Transformative Governance 1358

Empowering Resilience: The Role of Malaysian Academic Librarians in Disaster Management Practices 1365

Smart Libraries as Catalysts for Achieving SDGs In Malaysian Universities: A Conceptual Framework 1388

RAPPORTEURS REPORT 1399

COMMITTEE 1466

PROGRAMME 1467

LIST OF PRESENTERS 1478

SPONSORS 1484

ACKNOWLEDGEMENT 1489

FOREWORD



It is with great enthusiasm and anticipation that we welcome you to the 19th CONSAL General Conference & Meeting, taking place from 16 - 19 June 2025 at the World Trade Centre Kuala Lumpur (WTCKL).

This year marks a meaningful milestone - it will be our first physical gathering since 2018 in Nay Pyi Taw, Myanmar. After the successful virtual hosting of CONSAL XVIII by Cambodia in 2022, we are thrilled to reunite in person, bringing together library professionals, thought leaders, and advocates from across Southeast Asia for a truly momentous occasion.

With the unwavering commitment and collaboration of our regional partners, we are confident that CONSAL XIX will serve as a dynamic platform for knowledge exchange, professional growth, and regional networking, strengthening our collective vision for inclusive, impactful libraries.

The theme of this year's conference, "Inclusive Knowledge: Bridging Divides, Empowering All", accompanied by the tagline "Leveraging Inclusivity, Empowering Humanity," reflects our shared mission: to ensure that knowledge and opportunity are accessible to all, regardless of background, ability, or circumstance. In an increasingly interconnected world, this theme calls on libraries to bridge visible and invisible divides - social, cultural, technological and champion equitable access for everyone.

To further explore this theme, CONSAL XIX offers a rich array of sub - themes:

- The Changing Roles of Libraries: From Gatekeeping to Empowerment and Fostering Inclusivity in Society - Examining how libraries are transforming into inclusive spaces of empowerment and social equity.
- Bridging Divides Through SDGs: Libraries Making the Impossible, Possible - Highlighting libraries' pivotal roles in achieving the Sustainable Development Goals.
- Building Knowledge Ecosystems for the Disabled and Marginalised - Showcasing inclusive strategies to ensure no one is left behind.
- Libraries as Partners: Forging New Synergies in Community Development - Exploring collaborations that position libraries at the heart of vibrant, resilient communities.
- Pecha Kucha Forum - A lively session where postgraduates students and LIS researchers share fresh ideas and research through concise, engaging presentations.

We warmly invite and thank you for being a part of this exciting journey - whether as speaker, delegate, partner, or friend. Your voice and presence help shape the dialogue and direction of library development in our region.

Welcome to CONSAL XIX. Welcome to Kuala Lumpur. We look forward to an inspiring and memorable conference with you.

Ghazali Mohamed Fadzil, PhD
Chair, CONSAL XIX
President, Librarians Association of Malaysia

FOREWORD



Distinguished guests, esteemed colleagues, and friends,

It is a great honour to welcome you to CONSAL XIX, where we unite as champions of libraries, literacy, and equitable access to information. Today, we stand at a pivotal moment where knowledge can either remain a privilege for the few or serve as a bridge that connects and empowers all.

When I think of the power of libraries, I recall a young visitor to the National Library of Malaysia. She once found libraries overwhelming and distant. But during a World Book Day celebration, she was drawn into a storytelling session filled with warmth, imagination, and community. That moment sparked her interest, and soon, she was exploring books that aligned with her dreams. Her story reminds us that libraries are not just buildings, they are spaces of inspiration, discovery, and belonging.

Our theme this year, "Inclusive Knowledge: Bridging Divides, Empowering All," is not simply a tagline. It is a commitment - a call to action. We must ask not if, but how we will ensure libraries remain accessible, relevant, and transformative for every individual, regardless of their background.

As digital technologies rapidly change how we access and share information, libraries must evolve. We must build bridges, not barriers so that knowledge can flow freely and equitably. Libraries must be centres of innovation, inclusion, and lifelong learning.

I am sure and believe, we as an ASEAN Country can turn challenges into opportunities especially in our profession and library field. We can empower communities to read, learn, create, and thrive. Most importantly, we can ensure that no one is left behind in the pursuit of knowledge.

I extend my deepest appreciation to every speaker, participant, and organiser of CONSAL XIX. Your dedication has brought us together in a meaningful way, paving the path towards a more inclusive future.

Let us embrace this moment with purpose and unity. The future is in our hands, let’s shape it together. Thank you.

Edy Irwan bin Zulkafli
Co-Chair, CONSAL XIX
Director General, National Library of Malaysia

INTRODUCTION

The Congress of Southeast Asian Librarians (CONSAL) is the region's longest standing platform dedicated to bringing together librarians, library associations, and information professionals across Southeast Asia. Established in 1970 in Singapore through the joint efforts of the library associations of Malaysia and Singapore, CONSAL was born out of a shared vision - to foster collaboration, share professional practices, and strengthen the role of libraries in advancing the region's educational, cultural, and developmental goals. The five founding member countries were Indonesia, Malaysia, Philippines, Singapore, and Thailand. Throughout the years, CONSAL has welcomed Brunei, Cambodia, Laos, Myanmar, and Vietnam as new members. Pending its inclusion into ASEAN, Timor- Leste is welcomed into CONSAL as an observer.

CONSAL THROUGHOUT THE YEARS

Initially conceived as a biennial gathering, CONSAL evolved into a triennial conference that rotates among the ASEAN member countries. It continues to serve as a vital forum for knowledge sharing, strategic collaboration, and innovation in the library and information sciences field. To date, CONSAL has organised 18 conferences which are held in different countries, marking new milestones in the profession.

A signature element of the congress is the CONSAL Outstanding Librarian Award, first introduced in 2002. This prestigious honour recognises librarians whose leadership, innovation, and service have significantly advanced the profession and enriched the lives of those they serve. Recipients are chosen for their contributions to library development, advocacy, and their dedication to making knowledge accessible across the ASEAN region. The award not only celebrates excellence but also inspires continued progress and collaboration among peers.

Year	Edition	Location	Theme	CONSAL Outstanding Librarian Award Recipients
1970	CONSAL I	Singapore	New Prospects for Southeast Asians Cooperation	-
1973	CONSAL II	Manila, Philippines	Education and Training for Librarianship	-
1975	CONSAL III	Jakarta, Indonesia	Integrated Library and Documentation Services within the Framework or NATIS	-
1978	CONSAL IV	Bangkok, Thailand	Regional Cooperation for the Development of National Information Services	-
1981	CONSAL V	Kuala Lumpur, Malaysia	Access to Information	-
1983	CONSAL VI	Singapore	The Library in the Information Revolution	-
1987	CONSAL VII	Manila, Philippines	Libraries for Countryside Development in Southeast Asia	-
1990	CONSAL VIII	Jakarta, Indonesia	New Challenges in Library Services in the Developing World	-
1993	CONSAL IX	Bangkok, Thailand	Future Dimensions and Library Development	-

Year	Edition	Location	Theme	CONSAL Outstanding Librarian Award Recipients
1996	CONSAL X	Kuala Lumpur, Malaysia	Libraries in National Development	-
2000	CONSAL XI	Singapore	Stepping into the New Millennium: Challenges for Library and Information Professionals	Antonio M. Santos (Philippine) *The award was first introduced in 2000 and presented in 2002.
2003	CONSAL XII	Bandar Seri Begawan, Brunei Darussalam	Information Empowerment: Enhancing Knowledge Heritage	Dr. Zaiton Osman (Malaysia)
2006	CONSAL XIII	Manila, Philippines	CONSAL at the Crossroads: Challenges for Greater Regional Cooperation	R. Ramachandran (Singapore)
2009	CONSAL XIV	Hanoi, Vietnam	Towards Dynamic Libraries and Information Services in Southeast Asian Countries	Gold Zawiyah Baba (Malaysia) Silver Salmudi (Indonesia) Salvacion M. Arlante (Philippine) Kiang-Koh Lai Lin (Singapore) Nguyen Minh Hiep (Vietnam)
2012	CONSAL XV	Bali, Indonesia	National Heritage: Preservation and Dissemination	Gold Suherman Mli (Indonesia) Silver Aaron Tay Chee Hsien (Singapore) Bui Xuan Duc (Vietnam)
2015	CONSAL XVI	Bangkok, Thailand	ASEAN Aspirations: Libraries for Sustainable Advancement	Gold Dr Chutima Sacchanand (Thailand) Silver Rashidah Begum Fazal Mohamed (Malaysia) Nyuyen Huy Chuong (Vietnam) Tulus Juni (Indonesia) Dr Marilou Tadlip (Philippine) Dr Mohd Sharif Mohd Saad - posthumous (Malaysia)

Year	Edition	Location	Theme	CONSAL Outstanding Librarian Award Recipients
2018	CONSAL XVII	Naypyitaw, Myanmar	Next Generation Libraries: Collaborate and Connect	Gold Mila Medina Ramos (Philippine) Silver Pham The Khang (Vietnam) Dr Chutima Sacchanand (Thailand) Dr Hlaing Hlaing Gyi (Myanmar) Ahmad Syawqi (Indonesia)
2022	CONSAL XVIII	Phnom Penh, Cambodia (Virtual)	Libraries United - Rising to the Challenge	Gold Dr Nor Edzan Che Nasir (Malaysia) Silver Myat Sann Nyein (Myanmar) Suchit Suvaphab (Thailand)

19th CONSAL 2025

Now, in 2025, CONSAL XIX returns to Malaysia and will be hosted from 16 to 19 June 2025 at the World Trade Centre Kuala Lumpur. CONSAL XIX has a special significance since it is the first in-person event since the onset of the COVID-19 pandemic, reaffirming the commitment of Southeast Asian libraries to resilience, recovery, and renewal.

The Conference carries the theme **Inclusive Knowledge: Bridging Divides, Empowering All**, a reflection of the profession's responsibility to expand access, close information gaps, and ensure libraries remain key partners in sustainable and inclusive development. A rich programme of plenary sessions, policy dialogues, workshops, exhibitions, and cultural experiences will offer space for learning, reflection, and collaboration.

To deepen discussions around the theme, CONSAL XIX introduces four key sub-themes:

- **The Changing Roles of Libraries: From Gatekeeping to Empowerment and Fostering Inclusivity in Society -** Libraries are evolving from their traditional roles as gatekeepers of information to active agents of empowerment and inclusivity. This sub-theme will explore how libraries are redefining their roles to support diverse communities and promote social equity.
- **Bridging Divides Through SDGs: Libraries Making the Impossible, Possible** - Libraries play a crucial role in achieving the Sustainable Development Goals (SDGs). This sub-theme will discuss how libraries are bridging various divides by providing access to information and resources that support sustainable development, making seemingly impossible goals attainable.
- **Building Knowledge Ecosystems for the Disabled and Marginalised** - Libraries play an important role in the creation of inclusive knowledge ecosystems that cater to the needs of disabled and marginalised individuals. This sub-theme will highlight innovative practices and strategies that libraries are implementing to ensure no one is left behind.
- **Libraries as Partners: Forging New Synergies in Community Development** - Libraries are essential partners in community development. This sub-theme will explore how libraries are collaborating with other organisations and stakeholders to create synergies that foster community growth and development.

CONSAL XIX will also witness the introduction of the Pecha Kucha Forum. This Forum is a fast- paced platform that provides postgraduate students and LIS researchers an opportunity to share their research and fresh ideas in a visually engaging format, nurturing a new generation of thought leaders in the field.

The CONSAL Outstanding Librarian Award will once again be given to honour librarians whose leadership, innovation, and service have significantly advanced the profession and enriched their communities. The CONSAL Outstanding Librarian Award will recognise three such individuals from the region who will be accorded the Gold, Silver and Bronze Awards.

This year, CONSAL XIX is also proud to introduce the CONSAL Young Librarian Award, which recognises an outstanding young librarian for his/her contributions and efforts to strengthen connections among librarians in member countries. Together, these awards reflect the Congress's commitment to recognising excellence, inspiring leadership, and promoting collaboration across Southeast Asia.

THE CONSAL XIX LOGO

Throughout the years, every host country will put forth a logo symbolising the spirit of CONSAL. The CONSAL XIX logo is a design inspired by Malaysia's national flower, the Bunga Raya or the hibiscus. The ten stigmas of the flower represent the ten ASEAN nations participating in CONSAL, while the petals, shaped like the open pages of books, symbolise Malaysia's commitment and dedication to foster a reading culture for the nation. Different shades of the colour blue and white are used to represent the unity and close cooperation of the ten member countries. Blue and white are also the official colours of CONSAL. The logo was designed by Ms Nor Ezwathy Mohd Bahror from the Department of Information Malaysia.

WELCOME TO CONSAL XIX

As we gather for CONSAL XIX in Kuala Lumpur, we do so with a renewed sense of purpose and connection. This Conference and General Meeting not only offers an opportunity to exchange ideas and celebrate achievements, but also to reaffirm our shared vision for inclusive, resilient, and future- ready libraries across Southeast Asia. May the days ahead be filled with meaningful dialogue, collaborative spirit, and lasting partnerships that will continue to shape the future of librarianship in our region. Welcome to CONSAL XIX.

KEYNOTE SPEAKER



Mr. Pote Narittakurn
Founder and Chairman of iGroup

Mr. Pote Narittakurn is a distinguished entrepreneur and innovator in digital education, library technology, and research solutions. As Chairman of iGroup (Asia Pacific) Ltd., he plays a pivotal role in transforming how institutions, libraries, and researchers access knowledge.

A graduate of the Asian Institute of Technology (AIT) with an M.Eng. in Water Resources Engineering, Mr. Pote Narittakurn has led iGroup to become a global leader in knowledge dissemination, supporting education, research, and digital transformation worldwide. In addition to advancing library technologies and academic content solutions, he is now driving an initiative focused on skills development and employability, ensuring that learners are better prepared for the evolving workforce.

His commitment to lifelong learning and knowledge-sharing is also reflected in initiatives such as the One World Library (OWL), which promotes access to information for all.

Beyond education, he is a renowned entrepreneur in the hospitality industry and is deeply committed to philanthropy, investing in medical clinics and education initiatives to improve access to healthcare and learning.

As a keynote speaker at CONSAL XIX, Mr. Pote Narittakurn will share his vision for libraries as catalysts for change, exploring how AI, institutional repositories, and collaboration can shape the future of knowledge access, skills development, and employability.

With a career defined by innovation, resilience, and a dedication to learning, Mr. Pote Narittakurn continues to drive progress in education, workforce readiness, and library sciences worldwide.

KEYNOTE SPEAKER



Dato' Sri Dr. Haji Irmohizam bin Haji Ibrahim
Group Managing Director,
World Trade Centre Kuala Lumpur & Board Director, World Trade Centers Association.

Dato' Sri Dr. Hj. Irmohizam Ibrahim has been the Group Managing Director of World Trade Centre Kuala Lumpur (WTCKL) since 2019. Driven by passion and dedication, he has marked his name as the first Malaysian to become the Chairman of Conferences & Exhibitions, Member Advisory Council (MAC), World Trade Centers Association (WTCA). In 2020, Dato' Sri joined the Malaysia External Trade Development Corporation (MATRADE) as a member of the Board of Directors. Furthermore, Dato' Sri was the former Board of Directors of Universiti Teknologi MARA (UiTM). In 2023, Dato' Sri became the first Malaysian to be elected as the Board of Director of WTCA.

Dato' Sri received his Doctor of Philosophy (PhD) in Education (Adult & Professional Development) from the National University of Malaysia (UKM) and has a Master's Degree in Law (LLM) from UKM. He graduated from the International Islamic University of Malaysia (IIUM) with a Bachelor of Law (LLB) (Hons.) as well as an Advanced Diploma in Shariah Law and Legal Practice (DSLP). Being a lawyer by profession makes him curious in exploring the chances for other experiences and opportunities in businesses.

He is a proud alumnus of Arshad Ayub Graduate Business School (AAGBS) UiTM Shah Alam with a Master's Degree in Business Administration (MBA). He also graduated from the University of Malaya (UM) with a Master of Public Administration and from the National Defence University of Malaysia (UPNM) with a Master of Science under the Faculty of Defence Studies and Management.

In support of lifelong learning, he embarked on his academic journey in 2023 at Asia e-University to pursue a Doctor of Business Administration degree under APEL Q. He is currently pursuing a Doctor of Philosophy in Defence Management and Administration at UPNM. Notably, he was appointed as the Pro-Chancellor I at Geomatika University of Malaysia (UGM), becoming the youngest individual to hold this prestigious position at UGM. He was also conferred the Professor of Practice Award (Strategic Management) by UGM in 2024.

His contributions to the Business Events (BE) industry are also significant as the Board of Directors of the Malaysian Convention & Exhibition Bureau (MyCEB), and Member of Advisory for the Malaysian Association of Convention & Exhibition Organisers & Suppliers (MACEOS). Dato' Sri was also awarded the Honorary Commander of the Royal Malaysian Navy Volunteers Reserve (PSSTLDM) in 2024.

As a sports enthusiast, Dato' Sri is also the President of the Malaysia Golf Junior Association (MGJA) and Chairman of the Benua Equestrian Stable Universiti Putra Malaysia (UPM). He holds a diving license under the Professional Association of Diving Instructors (PADI).

Dato' Sri is an avid advocate of embracing modernity, new methods and new technologies such as big data. He is also recognizant that every industry needs to remain agile and flexible while creating meaningful and memorable connections. He is also passionate about getting the younger generation active in businesses and promoting life-long learning amongst the younger generation. Dato' Sri fully supports the young generation's hopes and aspirations in rising to become the best version of themselves and making meaningful contributions for the betterment of the nation.

Sub - Theme 1

The Changing Roles of Libraries from Gatekeeping to Empowerment and Fostering Inclusivity in Society

19th CONSAL General Conference and Meeting

16-19 June 2025, Kuala Lumpur

Best Practices: A Showcase of Library Inclusivity and Innovation in Southeast Asia and Around the World

John Hickok

California State University, Fullerton, California

Corresponding email: jhickok@fullerton.edu

ABSTRACT

This paper features a showcase of library best practices in Southeast Asia and around the world. Specifically, innovative practices that feature inclusivity (of all library types: national, academic, public, school). This paper is the culmination of a multi-year study, across three continents, involving hundreds of in-person library visits, documenting library best practices. A criterion for "Best Practices" was established, with a guiding theme of inclusivity: best practices empowering individuals, championing equal opportunity, bridging barriers/divides, and ensuring no users are marginalized or left behind. Over a dozen libraries are showcased in this paper, addressing all of CONSAL XIX's Sub-Themes: Best Practices of: (1)Libraries migrating from gatekeepers to community empowerment (e.g., a Philippine library providing puppet show literacy outreach); (2) Libraries highlighting UN SDGs (e.g., an Indonesian library facilitating community sustainability); (3) Libraries featuring outreach ecosystems for disabled/marginalized (e.g., a US library's outreach and cooperation with Mental Health professionals); (4) Libraries featuring community partnerships (e.g., an Irish library's outreach to support minorities).

Keywords: Best Practices; Library Innovation; Inclusivity; Southeast Asian Libraries; Community Outreach

INTRODUCTION

Across Southeast Asia and worldwide, libraries are doing amazing, innovative things regarding inclusivity. These best practices—found in all library types- namely, national, academic, public, and school—are models for emulation. This paper is the culmination of a multi-year study, across three continents, involving hundreds of in-person library visits, documenting library best practices. A criterion for "Best Practices" was established, with a guiding theme of inclusivity: Best Practices empowering individuals, championing equal opportunity, bridging barriers/divides, and ensuring no users are marginalized or left behind. Over a dozen libraries are showcased, from Southeast Asia, Europe, and the USA. This paper focuses on current and practical real-life examples, drawn from library visits, websites, publications, and news sources. Because of this focus, a traditional Literature Review of past thinking and practices is not appropriate for the nature of this paper. The emphasis is on current Best Practices meeting current needs. All references will be from current sources. Moreover, the emphasis is on practical application. Descriptions will note how readers can implement (or adapt) these practices in their own libraries.

METHODOLOGY

In compiling any list of designated Best Practices, it is important to specify the criteria used to select them. Three criteria were used: (1) *Practices that are innovative*. Here, the author looked for innovative/creative practices meeting a need in a new or different way. For example, a new and inclusive signage campaign to promote Reference services to marginalized users would fit the criteria, whereas merely posting a new "Reference" sign at the desk would not; (2) *Practices that make a notable impact*. Here, the author sought examples of practices that made a notable or real impact in serving their constituencies. For example, an outreach program that attracts and serves new users, who otherwise would not have been reached, would fit the criteria, whereas a typical book display on popular readings would not; (3) *Practices that can be duplicated/adapted*. Here, the author chose practices that had the ability to be easily duplicated or adapted to any library, regardless of budget or circumstances. For example, a "Dogs in the Library" event as a tie-in to mental health support would fit the criteria, whereas a major, million-dollar library renovation would not. Throughout Southeast Asia and the world, there are thousands upon thousands of libraries employing innovative Best Practices but not featured in this paper. This paper is merely a sampling, offered as models, among many others, for emulation.

SOUTHEAST ASIA

National Library: Indonesia

While all national libraries of Southeast Asia are doing amazing activities toward inclusion, the National Library of Indonesia (NLI) is highlighted here. Since 2018, the NLI has been continuing its *Library Transformation Based on Social Inclusion* program, bringing community service activities to over 2,000 public libraries nationwide. These activities have been a bridge between community/cultural activities (for example, sewing/embroidery) and the library, involving the library as a training hub and information center on those activities. Examples of these activities are noted on the IFLA website (IFLA, 2021). See Figure 1 below, of a public library's role in helping embroidery economic opportunity for an Indonesian library user. This reflects how libraries can outreach to a diversity of user groups, adapting to local community interests.



Figure 1: Embroidery support in an Indonesian public library

Academic Library: Malaysia

Academic libraries are sometimes (inaccurately) stereotyped as silent research archives, rather than inviting and engaging learning centers. The University of Malaya Library, for years, has outreached to dispel this stereotype. Since 2008, the library has held annual "Library Open Day" carnivals to reach out to its student population. Its recent Library Open Day, in November 2024, included activities not typically thought of in an academic library: health screenings, foot reflexology, movie screenings, ice cream carts, and more (Figure 2) (UM Library, 2024). While library open houses are not necessarily new or unique, this Best Practice is an innovative model because it promotes the library as an inviting, inclusive place, beyond just books and studying. Such an innovative event can be easily duplicated/adapted by other academic libraries.



Figure 2: UM Library "Open Day" events publicity poster

Public Library: Vietnam

The Children's Library of the Ho Chi Minh City "General Sciences" Public Library for years was a traditional children's library: rows of books with tables and chairs. However, in recent years it has dramatically changed. The library received a grant from the Samsung Corporation to redesign the library as STEM-focused. While the grant provided funds for renovation/furnishings, that is not the focus of this Best Practice; rather, it is the library's new outreach focus on STEM. STEM-related books were re-positioned more prominently. STEM activity workshops were offered, such as geometry puzzles, toy engineering construction, astronomy shows, etc. Partnerships with local primary schools were organized to bring students in (HCMC, 2024). This Best Practice is not dependent on a large funding grant; it can be adapted to a similar STEM outreach using less-expensive measures. STEM books can be made more prominent, activity workshops of geometry shapes or toy engineering can modestly be purchased, simple LED projectors connected to a phone or tablet can shine on the ceiling, and partnerships can be made with schools (Figure 3).



Figure 3: HCMC GSL Children's Library STEM activity center

Public Library: Philippines

While many public libraries feature children's puppet shows as programming to promote reading and literacy, the Quezon City Public Library (QCPL) has taken its puppet outreach to new heights. The library has shown a commitment to both staffing and quality in its puppet programming. Its shows are not only on-site at the library, but on-the-go to schools and remote locations as well. The programs' scripts and messages tie-in to the library's books and literacy efforts, using a variety of high-quality puppet characters (include two life-size, full-body puppet characters) (Quezon City, 2024) (Figure 4). This Best Practice is featured not necessarily because of its funding, but for the passion and commitment of its staff in running a theatrical-quality production. Bravo!



Figure 4: QCPL puppet show outreach

School Library: Thailand

The Samsen Wittayalai public school in Bangkok is famous for its alumni support. Adults often have fond memories of their primary school years, and the school has marketed to that network of alumni to generate financial support, this includes the Library. However, it isn't just obtaining alumni funds that makes this a Best Practice. It is the library's passion to make a colorful environment. While some children's libraries are single color rooms without much appeal, the Samsen Wittayalai library made the library an enchanted wonderland of green and pink murals and cutouts on the walls and ceilings. (Samsen Wittayalai, 2024). The appeal of this is that it can be duplicated or adapted on even modest budgets: simply paint and cut out designs (if not wood, then even cardboard) (Figure 5). This inviting atmosphere is one of welcoming and inclusion.



Figure 5: Samsen Wittayalai Library's colorful mural cutouts

EUROPE

National Library: Denmark

The Royal Danish Library (National Library of Denmark) has published its Strategic Goals, which are a commitment to more open and inclusive space for its citizens and visitors, plus attention to greener, more environmentally friendly initiatives. Over the past years, the library has installed more accessible seating and tables, indoor plants and grass (Figure 6), recycling sorting bins, organic (locally sustained) food in its cafes, and more (Royal Danish Library, 2025). These efforts are showcased here because they do not require big-budget costs. A library can make small changes, one at a time: partner with local growers for sustainable food items in library cafes; work with local gardeners to add greenery; relocate shelving to provide more spacious gathering spaces; and so on.



Figure 6: Added grass, bushes, & trees in the National Library of Denmark

Academic Library: Norway

Volda University is a small university on the western coast of Norway. Its library is a good, medium-size library. It is showcased here for its amazing in-library outreach: library promotion with "baked goods" days! This is the innovative brainchild of the library's director, Mariann Schjeide, former president of the Norway Library Association. On various occasions, she bakes and provides pastries in the library, as a warm and inviting gesture of inclusion for students to visit and use the library's services (Volda, 2024). While students may initially just come for the pastries, they end up gaining awareness of the library and come to adopt it as a "go to" hub—not just for studying/research, but social events, networking, entertainment, and more. This outreach tactic can be duplicated with any types of snacks, on any kind of budget. Mariann and her pastries are shown in Figure 7.



Figure 7: Volda University Library's baked goods outreach

Public Library: Ireland

The Dublin Public Library's Central Library is highlighted here for its outreach to a particular diversity group: Ukrainian refugees. Because of the 2022 Russian-Ukrainian war, over 6 million Ukrainians have fled Ukraine and resettled in Western Europe as refugees. This has included Dublin, Ireland. The Library has been proactive in reaching out to its Ukrainian refugee population, buying Ukrainian books and materials, offering library workshops in Ukrainian, offering acculturation workshops, and more. (DPL, 2024) (Figure 8). These efforts stand as a model example of how other libraries can likewise be proactive in outreach to diversity groups. Such groups can be seniors, disabled, unemployed, at-risk teens, new mothers, indigenous ethnic groups, different religious groups, LGBTQ, etc.



Figure 8: Dublin Public Library's posted outreach publicity for Ukrainian refugees

School Library: Scotland

Various school libraries in Glasgow, Scotland are showcased here for their innovation in tying-in library programs with themed current events, to promote inclusion. For example, during May 2024, in anticipation of the Paris Olympics, the St. Mungo Academy (secondary) Library tied in to the Olympic theme. It organized a library Olympics display of sports books and athlete profiles. Additionally, it sponsored a "yoga sport" event in the library, where a yoga session was held, and "similarities between reading and yoga" were featured (Glasgow School Libraries, 2024) (Figure 9). Similarly, the Holyrood Secondary School Library tied in to May's Earth Day, enlisting students to create an Earth Day library display, hosting art & discussion sessions, and sponsoring a creative writing event (Glasgow School Libraries, 2024). These examples reflect the Best Practice of tying-in library displays and promotions with themed events, transforming the library from "just a room of books" to a welcoming, inclusive event center. This kind of innovation can be duplicated and adapted by any library, for any programming, at any budget. (Note: a robust list of themed days and months for libraries is here: https://www.goodgoodgood.co/articles/library-celebrations)



Figure 9: St. Mungo Secondary School Library's Olympic-themed yoga event

USA

Academic Library: California

The library at California State University Fullerton started a helpful innovation! Outreach Librarian Joy Sage recognized that students had high stress during final exam times. She partnered with a local "therapy dog" nonprofit association (which brings dogs to children's hospitals and nursing homes) to bring the dogs to the library during exam time. The result was amazing. Word spread rapidly, and soon long lines of students formed in the Library's large meeting room where 6-10 different dogs rotated-in as "guest stress-relievers" for students to pet and play with (Figure 10). The event grew to be co-sponsored by the university's Counseling and Psychological Services to promote mental health and stress-coping strategies. This Best Practice was innovative in providing library outreach service "outside the normal box." Student responses were incredibly positive, and it had the dual benefit of providing exam relief and promoting the library's other services. (CSUF, 2023).



Figure 10: California State University Fullerton Library's "Dog Therapy" outreach

Public Library: Florida

Various public libraries surrounding Orlando Florida receive a Best Practices spotlight for their innovative outreach and services. (1) The Orange County Library System (OCLS), with 15 libraries, provides mobile "book bikes" to parks, fairs, and community events. They also connect their library card to many local attractions (museums, zoo, concerts, etc.) as a "culture pass" of free admission! (OCLS, 2024). (2) The OCPL's main library features a technology & creativity center, with a makerspace/sewing/crafts section, an audio and visual recording studio, driving & flight simulators, gaming development stations, and more. (3) The Winter Park Library provides checkouts of more than just books: bicycles, board games, and nostalgia music kits: books/lyrics/QR-codes to retro music for older adults with memory challenges (WPL, 2024). (4) The Osceola County Library system features a useful media "Memory Lab" where visitors can convert old photos/videos/audio to new digital formats (Figure 11). All of these innovations reflect the changing role of libraries from gatekeepers to empowerment and fostering inclusivity in society.



Figure 11: Compilation of several Orlando-area public library outreach innovations

Public Library: California

Public libraries sometimes face the stereotype of being lifeless, boring places. While quiet space for reading is important, sometimes libraries can break the stereotype and sponsor engaging, high-interest events. The Los Angeles Public Library has done that by sponsoring teen band performances in the library! (At designated times, and away from quiet sections, of course). Moreover, in breaking stereotypes, the library also supported *all varieties* of teen bands, such Asian-Pacific bands, all-girl bands, and more. One all-girl hard-rock teen band, participating a few years ago, was "The Linda Lindas." This band was a huge hit, and later went viral on YouTube for breaking the stereotype that hard-rock was male-only (LAPL, 2021) (Figure 12). The Los Angeles Public Library is showcased here for its Best Practice of unconventional outreach programming, welcoming inclusivity of all types, and offering a model for other libraries to duplicate.



Figure 12: Los Angeles Public Library's teen band performances—the "Linda Lindas"

School Library: Missouri

A Best Practice nod goes to the Benton High School Library in St. Joseph, Missouri. The previous School Librarian took the concept of "READ" posters from the American Library Association (posters of celebrities holding their favorite book) and extended it to the school's students. As part of a reading promotion effort, students reading a certain number of books were eligible to pose with their favorite book and appear on a printed poster in the library (Figure 13). Not only did students enjoy this fun, but teachers participated too (Benton, 2024). The promotion was a huge success, with student reading dramatically increasing. The appeal of this Best Practice is its simplicity and duplicability. What a fun incentive for students to be posted! The costs of this incentive were minimal (poster printing only) yet the appeal was enormous. Best of all, it fostered a culture of inclusion, where *all* students were highlighted in the library.



Figure 13: Benton High School Library's "READ" posters

CONCLUSION

The Library profession is well known for being a collaborative field. Libraries and librarians share ideas, borrow effective programs, model successes, and welcome emulation. The sharing of library Best Practices, in particular, has distinct advantages: it spreads quality features and services throughout the profession, benefiting all. This, then, becomes a catalyst for further innovation or improvement. This is especially valuable when considering inclusivity. The spread of library innovations for inclusivity is a win-win for all. Admittedly, there are limitations. All libraries have different conditions, challenges, and needs. What may be effective at one library may not be at another. However, this is where the power of emulation and adaptation comes in. Best practices bring inspiration for creative ways of adapting. A library may not have the same budget or staffing for a particular feature, but can creatively follow the same concept with an adapted equivalent. The Best Practices showcased in this paper are all applicable. Merely reading about them alone will not bring changes; the innovation they inspire is the motivator to action. It is this wave of action that improves libraries, improves inclusion, and improves lives.

REFERENCES

Benton High School Library (2024). *READ posters: teachers*. Flickr: Benton Library Media Center. https://www.flickr.com/photos/bentonlibrary/page2

California State University Fullerton. (2022). *Dog Therapy at Pollak Library May 10-12, 4-6 p.m.* CSUF News. https://news.fullerton.edu/spotlight/dog-therapy-at-pollak-library-may-10-12-4-6-p-m/

Dublin Public Library. (2024). *Central Library*. https://www.facebook.com/CentralLibraryDublin/

Glasgow School Libraries. (May, 2024). *GSL Blog*. https://blogs.glowscotland.org.uk/gc/gccschoollibraries/2024/05/

HCMC General Sciences Library. (2024). *Children's Library*.

https://s-hubkids.thuvientphcm.gov.vn/

IFLA. (2021). Impact Stories of Library Transformation Based On Social Inclusion: A Book Documenting The Stories Of Great People Whose Lives Changed Because Of The Library. https://www.ifla.org/news/impact-stories-of-library-transformation-based-on-social-inclusion-a-book-documenting-the-stories-of-great-people-whose-lives-changed-because-of-the-library/

Orange County Library System. (2024). *Local Wanderer*. https://ocls.info/local-wanderer/

Quezon City Public Library. (2018). *Quezon City Public Library Children's Section*. https://www.facebook.com/QuezonCityPublicLibraryPuppeteers/

Royal Danish Library. (2025). *Climate action at Royal Danish Library*. https://www.kb.dk/en/about-us/climate-action-royal-danish-library

Samsen Wittayalai Public School. (2024). *Library*. https://www.facebook.com/Library.School.Samsenwittayalai

University of Malaya Library. (2024). *Universiti Malaya Library Blog. Our Library: Home of Knowledge Land of Discovery*. https://blogumlib.com/2024/11/29/our-library-home-of-knowledge-land-of-discovery/

Volda University Library. (2024). *Library*. https://www.hivolda.no/en/biblioteket

Winter Park Library. (2024). *Beyond Books*. https://www.winterparklibrary.org/beyond-books

Tegal Harum Village Library Innovation Through the SIPESAT Program

Richard Togaranta Ginting, Luh Gede Mareta Indah Wulandari, Kadek Indriyani Subakti, Gede Rai Hridyananda

Udayana University, Bali, Indonesia

Corresponding email: richardtogaranta@unud.ac.id

ABSTRACT

Village libraries are public libraries that are close to the community. The village library aims to increase literacy, fulfill information needs, become an information center, and become a means of recreation for the community within the village scope. As time goes by, various types of libraries are also developing by creating innovations that will make it easier for users to access information and services in the library. This research uses qualitative methods through interviews and observations, as well as literature study methods by collecting various literature and information relevant to the topic of discussion. This research was created to educate the broader community about inclusiveness-based library innovation through digital applications that make people's lives easier, especially at the Sastra Mahottama Library located in Denpasar, Bali. The strategy carried out by this library was to create the SIPESAT application, which then led to the Sastra Sastra Mahottama Library becoming the only village library in Bali Province to win the National PLM (Peer Learning Meeting) competition for Library Transformation Based on Social Inclusion.

Keywords: Village Library; Inclusivity; Digital Application

INTRODUCTION

A library is an institution responsible for providing and disseminating information. The library provides various information, both printed and digital, through its collections. Libraries are often seen as driving literacy in society to support the progress of the surrounding community. Its presence in the community plays a role in meeting the information needs of the

surrounding community. The existence of libraries is considered necessary not only in related sectors such as education but also in other areas. Their functions and benefits are also crucial for the wider community to experience. So, through this role, libraries are divided into several types. Therefore, to support the community's literacy movement, libraries are expected to be more active in providing information that is relevant to current developments in accordance with what is needed by users.

Libraries have gone through many developments to date. One of the libraries that is currently being discussed is public libraries, especially village libraries. Its presence among the community can significantly impact the progress of community literacy in his village. The quality of an area is determined by how advanced the library it manages is. However, village residents are currently not utilizing many village libraries optimally. The existence of a village library is essential to meet the information needs and as a source of recreation for the people in the village. Its presence is also proof of the progress of civilization in the village it supports. Good collaboration between village libraries and the community can be a precursor to progress and increased literacy in the surrounding community. Apart from collaborating with the community, the use of technology in operating a library is also needed to be able to increase its efficiency and usefulness among the wider community.

Tegal Harum Village is one of the villages located in West Denpasar District, Bali Province. This village has a library as a medium to meet the information needs of its residents. The Tegal Harum Village Library was named the Sastra Mahottama Library. This library was established on September 2, 2021 based on Tegal Harum Village Regulation Number 6 of 2021 concerning the Implementation of Village Libraries. Sastra Mahottama Library Tegal Harum Village is located at Jalan Gunung Cemara No. 306 A Denpasar, precisely at the Tegal Harum Village Perbekel Office. This location indirectly means that the people of Tegal Harum Village can easily find the library when they take care of all forms of population administration at the village office.

Libraries are also required to be pillars of information for society to be able to adapt to current developments. The existence of technology today also makes it easier for village libraries to develop themselves. Technology that is developing rapidly encourages libraries to also make innovations or advances in order to increase their usefulness further. Libraries in this era should be able to collaborate with technology. This is done to streamline the time in providing services to library users. However, it is not uncommon to find conventional libraries that are not able to utilize technology in their library operations. Based on direct observations made

by the author, the Sastra Mahottama Library has a fairly strategic location but is not yet visible enough. For ordinary people who have never visited the village office, they may experience difficulty in finding the location of the library under the auspices of the Tegal Harum Village office. Apart from that, in terms of scale, the number of collections in this library is still relatively small with the layout of the rooms not large enough to accommodate many users who want to use the library. However, these conditions do not rule out the possibility of this library continuing to show its existence in society. This library has also achieved many achievements from the National Library of the Republic of Indonesia. It is quite active in providing services and education to the public regarding the library itself through various innovations it has created, namely the SIPESAT application. The Tegal Harum Village Library is the only village library in Bali that won the award of Best National Library with Best Digital Service Innovation in Indonesia held by the National Library of the Republic of Indonesia in 2023. This brought the Sastra Mahottama Library to its existence as the only village library in Bali Province, which won the best title in Indonesia at the National PLM (Peer Learning Meeting) event for Library Transformation Based on Social Inclusion. Based on the description of the phenomenon above, the author is interested in writing an article with the title "Innovation in the Tegal Harum Village Library, Denpasar City through the Sipesat Program". In fact, the inadequate condition and layout of the library did not dampen their intention to develop the library and increase the literacy of the people of Tegal Harum Village by making many achievements.

RESEARCH QUESTION

This research question posed here is:

How is the Tegal Harum Village Library Innovation in Denpasar progressing through the SIPESAT Program?

LITERATURE REVIEW

To carry out its functions, there are several types of libraries based on the scale of use by their users. Starting from public libraries, special libraries, school libraries, college libraries, to libraries with the widest scope, namely national libraries. The library closest to all levels of society in the area is the public library. Public libraries can be village, district/city, and provincial. Based on Law no. 43 of 2007 defines a public library as a library intended for the wider community as a means of lifelong learning without distinction between age, gender, ethnicity, race, religion and socio-economic status. Public libraries, especially village libraries, are one type of library closest to the community. Its existence is often required to be a driver of literacy in the surrounding community. According to the National Library of the Republic of

Indonesia, a village library is a library owned by the community as a means or media to support and improve educational activities in rural communities. Village libraries manage, store and disseminate information within a rural area, where their presence certainly supports the literacy of the surrounding community. Libraries are not only about storing and processing collections or library materials. Its presence also becomes a driving force for the community in increasing interest in reading, disseminating information, and is important as a place for recreation and fulfilling information needs.

DIGITAL LIBRARY

Until now, libraries have gone through many very rapid developments in improving services to meet the information needs of their users. Libraries are currently one of the pillars in increasing the literacy of the surrounding community. The technology used also provides good benefits for advancing a library. Libraries also adapt to current developments through digital libraries. According to Addin et al. (2024), libraries as information resource centers are required to continue to develop to remain relevant for users. One way to achieve this is by developing collections that are not only limited to printed formats, but are also digitally based. Therefore, libraries continue to innovate in providing information through digital libraries. Digital libraries, also called electronic libraries, provide collections that users can access anytime and anywhere (Wulansari & Karim, 2021). Therefore, it can be said that a digital library is a library where most of the book collections are available in digital format and can be accessed via a computer or laptop. This library is undoubtedly different from conventional libraries, which provide collections of printed books, micro films, cassettes, audio, video, etc. (Luqman, 2024).

RESEARCH METHODS

This article was written using qualitative methods and a literature study. The qualitative method involved direct observation and interviews with related parties. These two methods were used to find answers to the discussion phenomena that occurred. The author also collected various kinds of supporting literature, such as journals and books, that were relevant to the writing topic. This article then produced information in the form of notes and descriptive data in text form, which can be studied further.

TRADITIONAL LIBRARY PARADIGM

A library is an institution responsible for providing and disseminating information. Until now, libraries have undergone rapid development in improving services to meet the information

needs of their users. Libraries currently play a key role in promoting literacy in their communities. Even though there has been much development, society's paradigm of conventional libraries or traditional libraries is still inherent. People think libraries are only places where books or materials are stored.

Conventional libraries are libraries that tend to have print collections. Conventional libraries usually still manage their collections manually. This manual management can take the form of recording member cards that have not been recorded by the system or technology, managing library materials that still use printed catalogs manually, to information retrieval systems that are still done manually. Conventional libraries tend to be considered quite time-consuming in providing services to library users. As time progresses, of course, people's mindset will also experience development. However, it does not rule out the possibility that most people still think of conventional libraries as only storage facilities for library materials. Traditional libraries have the following characteristics: print collections dominate the library's contents, all administration is still recorded and done manually, they do not have a library system or web, and many more. In the current era of modernization, it seems that there are still many conventional libraries that cannot utilize technology in their operations. Some levels of society currently still think that libraries cannot be used as a place to study or have temporary discussions. This is because libraries around them tend not to be able to properly elevate their function and role in society. The idea that libraries are merely 'book warehouses' still seems to be inherent in today's society. So it is not uncommon for libraries to be underutilized as a source of information dissemination by the surrounding community. People in this era tend to be able to get information easily and quickly only through technology, which is now developing rapidly in their midst. The conventional library paradigm in society is still attached to several libraries that are still unable to apply technology in their operations. However, many libraries have begun to realize the importance of using technology to streamline information dissemination and library management. Until now, libraries have appeared as a hybrid, which is the result of a combination of conventional libraries and the use of technology in their operations. Not only in terms of library management, but also innovation from each library user can make the library area as a location for studying, discussing, working.



Figure 1: SIPESAT Digital Library Application

As time goes by, libraries which previously had collections in physical form are now increasingly expanding into digital form. Examples include eBooks, eJournals, eReferences, and many more. Innovation emerged in the form of a digital library. A digital library is a library where all collections and services are carried out digitally. Digital libraries provide collections that can be read anywhere and at any time via users' digital devices. Digital libraries aim to streamline library use so that they can be accessed flexibly and also digital collections can save space in conventional libraries.

Nowadays, the use of technology can help libraries in developing themselves. By utilizing technology, libraries can manage all their activities more easily and structured. Apart from that, providing several additional features such as the library's official website, applications, social media, and many more can certainly increase public awareness of libraries. This can certainly improve the use of libraries for the community or target their users as has been done by the Sastra Mahottama Library, where the library enthusiastically welcomes developments in these times by creating library applications that can be accessed by anyone, anywhere, and at any time. The Sastra Mahottama Library uses technology to make things easier their users in accessing the information they need. Although this library does not yet have a large and adequate building for its activities, based on observations that researchers have made, this library has a relatively high level of use by the people of Tegal Harum Village.

DISCUSSION

The Tegal Harum Village Library in Denpasar City has emerged as a beacon of community-centered innovation through the development and implementation of the SIPESAT Program, an acronym for Sistem Informasi Perpustakaan Serba Terpadu (Integrated Multipurpose Library Information System) (Figure 1). This program signifies a transformative step in aligning the village library's services with digital trends and community empowerment strategies. Based on interviews the author conducted with the head of the Sastra Mahottama Library, Mrs. Gek Kusuma, he explained that one of the requirements that a developing village must have is a library. The history of this library began with the Tegal Harum Village Perbekel which had the desire for its people to become more fond of reading. The idea for this application was also encouraged by the COVID-19 pandemic where the people of Tegal Harum Village were unable to carry out mobility properly. Initially, the library was formed from donations of books/collections by the village community. The Tegal Harum Village Perbekel is aware of technological developments that can increase the community's interest in reading. So, one of the residents of Tegal Harum Village started working on this application. The Sastra Mahottama Library was initially managed by staff from the Tegal Harum Village office, until now it has special staff who manage the library even though they do not have a library education background.



Figure 2: SIPESAT Book Detail

All of Tegal Harum Village staff and the Tegal Harum Village Perbekel have the desire to serve the community and make the community feel that they are there for them in meeting their information needs, and also increasing the literacy of the village community. So with the help of the community who understands about making applications and funding through the Village Revenue and Expenditure Budget (APBDesa), the SIPESAT application was created to facilitate the community in reading library collections anywhere and anytime. This approach to the community is carried out by utilizing the people who are queuing to take care of their administration at the Tegal Harum Village Office. People who are still queuing are directed to wait in the library and are also introduced to the SIPESAT application. This library embraces all levels of society, from children, teenagers, mothers, members of the Family Welfare Empowerment (PKK), to the elderly. This library has many MOUs with many schools and kindergartens that further promote literacy for children. The Tegal Harum Village Office also intensively provides education and promotion regarding the Sastra Mahottama Library through many community activities in the village.



Figure 3: SIPESAT Book List

Before having an application, this library tended not to be very active in providing benefits to the community. This is also influenced by the conditions of the COVID-19 pandemic, where people are still unable to carry out mobility as they should. So the Tegal Harum Village Perbekel wants the community to remain productive and active in obtaining information through the creation of the SIPESAT application. Until now, the library has a collection of around 1,000

books obtained from various sources. This library also has a tangible impact on the community. The effect on society is measured through the productivity of social media and library websites. The impact felt by the library is that its existence is increasingly seen by the broader community so that many outside parties are interested in visiting the library. The SIPESAT application also makes things easier for users in accessing their digital collections (Figures 2 and 3). Even though this application can be accessed anywhere and at any time, this does not indicate that the library has fewer visitors. People feel more curious by visiting the library directly.

CONCLUSION

Tegal Harum Village, like many urban areas, faces challenges in ensuring equal access to information, literacy support, and educational resources for all residents. While still valuable, traditional libraries have limitations in reaching digitally inclined and busy citizens. Recognizing this, the local government and village officials initiated the SIPESAT Program to revitalize the library's role in the digital age. The Tegal Harum Village Library in Denpasar City has emerged as a beacon of community-centered innovation through the development and implementation of the SIPESAT Program, an acronym for *Sistem Informasi Perpustakaan Serba Terpadu* (Integrated Multipurpose Library Information System). This program signifies a transformative step in aligning the village library’s services with digital trends and community empowerment strategies. The SIPESAT Program is a testament to how local libraries can remain relevant by embracing digital transformation while staying grounded in community needs. Tegal Harum Village Library’s innovation offers a replicable model for other villages seeking to empower citizens through inclusive, tech-enabled literacy programs.

ACKNOWLEDGEMENTS

We would like to thank all parties who helped complete this research paper, especially the Institute for Research and Community Service of Udayana University, Tegal Harum Village, Denpasar, Bali. We would also like to thank the committee of CONSAL XIX Malaysia, which gave us the opportunity to present our paper at the prestigious library conference in Southeast Asia.

REFERENCES

Anderson, B. (1990). Language and Power: Exploring Political Cultures in Indonesia. Cornell University Press.

Ginting, R. T., Gelgel, N. M. R. A., & Apriani, K. D. (2021, March). *Balinese Media Habits: Transitional from Conventional to New Media in Information Disruption Era*. In Proceedings of the 4th International Conference on Communication & Business (ICCB 2021).

I Wayan Dibia & Rucina Ballinger. (2004). Balinese Dance, Drama and Music: A Guide to the Performing Arts of Bali. Tuttle Publishing.

Indonesia Ministry of Education and Culture. (2020). *Library Development Strategy in Rural Indonesia*. Local interviews and reports from Bali-based libraries and art institutions.

Nugroho, Y. (2020). *Inovasi Teknologi Informasi di Perpustakaan Modern*. Bandung: Literasi Media Press.

Purwono, U. (2021). *Transformasi Perpustakaan Menuju Era Digital*. Jakarta: Pustaka Digital Nusantara.

Sari, M. A. (2022). *Peran perpustakaan digital dalam inovasi pendidikan di Indonesia*." Jurnal Ilmu Perpustakaan dan Informasi, 15(2), 110-122.

The Provenance of Phya Anuman Rajadhon's Book Collection: Unlocking a Hidden Memory in National Library of Thailand

Thanachcha Suwannavach

National Library of Thailand, Bangkok, Thailand

Corresponding email: Thanachcha.Suwanavach@gmail.com

ABSTRACT

Phya Anuman Rajadhon, a prominent Thai intellectual honored by UNESCO in 1988, significantly influenced Thai cultural policy between 1927 and 1967 through his work. Consequently, his personal book collection, donated to the institution, holds substantial social value, particularly regarding inclusivity. This collection has enabled subsequent generations of researchers to study and generate new knowledge in the field of culture. Provenance within this collection serves as a historical record, offering insights into ownership history and contributing to the preservation of cultural heritage. However, this valuable collection remains inaccessible backlog to stakeholders due to a lack of cataloging. This article presents the findings of a survey conducted on Phya Anuman Rajadhon's personal collection of Thai-language books at the National Library of Thailand. The survey focused on the number of volumes, bibliographic record, provenance, and condition of deterioration. Data collection methods included preliminary interviews and surveys. Key findings indicate the collection comprises 1,226 volumes. Provenance is categorized as: 1) individual ownership; and 2) institutional ownership. The primary form of deterioration observed was insect damage. Future research should examine the English and other foreign language within this collection to assess their research value, verify authenticity, and develop appropriate preservation strategies.

Keywords: Provenance; Backlog; Phya Anuman Rajadhon; Personal Book Collection; Book Donation

INTRODUCTION

The National Library of Thailand **(**NLT**)** is a long-established information service institution with historical roots tracing back to the conceptualization of King Rama V. Presently, it serves as a central repository for the collection, conservation, and preservation of diverse information resources, representing the cultural heritage and intellectual property of the Thai populace, totaling 6,046,228 items (National Library of Thailand, 2023, p. 15).

The considerable volume and diversity of information resources have led the NLT to determine policies and practices for their management, with the aim of preserving and conserving items within its custodianship to ensure their retrievability and effective implementation that fosters the development of new knowledge within society. But sometimes, the law can get in the way of justice, in the same way that the NLT's policies and practices, despite internal discussion and consultation, changing societal values and technology may become obstacles. Consequently, certain collections and information resources may remain inaccessible, effectively constituting hidden gems or backlogs in the institution, such as the situation of Phya Anuman Rajadhon’s personal book collection.

Phya Anuman Rajadhon's personal book collection was acquired through two main methods: gifts or event participation, and personal purchase. These books were integral to his scholarly work, serving as resources for his research, analysis, and writing. Designated as a rare book collection by an NLT appraisal **(**Ministry of Culture. Fine Art Department. National Library of Thailand, 2021**)**, its significance derives primarily from its provenance. It belonged to Phya Anuman Rajadhon, an individual of considerable importance to Thailand and the Fine Arts Department, whose work influenced Thai cultural policy between 1927 and 1967 (Sattayanurak, 2013). His stature is further underscored by his recognition as a UNESCO distinguished figure in 1988 **(**Phonsit, 1988**)**. He had produced academic work in various fields: philology, literature, folklore, anthropology, and history (Nimmanahaeminda, 2009), and his personal library holds substantial cultural and historical value, particularly for enhancing understanding of Thai traditional culture and social dynamics. Furthermore, provenance evidence within the collection, such as marginal notes and ephemeral printed materials, reveals the intellectual foundations of his work, contributes to preserving Thai culture and folklore, and illustrates a valuable scholarly process. Moreover, the collection intrinsically holds aspects of his memory and scholarly journey.

The NLT has received both the personal book collection and the personal belongings of Phya Anuman Rajadhon to establish a memorial library, named "Anuman Rajadhon Library."

Currently, his personal book collection is not accessible to stakeholders through the NLT's single search system, and the precise number of volumes and a comprehensive list of titles within this collection remain undetermined. Additionally, the deteriorating condition of the books poses significant challenges. It should be noted, however, that the collection was not inaccessible from the outset. Prior to the introduction of modern information technology, Phya Anuman Rajadhon's personal book collection remained accessible through traditional means such as physical card catalogs. A key limitation, though, was that the card catalog records were apparently never updated to reflect subsequent changes in the collection's holdings. As a result of these issues, the NLT recognizes the need to shift from its traditional 'Gatekeeper' role, primarily focused on custodianship and controlling access to information resources, or the stereotype that society imposes on the NLT, to one that fosters the creation of new knowledge and supports stakeholders in data and information retrieval.

To address these issues, this research involved a survey conducted on Phya Anuman Rajadhon's personal collection of Thai-language books at the NLT. The survey focused on the number of volumes, bibliographic records, provenance, and condition of deterioration. The findings from this research will be applied to prioritize budget allocations, guide physical conservation efforts using scientific methodologies, and inform digitization strategies. Furthermore, data from this research will be used to assess the feasibility of establishing a Personal Digital Collection within the NLT's digital repository.

OBJECTIVES

The objective of this research is to survey the rare books within the personal collection of Phya Anuman Rajadhon housed at the National Library of Thailand. The focus is on the number of volumes, bibliographic records, provenance, and condition of deterioration.

SCOPE

Phya Anuman Rajadhon's rare book collection relevant to this study is housed across eight bookcases within the NLT, comprising three bookcases with Thai-language materials and five with English-language materials. Primarily due to the researcher's proficiency in Thai, the decision was made to initiate the survey process by focusing on the three Thai-language bookcases first. This initial phase also serves to establish a foundation and operational framework for the subsequent survey of the foreign-language materials.

Therefore, the scope of the survey reported here specifically encompassed these three Thai-language bookcases, which are arranged according to the Dewey Decimal Classification (DDC) system. Within these bookcases, a comprehensive, item-level survey was conducted, examining every rare book identified as part of Phya Anuman Rajadhon's personal collection that contained Thai-language content.

METHODOLOGY

Research Design

This survey research involved preliminary semi-structured interviews. These interviews served an initial exploratory purpose: to gain an overview of information related to Phya Anuman Rajadhon's personal book collection and to inform the main collection survey design. Following this, the survey procedure itself consisted of two main phases: a pilot survey and a full survey. The overarching research aimed to answer specific questions regarding the surveyed collection's total volume count, the prevalent types of physical deterioration, and the extent and nature of its provenance evidence.

Data Collection Instruments

Two primary instruments were developed and utilized:

1. Preliminary Interview Guide: Informed by an initial literature review that revealed limited published information on the collection's internal management, a semi-structured interview guide (see Appendix A) was created to gather essential background and contextual information from key the NLT personnel.

2. Collection Survey Tool**:** An item-level survey instrument, formatted as a Microsoft Excel spreadsheet, was designed to systematically record data on volume count, bibliographic record details (as applicable for cataloging status), provenance, and physical condition characteristics. The tool's initial development was based on a review of literature concerning the surveying of special collections and rare books, drawing especially on methodologies outlined by Teper and Erekson (2006). It was subsequently refined following a pilot survey phase. The finalized instrument's validity and suitability were then confirmed through review by three Library and Information Science experts, who assessed its clarity, the comprehensiveness of the data points (particularly for capturing bibliographic details, provenance, and physical condition characteristics), and the relevance of the survey categories used.

Participants (Preliminary Interviews)

Preliminary semi-structured interviews were conducted with four NLT librarians, comprising both past and present staff members. Participants were selected based on their past or present association with the relevant service room, officially named “Books about Thailand, Royal Thai Government Gazette, and International Books” (BKTH), into which the Anuman Rajadhon Library collection was integrated.

Research Questions

1. What is the total number of volumes in Phya Anuman Rajadhon's Thai-language personal book collection?
2. What are the main types of damage or deterioration found in the collection?
3. How many volumes of the collection show evidence of provenance (such as owner’s signature and inscriptions), and what are the characteristics of this evidence?

Data Collection Procedures

The data collection spans from June 2023 to May 2024. The initial phase started with a review of literature related to the survey and assessment of special collections, with a specific focus on Phya Anuman Rajadhon (including his biography, writings, and concepts regarding culture) and the Anuman Rajadhon Library itself. However, finding that existing literature, journals, and books contained limited information about his personal library, and particularly lacked details concerning its internal management, the researcher formulated questions for preliminary semi-structured interviews. These interviews were conducted with four librarians working within the NLT. The interviews were conducted in person; audio recordings were captured with participant consent, and the researcher took memo notes during the sessions. This preliminary data collection stage occurred between August and September 2023.

Data for the survey of Phya Anuman Rajadhon's personal book collection were documented using a Microsoft Excel spreadsheet. The survey methodology comprised two phases. Phase one involved a pilot survey focusing on a single Thai-language bookcase. After the refinement and finalization of the survey tool resulting from the pilot, the full survey was initiated. To ensure data consistency between the stages, the bookcase used in the pilot survey was re-surveyed during the full survey process. During the survey process, while data was being entered into Excel spreadsheets, bibliographic cataloging was also performed concurrently within the Aleph integrated library system (ILS)**.**

Data Analysis

Data derived from the collection survey (Excel spreadsheet and Aleph ILS records) were analyzed using descriptive statistics, primarily frequencies and percentages, to summarize the collection's characteristics regarding volume count, cataloging methods, subject distribution (DDC), publication dates, physical condition issues, provenance evidence, and prior treatments.

RESULTS

This section focuses on study findings in three areas: cataloging practices, provenance, and physical condition.

Cataloging Practices

The procedures for inputting bibliographic records and other survey information (such as physical condition and provenance details) for the rare books in Phya Anuman Rajadhon's personal collection were performed at the same time. The researcher simultaneously documented the general survey data into Microsoft Excel spreadsheets while performing bibliographic cataloging directly within the Aleph integrated library system (ILS), the NLT's current platform. Reflecting this parallel process, the following discussion is organized into subsections detailing the 'Aleph ILS Data Entry Procedures' and the resulting 'Bibliographic Records' handled.

Aleph ILS Data Entry Procedures

The survey identified a total of 1,226 volumes within the three Thai-language bookcases of Phya Anuman Rajadhon's personal collection. Analysis of the bibliographic record entry methods employed in the Aleph integrated library system (ILS), revealed the following: the majority (1,011 volumes, 82.46%) were cataloged by adding item records to existing bibliographic records, while the remaining 215 volumes (17.54%) required the creation of new bibliographic records (Table 1).

Table 1: Aleph ILS data entry methods

Data Entry Methods	Number of Volumes	Percent (%)
Catalog	215	17.54
Add item	1,011	82.46
Total	1,226	100.00

Bibliographic Records

This subsection intentionally excluded analysis of certain specific book details, including call numbers, author names, titles, place of publication, number of pages (pagination), and edition statements. This decision was made for two primary reasons. Firstly, these details were not directly relevant to the focus of analysis in this study (such as physical condition and provenance). Secondly, preliminary checks revealed apparent inaccuracies in some of the existing data within the library records, particularly concerning edition information. For example, standard cataloging practice often omits the edition statement for first editions; however, this study found that edition information was also missing in the Aleph ILS database for several volumes identified as second editions, where it would normally be expected.

Scope of Content

Subject analysis using the Dewey Decimal Classification (DDC) found the predominant category to be DDC 290 (Comparative Religion and Other Religions), comprising 251 volumes (20.47%). Other significant categories included DDC 890 (Other Literatures) with 184 volumes (15.01%), DDC 950 (History of Asia) with 144 volumes (11.75%), and DDC 390 (Customs, etiquette, folklore) with 123 volumes (approx. 10.03%).

Publishero Printer

Analysis of publisher or printer information revealed that the rare books in this collection were produced by a total of 236 different entities. The most frequently identified printer was Sophon Phiphatthanakon Printer, accounting for 291 volumes (23.74%). This was followed by Phra Chan Printer (136 volumes, 11.09%) and Rongphim Thai (58 volumes, 4.73%). Notably, 73 volumes (5.95%) lacked recorded publisher or printer information.

Publication Year Range

Analysis of the publication dates for the rare books in Phya Anuman Rajadhon's personal collection revealed that the most frequent period of publication was 1957-1966, accounting for 296 volumes (24.14%). The next most common period was 1917-1926, with 262 volumes (21.37%). The least represented decades found were 1858-1867, 1877-1886, and 1937-1946, each containing only one volume (0.08%). Furthermore, 38 volumes (3.10%) lacked a recorded publication year.

Pagination Range

Analysis of pagination revealed that the largest category among the surveyed rare books consisted of volumes with more than 100 pages, numbering 581 volumes (47.39%). The next most frequent range was 26-50 pages, accounting for 216 volumes (17.62%). The least frequent group explicitly mentioned in this breakdown was the 1-25 pages range, totaling 98 volumes (7.99%).

Illustrations Within Books

The survey of illustrations within the volumes revealed that the largest category among the rare books in this collection consisted of those with no illustrations, totaling 521 volumes (42.49%). Following this, 512 volumes (41.76%) contained portraits, while the remaining 193 volumes (15.75%) featured content-related illustrations.

Book Size (Height)

Analysis of book size in this collection, based specifically on height measured in centimeters, revealed that the most frequent height was 23 cm, represented by 324 volumes (26.43%). The next most common height was 24 cm, accounting for 227 volumes (18.52%). The least frequent height observed in the survey was 13 cm, found in only a single volume (0.08%).

Provenance

This section details the findings concerning evidence of provenance identified during the survey. The aspects covered include general indicators of ownership, the use of the specific 'Anuman Rajadhon Library' rubber stamp, and the characteristics of other seals or stamps observed, with further details provided below.

Individual Ownership

The survey revealed that the most frequent type of ownership evidence within the rare book collection consisted of copies inscribed or signed by the original owner, Phya Anuman Rajadhon, accounting for 102 volumes (8.32%). Characteristically, this evidence appeared as handwritten signatures using various forms of his name and title, such as 'Khun Anuman Rajadhon,' 'Luang Anuman,' 'Phra Anuman,' 'Phraya Anuman Rajadhon,' or 'Anuman.' These signatures were typically located on the cover or other easily observable areas of the book. The varying forms of signature reflect the periods during which Phya Anuman Rajadhon held different royally conferred titles/ranks, spanning from 1911 to 1949.

The next category of ownership evidence encompassed books containing various inscriptions or annotations made by the original owner, Phya Anuman Rajadhon himself. This type of evidence was found in 56 volumes (4.57%). It includes instances where he inscribed a book as a gift to another person, made notes indicating from whom he received a particular volume, corrected or added to the text, or recorded his own opinions and commentary within the book (i.e., annotations or marginalia).

An additional category of ownership evidence involves books presented as gifts to Phya Anuman Rajadhon, typically inscribed by the donors (often students or close associates). These donors may or may not have been the authors of the books they presented. This type of inscription, documenting the reception of the volume by Phya Anuman Rajadhon, was found in 36 volumes (2.94%).

The final category of ownership evidence identified consisted of rare books containing inserted or interleaved documents, such as manuscript materials (including draft letters, draft speeches, novel outlines, or play outlines) or ephemera (short-lived printed items). This category represented 17 volumes (1.39%). The survey further identified the specific types of items found inserted or interleaved within these volumes, which included: 5 business cards, 3 flyers (or leaflets), 1 book purchase receipt, 6 postcards, and 2 letters.

The survey found that most volumes lacked any evidence of individual ownership, totaling 1,030 books (84.01%). This number significantly exceeds the 196 volumes that did exhibit such evidence. Among the volumes with provenance marks, 15 displayed more than one type of ownership indicator. Further details are presented in Table 2.

Table 2: Types of individual ownership

Individual Ownership	Number of Volumes	Percent (%)
Inscribed / signed by the author or original owner	102	8.32
Author's inscription as a gift to close associates or libraries (including signature, date)	36	2.94
Owner's inscriptions (gifts given/received), corrections/additions, or personal annotations/commentary within the volume	56	4.57

Containing inserted or interleaved manuscript drafts (letters, speeches, outlines) or ephemera	17	1.39
No evidence of individual ownership found	1,030	84.01
Total Volumes with Any Evidence	196	15.99

Note: Categories are not exclusive (One volume can display multiple types of individual ownership evidence)

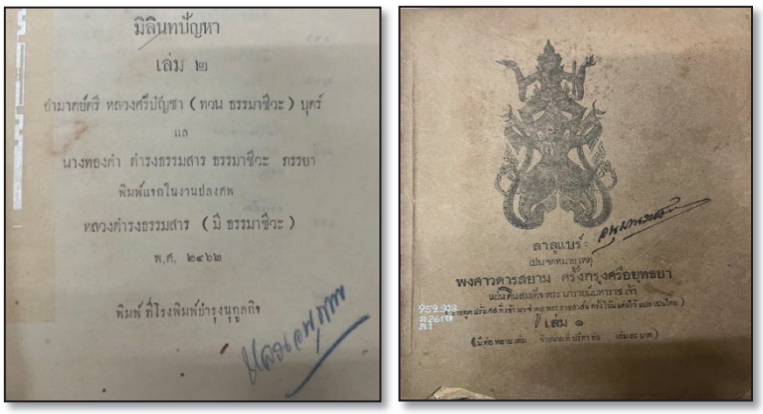


Figure 1: Inscribed / signed by original owner

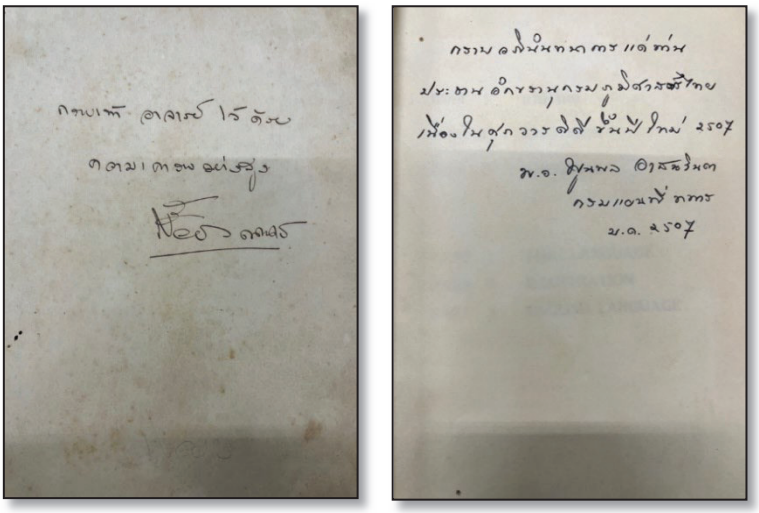


Figure 2: Books inscribed by the original author/owner as gifts to others

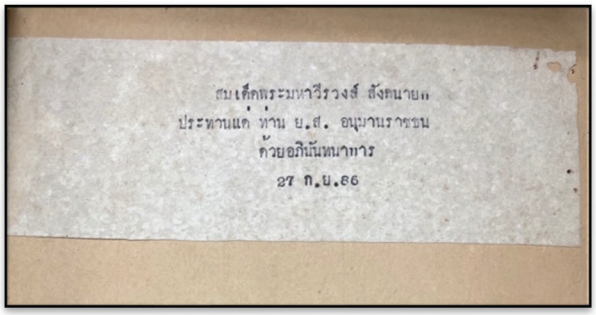


Figure 3: Books printed by the original owner as gifts to others

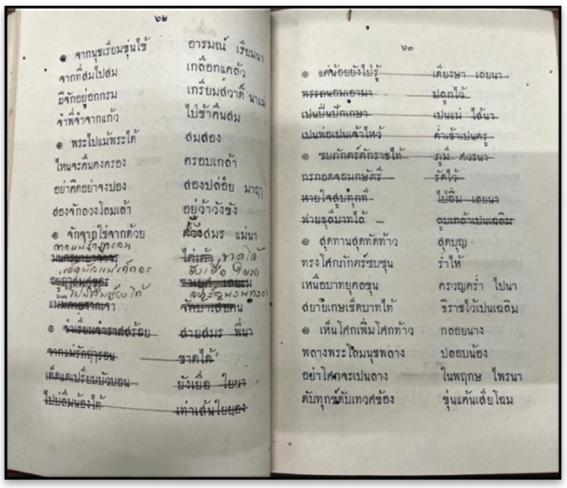


Figure 4: Additions, or personal annotations

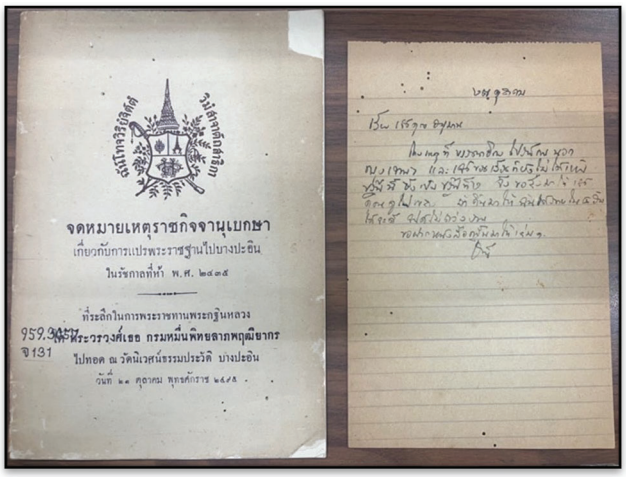


Figure 5: Personal annotations or marginalia

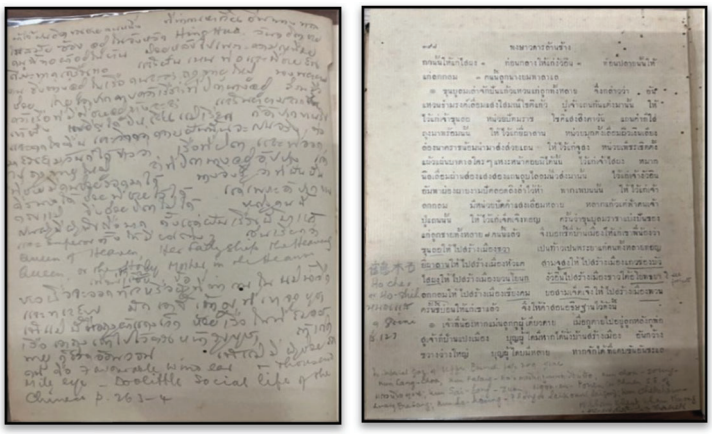


Figure 6: Containing inserted or interleaved letters

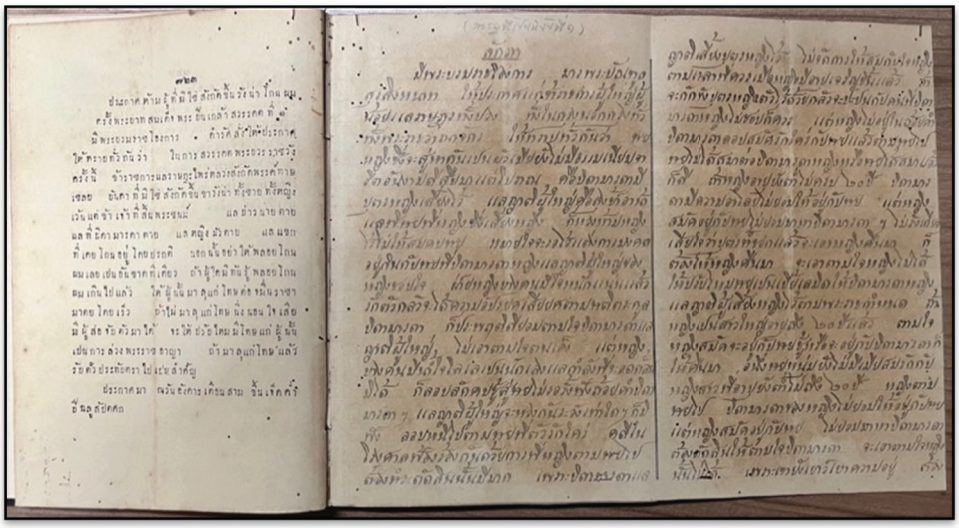


Figure 7: Books containing inserted or interleaved ephemera

Institutional Ownership (**Personal Library Stamp**)

Analysis of the "Anuman Rajadhon Library" institutional ownership stamp identified 1,917 stamp instances, often with multiple impressions per book. The back pastedown endpaper was the predominant location (1,106 instances, 54.94%), followed by the front pastedown endpaper (312 instances, 15.50%). While a few other locations received single stamps, interviews indicated page 49 was consistently unstamped. Notably, 96 volumes (4.77%) lacked any 'Anuman Rajadhon Library' stamp markings. Further details are presented in Table 3.

Table 3: Location and frequency of "Anuman Rajadhon Library" stamp instances found

Stamp Location	Number of Instances	Percent (%)
Front Cover	12	0.6
Back Pastedown Endpaper / Inside Back Cover	1,106	54.94
Front Pastedown Endpaper / Inside Front Cover	312	15.5
Preface Page	26	1.29
Table of Contents Page	9	0.45
Specific Page (page 29)	211	10.48
Other Specific Internal Pages (pp. 2, 3, 17, 40, 49, 83, 124)	10	0.5
Top edge of the final page	215	10.68
Bottom edge of the final page	15	0.75
Book Edge (Text block edge)	1	0.05
Specific Page (Page 49)	-	0
Total Instances Accounted For	1,917	95.23

Note: Data represents the location of 1,917 stamp instances identified across 1,130 volumes (out of 1,226 surveyed). Categories are not exclusive (A single volume may have the 'Anuman Rajadhon Library' stamp in more than one location.)

Characteristics of The Stamps

Analysis of the characteristics of the "Anuman Rajadhon Library" stamp impressions on the rare books in this collection (Table 3) revealed variations in the types of stamps applied. It was found that the predominant type was a stamp requiring completion (e.g., with space for dates or other data), appearing on 819 volumes (66.80%). The next largest group consisted of volumes stamped with both this fill-in type and a simpler ownership-only type stamp, numbering 301 volumes (24.55%). The final category comprised volumes bearing only the simpler ownership-type stamp, found on just 10 volumes (0.82%). Additionally, 96 volumes (7.83%) bore no "Anuman Rajadhon Library" stamp impressions. These details are presented in Table 4.

Table 4 Type of "Anuman Rajadhon Library" stamp impression

Type of Stamp Impression Found	Number of Volumes	Percent (%)
Ownership-Only Type Stamp	10	0.82
Fill-in Type Stamp (Requiring data entry)	819	66.80
Both Types of Stamps Present	301	24.55
No Stamp Found	96	7.83
Total	1,226	100.00

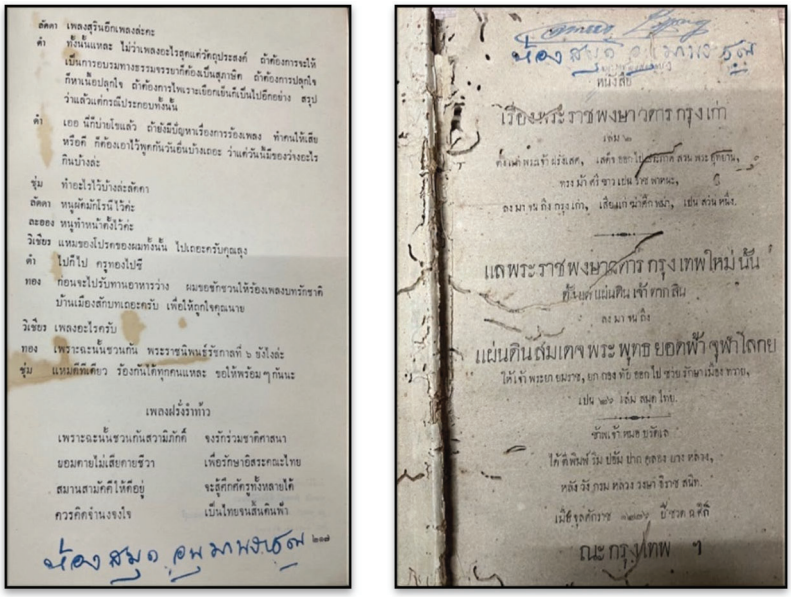


Figure 8: Fill-in Type Stamp (Requiring data entry)

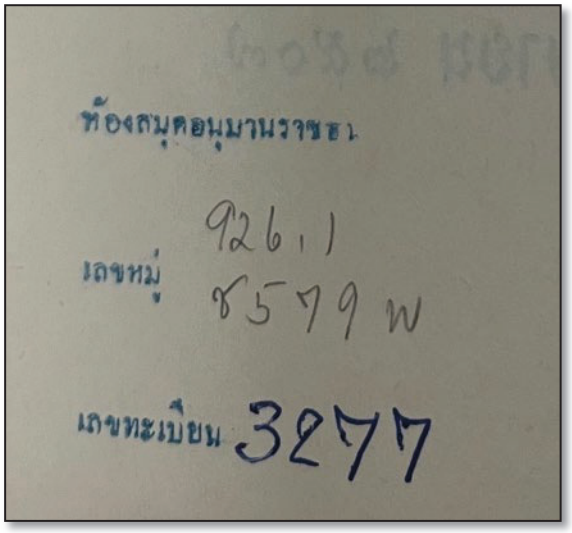


Figure 9: Ownership-Only Type Stamp

Physical Condition

Characteristics of Deterioration

Physical condition analysis of the Phya Anuman Rajadhon rare book collection revealed widespread deterioration, with only a single volume (Pakinnaka, 1967) found entirely free from damage (0.08%). Individual volumes often exhibited multiple types of damage concurrently, meaning the condition categories overlap. The most prevalent issues identified were animal or insect damage (67.37%), yellowed and brittle paper (56.28%), deteriorated spines (47.47%), and loose joints/hinges (42.25%). Structural problems, particularly deteriorated spines and loose joints were frequently linked to the collection's predominant thread-sewn binding structures, where thread decay likely contributed to weakening. Detailed findings are presented in Table 5.

Table 5: Characteristics of deterioration

Characteristics of deterioration	Details	Number of Volumes	Percent (%)
Paper Deterioration			
	Yellowed & Brittle Paper	690	56.28
	Yellowed Paper (Only)	502	40.95
	Stains or Soiling	294	24
Structural Damage			
	Deteriorated Spine	582	47.47
	Loose Joints / Hinges	518	42.25
	Damaged Cover	442	36.05
Biological Damage			
	Insect or Animal Damage	826	67.37
	Mold Damage	34	2.77
Page Damage			
	Torn Pages (Partial, detached, or throughout volume)	220	17.94
	Missing Pages	36	2.94
Text Damage			
	Faded Text	25	2.04
Other Conditions			
	Previously Repaired / Conserved	4	0.33
	Undamaged	1	0.08

Note: Categories are not exclusive. A single volume can exhibit multiple characteristics of deterioration.

Previous Treatments

Assessment of previous treatments revealed that a majority of the surveyed volumes (727 books, 59.30%) showed no evidence of previous treatments. Among those displaying signs of prior care, the most common measure was placement in plastic sleeves (444 volumes, 36.22%). Less frequent were instances of rebinding performed by the NLT Preservation Section, occurring both with the 'Anuman Rajadhon Library' stamp applied (5 volumes, 0.41%) and without it (41 volumes, 3.34%). These findings are detailed in Table 6.

Table 6: Previous Treatments

Evidence of Previous Treatments	Number of Volumes	Percent (%)
Housed in plastic sleeves	444	36.22
Rebinding/Binding by the NLT Preservation Section	41	3.34
Rebinding by the NLT & Stamped "Anuman Rajadhon Library"	5	0.41
Paper repair using adhesive tape	-	0
Digitized	-	0
Spine repair	-	0
No Evidence of previous treatment	727	59.30
Improper / inappropriate repairs	9	0.73
Total	1,226	100.00

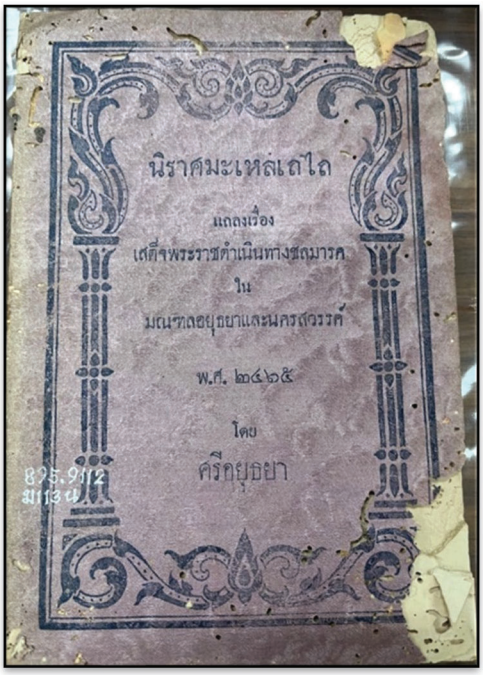


Figure 10: Inappropriate repairs



Figure 11: Insect or animal damage

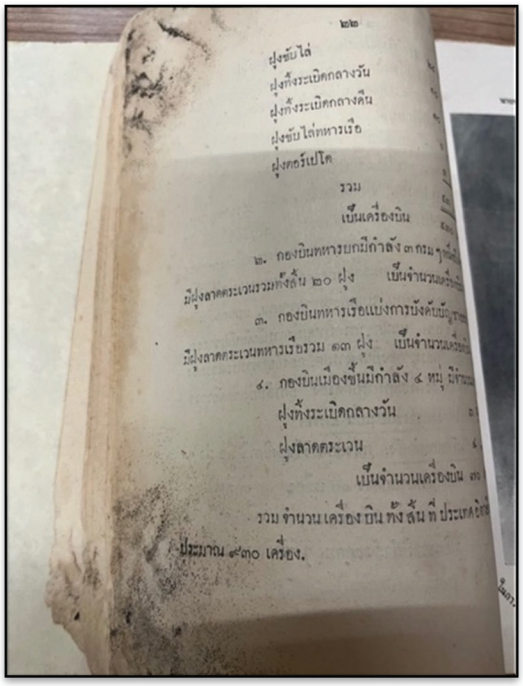


Figure 12: Mold damage

DISCUSSION

The significant points revealed by the survey are subsequently discussed below:

Cataloging Practices

Cataloging analysis revealed the surveyed rare books in the Phya Anuman Rajadhon collection were largely uninventoried and uncataloged within the current Aleph ILS. Although physically shelved according to DDC, their bibliographic representation existed primarily on physical catalog cards, making the volumes undiscoverable through the NLT's online search systems. Furthermore, these materials have reportedly not been accessed or utilized since the NLT renovated its facilities and updated its service models beginning in 2017 (Fine Arts Department, 2018, p. 58-60).

The survey specifically identified 215 volumes lacking any corresponding bibliographic record in Aleph. The remaining 1,011 volumes had existing bibliographic records but required the creation or linking of holdings records (which primarily reflect the item's location) and item records (which reflect information about each specific copy, such as barcode) to enable discovery and access to the NLT's specific copies. While this survey counted 1,226 volumes, an earlier estimate by Baleeket (2002) suggested approximately 3,000 Thai-language rare books were in the Anuman Rajadhon Library. However, that study specified this was only an estimate

and did not differentiate between books from Phya Anuman Rajadhon's personal collection and his own published works.

The finding that Phya Anuman Rajadhon's rare book collection predominantly comprises publications from prior to 2000 (peaking 1957-1966) offers a key reason why these materials largely lack searchable online catalog entries. This situation reflects documented challenges in providing timely online access for extensive legacy collections elsewhere, including the British Library's Southeast Asia **(**Thailand, Laos and Cambodia**)** materials (White & Choemprayong, 2021) and a cataloging project for the Mountaineering collection at the University of Colorado Boulder **(**Lundy, 2008**)**, both of which initially lacked online accessibility. These cases highlight the broader difficulties encountered during the transition from manual card catalogs to automated library systems. Retrospectively converting older collections proved far more complex and resource-intensive than implementing systems for current materials.

Beyond technological transition challenges, another key factor contributing to the backlog status and incomplete documentation for collections like Phya Anuman Rajadhon's is the inconsistent application of standards for recording provenance information within special collections. Although bibliographic formats like MARC **(**MAchine-Readable Cataloging**)** offer fields such as field 561 for ownership and custodial history, library implementation varies widely; research previously indicated only about 33**%** of libraries maintained dedicated provenance files for such materials (Overmier & Doak, 1996). The NLT's local cataloging practices appear comparable, resulting in crucial evidence regarding former owners often remaining undocumented or undiscoverable within the online Aleph ILS, thus limiting access to this vital contextual information for stakeholders.

Provenance

Provenance evidence within the Phya Anuman Rajadhon collection primarily displayed signs of either individual or institutional ownership. Evidence of individual ownership manifested in various forms, including owner/author signatures, gift inscriptions, annotations, and inserted materials (such as manuscript drafts or ephemera) generally aligning with categories described by Tikhara (1984). Institutional ownership was primarily evident through two forms of personal library rubber stamps: a simple ownership mark and a fill-in type requiring completion.

Furthermore, the provenance evidence identified within this collection offers significant insights into various aspects of Phya Anuman Rajadhon's life and work. Notably, variations in

his signature reflect his progression through different royally bestowed titles and ranks, documenting stages of his career in government service. In addition, associated materials, such as correspondence or signatures from contemporaries found with the volumes, can provide evidence of his personal life and social network for historical research. Finally, Phya Anuman Rajadhon's own annotations and marginalia provide valuable information regarding copy-specific provenance and cultural context, while also documenting his specific intellectual interests for researchers.

However, the survey findings underscore significant challenges in definitively authenticating provenance for all items (both individual and institutional ownership types). Some discovered evidence consists merely of underlining or symbols that cannot be attributed to a specific owner. Furthermore, the Library's institutional stamp (specifically the fill-in type) was also found applied to rare books within the collection definitively identified as not belonging to Phya Anuman Rajadhon. Examples of such misapplied institutional stamps include those found on 24 volumes published after Phya Anuman Rajadhon's death in July 1969 **(**Keyes et al., 1973**)**. Additionally, other volumes integrated into the collection clearly originated elsewhere, such as a book published in 1971 inscribed by its author to Sulak Sivaraksa, a disciple of Phya Anuman Rajadhon.

These authentication difficulties are compounded by the current lack of institutional policy at the NLT for managing such discrepancies or for deaccessioning unrelated materials that have become intermingled with the core collection over time. This policy gap not only hinders efforts to refine the collection's scope and ensure its integrity but also presents obstacles to clarifying the true extent and nature of Phya Anuman Rajadhon's personal library. Addressing both the verification of provenance evidence and the development of clear collection management policies are crucial steps for the NLT moving forward.

Physical Condition

The NLT's building, constructed in 1966 **(**Fine Arts Department, 2018**)**, possesses certain physical limitations due to its age, despite subsequent modernizations to its image and services. This is particularly relevant regarding materials used for interior fittings and book storage. The Anuman Rajadhon Library, housed within the BKTH Service Room, utilizes wooden cabinets for storing the Phya Anuman Rajadhon personal book collection. These storage conditions likely contribute to the finding that evidence of animal or insect damage was the most frequently encountered type of deterioration, observed in 826 volumes. This aligns with observations that the wooden cabinets apparently lacked preventive treatment (such as

insect-repellent application) and were not subject to regular cleaning schedules, contrary to best practices recommended by Jarusawat (2009) for preventing damage to rare books stored in wooden shelving or cabinets.

The characteristics of the insect damage observed in this collection often included paper being torn either partially or throughout the volume due to gnawing, and the presence of small holes progressing to extensive tunnel-like bores within the text block. This activity, particularly when concentrated near the book's spine, appears correlated with the high incidence of loose joints between the cover and text block previously noted. It is also considered a contributing factor to other page damage, such as tears where the leaf remains attached to the text block, and even text loss in some volumes where the paper itself was consumed by insects. These observed damage patterns including holes in covers, paper loss or tearing from gnawing, staining from insect or rodent droppings, ingrained mold stains, and musty odors are consistent with deterioration caused by common library pests such as bookworms and silverfish, as documented in the literature by Srisomboon (2018).

Paper yellowing and embrittlement was the second major type of damage that found in the survey. This included 690 volumes with paper that was both yellowed and brittle, and another 502 volumes with paper that was significantly yellowed but not yet severely brittle. It is important to note that these condition categories are not mutually exclusive, as individual volumes often exhibited multiple types of damage concurrently. Therefore, the counts for different deterioration types cannot be simply added together to equal the total number of surveyed volumes.

These conditions are likely primarily attributable to the historical storage environment and the previous methods used to care for the books before this survey. Phya Anuman Rajadhon's personal collection was housed in the Anuman Rajadhon Library, established in 1969. This room lacked necessary environmental controls to regulate temperature, light, heat, and humidity. Such unstable conditions are known to significantly contribute to paper yellowing and eventually make the paper brittle. Furthermore, a previous treatment involved wrapping books in ordinary plastic, presumably to prevent loose fragments from getting lost; however, this probably worsened the paper's acidity over time. These observations are consistent with conservation knowledge. Srisomboon (2018) reported that light and heat speed up paper yellowing and embrittlement and also encourage insect and mold growth. Additionally, poor air quality control in the building likely allowed airborne pollutants to enter. These pollutants include particles (like dust, insect eggs, mold spores, fibers) and harmful gases (such as Sulphur

Dioxide). These pollutants damage books in various ways: for example, soot causes stubborn dirt stains, mold leads to stains and musty odors, and polluting gases can react with humidity to form acids that chemically break down paper, making it brittle and weak.\\This situation highlights the standard conservation principle that rare books should be stored in chemically stable, acid-free enclosures, such as polyethylene (PE) plastic or acid-free paper. This recommended practice contrasts with the potentially damaging effects of the ordinary plastic used previously on this collection. The findings regarding specific damage types are presented in Table 5.

Findings in Relation to Research Questions

The research findings indicate that the surveyed portion of Phya Anuman Rajadhon's Thai-language personal book collection comprises 1,226 volumes. Regarding the entry methods for incorporating these into the Aleph ILS, 215 volumes required the creation of new bibliographic records. The predominant subject category identified within the collection was DDC 294 (Buddhism). The majority of these rare books exhibit deterioration and damage, primarily caused by animal and insect activity. Furthermore, the analysis of provenance evidence identified two main categories: indications of individual ownership were present on 196 volumes, while evidence of institutional ownership (library stamps) was found on 1,130 volumes.

CONCLUSION AND RECOMMENDATIONS

This study successfully conducted an essential survey of the previously inaccessible Thai-language portion of the Phya Anuman Rajadhon's rare book collection housed at the NLT, establishing initial data for 1,226 volumes. The findings confirmed the collection's "hidden" status within the NLT's current systems; although physically shelved by DDC, the materials lacked searchable online catalog entries, primarily residing on physical cards, with 215 volumes having no record in the Aleph ILS at all. The research revealed a heterogeneous collection containing not only items related to Phya Anuman Rajadhon's life and work but also unrelated materials, necessitating the proposed four-category classification based on provenance: 1) Books written or translated by Phya Anuman Rajadhon; 2) Books collected by Phya Anuman Rajadhon (authored by others); 3) Books received as donations from individuals close to Phya Anuman Rajadhon; and 4) Books unrelated to Phya Anuman Rajadhon or obscure owners, potentially representing later donations by unrelated individuals or items intermingled from other library collections. While providing rich insights into Phya Anuman Rajadhon's career, relationships, and intellectual interests, the provenance evidence also presented significant authentication challenges. Critically, the survey documented widespread physical deterioration across nearly all volumes, primarily attributed to historical storage in inadequate

environmental conditions and previous treatment practices inconsistent with conservation principles.

The results underscore the urgent need for the NLT to address this significant special collection, which holds substantial cultural and historical value but remains largely inaccessible and physically vulnerable. The challenges identified range from cataloging backlogs and provenance complexities (including authenticity questions and intermingled items) to severe physical condition issues. Highlight the difficulties common to managing large legacy personal collections within national institutions, particularly those transitioning between physical card catalog and integrated library systems. This situation reinforces the necessity for the NLT's recognized shift from a traditional gatekeeper role towards actively facilitating access and knowledge creation, which requires addressing such hidden collections.

Moreover, librarians are no longer just paper-keepers, but rather people whom society commissions to gather and preserve information **(**O'Toole, 2001**)**. Based on these findings, several key recommendations are proposed for the NLT. Firstly, the development and implementation of clear institutional policies and guidelines specifically for managing significant personal collections is crucial. These should address the scope definition, separation of unrelated materials, and standardization of institutional ownership marking. Secondly, given the widespread deterioration and future risk, strategic budget planning is essential to incorporate both scientific conservation interventions for the physical items and appropriate digitization initiatives to enhance access and create surrogates. Thirdly, acknowledging the value of personal collections from significant figures, planning for a dedicated digital repository infrastructure is advised to ensure the long-term preservation and accessibility of personal digital collections associated with individuals under the purview of the NLT and the Fine Arts Department.

FUTURE RESEARCH

While this study provides crucial initial data for the Thai-language materials, its scope was limited to three bookcases. Future research should extend the survey to the remaining foreign-language bookcases within the collection to provide a complete picture. Further investigation is also warranted regarding the authentication of provenance evidence and the development of detailed, item-level conservation treatment plans based on the condition data gathered. Addressing this hidden collection through systematic cataloging, conservation, digitization, and policy development will unlock its research potential and ensure the preservation of this important cultural heritage for future generations.

REFERENCES

Baleeket, P. (2002). The Use of Rare Books In Libraries in Bangkok and the Vicinity. [Master's thesis, Chulalongkorn University]. Chulalongkorn University Intellectual Repository. https://cuir.car.chula.ac.th/handle/123456789/9916

Fine Arts Department. (2018). *Tai rom phrabarami... Nung roi sip song pi Hosamut haeng chat* [Under the royal patronage... 112 years of the National Library.

Jarusawat, K. (2009). Rare book management in university libraries [Master's thesis, Chulalongkorn University]. Chulalongkorn University Intellectual Repository. http://doi.org/10.14457/CU.the.2009.1092

Keyes, C. F., Klausner, W. J., & Sivaraksa, S. (1973). *Phya Anuman Rajadhon: A reminiscence.* Sathirakoses-Nagapradipa Foundation.

Lundy, M. W. (2008). Provenance evidence in bibliographic records: demonstrating the value of best practices in special collections cataloging. *Library Resources & Technical Services*, *52*(3),164.

Ministry of Culture, Fine Arts Department, National Library of Thailand. (2021). *Kan samruat nangsuhayak nai hongsamuthaengchat* [Survey of Rare Books of the National Library]. Cabinet and Royal Gazette.

National Library of Thailand. (2023). *Raingan pracham pi Song phan ha roi hoksip ha* [Annual report 2022].

Nimmanahaeminda, P. (2009). Professor Phraya Anuman Rajadhon: Contributions to the Study of Folklore and Folk Life. *The Journal of the Royal Institute of Thailand, 1*, 21-36.

O'Toole, J. M. (2001). Do Not Fold, Spindle, or Mutilate: Double Fold and the Assault on Libraries [Review of *Double Fold: Libraries and the Assault on Paper*, by N. Baker]. *The American Archivist*, *64*(2), 385-393. http://www.jstor.org/stable/40294178

Overmier, J. A., & Doak, E. M. (1996). Provenance records in rare book and special collections. *Rare Books & Manuscripts Librarianship*, *11*(2), 91-99. https://doi.org/https://doi.org/10.5860/rbml.11.2.134

Phonsit, P. (1988). *Phraya 'Anumanratchathon puchaniyabukkhon si phaendin* [Phraya Anuman Rajadhon: A venerable figure of four reigns]. Saengsin Kanphim.

Sattayanurak, S. (2013). *Phraya Anumanratchathon prat samanchon phu nirmit "khwampenthai* [Phraya Anuman Rajadhon: The commoner intellectual who created "Thainess"]. Matichon.

Srisomboon, P. (2018). *Kan dulae raksa nangsu boran* [Preservation of ancient books]. Office of the National Museums.

Teper, J. H., & Erekson, S. M. (2006). The Condition of Our "Hidden" Rare Book Collections: A Conservation Survey at the University of Illinois at Urbana-Champaign. *Library Resources & Technical Services*, *50*(3), 200-213. https://doi.org/10.5860/lrts.50n3.200

Tikhara, A. (1984). *Hongsamut nangsu ha yak* [Rare book library]. Foundation for the Promotion of Social Sciences and Humanities Textbooks Project.

White, H., & Choemprayong, S. (2021). Dispersed Collections in Exile: Thai Collection in Libraries outside of Thailand. *Library Resources & Technical Services*, *65*(4), 142-154. https://doi.org/10.5860/lrts.65n4.142

APPENDIX A

1. Did the librarians create an initial inventory or accession list for Phya Anuman Rajadhon's donated book collection when the Anuman Rajadhon Library was established in 1968?

2. Regarding the institutional ownership stamp bearing the symbol "Anuman Rajadhon Library," which was applied to books housed in the Anuman Rajadhon Library: Where is this stamp currently stored, and what were the established procedures or guidelines for selecting the specific pages within the books for its application?

3. How many librarians have been assigned to the Anuman Rajadhon Library throughout its history, and what were the internal operational procedures implemented? Examples include the decision process for utilizing wooden shelving for book storage and the methods used for distinguishing between books authored by Phya Anuman Rajadhon and books from his personal collection.

4. Were any preservation or conservation measures undertaken for the books within Phya Anuman Rajadhon's personal collection between the time of their donation and 2022? If such measures were implemented, what specific methods were employed?

5. What was the rationale for integrating the Anuman Rajadhon Library collection with the "Books about Thailand, Royal Thai Government Gazette, and International Books" service room, rather than incorporating it into the Rare Books Room? (Considering that the Rare Books Room offers environmental controls, such as temperature

regulation, potentially providing more effective preservation for older materials, alongside enhanced security measures against unforeseen events or natural disasters).

Libraries as Hubs of Action: Enhancing Biodiversity Awareness Via Citizen Science Project at ICSBC 2024

Haliza Zainal, Khairulbahiyah Yaakub, Nor Asikin Mohamad

UTM Library, Perpustakaan Sultanah Zanariah, Universiti Teknologi Malaysia Johor Bahru, Johor, Malaysia

Corresponding email: haliza@utm.my

ABSTRACT

Today, academic libraries have become proactive institutions that promote environmental sustainability, community engagement and interdisciplinary learning, advancing beyond their traditional information repositories. Thus, citizen science can be integrated into academic libraries' educational agendas and outreach, which is demonstrated by this case study of the International Citizen Science Boot Camp (ICSBC) 2024. This specific program was organized by Universiti Teknologi Malaysia Library. Around 100 participants took part in ICSBC 2024 and they consisted of educators, researchers, librarians, students and community members. Within three days, the participants have engaged in four structured modules, which have been designed to enhance ecological literacy, promote hands-on environmental engagement and develop fundamental basic research skills. These modules include flora eco-print, water quality assessment, insect observation and bird watching. In order to promote biodiversity awareness in a supportive and inquiry driven environment, participants were encouraged to observe, gather and evaluate biodiversity data by using iNaturalist app and other accessible tools. This program has created a substantial impact, especially for its participants. According to surveys, they have obtained increased confidence levels when it comes to conducting basic field research. Not only that, the program has fostered a deeper understanding of library's role in promoting community-based science to its participants. 36 bird species, 125 insect species and 10 plant species were documented and used as valuable contributions from the program to biodiversity monitoring. At the end of this program, participants showcased high levels of satisfaction towards every modules, which reinforced its effectiveness in promoting biodiversity awareness. To connect academic knowledge with real-world environmental issues, this paper emphasizes how academic libraries can become the catalysts of citizen

science through environmental and educational based programs. The ICSBC 2024 initiative affirms the library's capacity to lead transformative, community-driven movements that advance both environmental conservation and education empowerment.

Keywords: Citizen Science; Academic Libraries; Environmental Sustainability; Community Engagement; Biodiversity Conservation

INTRODUCTION

When it comes to the traditional view of a space to gather knowledge or a space to store books, archives and other academic resources, libraries are often the first thing that comes to mind. There is no denying that the current world has rapidly changing the information landscape to extend far beyond their traditional boundaries. In order to cope with the changes, academic libraries have transformed itself to active learning environments and collaborative centers allowing students, researchers and community members to collaborate.

Thus, interdisciplinary dialogue, digital literacy, stronger community connection and academic growth are supported by academic libraries in recent times. (Cigarini et al., 2021, 2022; Mumelaš & Filipeti, 2025)

Driven by the urgent attention from around the world to address biodiversity, sustainability and climate change issues, academic libraries have transformed itself in order to fill its role to cultivate environmental education and initiatives (Kobori et al., 2018). This approach can be accomplished through the association of research communities and the general public. To provide a motivating method for individuals to participate in scientific research and data collection, academic libraries can enhance fundamental literacy skills, address knowledge gaps and promote citizen science. (Gold et al., 2022)

Once scientific and environmental issues affect the community, including those without scientific backgrounds, will be driven to participate, thus placing a heavy emphasis on citizen science. With that, the popularity of citizen science in libraries has incredibly grown around the world, which has been accommodated through libraries incorporating citizen science programs or collaborations. By conducting a partnership with environmental organizations and universities, academic libraries are able to support the real-world research and the democratization of science, allowing them to become collaborators for the national development agenda and sustainability goals. (Vohland et al., 2021)

After an analysis of the current demand for citizen science, the importance to spread and promote it among community is precisely clear. Within this paper, ICSBC 2024 has been used to pioneer the approach of citizen science as it is the role of UTM Library, which is highlighted as a case study. Here, a hands-on and immersive experience that focuses on biodiversity awareness was designed and implemented by the library. In order to foster environmental awareness, enhancing scientific literacy and connecting academic knowledge with community-based action, UTM Library uses the initiative to demonstrate how academic libraries can play a transformative role in doing so.

STRATEGIC BACKGROUND: UTM LIBRARY'S ROLE IN CITIZEN SCIENCE

Historically, UTM Library has dedicated itself to contribute and support information literacy and academic excellence. However, in recent times, this form of dedication has broadened its capabilities by including active participation in environmental outreach, community engagement and open science programs. By placing heavy emphasis on the demand to address global environmental challenges with the use of collaboration and education, the library has well-placed itself as a visionary to create a change within the university and the public. (Cohen et al., 2015; Hansen et al., 2021)

Starting from 2021, the UTM Library organized a Knowledge Culture Program to address awareness of citizen science to diverse audiences. The objective is aimed at library involvement in environmental literacy and open science initiatives. This is a knowledge sharing session for audiences to raise awareness on citizen science. Activities included knowledge-sharing sessions, public lectures and book discussions, all specifically curated to raise awareness on open science and citizen science.

By 2022 the UTM Library expended the strategic focus and organized the International Symposium on Citizen Science that attract participation from local and international participants. In 2023, the library formalized its position as a pioneer of citizen science in higher education by partnering with researchers, environmental educators and community stakeholders to design modular science learning experiences. This strategic progression led directly to the development of the International Citizen Science Boot Camp (ICSBC) 2024. The program was not only a culmination of past efforts but also a forward-looking model of how libraries can support national goals related to sustainability, scientific capacity-building and inclusive community development.

Through these programs, UTM library establishes its function and commitment not just as a knowledge center, but as catalyst of impactful, community-driven scientific initiatives.

PROGRAM DESIGN AND METHODOLOGY

The objectives of ICSBC 2024 are making UTM a center for eco-tourism that positively impacts global perceptions of UTM; Providing exposure to the public about Citizen Science initiatives through knowledge sharing and field research; Making UTM Library a Citizen Science hub that connects UTM researchers with the community and Making Citizen Science a part of UTM Library's community-driven programs.

The program was conducted in 3 days:

- Day 1 – Theory for Trainers (14 October 2024): 50 trainers were introduced to the fundamental goals of citizen science and theory for each module. They are also exposed to the equipment and scientific tools used for each module.
- Day 2 – Implementation of field research activities to trainers (15 October 2024): 50 trainers focused on hands on practical implementation of basic field research activities. They were assigned to all modules – flora eco print, water quality assessment, insect observation and bird watching. Trainers built up new skills and confidence to share their knowledge with the community on the third day.
- Day 3 – Implementation of field research activities to community (16 October 2024): 50 trainers together with 50 students from local SMK Seri Pulai Perdana and SK Taman Universiti 1 commenced on the hands-on science activities. Trainers become facilitators for each module offering guidance and engagement with the community.

All the modules are designed with consultation from the subject matter expert to ensure the techniques, fields kits and mobile apps are suitable and accurate for field research and data collection. The program was evaluated by using quantitative and qualitative methods. Surveys and interviews were conducted to assess the effectiveness of the program, module and participants satisfaction.

MODULE HIGHLIGHTS

Four unique modules to promote active learning were designed for ICSBC 2024. Each module combined scientific methodology with experiential learning to ensure participants could develop basic research skills data collection. Each activity focused on hands-on exploration and observation.

Module 1: Flora eco print

Eco printing is a natural dyeing technique that uses leaves, flowers, and other plant materials to create patterns and colors on the provided fabric. Participants were guided by facilitators to identify plant species including invasive species. By using cotton bags and wooden mallets, they created a variety of creative eco prints. A total of ten plant species were identified and this module received 82% satisfaction rating.

Module 2: Water quality assessment

Participants used LaMotte Water Monitoring Kit (USA) for this module. They measured six parameters of temperature, turbidity, pH, dissolved oxygen, nitrate and phosphate. Through the water sampling activities and using the testing kit, they learn how to assess the water health and environmental stability. The satisfaction rate for this module is 78%.

Module 3: Insect observations

In this module, participants observed and investigated insect biodiversity in the field. Facilitator introduced entomological techniques, species recognition, habitat observation and its role. Participants used micro-lens attached to smartphones to capture the high-resolution images of insects and uploaded the images to the iNaturalist app. Here it demonstrated the importance of uploading real time documentation and community verification that contributed to the global biodiversity database (Jaafar et al., 2024). A total number of 125 insect species were recorded and the satisfaction rate for this module is 74%.

Module 4: Bird watching

Participants used binoculars for this module. Facilitators focused on the bird's behavior, migration patterns and the role of birds as ecological indicators. This is the most difficult module to conduct due to the sensitivity nature of the birds. However, they managed to record 36 bird species and the satisfaction rating for this module is 60%.

OUTCOME, DISCOVERIES AND FEEDBACK

ICSBC 2024 is an impactful program significantly tailored for experiential learning, environmental awareness and field research through academic and community involvement. Through survey and interviews, revealed high participant satisfaction of the program.

One of the most prominent outcomes was the enhancement of science literacy and research skills among participants (Sakurai et al., 2022). Through active participation in the modules, individuals developed a clearer understanding of ecological principles, species identification techniques, and the importance of empirical data in biodiversity conservation. Notably, 84% of participants reported increased confidence in conducting field-based environmental research, while 100% expressed a deeper understanding of the role of academic libraries in environmental outreach.

From a scientific standpoint, the program contributed valuable biodiversity data that can support future research and conservation planning. Participants successfully documented 125 insect species, 36 bird species, and 10 plant species, offering a meaningful snapshot of local ecosystem diversity. These findings were recorded using mobile data collection tools and standardized observation templates, ensuring consistency and utility for follow-up studies.

Feedback also highlighted the educational effectiveness and accessibility of the modules. Participants appreciated the balance between structured learning and exploratory discovery. They praised the use of interactive tools (such as the LaMotte kit and iNaturalist app), the clear guidance provided by trained facilitators, and the opportunity to collaborate with peers from various backgrounds. The Flora Eco-Print and Water Quality modules stood out as favorites due to their creativity and immediate, hands-on results.

In addition, the program fostered a strong sense of community and intergenerational learning. The involvement of school students, university and public librarians created a diverse and inclusive learning environment. ICSBC 2024 demonstrated that academic libraries can serve as platforms for collaborative science, capable of connecting knowledge production with public participation in impactful and meaningful ways.

LOOKING AHEAD: VISION FOR CITIZEN SCIENCE 2025

Building on the success of ICSBC 2024, UTM Library is composed to expand its citizen science initiatives in alignment with the strategic objectives of the Office of the Deputy Vice-Chancellor (Research and Innovation) [TNCPI] and the UTM Centre for Community and Industry Network (CCIN). This synergy aims to amplify the library's role as a driver of research-based community engagement and as a contributor to the university's broader mission of impactful innovation and sustainable development.

In 2025, UTM Library will focus on deepening the integration of citizen science with academic research, while simultaneously strengthening its outreach to underrepresented communities. Future initiatives will include the co-creation of community-driven research projects, enhancement of data-sharing platforms, and incorporation of digital tools for environmental monitoring. The library also plans to embed citizen science elements into the university's research clusters, particularly those aligned with biodiversity (Overgaard & Kaarsted, 2018).

Through collaboration with TNCPI, citizen science activities will be increasingly framed within institutional research agendas, supporting knowledge co-production, interdisciplinary inquiry, and measurable research impact. Meanwhile, partnerships with CCIN will ensure that citizen science programs remain socially inclusive, responsive to community needs, and accessible beyond the university campus.

The positive outcomes of ICSBC 2024, including increased participant confidence, strengthened community-university ties, and valuable biodiversity data contributions, demonstrate the transformative potential of libraries as connectors between academia and society. Moving forward, UTM Library envisions its citizen science programs as scalable models for academic libraries, promoting environmental literacy, collaborative research, and sustainable community development.

CONCLUSION

ICSBC 2024 has proven that academic libraries possess the capability to become a center to promote biodiversity awareness through community driven programs. Through this program, it has illustrated biodiversity awareness and field research skills supported by commitment, collaboration and support from the organization, strategic partnerships, academic experts are significant to advance environmental education and research-based community development.

The participants involved in gathering research data collection with scientific tools have increased their field research knowledge and boosted their confidence as they engage in citizen science activities. This program can be used to encourage other institutions to promote a community learning environment for open science and sustainability initiatives.

Collaboration and positive feedback from Deputy Vice Chancellor (Research and Innovation), Centre for Community and Industry Network, strategic partners and participants have a significant role in fostering the effort of the library in citizen science and community driven initiatives.

In conclusion, UTM Library is able to enhance the objectives of citizen science and community. From there, it will be the catalyst to create an era of change where the community is fully aware of their environment and improves the societal well-being. Future initiatives will continue to build upon this foundation, ensuring that the library remains a vibrant hub for inquiry, action, and collaborative knowledge creation. (Voigt-Heucke et al., 2024)

ACKNOWLEDGEMENTS

As authors of this paper, we would like to extend our most sincere appreciation to Universiti Teknologi Malaysia Library for organizing the International Citizen Science Boot Camp (ICSBC) 2024. The program has successfully bridged the academic initiatives to the community through Citizen Science.

We would like to thank the Deputy Vice Chancellor (Research and Innovation) for their support and strategic guidance to align the program with the university's Key Performance Indicator in order to create impactful research and sustainability.

Special thanks are extended to our strategic partners, Persatuan Pustakawan Malaysia, UTM Campus Sustainability, Yayasan Raja Zarith Sofiah, and the participating schools, specifically SMK Seri Pulai Perdana and SK Taman Universiti 1, for their commitment and collaboration, which has significantly enhanced the learning experience.

Our gratitude also extends to the speakers, experts, facilitators, supporting team members and participants for their efforts to make this program successful and reaffirm the library's role as a hub of action for environmental awareness and community driven initiatives.

REFERENCES

Cigarini, A., Bonhoure, I., Vicens, J., & Perelló, J. (2021). Public libraries embrace citizen science: Strengths and challenges [Article]. *Library and Information Science Research*, *43*(2), Article 101090. https://doi.org/10.1016/j.lisr.2021.101090

Cigarini, A., Bonhoure, I., Vicens, J., & Perelló, J. (2022). Citizen science at public libraries: Data on librarians and users perceptions of participating in a citizen science project in Catalunya, Spain [Data paper]. *Data in Brief*, *40*, Article 107713. https://doi.org/10.1016/j.dib.2021.107713

Cohen, C. M., Cheney, L., Duong, K., Lea, B., & Unno, Z. P. (2015). Identifying opportunities in citizen science for academic libraries [Article]. *Issues in Science and Technology Librarianship* (79). https://doi.org/10.5062/F4BR8Q66

Gold, M., Kaarsted, T., & Mondardini, R. (2022). Co-creation in practice: from bottom up to top down. Proceedings of Science,

Hansen, J. S., Gadegaard, S., Hansen, K. K., Larsen, A. V., Møller, S., Thomsen, G. S., & Holmstrand, K. F. (2021). Research data management challenges in citizen science projects and recommendations for library support services. A scoping review and case study [Article]. *Data Science Journal*, *20*(1), 1-29. https://doi.org/10.5334/dsj-2021-025

Jaafar, C. R. C., Ghazali, M. M., Ismail, M. I., Azmi, N. A., Akil, M. A. M. M., & Ruppert, N. (2024). Universiti Sains Malaysia Campus Nature Challenge: A Collaborative Citizen Science Initiative For Biodiversity Conservation And Environmental Awareness [Article]. *Paper Asia*, *40*(3), 33-41. https://doi.org/10.59953/paperasia.v40i3b.77

Kobori, H., Ellwood, E. R., Miller-Rushing, A. J., & Sakurai, R. (2018). Citizen science. In *Encyclopedia of Ecology* (pp. 529-535). https://doi.org/10.1016/B978-0-12-409548-9.10571-8

Mumelaš, D., & Filipeti, A. (2025). Exploring the Perspectives of Croatian Librarians on Citizen Science [Article]. *LIBER Quarterly*, *35*(1), 1-32. https://doi.org/10.53377/lq.19014

Overgaard, A. K., & Kaarsted, T. (2018). A new trend in media and library collaboration within citizen science? The case of 'a healthier funen' [Article]. *LIBER Quarterly*, *28*(1). https://doi.org/10.18352/lq.10248

Sakurai, R., Kobori, H., Togane, D., Higgins, L., Young, A., Kishimoto, K., Agnello, G., Cutajar, S., & Ham, Y. S. (2022). A case study from the City Nature Challenge 2018: international comparison of participants' responses to citizen science in action [Article]. *Biodiversity*, *23*(1), 21-29. https://doi.org/10.1080/14888386.2022.2054860

Vohland, K., Land-Zandstra, A., Ceccaroni, L., Lemmens, R., Perello, J., Ponti, M., Samson, R., & Wagenknecht, K. (2021). Editorial: The science of citizen science evolves. In *The Science of Citizen Science* (pp. 1-12). https://doi.org/10.1007/978-3-030-58278-4_1

Voigt-Heucke, S., Haklay, M., & Hecker, S. (2024). Citizen science. In *Elgar Encyclopedia of Interdisciplinarity and Transdisciplinarity* (pp. 46-49). https://doi.org/10.4337/9781035317967.ch11

Spark!Lab™ Singapore: Fostering Inclusive Innovation Through Tinkering

Siti Rasyidah Mahmood Angullia

National Library Board, Singapore

Corresponding email: rasyidah_angullia@nlb.gov.sg

ABSTRACT

Spark!Lab™, a D.I.Y. tinkering space established in partnership with the Smithsonian Institution, has been adapted for Singapore's audience, including those with special needs. As the first Singapore network site, it aims to encourage children to become inventors through a holistic and inclusive experience. The space operates on key philosophies and methods designed to empower children from diverse backgrounds to direct their own learning journeys. These include wheelchair-friendly infrastructure, visual guides for educators and children, and minimal adult supervision during sessions. Spark!Lab™ at Punggol Regional Library rotates activities quarterly to maintain engagement and creativity. By implementing these strategies, Spark!Lab™ creates a safe environment where all children, regardless of abilities, can explore materials and create solutions independently. This approach not only enhances knowledge and problem-solving skills but also builds confidence and competence. The ultimate goal of Spark!Lab™ is to foster lifelong, self-directed learners. By providing a space where children can freely experiment, innovate, and learn at their own pace, Spark!Lab™ contributes to the development of future inventors and problem-solvers in Singapore's diverse society. Through these efforts, children are empowered to sharpen their knowledge, skills, confidence, and competence, becoming truly self-directed learners.

Keywords: Spark!Lab™; Self-Directed Learning; Inclusivity; Children

INTRODUCTION

This paper delves into the methods used by Spark!Lab™ Singapore in introducing new innovation in tinkering concepts to children within the library spaces. Firstly, it examines the landscape of Singapore's Public Libraries and its shift from providing just books to become a learning and collaborative hub, which reinforces the need for offerings like Spark!Lab™. Second, it provides insights into the methods and philosophies used in running the space including changes made to suit their target audience. Thirdly, it looks at the impact of inclusivity of Spark!Lab™ by reviewing visitorship and qualitative feedback received from special education school teachers.

LANDSCAPE OF SINGAPORE'S PUBLIC LIBRARIES

Libraries of the Future and Libraries and Archives Blueprint 2025: From Books to Learning and Collaborating

Libraries of the Future (LOFT) was developed in 2015 by National Library Board Singapore (NLB), after a decline in library usage. Three values were emphasised in the masterplan: (i) provide personalised and customised experience through targeted services; (ii) provide seamless access to collections and services through improved physical and digital channels; and (iii) provide opportunities for collaborative learning through partnership with the community (Lau, 2021).

The plan was mainly to present the library as a collaborative hub rather than just for reading – it is filled with opportunities to connect with others with the inclusion of cafés and activities within the spaces. With the focus of learning shifting towards more digital and technology, the libraries also started introducing more free digital programmes in the spaces (Matthews, 2021).

In 2020, the LOTF masterplan was overlaid by the Libraries and Archives Blueprint 2025 (LAB 25).

"At its heart, LAB25 is an invitation to partners and the community to collaborate with NLB on a journey of innovation and experimentation to reimagine libraries and archives in Singapore." – Ng Cher Pong, Chief Executive, NLB

LAB25 aims to reimagine its libraries and archives to meet evolving needs of library users. It consists of four pillars, namely learning marketplace, informed citizenry, Singapore storytellers, and equaliser. The objectives of the pillars include providing platform for learning, to bridge knowledge and digital gaps, and to discover local literature and stories as an enhancement of cultural learning (NLB, 2022).

From the four pillars, one could easily tell that the library is emphasising its role as the collaborative hub, with its services centered towards providing learning and collaboration opportunities. Hence, libraries playing a pivotal role for free and self-directed learning aligns well with what the government has envisioned to foster more collaboration between academics and industries to increase and refresh citizens' skills. The need of today's society seems to stem from the importance of bridging gaps in learning, on top of promoting lifelong learning (Teng, 2023), and the public libraries perfectly provide opportunities for both.

This initiative aligns with Singapore's broader transformation in education, moving away from conventional teaching methods towards fostering self-directed learning. According to Ministry of Education's (MOE) desired outcome of education, there are four qualities they aim for students to possess after completing their formal education, including becoming self-directed learners. They defined this quality as someone who takes responsibility for their own learning, is curious, reflective, and persevering in the lifelong pursuit of learning, driven by their passion and purpose (MOE, 2023).

Under the directives of the two plans, with a motivation to incorporate innovative ways of self-directed learning for students, NLB kickstarted the partnership with Smithsonian Institution to bring in Spark!Lab™ to Punggol Regional Library to cement its role as a learning marketplace.

Partnership with Smithsonian Institute's Spark!Lab™

Spark!Lab™ first opened at the National Museum of American History in 2008, promoting invention to children by incorporating traditional science, technology, engineering, and math with art, history and creativity. It is run by the Smithsonian Institution, a direct partner to NLB. The idea behind Spark!Lab™ is straightforward – everyone is an inventor and children are provided with materials and printed guides to put on their creative hats and can devise solutions to engineering challenges. Activities are aligned with the seven invention processes, broken down to the "It phrases" namely, identify a problem (Think It), conduct research

(Explore It), make sketches (Sketch It), build prototypes (Create It), test the invention (Try It), refine the invention (Tweak It) and market the invention (Sell It). (Lemelson Center, 2022)

Spark!Lab™ Singapore

Spark!Lab™ Singapore was launched in January 2023 at Punggol Regional Library, providing a safe space for children to learn and explore freely with minimal supervision. It incorporates the main philosophy of Spark!Lab™ and its invention essence, with the space filled with the seven invention processes and activities that are suited for children from different backgrounds.

As Punggol Regional Library aims to cater to children with disabilities (Teo, 2024), Spark!Lab™ is fitted with accessibility features, including wheelchair friendly tables and spaces, and the inclusion of a permanent activity called Sketch It which is suitable for children from all backgrounds, including those with special needs, as children will only need to use paper and pencil to draw out their creative solutions. This hypothesis was validated by actual on-site participations, with over 30% of children with disabilities participating in Sketch It.

TINKERING ON ANOTHER LEVEL: METHODS AND PHILOSOPHIES OF SPARK!LAB™ SINGAPORE

The methods implemented were primarily taken from Smithsonian Institution but also adapted based on usage observation when Spark!Lab™ Singapore first launched. The three methods ensured that Spark!Lab™ fulfilled its objective in providing a space and environment optimal for self-directed learning for children both within Punggol Regional Library and beyond: i. Adaptation to local audience, ii. Customised support for SparkLab™'s participants and iii. Collaboration opportunities.

As part of the partnership agreement, quarterly reports were submitted to Smithsonian Institution with feedback provided by the team overseeing Spark!Lab™, along with participants who utilised the space. The following discussion was drawn up based on the reports and observations.

Adaptation to Local Audience

As the first network site outside of the United States, the team had to make changes to the original materials and resources provided by Smithsonian Institution to suit the target

audience. Operational changes in running the space were also implemented to maximise user experience for Spark!Lab™ participants. The factors leading to the adaptation include cultural and environmental differences, visitor profile, and learning behaviors of participants.

NLB team has carefully ensured that the activities and materials selected from the Smithsonian's offerings are relatable to Singapore children. The prompts were tweaked to make the questions more digestible and relatable, e.g. by referencing local inventors and inventions. Activities involving plantations and crops were not selected as local children are not generally exposed to this production method, and an activity to decorate a doll house was tweaked to decorate a flat instead to make them appealing and relatable to the audience, to motivate self-directed learning.

As Spark!Lab™ Singapore is located in the public library, there is a main difference in visitor profile as compared to Spark!Lab™ located in the museums in the United States. Due to the free and accessible nature of the space, Spark!Lab™ at Punggol Regional Library serves regular participants, with higher dwelling time whereas some Spark!Lab™ in the United States require ticketed entry and a higher mix of tourists visiting the museum with a shorter dwelling time. The high number of visits to the space[1] prompted the team to implement a timed-entry system to aid with crowd management. Participants were admitted at every 30-min interval mark with each session limited to only 20 minutes. Entry was on a first-come-first-served basis, and visitors were advised to wait for the next session if the current session hit the capacity of 25 visitors.

The timed-entry system received good feedback from the Spark!Lab™ Guides (staff stationed at SparkLab™) and volunteers as it helped to set the visitors' expectations of the house rules in the space, and it also allowed time to reset the space for each batch of patrons. By limiting the number of visitors in the space at each time, the participants could focus and complete the activities with the quickest inventions as they are aware of the time limit. As the activities have no expected outcomes and are purely based on the participants' creativity, implementing timed entry made little impact on their experience.

[1] Spark!Lab™ recorded an average monthly visitorship of 8,000 participants in its initial months of operation, with weekend attendance peaking at 620 visitors per day.

The physical layout of Spark!Lab™ only allows for a maximum of 4 activity stations. To keep regular participants interested in trying out different activities and to enhance their learning experience, three of activities are regularly rotated, while Sketch It is a permanent station for children who prefer a low-intensity activity. In determining the activity schedule, the team ensured that there was a good mix of activities of varying levels of difficulty, which could engage a wider age range of children.

In terms of learning behaviours of the participants, we observed that local children are more used to following instructions since young, while American children engage more in learning freely. The team capitalised on this to manage the space better and safely. For example, yellow lines as a boundary indicator and a queue post were placed in the area surrounding the Vertical Wind Tunnel. This has helped to educate and shape the user behaviour for a safe and fair playing experience. Further adaptions include rationing consumables to encourage children to consider the issue of saving resources and sustainability in engaging in their play.

Overall, the adaptions have led to local children's ability to fully utilise the space and engage in self-directed learning even when they are initially unfamiliar with the invention process. Weaving in fragments of familiarity to suit them has resulted in Spark!Lab™ receiving positive feedback from participants.

I really like that we can challenge ourselves. I love how we can build things and think outside the box! – Julia, 9 years old.

It's fun! You can think of how to build things for your own real-life items – like for my teddybear!" – Sophia and Seraphina

Customised Support for Spark!Lab™'S Participants

As Spark!Lab™ provides an open-ended learning environment and experience, it is essential to provide customised support to participants to encourage self-directed learning, especially in the context of the Punggol Regional Library.

Facilitation is extended to those who require them. Spark!Lab™ Guides and volunteers (the latter leverage on existing pool of library volunteers) are constantly available onsite to explain

the invention process and introduce the activities to participants. Spark!Lab™ Guides would also walk through the activities with participants when they are unfamiliar with the materials or feel stuck during their invention process by giving them hints or prompts. Additional support is provided to younger participants and participants with special needs, especially in explaining the questions, ensuring safety in using materials like scissors, and what they can create with the materials to help expand their creativity.

To increase reach to schools, Spark!Lab™ Singapore allows space booking before its opening hours. Teachers become facilitators, equipped with a school package guide to spaces within Punggol Regional Library to help students to explore, including Spark!Lab™. The guide states that students are encouraged to exercise inventive thinking skills with teachers' role posting open-ended questions to encourage self-directed learning. This initiative has been receiving positive take-ups from schools as teachers value the liberty to plan their visits according to their students' needs. The expanded partnership with schools and teachers has enabled the visits to Spark!Lab™ Punggol to be incorporated into classroom discussions and activities.

Collaboration Opportunities

There are two types of collaborations observed: collaboration among participants, and institutional collaboration with NLB.

Collaborations in Spark!Lab™ take place between Spark!Lab™ participants naturally. As participants are engaged in their own learning when completing the activities, they tend to communicate with each other even though they are strangers, especially when sharing materials and coming up with solutions together. Particularly, for activities that require large and heavy materials like Invent a Vehicle, where participants are tasked to create a vehicle using pipes and wheels, adults were observed stepping in to assist children with their invention, making it a collaborative activity showcasing their creativity. A Spark!Lab™ Guide has shared his collaborative experience which further strengthen this point:

> "There is an old saying that two heads are better than one, which suggests that the majority's collective wisdom always dwarfs that of an individual. This was exactly what happened here. 3 young individuals, unknown to each other, with some guidance and coaching from me, created this "Soundscapes". Bravos!" – Don, Spark!Lab™ Guide

To further encourage self-directed learning, the space is also filled with display of participants' invention. There was a peg board pinned with colourful paper shoes designed by participants as inspiration for those unsure how to complete the activity. The showcase of creative work can be seen as a simple attempt of decorating the space to some but can also act as a vote of confidence for participants that their creativity is not judged through specific criteria. The action of collaboration is a form of self-directed learning, where participants make a conscious effort to communicate with others while shaping their own learning experience to achieve their goal.

The presence of Spark!Lab Punggol also prompted institutional collaboration. At the end of 2023, the Spark!Lab™ team collaborated with SIT, Singapore's first University of Applied Learning, offering specialised degree programmes focused on innovation and applied research. In particular, the team has connected with SIT for the Social Innovation Module, in which students work on problem statements to develop solutions. The problem statement "How might we develop a culture of invention and innovation among children?" was proposed to align with Spark!Lab™ objectives in achieving self-directed learning in children.

The collaboration can be defined in three phases; phase 1 is for the SIT students to undergo training to understand Spark!Lab™'s philosophy and how the space is operated. Phase 2 is for them to come up with solutions to the problem statement and phase 3 is for the students to then pilot or prototype selected solutions to test at Spark!Lab™. The desired outcome for the collaboration is also clear, for SIT to create programmes and activities to inspire and encourage children to invent and innovate. As the collaboration is still ongoing, it is best described to be in phase 2.

The first SIT student team programme conducted in June 2024 was a sustainability-focused facilitated programme, in which the children were led to think critically about sustainability issues in their surroundings and to invent or innovate solutions in response to it. This was held before opening hours during the school holidays to avoid interfering with the regular operations. Although the format is slightly different that the usual run of Spark!Lab™ where participants are given freedom to explore their creativity, all 44 participants were observed to have enjoyed the hands-on session as the topic itself is relevant to their learning. This collaboration is still ongoing for mutual benefits in advancing curriculum development on innovation education.

SPARK!LAB™ SINGAPORE AND INCLUSIVITY

Spark!Lab™ receives great attention by both parents and educators, making it a popular service in Punggol Regional Library since its opening. This is proven through the visitor ship which averages 6,300 visitors per month. Particularly, due to the inclusive nature of the space and resources, Spark!Lab™ Singapore gained popularity amongst special education (SPED) schools and associations with a total number of 41 organisations visiting the space since its opening. Figure 1 depicts the visitors by SPED schools between 2023 until March 2025.

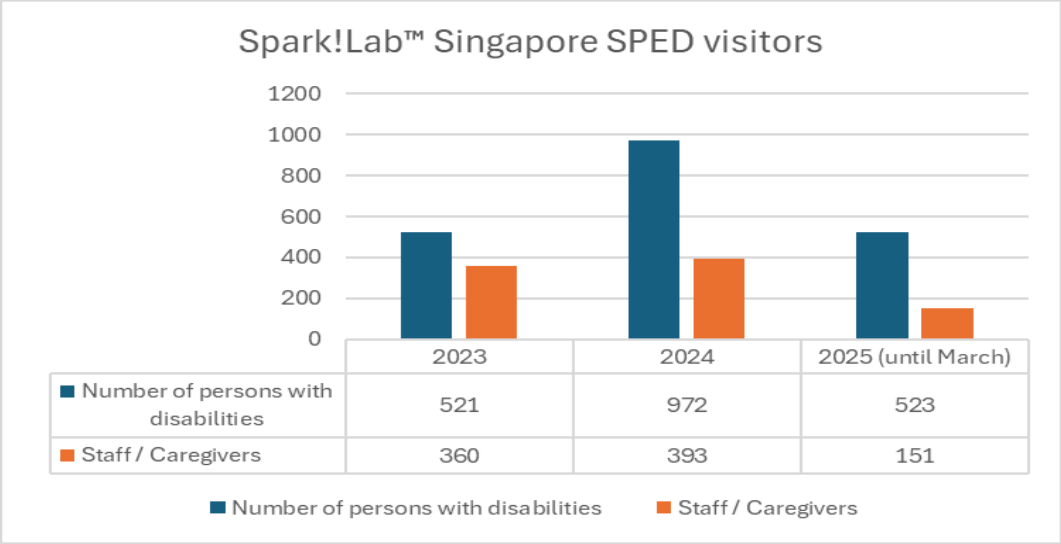


Figure 1: Spark!Lab™ Singapore SPED visitors

The educators provided valuable feedback on their students' interaction with the space, which strengthens its position as a tinkering space for participants with different learning abilities. Their names are kept anonymous in this paper and will only be referred to as Special Education teacher 1 and 2. Their feedback was collected between January to March of 2024.

"The person in charge there was so enthusiastic in engaging the children. The children enjoyed the very interesting activities!" – Special education teacher 1

"The students enjoyed being able to problem solve and create their own shoes/obstacle course. They also enjoyed the marble run and the chalk board." – Special education teacher 2

From special education 2's feedback, it seems clear that the SPED students could engage in self-directed learning in Spark!Lab™ Singapore without much hands-on support needed. The variety of activities which range from easy to difficult and the no pressure environment where outcomes are not fixed helped participants enjoy the space freely.

FUTURE

The Spark!Lab™ team plans to launch an Inventor's booklet accompanied with tokens to encourage children to explore Spark!Lab™ regularly. The booklet is filled with invention facts, quizzes and a stamp rally challenge which allows participants to collect one stamp weekly. After collecting three stamps, participants will be given a token to mark their visits. The purpose of the booklet and tokens is to encourage participants to continue their invention journey even beyond Spark!Lab™ and to deepen their inventive skills as they complete unfinished invention from their previous visit or embark on a new problem to solve. This initiative allows participants to control their learning in Spark!Lab™ and keep track of their progress, while the tokens are designed to provide them motivation to keep visiting and learning in the space.

As Spark!Lab™ is located within the library, it opens the possibility of Spark!Lab™ to expand its reach to other library spaces and linking the invention process and creation through stories. In a study by Marcu et al. (2023), storytelling was used to complement a tinkering activity to prove that including stories could reinforce STEM elements and enabled the children to retain information learnt during the process. The findings of the study supported this claim as children who had as storytelling component before tinkering managed to recall the experience best through retelling of the tinkering process, while weaving in both the STEM and storytelling elements.

Spark!Lab™ too has a potential to weave in stories to their offerings by possibly having as short storytelling component by the Guides or facilitators before participants embark on their invention process. Another possibility is to incorporate storytelling under the invention process 'Share It' and requesting participants to share their thought process after completing their invention. Inclusion of storytelling can further provide a holistic experience to participants as they will be more motivated to complete their invention with thoughts of sharing them to others.

CONCLUSION

Spark!Lab™ has marked its footprint in providing a safe tinkering space for children from different learning abilities to achieve the goals they have in mind while putting on their inventive and creative hats. Through integration of the invention philosophy within the space and environment, Spark!Lab™ will only continue to grow in its ability to foster self-directed innovative learners in Singapore.

With the resources and space filled with prompts and support for participants to explore freely, including those with disabilities, Spark!Lab™ should focus on extending its offerings to other library spaces through weaving in books and arts.

ACKNOWLEDGEMENTS

I would like to extend my appreciation to the Spark!Lab™ team from Children and Teens services, division of Programmes and Service at National Library Board, Singapore for their guidance and willingness to share information, resources and feedback required to write this paper.

REFERENCES

Lau, C. (2021). Libraries of the Future: A Singapore Case Study. In I. Miersch-Süß (Ed.), *Libraries and Their Architecture in the 21st Century* (pp. 30-46). Berlin, Boston: De Gruyter Saur. https://doi.org/10.1515/9783110689501-005

Lemelson Center for the Study of Invention and Innovation. (2022). *About Spark!Lab*. Smithsonian Institution. https://invention.si.edu/invention-stories/about-sparklab

Matthews, J.R. (2021). The Remaking of Singapore's Public Libraries, *Public Library Quarterly 40*(3), 183-184. https://doi.org/10.1080/01616846.2021.1892336

Ministry of Education Singapore. (2023). *Desired Outcomes of Education*. https://www.moe.gov.sg/education-in-sg/desired-outcomes

National Library Board (2023). LAB25 (Libraries and Archives Blueprint 2025), *A Five-year Plan Reimagining the Future of Libraries and Archives*. https://www.nlb.gov.sg/main/about-us/About-NLB/lab25-libraries-and-archives-blueprint-2025

Teng, A. (2023). Focus on 5 Key Areas to Keep Education System Relevant in Uncertain World: Chan Chun Sing, *The Straits Times* https://www.straitstimes.com/singapore/parenting-

education/focus-on-5-key-areas-to-keep-education-system-relevant-in-uncertain-world-chan-chun-sing

Teo, J. (2024). New Punggol library encourages tinkering and storytelling, including for children with disabilities, *The Straits Times.* https://www.straitstimes.com/singapore/new-punggol-library-encourages-tinkering-and-storytelling-including-for-children-with-disabilities

Religious Libraries as Gateways to Inclusivity: Insights from Mosque and Church Libraries

Nur Leyni Nilam Putri Junurham[1], Mohamad Hafizuddin Mohamed Najid[2], Nor Azzah Momin[3]

[1,2]Department of Library and Information Science, Kulliyyah of Information and Communication Technology, International Islamic University Malaysia, Kuala Lumpur, Malaysia

[3]Islamic Science University of Malaysia, Bandar Baru Nilai, Nilai, Negeri Sembilan, Malaysia

ABSTRACT

Religious libraries play a vital role in preserving, disseminating, and engaging with their respective traditions and communities. This study explores the similarities and differences between mosque libraries and church libraries to uncover meaningful insights into how these religious institutions fulfil their roles. The primary aim is to identify commonalities and distinctions in how mosque and church libraries operate, focusing on their collections, services, and community engagement. Interviews with library managers and users will offer firsthand insights. The findings show that the commonalities of mosque and church libraries are perceived variously by the congregations. The library becomes the place for education, social experiences, and recreational activity. Both religious libraries share a commitment to preserving sacred texts and fostering educational initiatives. Differences in governance, access policies, and community outreach will also be discussed. This study fills a gap in comparative library research by examining two distinct religious knowledge systems. The study contributes to a deeper understanding of religious libraries as agents of inclusivity, capable of connecting diverse communities and promoting harmony in society.

Keywords: Religious Libraries; Mosque Libraries; Church Libraries; Community Engagement; Comparative Analysis

INTRODUCTION

Religious libraries play a vital role in preserving, disseminating, and engaging with their respective traditions and communities. It is the religious libraries' responsibility to provide their users with authoritative resources suitable to be read. Not much research is being done on religious libraries, therefore, we decided to conduct this study to explore the similarities and differences between mosque libraries and church libraries to uncover meaningful insights into how these religious institutions fulfil their role.

Furthermore, the area of religious libraries has not been given adequate attention in the curricula of both undergraduate and in some instances, postgraduate studies thus creating a deficit in terms of knowledge and specialisation." It may be considered a sensitive topic or it may be considered as too broad to be taught in classes since there are many religions in the world (Chisita et al., 2020). Consequently, students in library and information science are not adequately equipped with the necessary knowledge and skills to effectively manage or conduct services in religious library settings.

Besides, they mentioned, "The religious groupings in the world are numerous ranging from but not limited to Christianity, Buddhism, Hinduism, Confucianism, Islam and African Traditional Religion (ATR). These religious institutions including their libraries are affected by the seismic technological development in the Information and communication landscape and this is one motif that the article explores. Religious institutions rely on sacred texts to propagate their religious beliefs, for example, the bible for Christians, the Bhaghawad Geeta for the Hindu, the Koran for Islam, the Guru Granth for Sikhs and the Kebra Nagast used by Rastafarians among many others".

However, for this study we just focus on comparing the mosque library (for Islam), since we are from the Islamic Library Committee, Librarian Association of Malaysia; and church library (for Christians) for a start.

PREVIOUS STUDIES

This study concentrates on two main focus areas being considered to identify the role of mosque and church libraries in historical and modern perspectives. The literature has been reviewed, particularly in this topic area. The purpose of this literature review is to find out the

related work and review the previous work under this topic area to see if this problem or issue has been raised in any previous work.

Role of Mosque Libraries: Historical and Modern Perspectives

Several studies have been done based on religious libraries by scholars in highlighting the roles and contributions of the libraries to the community. Related to mosque libraries, Surtikanti (2018) explores the historical development of libraries in Muslim societies during the Islamic Caliphate, highlighting the role of mosque libraries as centres of knowledge and education. Driven by Islamic values that emphasize learning and the dissemination of knowledge, mosque libraries flourished alongside economic prosperity, stable governance, and a strong book trade. Sudana (2022) identified in his study the development and academic interest in mosque libraries, highlighting their role as essential educational institutions within mosques. The mosque libraries are reaffirmed as vital waqf-based facilities that support religious learning and community empowerment in Muslim societies. According to Laugu (2007), from the time of Prophet Muhammad, mosque libraries have supported religious, educational, social, and political functions within Muslim societies. Renowned institutions like al-Azhar and Cordova's Grand Mosque Library exemplify their impact. Mosque libraries are vital community assets that shaped Islamic intellectual heritage while emphasizing the need for proper preservation and revitalization to sustain their legacy in modern times.

In the early days of Islam, a mosque was not just a place for spiritual activities and solace; it served as an educational and community service centre. Mosques were not only buildings dedicated for gathering, rather, the leaders of the communities also utilized the mosque as a place for dissemination of information, discussion, and for social activities. Idriz (2000) pointed out that mosques do not only function as religious sites to perform spiritual duties; they also serve as centres for learning and knowledge seeking. This makes the mosque very crucial to the Islamic educational system.

The primary function of the mosque (*masjid*) is its use as a sacred place for worship in Islam. It is a place where Muslims gather to offer their *salah* (prayer) daily. Muslims gather in the masjid to offer the obligatory *salah* five times a day. However, there are several other functions of the mosque besides being a place of worship. The multi-function nature of the mosque helps the development of the Muslim community in general. Several authors have discussed the mosque and its function (Farahati, 2011; Lanre et al., 2014; Laugu, 2007). They reported that the presence of the mosque in Islamic civilization has tremendous effects on education and the political and social realms of Islamic civilization. Across the Islamic civilizations and

through time, it has been the centre of not only religious rituals as stated in the Holy Quran (9:19), but also the hub of education and knowledge, the centre of administration and politics, social and community institutions and it has sometimes been used as a propaganda tool to spearhead the expansion of Islamic civilizations.

The first collections and library were located in the mosque (Sibai, 1987). Historical studies on mosque libraries have proven that there is an appreciable number of mosque libraries and this has contributed to the enhancement of the society in Islamic civilization (Alami, 2012). Further, Sibai (1987) stated that almost every mosque has its own libraries, especially *jami'* mosques (mosque which is used for observing *jumaah* prayer).

Mosque libraries, like western church and synagogue libraries, are established to serve the religious needs of the immediate congregation, are located in and supported by the mosque and are staffed by persons associated with it. (Harvey & Musafi, 1981).

Role of Church Libraries: Historical and Modern Perspectives

In a view on the church libraries as mentioned by Bolton (2014), the libraries serve a specialized role in supporting the religious and educational needs of their congregations while also offering resources to the broader public when possible. The collections insides are typically tailored to reflect the teachings, values, and theological perspectives of the specific denomination they represent. This focused approach to collection development differentiates church libraries from public libraries, which cater to diverse audiences with broader informational needs.

Kurniawan (2017) identified the role of church libraries in enhancing the spirituality of congregations, using the Pelita Library in Central Jakarta as a case study. It reveals that the library defines functions of worship place libraries, including serving as a centre for information, education, creativity, youth engagement, and social interaction. The library supports the church's mission to strengthen spirituality and family values. Strong internal motivation and external support help the library achieve its spiritual and educational goals.

Church libraries in the 1970s served current news and information to their users especially to the young who need information fast. Towns and Barber (1971) in their book entitled *Successful Church Libraries* wrote in their preface, "The church today faces the alternative of advancing to meet the problems of the 70s or regressing into the past. Christian young people are demanding up-to-date answers to up-to-date problems. The church is being squeezed by cultural pressures and bombarded by the knowledge explosion."

Librarians nowadays should consider the current needs of the user to ensure they are still relevant. Towns and Barber (1971) showed their concern “Some churches are ignoring today's problems and are thrusting their spiritual heads into their own church ghettoes. Others are on the cutting edge of today's world and see God at work in their churches”.

For all the collections to be accessible to the users, Nimer (2017) suggested that, “the librarian was responsible for organizing and making them available to Church members. Therefore, basic classification systems were also recommended for arranging materials on the shelves.”

Studies on Comparative Studies Between Mosque and Church Libraries

To the best of the researchers’ knowledge, only one comparative study between mosque and church libraries has been identified in the existing literature, Harvey and Azar’s (1981) work titled *Tehran Mosque Libraries and a Comparison with American Church Libraries*. Since the publication of that study, no further research appears to have been conducted on this specific topic, highlighting a significant gap in the literature.

METHODOLOGY

This study adopts a mixed-methods approach to explore the inclusive roles of religious libraries, specifically mosque and church libraries, within their respective communities. This methodology combines both survey and semi-structured interviews to gain a comprehensive understanding of the selected libraries' management practices.

A purposive sampling strategy was employed to select prominent mosque and church libraries known for their institutional significance and public engagement. However, we faced some obstacles due to bureaucracy, especially in getting official permission from the management of the mosque and church.

Five religious libraries were involved in this study based on their accessibility, institutional status, and known community involvement:

1. Masjid Negara Library (Malaysia) – Affiliated with Malaysia's national mosque, representing a central hub for Islamic knowledge dissemination.

2. Masjid Istiqlal Library (Indonesia) – Located within Indonesia's largest mosque, known for its role in national and interfaith programmes.
3. Masjid Muktafi Billah Library (Malaysia) – Recognized nationally as one of the best mosque libraries in Malaysia in 2015.
4. Holy Cross Theological College Library (Myanmar) - considered as the oldest Anglican Church in Myanmar and served to train Myanmar Anglican priests.
5. Seminari Theologi Malaysia Library (Malaysia) – A research centre on church and mission history, serving theological scholars and clergy.

A structured survey questionnaire was developed to collect baseline data from the selected libraries. The survey comprised seven key items, each targeting a specific functional aspect of library operation:

a) Library management – Structure, staffing, policies and budget.
b) Acquisition – Type of collection, subject, and purchasing process.
c) Cataloguing and classification – Standards used.
d) Library system – Use of integrated library systems (ILS).
e) Facilities – Physical infrastructure and technology access.
f) Services – Target user, services given.
g) Activities – Promotion, activities.

The survey was disseminated electronically and followed up via email and telephone to encourage responses. To complement the survey data and gain deeper contextual insights, semi-structured interviews were conducted with key personnel, at least one representative for the mosque and one from the church library. The interviews focused on elaborating the survey responses and uncovering qualitative dimensions related to policies referred to collection and, activities.

This study was conducted within a constrained time frame, which limited the scope of data collection. Thereefore, only three mosque libraries and two church libraries were involved. These institutions were chosen based on their prominence, accessibility, and willingness to collaborate within the research timeline. While the limited sample size may not allow for broad

generalization, it offers valuable insights into their management practices and roles in promoting inclusivity.

FINDINGS AND DISCUSSION

Management of the Library

All participating libraries reported having designated staff to handle library operations. However, the number of staff varies significantly across institutions. The institutional status of the libraries also highlights variation, two are government-affiliated (Masjid Negara and Masjid Al-Muktafi Billah Shah), while the other three are private (Masjid Istiqlal Library, Seminari Theologi Malaysia Library, and Holy Cross Theological College). This distinction may influence not only staffing and budget allocation but also the degree of autonomy in decision-making, collection development, and community engagement strategies.

Seminari Theologi Malaysia Library, a private church-affiliated library, has the largest team, comprising five staff members, likely driven by its academic and research-orientated mission. In contrast, Masjid Al-Muktafi Billah Shah and Masjid Negara, both mosque libraries under government administration, operate with only one staff member each. This limited human resource capacity could pose challenges in delivering comprehensive library services, especially if one individual is expected to manage all operational, technical, and user engagement functions. Meanwhile, the Istiqlal Library in Indonesia, despite being privately managed, employs four staff members, indicating relatively stronger resource allocation, possibly linked to its affiliation with Indonesia's largest mosque and its visibility in interfaith initiatives.

All five libraries affirm that they operate based on established policies or guidelines, reflecting a commitment to structured management practices and adherence to professional standards. Among the policies identified are membership policies, which define user eligibility and borrowing privileges, as well as collection development policies, which guide the selection, acquisition, and maintenance of library materials. However, the depth and implementation of these policies were not examined in detail and are likely to vary depending on the library's governance structure, institutional priorities, and available resources.

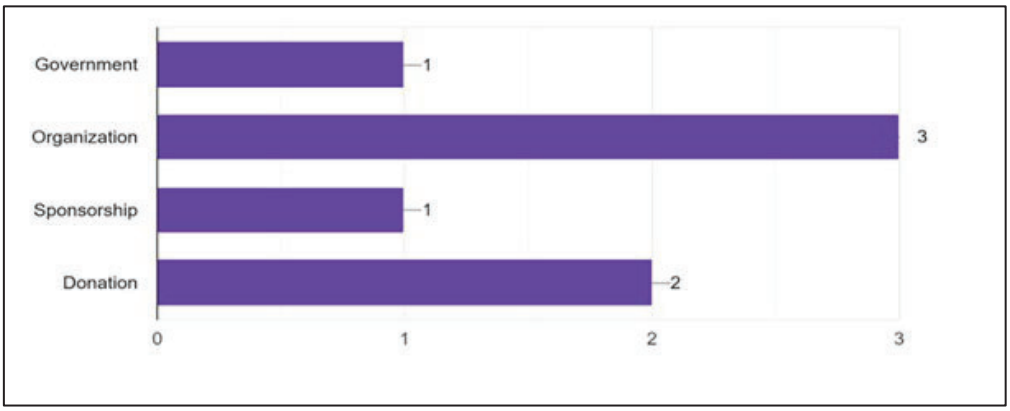


Figure 1: Sources of library budget

The data (Figure 1) show that religious libraries receive funding from various sources depending on their institutional background. Most church-affiliated libraries, such as Seminari Theoloji Malaysia and Holy Cross Theological College, rely on organizational support, with some also receiving sponsorships and donations. The Istiqlal Mosque Library in Indonesia is also supported by its parent religious organization, indicating stable institutional funding despite being a mosque library. In contrast, Masjid Al-Muktafi Billah Shah depends solely on community donations, while Masjid Negara is fully government-funded. This suggests that church libraries and larger mosque institutions like Istiqlal tend to have more structured financial support, while smaller mosque libraries rely heavily on public or community contributions, which may limit flexibility in planning and development.

Acquisition

Materials in a library can be acquired through purchasing, exchange, gift, donation or *wakaf*. The findings indicate that all participating religious libraries employ multiple methods of acquiring library materials, with varying levels of reliance depending on institutional capacity and resource availability. The most common method of acquisition, reported by 100% of the libraries, is through purchasing. This suggests a strong institutional emphasis on maintaining relevance, quality, and control over the selection of library resources.

In addition to purchases, donations and gifts emerge as significant secondary acquisition methods, reported by several libraries, including Seminari Theologi Malaysia Library, Holy Cross Theological College, and Masjid Istiqlal Library. These contributions reflect community support and institutional networks, which often supplement limited budgets, especially in

private or religiously funded institutions. *Wakaf* (endowment), used by Masjid Al-Muktafi Billah Shah, represents a culturally and religiously significant means of enriching the collection through charitable acts, rooted in Islamic philanthropic traditions. Meanwhile, exchange, practiced by Seminari Theologi Malaysia, may indicate academic partnerships and resource-sharing among theological institutions.

The data show that books are the core resource across all five religious libraries, confirming their continued relevance as foundational materials in religious and educational contexts. In addition to books, some libraries provide additional formats to support user needs. For example, Seminari Theologi Malaysia Library and Holy Cross Theological College offer a variety of resources including magazines, newsletters, bulletins, and online materials, manuscripts, rare book materials reflecting their academic orientation. The findings also highlight the growing presence of online materials as a secondary type of collection, which are Seminari Theologi Malaysia Library, Holy Cross Theological College, and Masjid Al-Muktafi Billah Shah reported the inclusion of online resources in their collections, indicating a gradual shift toward digital content to support remote access, scholarly research, and wider user engagement.

In terms of subject focus, the findings show that the majority of the libraries reported that the main subject in their collections is religion. This is expected, as these libraries are based in religious institutions such as mosques and churches. Some libraries, like Masjid Istiqlal Library and Holy Cross Theological College, also include other subjects such as history, culture, but religious materials remain the primary focus across all libraries.

Cataloging and Classification

The data (Figure 2) show that the Dewey Decimal Classification (DDC) system is the most widely used among the surveyed religious libraries, with 80% of the respondents adopting it. This reflects DDC's long-standing global acceptance and its simplicity, which makes it especially suitable for small to medium-sized libraries, including those in religious institutions. Interestingly, only one library (25%), Masjid Negara Malaysia, reported using the Ziauddin Sardar Classification Scheme.

The absence of other classification systems, such as the Library of Congress and IIUM Islamic classification scheme, suggests that religious libraries tend to rely on more conventional and widely understood systems, possibly due to staffing limitations or institutional standardization. This result highlights a need to explore and promote context-sensitive classification systems in religious libraries that better reflect the structure of knowledge within faith-based traditions.

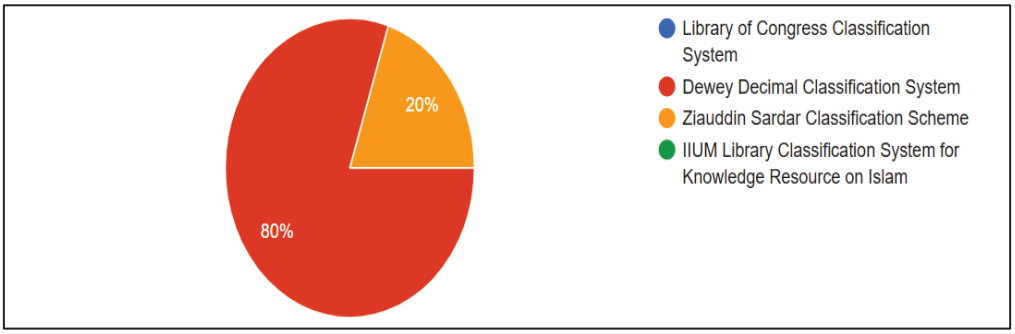


Figure 2: Cataloguing and classification practices

The exclusive reliance on DDC by Seminari Theologi Malaysia Library, Masjid Al-Muktafi Billah Shah, and Masjid Istiqlal Library may also reflect institutional preferences for systems that support interoperability, ease of training, and access to existing bibliographic records.

Library System

The data (Figure 3) indicate that the majority of the religious libraries surveyed (80%) have adopted KOHA, an open-source Integrated Library Management System (ILMS), to manage their collections and services. KOHA's popularity among the libraries studied, particularly those in Malaysia, can be attributed to its flexibility, cost-effectiveness, and support for multilingual and MARC-compliant cataloguing, making it especially suitable for small to medium-sized religious libraries with limited budgets.

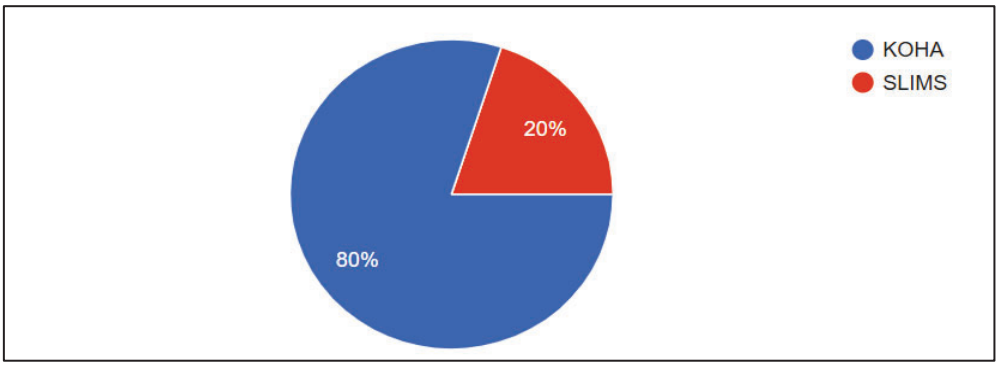


Figure 3: Library management system usage

However, one institution which is the Masjid Istiqlal Library in Indonesia, reported using SLIMS (Senayan Library Management System), which is also an open-source LMS developed specifically in Indonesia. SLIMS offers localized support, a user-friendly interface, and customizable modules, making it a preferred choice for Indonesian institutions seeking to align with national standards and language requirements. The use of SLIMS by Masjid Istiqlal Library highlights a contextual preference, likely based on local familiarity, institutional policy, or government support for homegrown technologies.

This variation reflects a broader trend in library automation within Southeast Asia, where open-source platforms are favored due to their adaptability and cost-efficiency. As noted by Muneer and Harun (2019), many religious and community libraries in the region adopt KOHA and SLIMS not only for their affordability but also for the growing ecosystem of technical support and documentation available in local languages.

Facilities

The findings indicate that all five religious libraries prioritize providing a basic reading area, reaffirming their foundational role in supporting personal study, reflection, and access to printed materials. This common provision reflects the central function of religious libraries as quiet, contemplative spaces for both individual and group learning.

Beyond reading spaces, several libraries extend their support through additional user-centred facilities. Discussion rooms are available in four out of five libraries, demonstrating a commitment to fostering collaborative learning. Similarly, computer or laptop access is available in four libraries, which is crucial for supporting access to online resources, digital catalogues, and academic research particularly in theological institutions such as Seminari Theologi Malaysia Library and Holy Cross Theological College.

Certain libraries also offer more specialized or extended facilities. For example, Maktabah Al-Ghazali, Masjid Al-Muktafi Billah Shah provides a broad range of services, including carrel rooms, printers, a photostat machine, and even a "little free library", highlighting efforts to support both structured and informal learning. Masjid Istiqlal Library offers a meeting room, which may serve for workshops, community discussions, and reinforcing the library’s broader community role.

The data also highlight that private religious institutions like Seminari Theologi Malaysia Library and Masjid Istiqlal Library provide a more structured set of services, while government-affiliated libraries such as Masjid Negara offer more basic facilities. These discrepancies may reflect differences in budget, staffing, and institutional priorities.

Services

The findings reveal that all five religious libraries surveyed provide book loan services, positioning themselves as accessible knowledge hubs for their communities. In addition, some libraries extend their services to include interlibrary loan, user education, and reading spaces, reflecting their broader role in knowledge dissemination, lifelong learning, and fostering information literacy. For instance, Maktabah Al-Ghazali is notably active, offering all four services indicating a proactive service aimed at a wide audience including government and institutional users. Similarly, Seminari Theologi Malaysia Library incorporates user education, suggesting a structured approach to developing information-seeking skills among its patrons, especially those engaged in academic and theological studies.

Interlibrary loan services are available in three libraries, including Masjid Negara, Masjid Istiqlal Library, and Maktabah Al-Ghazali, demonstrating collaboration with other institutions and efforts to expand user access to a broader range of materials. Such services are crucial in resource-limited libraries, particularly in religious institutions where specialized materials may not always be available in-house. User education, reported by three libraries, reflects an awareness of the need to guide users in effectively locating, evaluating, and using information aligning with the inclusive mission of religious libraries as learning and spiritual development centres.

Target Users

Regarding target users, the data (Figure 4) show that all libraries serve a broad demographic, with 100% of respondents indicating they cater to young adults (20-40), adults (41-55), and elders (56 and above). This demonstrates that religious libraries are primarily orientated toward adult and mature users, many of whom may be engaged in religious education, professional development, or community leadership roles. Teenagers (40%) and children (20%) are served by fewer libraries, which may reflect limitations in resources or programming for younger age groups.

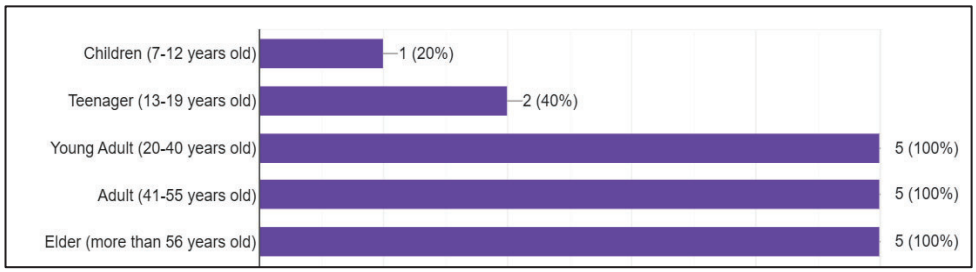


Figure 4: Target Users of Religious Libraries

Activities

The data show that all four religious libraries actively promote their services and activities through multiple communication platforms, demonstrating a commitment to outreach and engagement. The most commonly used platforms are Facebook and WhatsApp, utilized by all five libraries. These platforms are likely due to their widespread use, cost-effectiveness, and ability to reach various demographic groups, especially in Southeast Asian communities where mobile messaging and social networking are deeply integrated into daily communication (Abdullah & Rahim, 2022). In addition, Instagram is used by all mosque libraries likely to reach younger audiences with more visual content. Traditional channels such as bulletin boards, newsletters, and notice boards are also reported, particularly in Seminari Theologi Malaysia Library and Maktabah Al-Ghazali, reflecting a hybrid approach that combines digital and physical methods to ensure inclusivity for users who may not be digitally connected. This balance highlights an understanding of diverse user needs and communication preferences within religious communities.

All libraries indicated that they organize activities, showcasing their dynamic role in community development and not merely functioning as static information repositories, except Holy Cross Theological College. The types of activities vary across institutions:

1. Maktabah Al-Ghazali demonstrates a broad and inclusive engagement model, organizing book talks, writing competitions, intellectual talks, children's programmes, and literacy activities. This variety reflects its strong community-centered mission and alignment with mosque-based educational values.
2. Masjid Negara organizes the national-level literacy initiative "*Jom Baca Bersama Untuk 10 Minit*", supporting reading culture and public participation.

3. Perpustakaan Masjid Istiqlal conducts seminars and specialized sessions such as surgical book discussions, which may reflect its broader educational mandate and efforts to attract diverse users beyond religious circles.

The variety of community-based activities organized ranging from literacy campaigns and book reviews to academic workshops and children's events demonstrates the evolving role of religious libraries as inclusive, educational, and culturally vibrant institutions. These efforts not only promote information access but also foster social interaction and intellectual growth within faith-based communities.

CONCLUSION

This study offers meaningful insights into the roles and operations of religious libraries both mosque and church libraries, focusing on seven key areas: library management, collection acquisition, cataloguing practices, library systems, facilities, services, and activities. Despite variations in size, funding, and affiliation, the libraries surveyed demonstrate a collective effort to support inclusive access to knowledge. All libraries have designated staff and follow formal guidelines, though staffing number and funding sources differ. Collection development is primarily done through purchases, supplemented by donations, gifts, and in one case, *wakaf* contributions. Most libraries use the Dewey Decimal Classification System and open-source integrated library systems such as KOHA and SLIMS, which are both cost-effective and user-friendly. However, there is emerging interest such as at Masjid Negara in using classification schemes like the Ziauddin Sardar.

In addition to their operational functions, these religious libraries serve as active community spaces. All libraries provide essential facilities like reading areas, followed by discussion rooms and computer access, while some also offer carrels, and printing services. Their services include book lending, interlibrary loans, user education, and more. They cater primarily to young adults, adults, and elderly users, though engagement with children and institutional users is more limited. Importantly, each library organizes a variety of activities such as book talks, literacy programmes, seminars, and orientation workshops, which are promoted through platforms like Facebook, WhatsApp, newsletters, and notice boards. These findings affirm that religious libraries are playing an increasingly important role as inclusive, educational, and community-oriented institutions.

To enhance their societal contribution, future efforts should focus on diversifying user services, activities, strengthening staff support, budget and promotion. Future research should consider expanding the scope to include a broader range of religious libraries, including those affiliated with other faith traditions such as Buddhism and Hinduism to provide a more comprehensive understanding of how different religious libraries contribute to inclusivity, community engagement, and knowledge access across diverse religious contexts.

REFERENCES

Abdullah, N., & Rahim, S. (2022). Digital outreach in religious institutions: Communication strategies in Southeast Asian libraries. *Asian Journal of Library and Information Science, 14*(1), 22-35.

Alami, H. (2012). General overview on educational institutions in Islamic civilization. *Life Science Journal, 9*(4).

Bolton, T. C. (2014). A Comparative analysis of the religious non-fiction collections of a public library and a Christian church library. *SLIS Connecting. 3*(1), Article 9. DOI: 10.18785/slis.0301.08

Chisita, C. T., Ngandu, K. B., & Ngoaketsi, J. (2020) Religious Libraries in the Library and Information Science Matrix: A Historical Overview. *Handbook of Research on Records and Information Management Strategies for Enhanced Knowledge Coordination* (pp.223-245). DOI: 10.4018/978-1-7998-6618-3.ch014

Farahati, A. (2011). The mosque as the first political-ideological base in the Islamic society. *Journal of Politics and Law, 4*(1), 146-152

Harvey John. F. and Azar Musafi, Shahr. (1981). *Tehran Mosque Libraries and a Comparison with American Church Libraries.*

Idriz, M. (2000). Muslim education a brief history. *Al-Hikmah*, *1*, 35-37.

Kurniawan, M. J., & Rachman, Y. B. (2017). The functions of Pelita Church Library in supporting church activities. *Jurnal Ilmu Informasi, Perpustakaan, dan Kearsipan, 19*(1), 15-26.

Lanre, O., Malik, A., & Hamad, A. S. (2014). The impact of mosque in development of islamic education in Nigeria (IMDIEN). *Gse E-Journal of Education, 2*(3), 93-98.

Laugu, N. (2007). The roles of mosque libraries through history. *Al-Jāmiʿah: Journal of Islamic Studies, 45* (1), pp. 91–118.

Muneer, M. & Harun, H. (2019). Adoption of open source integrated library management systems in Southeast Asian libraries: A comparative study of KOHA and SLIMS. *Library and Information Science Research, 41*(3), 100967.

Nimer, C. (2017). The church library coordinating committee and the correlation of meeting house libraries. *BYU Studies Quarterly*, *56*(3), 147-180. Brigham Young University. https://www.jstor.org/stable/44507659 on 19 March 2025.

Towns, E. L., & Barber, C. J. (1971). *Successful Church Libraries*. https://digitalcommons.liberty.edu/towns_books/185

Sibai, M. M. (1987). *Mosque Libraries: An Historical Study*. London: Mansell.

Sudana, S., Rusydiana, A. S., & Fahmiyati, N. (2022). Mosque library: History, function and research map. *Library Philosophy and Practice (e-journal).* 6878.

Transforming Academic Libraries into Dynamic Learning Hubs: The Role of Immersive Learning in Enhancing STEM Education in Perak, Malaysia

Maria Hani Mustaffa, Zaidah Mahmud, Noor Affendy M. Ali

Information Resource Centre, Universiti Teknologi PETRONAS,

Seri Iskandar, Perak, Malaysia

Corresponding email: mariahani.mustaffa@utp.edu.my

ABSTRACT

The transformation of academic libraries into dynamic hubs of empowerment is reshaping education. This study explores the implementation and impact of two pioneering IRBs, Earth Fossil Explorer and Rocks and Minerals, in the Department of Education in Perak, Malaysia. Rooted in Constructivist Learning Theory, the research shows how AR and 3D technologies enhance learning through active engagement and experiential understanding. A mixed-methods approach reveals that these IRBs significantly improve STEM comprehension, retention, and interest. Addressing challenges such as limited access to innovative teaching tools, the study identifies IRBs as practical solutions to simplify complex topics and make learning more engaging. Currently utilized by over 400 primary schools in Perak, these resources showcase their potential to foster inclusivity and cater to diverse learners. The findings suggest that incorporating IRBs into Malaysia's curriculum, particularly in geology and environmental science, can address existing educational challenges and promote equity in learning. Libraries, as enablers of such innovations, play a critical role in fostering lifelong learning, critical thinking, and STEM interest among students, supporting the national agenda for educational transformation.

Keywords: Academic Libraries; Immersive Learning; Educational Transformation

INTRODUCTION

Academic libraries are significantly transforming from traditional information repositories into dynamic, technology-driven learning environments. In today's knowledge society, libraries are expected to provide access to resources and facilitate innovative learning experiences that support curriculum goals and national education priorities (Lippincott, 2010; Corrall, 2013). This shift is especially critical in Science, Technology, Engineering, and Mathematics (STEM) education, where student engagement and conceptual understanding often require more than conventional teaching methods can offer.

Malaysia's commitment to strengthening STEM education is evident through its national policies, which emphasize the need for creativity, innovation, and digital integration in the classroom (Ministry of Education Malaysia, 2013). Despite these efforts, many schools, particularly in less urbanized areas, face limited access to advanced learning tools, inadequate infrastructure, and a lack of engaging STEM resources. These gaps can reduce interest, poor retention, and inequities in learning outcomes (Yunus & Alias, 2021).

In response to these challenges, the Information Resource Centre (IRC) Universiti Teknologi PETRONAS (UTP) has begun implementing immersive learning resources designed to make STEM education more accessible, engaging, and impactful. This study focuses on two innovative immersive reality books (IRBs), Earth Fossil Explorer and Rocks and Minerals, which integrate augmented reality (AR) and 3D elements into physical books. These resources allow students to interact with digital content in real time, bringing abstract concepts to life and making complex topics more tangible.

Currently in use by more than 400 primary schools in Perak, these IRBs aim to promote STEM engagement by transforming how students learn and interact with educational content. This paper investigates the implementation and impact of these IRBs, exploring their effectiveness in enhancing STEM comprehension, stimulating student interest, and overcoming limitations in traditional educational delivery. The findings demonstrate the potential of academic libraries to play a central role in democratizing access to immersive learning and supporting Malaysia's broader educational transformation agenda.

LITERATURE REVIEW

The Evolving Role of Academic Libraries

Academic libraries have shifted from static information centers to active learning environments supporting institutional teaching, research, and innovation. This transformation aligns with global trends where libraries adopt user-centric approaches to facilitate engagement, collaboration, and lifelong learning (Corrall, 2013; Lippincott, 2010). Recent initiatives emphasize integrating digital tools, makerspaces, and learning technologies to make libraries relevant in the digital age (Foo et al., 2014).

In Malaysia, academic libraries are increasingly positioned as strategic partners in higher education, contributing to resource access and pedagogical innovation (Khalid et al., 2022). These libraries are now exploring ways to support curriculum delivery through experiential and technology-enhanced learning spaces that cater to diverse student needs.

Immersive Learning and Augmented Reality (AR) in Education

Immersive learning, encompassing AR, VR, and 3D visualizations, has become a powerful tool for enhancing student engagement and understanding. AR in particular, overlays digital information on physical environments, providing learners with interactive and enriched experiences that foster deeper comprehension (Akçayır & Akçayır, 2017). In the context of STEM, where abstract concepts are often difficult to visualize, AR has proven to be effective in simplifying complex content and improving cognitive performance (Yuen et al., 2011).

Studies show that AR enhances students' motivation, retention, and spatial understanding, especially in geology and environmental science (Ibáñez & Delgado-Kloos, 2018). It also promotes active participation, allowing learners to interact directly with content meaningfully.

Libraries as Enablers of Educational Innovation

Academic libraries are uniquely positioned to democratize access to emerging technologies. Integrating immersive resources into library services can directly support curriculum delivery and expand learning opportunities for both students and educators (Miller, 2014). Libraries can act as neutral, equitable access points, especially in areas where schools may lack the infrastructure to deploy high-tech solutions independently.

In this light, libraries are not only curators of knowledge but also facilitators of educational transformation, capable of delivering impactful learning interventions aligned with national priorities in STEM and digital innovation (Khalid et al., 2022).

METHODOLOGY

This study employed a mixed-methods research design to investigate the implementation and impact of IRBs in enhancing STEM education in primary schools across Perak, Malaysia. The combination of quantitative and qualitative approaches allows for a comprehensive understanding of measurable outcomes and user experiences related to immersive learning tools (Creswell & Plano Clark, 2018).

Project Design

This project employed a mixed-methods approach to triangulate findings and validate the impact of immersive reality books (IRBs) from multiple perspectives. Quantitative data were gathered through structured surveys to assess students' STEM comprehension, interest, and retention. Qualitative data were collected via focus group interviews and classroom observations to explore user experiences and contextual challenges related to integrating IRBs. This approach aligns with previous educational technology studies where combining quantitative and qualitative data has been shown to enhance the validity and reliability of findings (Ivankova, Creswell, & Stick, 2006).

Participants

The project involved a purposive sample of 30 students and 30 teachers from 10 primary schools in Perak that had engaged in the Earth Fossil Explorer and Rocks and Minerals immersive reality books (IRBs) campaign. Participants were selected based on their active involvement with the IRBs, ensuring sufficient exposure to the immersive tools. Teacher participants were chosen for their willingness to share their experiences and observations regarding the implementation of the IRBs, providing valuable insights into the integration process and its impact on teaching and learning.

Data Collection Instruments

i. Quantitative Data Collection: A structured pre- and post-intervention questionnaire was administered to students and teachers participating in the IRB's campaign. This instrument assessed three key dimensions: comprehension (knowledge acquisition), interest (attitudinal engagement), and retention (memory of STEM content). Items were

adapted from validated scales developed by Tuan, Chin, and Shieh (2005), demonstrating construct and criterion-related validity in measuring students' motivation toward science learning.

ii. Qualitative Data Collection: Focus group interviews were conducted with a purposive sample of 30 students and 10 teachers involved in the IRB campaign. These semi-structured discussions aimed to explore participants' perceptions, engagement experiences, and observed learning outcomes. The interview protocols were designed to maintain consistency while allowing for open-ended responses, facilitating an in-depth understanding of the campaign's impact.

iii. Observational Data Collection: Learning observations were carried out during STEM lessons utilizing the IRBs. Observers documented student interactions with the materials, peer collaboration, and overall engagement levels. This observational data provided contextual insights into the practical implementation of the IRBs and their influence on the learning environment.

RESULTS AND FINDINGS

The project investigated how IRBs impact STEM learning among students in Perak, Malaysia. The results are summarized into three main areas: comprehension, interest, and long-term understanding.

Table 1: Summary of key findings: impact of immersive reality books on STEM learning in Perak

Key Area	Findings	Supporting Evidence
STEM comprehension	Post-intervention test scores increased from 56.3% to 78.7%.	*"The 3D models made it easier to understand how fossils are formed. I could see the layers and how they change over time."* *"Before, I found it hard to remember the different types of rocks. But with the AR features, I could interact with them and learn their properties in a fun way."*
Student interest & engagement	85% of students reported enjoying the IRBs and finding science easier to grasp.	*"I didn't understand how rocks form in layers until I saw the 3D animation, it clarified everything."*

Retention of STEM concepts	Follow-up assessment showed a retention score of 74.1%, indicating that learning was sustained over time.	*"Even after two weeks, I can explain how fossils are formed, thanks to the interactive book. It was like I was there, seeing it happen."* *"I can still remember how the 3D model of the rock layers looked. It made the whole process of sedimentation clearer in my mind."*
Impact on STEM enrollment in Perak	i. STEM enrollment in Perak increased from 40.95% in 2021 to 50.83% in 2024. ii. Using IRBs in 400+ schools has helped boost student interest and engagement in STEM subjects.	*"Since introducing the AR books, students are more eager to join science clubs and participate in STEM competitions."* *"Parents have noticed their children's increased enthusiasm for science and are encouraging them to pursue STEM pathways."*

Integrating IRBs into Perak's education system has significantly enhanced STEM learning outcomes, as shown in Table 1. Post-intervention assessments indicated a substantial increase in students' comprehension of STEM concepts, evidenced by improved test scores and positive feedback on the interactive features of the IRBs. This enhanced understanding translated into greater student interest and engagement, with a notable percentage of students expressing increased enthusiasm for STEM subjects. Furthermore, the immersive nature of the IRBs contributed to improved retention of STEM concepts over time, as students demonstrated sustained understanding in follow-up assessments. These educational advancements align with a notable rise in STEM enrollment in Perak, from 40.95% in 2021 to 50.83% in 2024, as reported by the Education Ministry. The adoption of IRBs appears to have played a role in this upward trend, fostering a more engaging and effective STEM learning environment that encourages greater student participation in STEM fields.

DISCUSSION AND INTERPRETATION

The increase in STEM comprehension aligns with previous studies showing that immersive learning tools enhance understanding complex concepts. Positive feedback from students and teachers indicates that the IRBs cater to diverse learning styles, deepening engagement with the material. The observed rise in student interest and engagement supports findings from other studies, which highlight how immersive technologies boost motivation and enthusiasm

for STEM. This heightened engagement is key to sustaining interest in STEM and potentially influencing future career paths.

The improved retention of STEM concepts suggests that immersive learning experiences support long-term understanding, consistent with research on active learning strategies that enhance memory retention. The increase in STEM enrollment in Perak after introducing IRBs indicates a possible link between immersive learning tools and greater student interest in STEM education. While causation cannot be established, the trends suggest further exploration of immersive technologies' influence on educational choices.

Implications for Practice

The findings of this project have several implications for educational practice:

i. Curriculum Integration: Incorporating immersive reality books into the curriculum can enhance students' understanding of STEM concepts, making learning more engaging and effective.

ii. Teacher Training: Providing professional development opportunities for educators to integrate immersive technologies into their teaching practices effectively can maximize the benefits of these tools.

iii. Policy Recommendations: Educational policymakers should consider supporting the adoption of immersive learning tools in schools to foster greater interest and achievement in STEM education.

CONCLUSION

This project aimed to assess the impact of IRBs, specifically Earth Fossil Explorer and Rocks and Minerals, on enhancing STEM education among primary and secondary school students in Perak. The findings revealed that incorporating these interactive tools significantly improved students' comprehension, engagement, and retention of STEM concepts. These results suggest that immersive learning tools, such as IRBs, have the potential to play a crucial role in improving STEM education outcomes across Malaysia's whole education system. By creating a more engaging and effective learning environment, these tools enhance academic performance and inspire students to pursue STEM pathways.

Future research should focus on replicating this project across various educational contexts to validate the findings and explore the broader applicability of immersive reality books in STEM

education. Longitudinal studies could offer valuable insights into the lasting effects of immersive learning tools on student outcomes over time.

ETHICAL CONSIDERATIONS

Ethical approval will be sought from the relevant institutional review board. Informed consent will be obtained from the participants and their parents/guardians, ensuring that students understand their voluntary participation and the confidentiality of the data collected. All personal information will be anonymized, and the findings will be presented in aggregate form to protect participant privacy.

REFERENCES

Akçayır, M., & Akçayır, G. (2017). Advantages and challenges associated with augmented reality for education: A systematic review of the literature. *Educational Research Review, 20*, 1-11. https://doi.org/10.1016/j.edurev.2016.11.002

Beers, S. Z. (2011). *21st Century Skills: Preparing Students For Their Future*. National Education Association.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

Corrall, S. (2013). The shift from information to learning commons in academic libraries: Working towards a shared vision. *New Review of Academic Librarianship, 19*(1), 1-27. https://doi.org/10.1080/13614533.2012.740438

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and Conducting Mixed Methods Research* (3rd ed.). SAGE Publications.

Duffy, T. M., & Cunningham, D. J. (1996). Constructivism: Implications for the design and delivery of instruction. In D. H. Jonassen (Ed.), *Handbook of Research For Educational Communications and Technology* (pp. 170-198). Macmillan Library Reference.

Foo, S., Majid, S., Logan, E., & Khoo, C. (2014). Libraries creating content for digital learning: A framework. *Library Review, 63*(1/2), 20-35.

Hussein, M. H., Ow, S. H., Cheong, L. S., Thong, M. K., & Teoh, Y. S. (2020). The role of augmented reality in STEM education: Insights from Malaysian classrooms. Malaysian *Journal of Learning and Instruction, 17*(2), 23-45.

Ibáñez, M. B., & Delgado-Kloos, C. (2018). Augmented reality for STEM learning: A systematic review. *Computers & Education, 123*, 109-123. https://doi.org/10.1016/j.compedu.2018.05.002

Ivankova, N. V., Creswell, J. W., & Stick, S. L. (2006). Using mixed-methods sequential explanatory design: From Theory to practice. *Field Methods, 18*(1), 3-20. https://doi.org/10.1177/1525822X05282260

Khalid, R., Ismail, N., & Salleh, S. (2022). Transforming academic libraries for Education 4.0: Strategies and perspectives. *Journal of Malaysian Libraries, 16*(1), 1-13.

Lippincott, J. K. (2010). Information commons: Meeting millennials' needs. *Journal of Library Administration, 50*(1), 27-37. https://doi.org/10.1080/0193082090342215

Malaysia Ministry of Education. (2013). *Malaysia Education Blueprint 2013-2025*. Putrajaya: MOE.

Miller, R. K. (2014). The academic library as incubator for digital scholarship. *EDUCAUSE Review*. https://er.educause.edu/articles/2014/6/the-university-library-as-incubator-for-digital-scholarship EDUCAUSE Review

Piaget, J. (1972). *The Psychology of the Child*. Basic Books.

Tuan, H. L., Chin, C. C., & Shieh, S. H. (2005). The development of a questionnaire to measure students' motivation towards science learning. *International Journal of Science Education, 27*(6), 639-654. https://doi.org/10.1080/0950069042000323737

Yuen, S. C.-Y., Yaoyuneyong, G., & Johnson, E. (2011). Augmented reality: An overview and five directions for AR in education. *Journal of Educational Technology Development and Exchange, 4*(1), 119-140

Yunus, M. M., & Alias, A. A. (2021). Redesigning the educational experience: STEM education and digital transformation in Malaysian schools. *Asian Journal of University Education, 17*(4), 206-217.

Impacts of Innovative Applications of Immersive Technology in Vietnamese Academic Libraries: A Case Study of Vinuniversity Library

Tam Ha[1], Tony Tin[1], Vu Nguyen[2], Khin Sone[3], Hang Bui[4]

[1]VinUniversity Library, Hanoi, Vietnam

[2]College of Arts and Sciences, VinUniversity, Hanoi, Vietnam

[3]College of Business and Management, VinUniversity, Hanoi, Vietnam

[4]Center for Information, Library and Museum of the

University of Social Sciences and Humanities,

Vietnam National University Ho Chi Minh City, Vietnam

Corresponding email: tam.ht@vinuni.edu.vn

ABSTRACT

As academic libraries aim to improve user experience and information access, immersive technologies like virtual reality, augmented reality, the metaverse, and 3D tools offer great opportunities. This study explores how VinUniversity Library, a pioneer in Vietnam, uses these technologies for virtual tours, information literacy sessions, digital publishing and a metaverse collection. Through surveys, focus groups, and user interviews, the research finds that while users who engage with these tools find them useful, many remain unaware of them. Challenges include usability issues, user discomfort, and staff concerns about cost, technological changes, and technical skill gaps. The study suggests that successful adoption requires better user outreach, improved usability, and strategic resource and training planning. VinUniversity Library's study is a case study which provides helpful insights for other academic libraries in Vietnam and similar settings as they consider adopting immersive technologies.

Keywords: Academic Libraries; Digital Transformation; Immersive Technology; Vietnam; User Engagement

INTRODUCTION

Immersion refers to the deep engagement of an individual in a virtual environment, during which their perception of time and awareness of the physical world often diminish, resulting in a heightened sense of presence within the task environment (Radianti et al., 2020). Immersive technology integrates virtual content with the physical environment, encompassing Virtual Reality (VR), Augmented Reality (AR), Mixed Reality (MR), 360-degree technology and artificial intelligence (AI), fully immersing users in a computer-simulated world. It includes interactive 3D graphics, simulation, and gaming technologies, offering higher education a richer learning environment and overcoming geographical barriers (Roy et al., 2022; Yavarkovsky, 2013). Immersive technology is a transformative force across various sectors, including education and libraries.

Academic libraries play a critical role in supporting learning, teaching and research, especiallydigital literacy and lifelong learning, by providing access to a wide range of resources and services. The digital age marks a new era in library development by creating immersive, automated, and highly interactive learning environments that reimagine libraries as dynamic, user-focused digital spaces rather than conventional book repositories (Tran, 2021). To maintain relevance in the digital age, libraries must integrate contemporary technologies (Subaveerapandiyan et al., 2024). The immersive technology has created a shift in libraries from traditional digital resources to more interactive and experiential services, such as virtual tours, AR-enhanced research tools, and immersive learning environments (Guo et al., 2024). In Vietnam, as digital literacy gains importance based on the government's digital transformation priority, academic libraries could take the lead in incorporating immersive technologies into their services. The integration of experiential technologies, such as VR, the metaverse, and 3D technology, in university library activities as efforts to innovate information services to satisfy evolving users' needs has become an increasingly popular trend, even in developing countries like Vietnam (Trinh et al., 2024). However, the adoption of these technologies is not without challenges, particularly in regions with limited infrastructure and resources.

VinUniversity (VinUni), established in 2020, is the first private, not-for-profit Vietnamese university aspiring to become a university of excellence with a mission to develop talents for the future of Vietnam and the world. VinUni comprises four colleges including College of Arts and Sciences; College of Business and Management; College of Engineering and Computer Science; and College of Health Sciences. The university is committed to meeting the highest standards set by global accreditation and ranking organizations across all its colleges. The VinUni Library then is established to support the learning, teaching, research, and entrepreneurship activities of the university, catering to the needs of the 21st century user generation which is highly tech-savvy, collaborative, and social, with a strong preference for flexibility in their learning and research activities (Seibert, 2021). As library leaders in the 21st century, it is important to recognize the changing needs of these intelligent users. The library's leaders have been tasked with the responsibility of building a SMART library that can meet the unique needs of this user generation. VinUni library is one of the first academic libraries in Vietnam which has leveraged immersive technology in support of educational, research, innovation, and entrepreneurship activities.

The technology is employed for various purposes such as library virtual tours, virtual information literacy sessions, digital publishing and access to Vietnam’s metaverse collection. The library’s virtual tour is hosted on the Thinklink platform, integrating information literacy components to help students gain a comprehensive view of the library remotely while learning information literacy. The tour can be accessed via VR headsets available at the library or on students’ laptops. VinHeritage Metaverse by VinUni Library is an innovative 'open museum' that offers users a virtual journey to explore Vietnam's beauty and traditions. This digital platform provides access to a vast collection of award-winning photos from Vietnam Heritage Magazine and captivating media from VinPearl and VinUni's environmental intelligence and legacy project. Unlike conventional museums, VinHeritage Metaverse transcends spatial and temporal boundaries. Additionally, VinUni Library’s interactive photo frame uses AR to incorporate features such as filters, audio effects, flying logos, animated objects, and other engaging components, providing an immersive and captivating experience for users. VinUni Library has leveraged AI and AR technologies for digital book publishing, exemplified by the History of VinUniversity interactive eBook project." It embedded chatbots and AI learning courses based on the book content, designed to help students study more effectively and easily.

The purpose of this study is to explore how VinUni Library has integrated immersive technology and its impacts on library services and student engagement. The research questions are:

1. What are the perceptions of library staff and students regarding the use of immersive technology in library services?
2. What are the challenges faced by users when using immersive technology in library services?

Since the study is about technology acceptance in VinUni library, the Technology Acceptance Model (TAM) (Davis, 1989) will be used to facilitate the understandings. In TAM, Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) are key determinants of technology adoption.

LITERATURE REVIEW

Immersive technology is becoming increasingly popular in library environments worldwide. A survey of the top 100 university libraries in the United States found that 86% of them incorporate VR and AR technologies into their library services (Guo et al., 2024). Beyond the USA, (Shahzad et al., 2024) reviewed the adoption of immersive tools in libraries across various countries, including Canada, Poland, Finland, Australia, India, Taiwan, Pakistan, South Korea, Nigeria, Iran, and the UAE, with varying degrees of success. These tools facilitate multisensory user interactions through virtual map services, VR/AR studios, reading/retrieval systems, learning platforms, exhibitions, reference services, and virtual tours (Guo et al., 2024; Shahzad et al., 2024), simulating traditional library experiences in digital environments.

The academic literature highlights multiple advantages of immersive technologies for both users and library operations. Dalili et al. (2022) and Kunanets et al. (2024) emphasized that immersive services in libraries offer significant benefits for students' academic performance. AR enhances their learning abilities and their attention to details by providing an interactive and engaging environment that simplifies complex concepts. VR provides students with access to information, deepens their emotional engagement and fosters intellectual curiosity.

According to Kunanets et al. (2024), Guo et al. (2024) and Shahzad et al. (2024), the immersive technologies like AR and VR provide library users with a wide range of immersive experiences via virtual exhibitions, virtual tours, online conference, virtual lectures and more. This technology is transforming the presentation of library artifacts into "live" multimedia experiences, immersing visitors in the virtual world and enabling them to "live" events through

various senses. Immersive technology also enables the creation of virtual historical reconstructions, allowing users to travel through time and space to study past events and places. This technology fosters a love for learning and attracts more visitors to libraries.

Besides the benefits for library users, Dalili et al. (2022) and Shahzad et al. (2024) indicated that immersive technology can help improve the professional activities of libraries. AR significantly enhances library services by providing complementary content and additional information such as 3D images, files, animations, graphics, and videos. It links to related works, other works by the same author, and new versions of resources, enriching the content of books. AR aids in resource management through statistical reports, offers new services and digital information, including virtual library tours, facilitating resource searches in virtual environment. AR also simulates reality and adds graphics to resources, enhancing user interaction.

Although immersive tools offer many advantages, Rojas-Alfaro (2023) argued that they should not replace traditional library practices, but be used as an additional tool to enhance library services. This approach ensures that the rich heritage of traditional library environment is preserved while embracing new technologies.

Despite these benefits, the implementation of immersive technology in libraries is hindered by several challenges. The study's findings identified five major challenges in adopting immersive technology in libraries including financial barriers, infrastructure and technological proficiency, staff training and skill development, cultural barriers, ethical and privacy issues (Dalili et al., 2022; Guo et al., 2024; Isa, 2023; Kunanets et al., 2024; Le et al., 2024; Shahzad et al., 2024; Ylipulli et al., 2023).

These researchers all agreed that the most significant challenges are financial. Implementing and maintaining virtual immersive technologies require substantial expenditures on high-quality VR/AR equipment, devices, and software, which is particularly problematic for small libraries. Additional costs include content creation, technical maintenance, staff training, software licensing, and support. Financial issues also arise from calculating the return on investment, determining user impact, and the rapid obsolescence of technologies. The need for dedicated space, advanced graphics cards, and motion sensors further complicates matters for libraries with limited resources.

The next group of challenges that these researchers figured out involves infrastructure and technological issues. Implementing immersive technology in libraries requires powerful computers, headsets, motion-tracking equipment, stable high-bandwidth network connections, access to cloud services, and storage space. Choosing the right system and software can ease this challenge by ensuring seamless integration with existing digital infrastructure and compatibility with databases, content management systems, and online platforms. The chosen technology should be user-friendly, intuitive, and scalable, allowing it to adapt and grow with the organization's needs.

The above mentioned studies also showed that implementing immersive technologies in libraries presents challenges in staff training and skill development. Hollister & Lee (2022) highlighted that despite the growing interest in VR and immersive technologies, few Library and Information Science programs have incorporated them into their curricula. Employees need to acquire technical expertise for effective operation and troubleshooting in their working place then. Due to the rapidly evolving nature of immersive technologies, continuous training and constant communication with industry experts are essential. These significant changes can cause resistance and concern among staff, requiring transparent communication and strong management support.

The researchers also highlighted ethical and privacy issues in implementing immersive technologies in libraries. Technologies often require users to create accounts, raising concerns about data privacy and security. Ethical considerations are crucial for the long-term sustainability of immersive applications in libraries. Without addressing these aspects, immersive technologies may struggle to gain social acceptance.

Cultural barriers to adopting immersive technology in libraries include resistance to change, as some individuals may prefer traditional methods over new technologies. Social norms and attitudes towards technology can also play a role, with some cultures being more hesitant to embrace digital innovations (Hofstede, 2011). Additionally, there may be a lack of awareness or understanding of the benefits of immersive technology among library staff and users.

In addition, health and safety issues significantly impact user satisfaction with immersive services in libraries. Users have reported experiencing vision problems, disorientation,

dizziness, sweating, and nausea. Additionally, some users have experienced motion sickness and general discomfort when using immersive technology (Roy et al., 2022; Ylipulli et al., 2023).

Scholars propose several strategies to mitigate these challenges. Isa (2023) and Kunanets et al. (2024) agreed that the following strategies will lessen the challenges in adopting immersive technologies in libraries. Community partnerships are an effective tool for libraries to overcome financial challenges by attracting funding from local authorities, companies, and charitable foundations. These collaborations help preserve local history and culture while promoting digital literacy and technological skills among citizens, especially those with limited access.

Another strategy, according to Isa (2023) and Kunanets et al. (2024), is to choose the right system and software for AR and VR for seamless integration with an institution's existing digital infrastructure. The selected technology should feature user-friendly and intuitive interfaces with reasonable scalability to adapt and grow and receive regular updates for enhanced performance, security, and additional functionalities.

Given the rapidly changing nature of VR technologies, continuous training for librarians is essential, requiring constant communication with industry experts, self-organization, and dedication. Encouraging staff participation in conferences, webinars, and forums helps keep them updated about the latest developments and best practices in VR implementation. Regular skill assessments and professional development courses should be established to monitor staff competency and ensure successful integration of these technologies (Isa, 2023; Kunanets et al., 2024).

Isa (2023) agreed with Kunanets et al. (2024) in that libraries must prioritize ethical guidelines and privacy policies when implementing immersive technologies. Balancing innovation with the protection of users' rights and data is essential. Libraries need to sustain transparency about data collection and storage, implement clear privacy policies and distinctly inform users about data usage and sharing. Obtaining user consent and avoiding intrusive data collection practices are vital to maintaining privacy. Additionally, content creation should adhere to ethical standards, avoiding harmful stereotypes and misinformation, while ensuring user safety and inclusivity.

In Southeast Asia, the adoption of immersive technology in libraries is still in its early stages, with few studies recognized in the region. In Vietnam, Trinh et al. (2024) and Vu et al., (2024) pointed out that the adoption of immersive technology by educational organizations in Vietnam remains limited, not mentioning academic libraries. Le et al. (2024) concurred with Trinh et al. (2024) that implementing AR/VR in Vietnamese universities is crucial for enhancing student engagement and preparing them for future careers. However, like other educational institutions worldwide, Vietnamese higher education face hurdles such as cost, human interaction, infrastructure, and technical issues which should be overcome to boost the AR/VR implementation in universities. The Vietnamese government has been actively working to integrate ICTs into education, indicating a commitment to digital transformation and paving the way for AR/VR adoption (Long, 2021).

To understand the factors influencing the adoption and use of immersive technologies in academic libraries, Technology Acceptance Model (TAM) is an useful theoretical framework. Prior research in educational settings in Vietnam has utilized TAM to investigate the adoption of AR/VR technologies (Trinh et al., 2024). This study also points out that to increase the adoptiona and usage of AR/VR, it is necessary to increase the levels of perceived usefulness and ease of use of the technologies.

METHODOLOGY

The study utilized a mixed-methods approach approved by VinUni's ethical review committee, combining quantitative surveys with qualitative interviews to gather comprehensive data.

Convenience sampling was chosen for this study. Data collection involved distributing an anonymous online questionnaire to assess user experiences and attitudes towards immersive technology. There were no exclusion criteria, and each participant was allowed to complete the questionnaire once. All respondents were fully informed about the study's objectives and voluntarily agreed to participate. A total of 127 students from VinUniversity participated in the survey. SPSS statistic software version 27 was used for quantitative data analysis. Chi-square and Pearson correlation test were employed to find out the relationship between variables. $P < .05$ was considered statistically significant.

Additionally, two focus groups consisting of five students each were conducted to further explore their perspectives. These students voluntarily participated in the group discussion after taking the survey. The focus groups tried to explore further information about (i) awareness and general perceptions, (ii) usage patterns and experiences, (iii) perceived value and impacts, (iv) barriers and improvement opportunities.

Semi-structured interviews were carried out with three out of four university librarians to gain insights into the integration and effectiveness of the technology. The fourth librarian is not directly involved in establishing immersive technology services. Each interview includes four main parts: (i) implementation and management of immersive library services, (ii) observation of students' engagement in the services, (iii) perceived service impacts and values, (iv) challenges and future directions. All interviews and focus group discussions were digitally recorded with an average length of 60 minutes and then transcribed to facilitate the thematic analysis.

RESULTS

Users' Perceptions of Immersive Technology Services in the Library

Of the survey respondents, 97.5% (111) are VinUni undergraduate students, with 39.1% from the College of Engineering and Computer Science, 25.8% from the College of Arts and Sciences, 24.2% from the College of Health Sciences, and 11% from the College of Business and Management (Table 1).

Table 1: Distribution of respondents by college enrollment and years of study

Categories	Subcategories	Percentage (%)
College Enrolled	College of Health Sciences	24.2
	College of Arts and Sciences	25.8
	College of Engineering and Computer Science	39.1
	College of Business and Management	11
Year of Study	First Year	28.1
	Second Year	39.8

	Third Year	10.2
	Fourth Year	7.8
	Fifth Year	4.7
	Graduate Students	9.4

In terms of technological experience, 96 respondents (75.6%) rate themselves as somewhat experienced or higher, 29 (22.8%) at a moderate level, and only 2 (1.6%) as somewhat inexperienced. The respondents are tech-savvy library users, with 97% being Vietnamese and 3% of other nationalities.

The survey indicates that innovative applications of immersive technology in the library have positively impacted users. A significant majority find these services useful, with many noting improvements in understanding the library layout and resources, increased engagement in learning, and time savings in accessing information. Additionally, some respondents feel these services enhance their research capabilities and increase their interest in visiting the library (Table 2).

Table 2: User perceptions of immersive technology services in the library

Perceived Benefits of Immersive Technology	**Percentage (%)**
Overall usefulness (useful to very useful)	88.0
Better understanding of library layout and resources; Increase engagement in learning	67.8
Save time finding information and accessing resources previously unavailable	56.7
Enhance research capabilities	27.6
Increases interest in visiting the library	26.0

However, the immersive technology services are not very popular among library users, with 64.6% of survey participants unaware of or having not experienced these services. Among

those who have, the metaverse collection is the most used (23.6%), followed by AI-assisted services (19.7%), virtual tours (18.1%), and AR photo frames (17.3%). Usage frequency varies, with 27.6% using these services less than once a week, 3.9% once a week, and just 0.8% multiple times a week. The frequency of service usage has impacted on the perceived usefulness of individual services ($p = .021$).

Table 3 revealed that a lack of awareness about the availability of the services is the main barrier preventing users from using the library's immersive technology. Other notable barriers include insufficient knowledge about technology, lack of time and problems with technology itself. Technical issues and a preference for traditional resources are less commonly cited.

Table 3: Barriers to Using the Library's Immersive Technologies

Barriers	**Percentage (%)**
Lack of awareness about available technologies	73
Insufficient knowledge about how to use them	48.4
Technologies seem too complicated	18
Prefer traditional library resources	17.2
Technical issues when trying to use them	17.2
Not enough time	43

These findings are supported by focus group results. Many students in the group discussions agreed that these immersive technology services are very engaging and beneficial. They offer significant advantages, particularly in visualizing resources. For example, VR can enhance accessibility and awareness in museum exhibitions and library settings. Virtual environments allow artifacts to be displayed in innovative layouts, expanding beyond traditional library spaces. These technologies enable libraries to integrate various activities and projects, providing students with opportunities for research and experiential learning. Additionally, students can access online libraries and resources remotely, reducing the need for frequent physical visits and saving time and effort especially in Covid period. These are several statements from students:

> *It offers experiences that would otherwise be hard to achieve, allowing me to visit places I wouldn't normally be able to while still being at school.*
>
> *For students who have never had the chance to experience high-tech applications before, this offers a new opportunity to engage with advanced technology.*

However, there is a lack of promotion, leading to low student awareness despite the library's abundant services. Many students are still either unaware of the immersive library services or only have a brief understanding of them. For instance, one student mentioned:

> *During orientation weeks, I heard about it, but it was only at a surface level.*

The other student reported that:

> *Even after studying at the school for two years, the promotion of virtual reality technology is still quite poor, so few people know about it.*

Some of them tried the services and encountered various obstacles. They experienced dizziness, headaches, vision issues (especially among myopic students), and nausea. Even the heavy VR headsets alone pose a significant challenge for the medium stature of Vietnamese students. Various students are afraid they might break the expensive devices and must compensate them, so they hesitate to ask to use the services. The students said:

> *The VR headset is quite heavy, so it makes my head hurt a little bit.*
>
> *I also feel a bit dizzy. I don't have the best physical health, so I try to avoid this dizziness as much as possible.*
>
> *If I wear the VR headset for too long, I start to feel very dizzy and sometimes get a headache.*

> *It makes my eyes hurt a bit, and sometimes they tear up because I need time to get used to it. Yes, the view can cause some tearing. The first time I wore these glasses; they made my eyes water.*

The complexity of the technology itself hinders students from using immersive technology services. Many students find it challenging to navigate and operate these advanced tools. As a result, they may be reluctant to engage with these services. One student confirmed:

> *If someone is not tech-savvy, it is very difficult to operate the technology (for example, starting the device or using it smoothly).*

Several students prefer using their mobile phones to access the metaverse collections or virtual tour. However, the requirement to install an application and register for an account discourages them from using the services. One student said:

> *I don't feel comfortable installing an app on my mobile phone and using my regular email address to register for an account. I'm concerned about security and privacy issues.*

Due to these difficulties, various students rarely use the immersive technology services in the library, then they do not find these services particularly useful. The lack of frequent use leads to a perception that technology does not significantly enhance their educational experience.

Consequently, students are hesitant to engage with these advanced tools, viewing them more as novelties rather than essential resources. As a result, the potential benefits of immersive technology in enhancing learning and research are not fully realized.

The Challenges and Solutions of Implementing Immersive Technology Services in the Library

The semi-structured interviews were conducted with three out of four university librarians to gain insight into the implementation of the library immersive technology services. When asked

about the challenges implementing immersive services in the university library, the librarians revealed that they faced several difficulties.

Firstly, they do not have educational backgrounds in technology. They need to learn new knowledge on top of their everyday heavy workload, while technology evolves rapidly, making it difficult to keep up with the latest advancements. Staff training and technical support are crucial, as both staff and students need to know how to use and troubleshoot the technology. However, the VinUni library operates with a lean team of just four librarians, including the library director. All of them must multitask and stay updated across various fields. They learn more via practical projects than library conferences or workshops. Librarian 1 claimed that:

> *Technology is usually going really fast. It's really hard to keep up with the technology. What is a good technology today may not be the good for tomorrow. We always encourage our staff to take the time to pursue any professional development opportunities. This could include workshops on using in-man technology, attending library conferences, or participating in project builds. Hands-on experience is particularly valuable, and our library has been involved in many such projects.*

The high cost of AR/VR headsets and 3D machines presents a significant barrier, limiting the accessibility of these technologies. This aligns with the global library situations identified by Dalili et al. (2022), Guo et al. (2024) and Isa (2023). The devices cannot be frequently updated to the latest versions, which would make them easier for users to operate. Moreover, repairing and replacing broken 3D printers and 3D scanners is challenging, particularly in Vietnam, where AR/VR and 3D vendors often lack experience and readily available replacement parts. For example, librarian 3 told one story:

> *One of the lights on our expensive handheld 3D scanner broke. Finding a nearby vendor to diagnose the issue was extremely difficult. We had to ship the machine to a distant vendor, and after several rounds of shipping back and forth, they informed us that they did not have the replacement part and could not source it from elsewhere. As a result, the expensive machine is now sitting useless in our storage.*

All three librarians agreed that the limited budget significantly impacts content acquisition and development. Content is crucial for providing an immersive service. Technology is merely a tool, and without quality content, its educational value is limited. To address these issues, VinUni librarians have explored free, open access content and actively collaborated with researchers, faculty, and university technology students to develop metaverse experiences, AR photo frames, VR tours, and more. However, there is still a need for further investment in educational and recreational content as emphasized by librarian 1.

> *The most important thing to remember is that technology is not the ultimate goal. It's merely a tool to achieve an end. To truly maximize the use of technology for learning, you need to have high-quality content.*

Despite the potential benefits, not many people use AR/VR, and while VR tours are generally well-received. As previously mentioned, librarian 3 observed that despite the availability of ample resources, the technology remains underutilized due to insufficient promotion and awareness among students.

> *Limited staffing challenges our effort to proactively promote our experiential services.*

Besides, VinUni librarians echoed Roy et al. (2022) and Ylipulli et al.(2023) in that immersive technology requires users to have a certain level of knowledge and understanding, and it can affect vision and mental health. This supports the results of the focus groups.

Despite numerous challenges, the library team has successfully implemented immersive technology services by adopting the following solutions. The librarians' commitment to lifelong learning is crucial to their success in staying updated with the latest technologies. Despite lacking an academic background in immersive technology, they diligently acquire new knowledge through reading, watching educational videos, and attending workshops. This proactive approach ensures they remain at the forefront of technological advancements. Librarians 1 and 2 said respectively:

> *First and foremost, I believe that learning is a lifelong process. To keep up with technology, we must continuously learn and master new advancements. Personally, I read extensively and watch numerous YouTube videos to stay informed about cutting-edge technologies and how they can support teaching, learning, and research. The key is to embrace learning as an ongoing journey to stay ahead.*

> *We are always ready to learn new knowledge and find joy in acquiring new skills in different fields. This makes nothing impossible in our library. Previously, when I heard about the metaverse, I didn't understand it and felt very intimidated. But now, I can create metaverse projects myself and even guide students in creating their own metaverse experiences.*

To address budget constraints, the librarians utilize open-source, free, or low-cost technological solutions and harness the collective intelligence of students by involving them in various immersive technology projects. Student-led initiatives, such as digitization projects and 3D scanning using smartphones, enable the library to achieve significant outcomes with limited resources, including digital publishing and AI projects. Librarian 1 said:

> *I've also delved into 3D scanning, but given our limited budget, we had to get creative.Instead of purchasing expensive scanners, we collaborated with student interns from Hanoi University of Culture. We, librarians, explored and tested various methods, ultimately teaching them how to use iPhones to scan hundreds of historical artifacts, creating a comprehensive 3D collection.*

Despite facing numerous challenges, the library team has successfully developed a range of immersive technology services. These innovations have significantly enhanced the library's operations, particularly during the COVID-19 period, to better meet users' needs. Librarian 2 stated:

> *Our initial goal is to create opportunities for students from all disciplines to become familiar with new techniques, ensuring they are well-prepared when they graduate. When the COVID-19 pandemic occurred, these services enabled students*

to access the library remotely. However, we need to invest more effort in promoting and introducing these services.

The findings of this study show that while the potential of immersive technologies to enrich learning environments, and library services is widely acknowledged, there are multifaceted barriers that hinder the successful service implementation or the wide user's adoption in the context of academic libraries worldwide. However, many of these obstacles can be mitigated if libraries employ a team of staff who are flexible, dynamic, creative, eager to learn, and driven by a desire for innovation to deliver excellent services to users.

The availability of immersive technological services in libraries does not guarantee their effectiveness. Libraries should develop a comprehensive strategic plan when integrating immersive technology, prioritizing user needs, addressing practical challenges, and fostering a culture of digital literacy and engagement within the library community. Librarians must invest proactive and sustained efforts into user education and promotion to raise awareness of the services. Additionally, enhancing usability and user comfort is essential in designing and implementing immersive experiences.

DISCUSSION

The findings reveal a contradiction that while a significant majority of users who have experienced the library's immersive services find them useful and engaging, a substantial portion of the user base remains unaware of or has not utilized these offerings. This lack of awareness is identified as the primary barrier to adoption, aligning with student feedback that highlights insufficient promotion by the library. VinUni library team needs to develop a more effective marketing plan, utilizing modern marketing methods regarding these high-tech services. Currently, the library does not have sufficient personnel to carry out large-scale marketing campaigns. However, the library has a group of work-study students. These students should be involved as the core force in building and implementing marketing strategies to effectively engage other students in using the services. The library can also collaborate with faculty members, such as those from the College of Business and Management and the College of Health Sciences, to integrate AR and VR technologies into classroom settings. This would allow students to practice professional skills without needing to visit hospitals or hotels directly.

The study also highlights several challenges for Vinuni library users related to the usability, practicality of immersive technology and user privacy in the library setting. These issues in Vinuni are the same as those founded in the previous studies in international contexts (Dalili et al., 2022; Guo et al., 2024). The result suggests that Vinuni library needs to focus on user-centered design, ensuring ergonomic devices, and providing adequate support and guidance to help students comfortably access the services. Emphasizing hands-on experience and user-friendly interfaces can make the technology more accessible and enjoyable. The library staff should continue to rely on the student work-study team or collaborate with the university's VR/AR clubs to implement these initiatives. Immediate investment in new devices may not be feasible in the short term. The current plan involves librarians collaborating with students to create detailed, hands-on user guides, including mandatory breaks after 10 minutes of headset use and safety guidelines. Additionally, VR/AR club members will volunteer to assist students with headset usage and act as ambassadors by organizing workshops and competitions among VinUni's user population to promote the services.

From the perspective of the library staff, significant challenges revolve around financial constraints, the rapid pace of technological change, and the need for specialized technical skills, which are the common hurdles in developing regions in the world (Subaveerapandiyan et al., 2024). The small team of librarians at VinUni faces the added burden of keeping abreast of technological advancements while managing their regular responsibilities. Despite these hurdles, the VinUni Library has implemented several innovative solutions, such as leveraging open-source resources and collaborating with students to develop content, demonstrating a proactive approach to overcoming resource constraints.

The Technology Acceptance Model (TAM) (Davis, 1989) offers a useful framework for understanding barriers in implementing the experiential technology services within VinUni Library. While high PU is confirmed in this study with 88% of users found immersive tech services useful, the PEOU is low (Table 3). TAM-driven strategies could be employed to address this: (1) boosting awareness through student-led campaigns (addressing PU), (2) improving usability via ergonomic design efforts and user assistance programs (addressing PEOU), and (3) developing data policies and guidelines to build user trust(reducing privacy risks). By aligning student perceptions with organizational support, these measures can help obtain a greater adoption of immersive services.

Immersive services in the library should have a broader definition. Immersive library services are not limited to technological services only, but it includes any non-tech services that enhance user experience, such as comfortable learning environment or relaxation stations in the library. Creating an inviting and engaging environment is essential and can be achieved through various means, not just high-tech solutions. In addition to leveraging immersive technology services, VinUni Library has dedicated significant efforts to developing recreational spaces and user-friendly physical environments that facilitate a comfortable and immersive experience for students.

The findings of this study contribute to the growing body of literature on the adoption of immersive technologies in academic libraries. The specific challenges and solutions identified at VinUni offer valuable insights for libraries in Southeast Asia, where the adoption of these technologies is still in its early stages. The study supports the argument by (Le et al., 2024) that the successful implementation of immersive technology in Vietnamese universities requires supportive digital infrastructure and comprehensive strategic planning. The immersive technological service plan of libraries should prioritize users' needs, address practical challenges, emphasize user education and service promotion, staff training, especially internal collaboration and external partnership.

LIMITATIONS

As a limitation, this study only gathers feedback from a small number of VinUni students (n=127) using a convenience sampling model, which may bias the results towards tech-savvy users. Additionally, the study lacks input from faculty and other staff members at VinUni who could provide a more holistic view of the impact and potential of immersive technology service in the university.

Future research could explore the long-term impact of immersive technology on student learning outcomes and research productivity at VinUni and other institutions. Longitudinal studies could assess the evolution of user awareness and adoption rates over time, as well as the effectiveness of different strategies for promoting and supporting these services. Further investigation into the specific types of immersive experiences that are most beneficial and engaging for different academic disciplines would also be valuable. Additionally, exploring sustainable models for content creation and the development of collaborative partnerships to

address resource limitations could provide practical guidance for libraries seeking to leverage the potential of immersive technology.

CONCLUSION

While VinUni Library is the first academic library in Vietnam who made commendable strides in integrating immersive technology to meet the evolving needs of 21st-century learners, this research highlights that successful adoption requires a concerted effort and creativities of librarians to enhance user awareness through targeted promotion, address usability concerns through user-centered design and support, and strategically navigate resource limitations through innovative solutions and collaborations. Being open-minded about immersive library services that include both physical and virtual environments is crucial. The experiences of VinUni Library provide valuable insights for other academic libraries, particularly in Vietnam and Southeast Asia, as they navigate the difficulties of incorporating immersive technologies to transform their services and engage a digitally native user population. Ultimately, realizing the transformative potential of immersive technology in academic libraries depends on a holistic and sustainable approach that prioritizes user engagement and overcomes the practical barriers that should be thoroughly assessed and identified in individual use communities.

REFERENCES

Dalili, M., Salami, M., Soheili, F., & Ziaei, S. (2022). Augmented reality technology in the libraries of universities of medical sciences: Identifying the application, advantages and challenges and presenting a model. *Library Hi Tech*, 40(6), 1782-1795. https://doi.org/10.1108/LHT-01-2021-0033

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340. https://doi.org/10.2307/249008

Guo, Y., Li, S., Zhang, X., Fu, Y., Yuan, Y., & Liu, Y. (2024). Embracing the metaverse: A survey of virtual reality and augmented reality practices at the united states' top one hundred university libraries. *College & Research Libraries*, 85(7), Article 7. https://doi.org/10.5860/crl.85.7.1006

Hofstede, G. (2011). Dimensionalizing cultures: The hofstede model in context. *Online Readings in Psychology and Culture*, *2*(3). https://doi.org/10.9707/2307-0919.1014

Hollister, J., & Lee, J. (2022). An exploratory study on virtual reality and related technologies in terminal LIS degree programs in the United States and South Korea. *International Journal of Knowledge Content Development & Technology*, *12*, 85-106. https://doi.org/10.5865/IJKCT.2022.12.S.085

Isa, I. (2023). *AR, VR, and immersive technologies: The new mode of learning and the key enablers in enhancing library services*. https://2023.ifla.org/

Kunanets, N., Lypak, H., & Zholna, D. (2024). Virtual reality in libraries: Analysis of opportunities and challenges. Visnyk of Kharkiv State Academy of Culture, 83-95. https://doi.org/10.31516/2410-5333.065.06

Le, T., Nguyen, T. T. H., Nguyen, C. N. K., Le, T. T. H., & Vo, H. T. U. (2024). Researching influences of learner experience on AR/VR adoption: The case of Vietnamese universities. *Journal of Information Technology Education: Research*, *23*, 007. https://doi.org/10.28945/5264

Long, G. (2021). *National digital transformation program to 2025, orientation to 2030*. http://asemconnectvietnam.gov.vn/default.aspx?id1=2&ID8=99391

Radianti, J., Majchrzak, T. A., Fromm, J., & Wohlgenannt, I. (2020). A systematic review of immersive virtual reality applications for higher education: Design elements, lessons learned, and research agenda. *Computers & Education*, 147, 103778. https://doi.org/10.1016/j.compedu.2019.103778

Rojas-Alfaro, R. (2023). A virtual reality exploration of library services: Affordances and perceptions. *International Robotics & Automation Journal*, *9*, 115-122. https://doi.org/10.15406/iratj.2023.09.00273

Roy, S., Kanjilal, U., Sutradhar, B., & Jalal, S. (2022). Building immersive library environment to access virtual reality content: A proposed framework model. *DESIDOC Journal of Library & Information Technology*, 42, 178-184. https://doi.org/10.14429/djlit.42.3.17719

Seibert, S. A. (2021). Problem-based learning: A strategy to foster generation Z's critical thinking and perseverance. Teaching and Learning in Nursing, 16(1), 85–88. https://doi.org/10.1016/j.teln.2020.09.002

Shahzad, K., Khan, S. A., & Iqbal, A. (2024). Impact of augmented reality on libraries: A systematic literature review. *Journal of Librarianship and Information Science*, 09610006241259492. https://doi.org/10.1177/09610006241259492

Subaveerapandiyan, A., Fakhre Alam, A., Kalbande, Dr. D., & Ayanlola, A. (2024). Digital transformation in libraries: Assessing metaverse readiness in Nigeria. *Science & Technology Libraries*. https://doi.org/10.1080/0194262X.2024.2429061

Tran. (2021). Developing a Smart Library Model in Vietnam Public Library System. *Revista Gestão Inovação e Tecnologias*, *11*, 1320-1329. https://doi.org/10.47059/revistageintec.v11i3.2012

Trinh, L. T., Nguyen, T. T. H., Nguyen, C. N. K., Le, T. T. H., & Truong, H. V. U. (2024). Researching influences of learner experience on AR/VR adoption: The case of Vietnamese universities. *Journal of Information Technology Education: Research*, 23, 007. https://doi.org/10.28945/5264

Vu, T. T. H., Pham, N. S., Ta, T. T., Nguyen, M. D., Phan, T. K. G., Pham, T. H., Nguyen, T. K. T., & Pham, G. B. (2024). The current state of virtual reality and augmented reality adoption in Vietnamese education: A teacher's perspective on teaching natural sciences. *International Journal of Information and Education Technology*, 14(3), 476-485. https://doi.org/10.18178/ijiet.2024.14.3.2068

Yavarkovsky, J. (2013). Editorial board thoughts: The promise of immersive libraries.

Information Technology and Libraries, 32(4), 5-null.

Ylipulli, J., Pouke, M., Ehrenberg, N., & Keinonen, T. (2023). Public libraries as a partner in digital innovation project: Designing a virtual reality experience to support digital literacy. *Future Generation Computer Systems*, 149. https://doi.org/10.1016/j.future.2023.08.001

Library Robot: Technology Integration into Library Operation and Services

Herrick Han Lin Yeap[1], Wong Sook Jean[2], Janaki Sinnasamy[2], Zhe Zhi Chew[1], Le Ying Lim[1], Brandon Cheng Hong Chow[1], Yi Zhi Ng[1], Kelvin Chuan Jie Kan[1], Zhi Yun Gan[1], Chan Yong Yee[2], Tan Ley Yee[2], Kok Seng Eu[1], Jun Sheng Tay[1], Kian Meng Yap[1]

[1]Research Centre for Human-Machine Collaboration, School of Engineering and Technology, Sunway University, Selangor, Malaysia

[2]Tun Hussein Sunway Library, Sunway University, Selangor, Malaysia

Corresponding email: 22080972@imail.sunway.edu.my

ABSTRACT

Libraries, like any other industry, constantly face the challenges of maintaining their inventories due to the need for high labour and their time-consuming nature. The paper presented aims to resolve this issue by providing automation in shelf-scanning using a robot equipped with Radio Frequency Identification (RFID) and autonomous navigation. The robot aims to address two main issues that directly affect automation accuracy and consistency, which are Shelf-following and antenna positioning, respectively. Wall-following issues exist as shelves in the libraries are not necessarily always arranged in a straight line, and failure of a robot to maintain a suitable distance will affect the outcome of the scanning. Similarly, the positioning of the RFID antennas will directly affect the signal propagation and signal quality. The proposed library robot builds on the Autonomous Mobile Robot (AMR) platform, incorporating it with Simultaneous Localization and Mapping (SLAM) algorithms, allowing it to navigate around the library. Upon arrival of shelves, the proposed library robot switches into wall-following mode, which utilizes ultrasonic sensors to maintain a predetermined distance between the shelves. The proposed library robot is also equipped with a pair of RFID antennas mounted on a lift mechanism, which is calibrated using an algorithm based on feedback received to ensure optimal signal propagation. The results gathered indicate that the library robot performed with high accuracy and consistency, recording an accuracy of 97.00% in the shelf-scanning. This is a positive sign which indicates that automation and robotics can be

incorporated into library systems, reducing the reliance on manual labour and increasing efficiency.

Keywords: Library; Automation; Robotics; RFID; Book Inventory

INTRODUCTION

Libraries, housing vast collections of books and resources, face persistent challenges in maintaining accurate inventories due to frequent borrowing, returns, and misplacement of materials. According to Tun Hussein Onn Sunway Library (THOSL), traditional manual shelf-scanning processes are labour- intensive, time-consuming, and prone to human error, undermining operational efficiency and patron satisfaction. While technologies like Radio Frequency Identification (RFID) and Simultaneous Localization and Mapping (SLAM) frameworks have been integrated into robotic systems to automate inventory tasks, existing solutions still struggle with navigating narrow library aisles, maintaining linear trajectories, and achieving consistent scanning accuracy (Chew et al., 2024).

The urgency to address these inefficiencies lies in the growing demand for libraries to modernize their operations while reducing labour costs and staff workloads. Innovations like the RFID-based 'RF-Scanner'by Liu et al., (2017) and the Autonomous Robotic Shelf Scanning System (AuRoSS) by Li et al., (2015) demonstrated the potential of robotics by achieving over 94% in detection accuracy and localization precision as fine as 1.3cm (Liu et al., 2017). However, erratic locomotion in narrow aisles and signal interference from metal shelves remain unresolved, limiting scalability (Zhou & Li, 2018). This study seeks to bridge these gaps by refining navigation algorithms and hardware design applied in these robotic systems.

This work addresses key challenges in the field of autonomous library robotics by developing a system that integrates advanced Simultaneous Localization and Mapping (SLAM) techniques with closed-loop feedback control. Unlike prior studies that emphasize either RFID integration (Liu et al., 2017) or AI- based user interaction services, such as the Xiaotu robot (Yao et al., 2015), this research focuses on the underexplored issue of navigating non-linear paths within the spatial constraints typical of library environments.

In 2022, THOSL Sunway University and College explored how high-tech technology, particularly robots, can further improve library operations with less dependence on staff input. The Library has identified Inventory Robots to improve its shelf maintenance. Such robots can be used for stocktaking, being able to identify missing or misplaced items quickly and efficiently. The last stocktake carried out by Sunway Campus Library in August 2018 involved 15 staff members who scanned the various collections using digital scanners. The barcodes recorded from the RFID tags were then downloaded and matched against the library database. The missing items list was then distributed to library staff to physically check the shelves, other locations or against the loan records. The whole exercise took about a month.

THOSL established a collaborative partnership with the Research Centre for Human-Machine Collaboration (HUMAC), School of Engineering and Technology, Sunway University. This collaboration facilitated the development of an inventory robot, designated as Paige, designed to address the specific inventory management requirements of THOSL. This paper presents the design and development process of Paige, highlighting its integration within the operational context of THOSL. This Robot will enhance user access to library resources in the following ways:

a. Users can easily find books in their correct shelf positions
b. Missing and mishelved books can be easily detected, thus increasing accessibility to required books
c. Library staff are freed from monotonous and time-consuming shelf maintenance activities, and deployed for productive user services, like assisting users in research and information skills.
d. Stocktakes can be carried out more frequently to identify books that need to be replaced/ordered, thereby increasing accessibility

HUMAC's aim to develop an autonomous robotic system capable of precise inventory management in narrow library aisles. The objectives included minimizing RFID signal interference and enhancing the scanning result by ensuring linear locomotion during scanning through feedback-controlled mechanisms.

The research focuses on medium-to-large libraries with aisle widths under 1.2 meters and metal shelving. Hardware prototypes incorporate ball screw mechanisms to enable highly precise positioning of RFID sensors (Zhou & Li, 2018). These mechanisms convert rotational motion into linear movement with minimal backlash, allowing the system to make fine adjustments in response to varying shelf heights or object placements. while software algorithms address real-time data processing and obstacle avoidance. By resolving navigation and signal challenges, this work advances the practicality of autonomous robots in libraries offering a pathway to error-free inventory management and reduced operational costs.

ROBOT DESIGN AND DEVELOPMENT

This section outlines the development and evaluation of an autonomous robot designed to enhance inventory tracking in large libraries. The robot's key features include RFID-based cataloguing, algorithms for navigation in confined spaces, and strategies for reducing signal interference from library shelving units.

Overview of The Proposed Autonomous Robot

Figure 1 proposed autonomous robot incorporates state-of-the-art hardware and software components to address the complex cataloguing challenges inherent in library environments. The hardware design includes an arm mechanism (ball screw), two high-sensitivity RFID antennas, and an Autonomous Mobile Robot (AMR) platform for accurate and reliable navigation. This allows the robot to optimize RFID tag detection by programming the ball screw mechanism to adjust its position according to the shelf height, reduce scanning time and ensuring precise alignment of the RFID sensors. The robot's movement is facilitated by motors and wheels that enable smooth and efficient operation, particularly within the confined aisles of libraries.

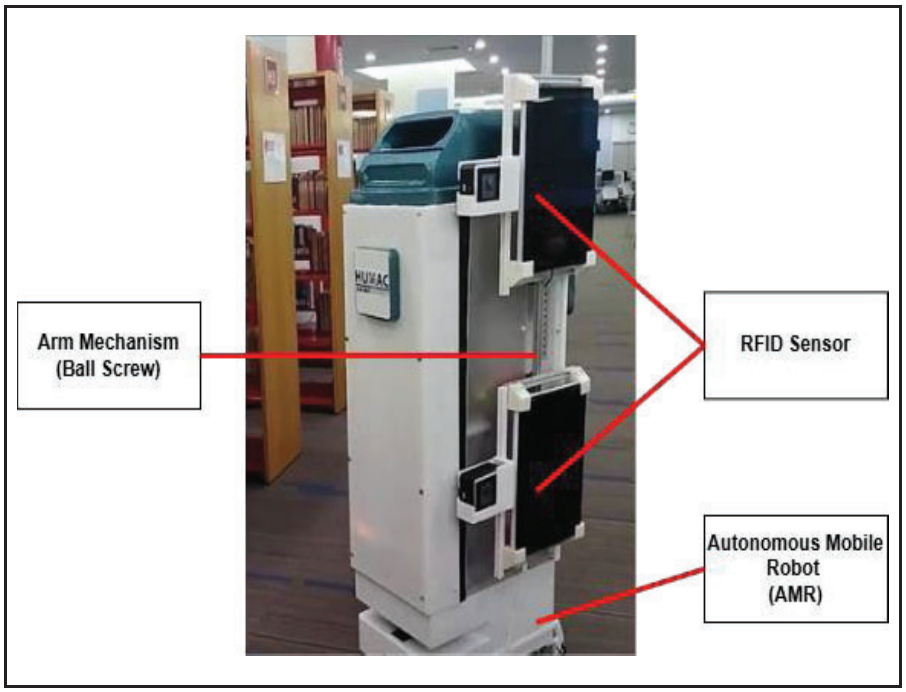


Figure 1: Automatic Robot

Hardware Design and Functionality

Figure 2 illustrate the arm mechanism which employs a ball screw, a critical element for ensuring high efficiency and minimizing friction between the nut and screw. This mechanism is fundamental for achieving precise and controlled movement and positioning, enabling the robot to perform accurate tasks, such as scanning library inventory with minimal error (Li et al., 2015). The two integrated high- performance RFID readers are strategically positioned to ensure optimal scanning accuracy. Special emphasis was placed on reducing signal interference, which is a persistent challenge in environments with metal shelving units.

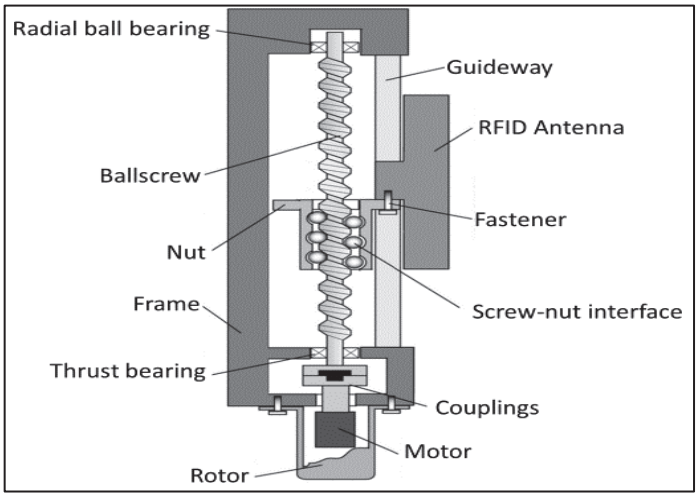


Figure 2: Schematic diagram of the ball-screw drive system (modified from Yang et al, 2020)

The AMR platform beneath the robot provides consistent and precise movement. The platform's mobility is enabled by the Simultaneous Localization and Mapping (SLAM) framework on the chassis, which dynamically maps the library environment while ensuring reliable localization for efficient navigation through complex library spaces; avoiding any presented obstacles on the way to its designated position. This robust localization system is crucial for enabling the robot to navigate autonomously, even in dynamic or cluttered environments.

Software Features and Navigation Algorithms

From a software perspective, the robot integrates real-time data processing for both RFID scanning and navigation tasks. The RFID sensors incorporate advanced filtering and artificial intelligent algorithms to minimize the impact of interference, particularly from metal shelving, and to enhance the accuracy of book scans. Signal intensity measurements are utilized to discriminate between valid RFID signals and electromagnetic noise, ensuring high precision.

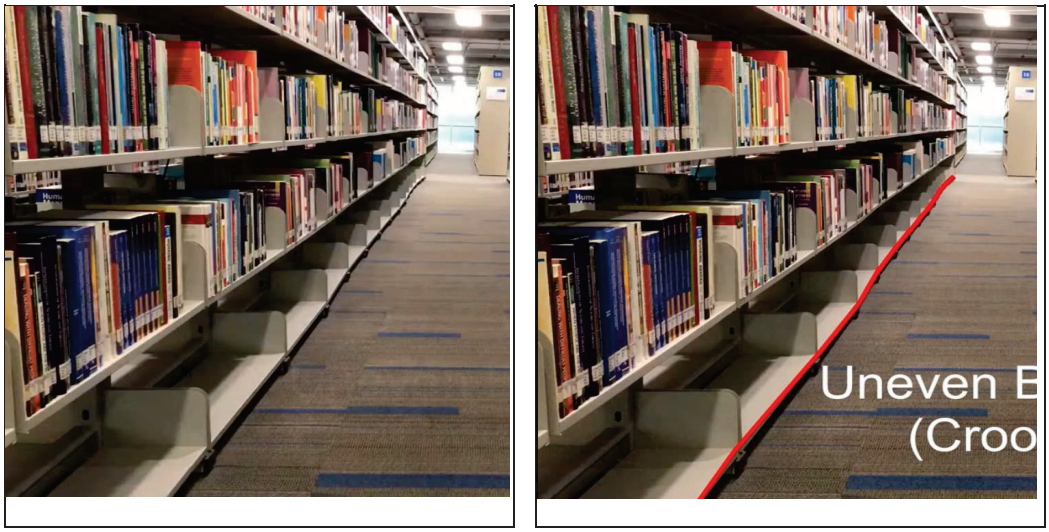
As m entioned, the ball screw mechanism is programmed to adjust its positioning based on theheight of the shelves, optimizing the alignment of the RFID sensors for accurate tag detection. The robot is also equipped with distance measurement and shelf-following algorithms that enable it to navigate confined library aisles. These algorithms ensure the robot

maintains precise navigation while avoiding obstacles, contributing to seamless and efficient movement through the library's narrow spaces.

During the shelf scanning process, it is imperative to maintain a minimum distance during linear locomotion to prevent the extruding RFID antenna from colliding with the shelves while maintaining optimal distance for scanning. To facilitate precise movement and self-adjustment of the robot, programming using the Robot Operating System (ROS) is utilized, leveraging its built-in libraries designed for robotic applications; implementing advanced control strategies such as PID (Proportional–Integral– Derivative) control in enhancing the robot's ability to follow precise paths and perform smooth manoeuvres (Chew et al., 2024). The ultrasound array, which consists of three ultrasonic sensors mounted on the robot’s chassis, plays a crucial role in this context of precision manoeuvring. When a set of shelves is selected through the graphical user interface (GUI), a path is generated that guides the robot to the entry position of the shelf location. Upon arrival, the robot orients itself to maintain the specified minimum distance from the shelf, subsequently establishing a new scanning position based on its arrival coordinates. This systematic approach ensures optimal navigation and a safety buffer between the robot and the shelves throughout the scanning operation while ensuring optimal scanning distance between the robot and the shelves.

PROBLEMS AND SOLUTIONS

Uneven Shelves Problem



(a) (b)

Figure 3: Image of the Bookshelf with (a) uneven shelves arrangement; (b) uneven shelves arrangement with red line indicator

A library is typically made up of multiple bookshelves used to store a large collection of books and other materials. To make the best use of available space, especially in larger libraries, these shelves are usually arranged in long, narrow passageways, often forming tight rows with just enough room for people or robots to move between them. This space-saving layout helps libraries fit more shelves and, in turn, more books, into a limited area.

However, during field survey, it is discovered that while this arrangement is efficient, the shelves are not always installed in a perfectly straight line. Ideally, each shelf should align with the next to create a clean, continuous row. But in reality, the placement can vary slightly from one shelf to the next. This misalignment may be due to uneven flooring, manual installation errors, or slight shifting over time. As shown in Figure 3, what is intended to be a straight row of shelves turns out to be slightly crooked or wavy, with shelves pointing in slightly different directions and not aligned.

According to Chew et al. (2024), the robot itself must move in linear locomotion and maintain a certain distance from the shelves to achieve the best results in scanning the books (Chew et al., 2024). Currently, only relying on the SLAM navigation controller itself was insufficient to achieve 7cm distance to the shelf for best scanning result. This is due to the controller itself having an obstacle avoidance function which prevents the robots from moving towards shelves and causing the robot itself to navigate in a sinewave- like pattern (Chew et al., 2024). This further causes the results to become inaccurate while scanning the shelves.

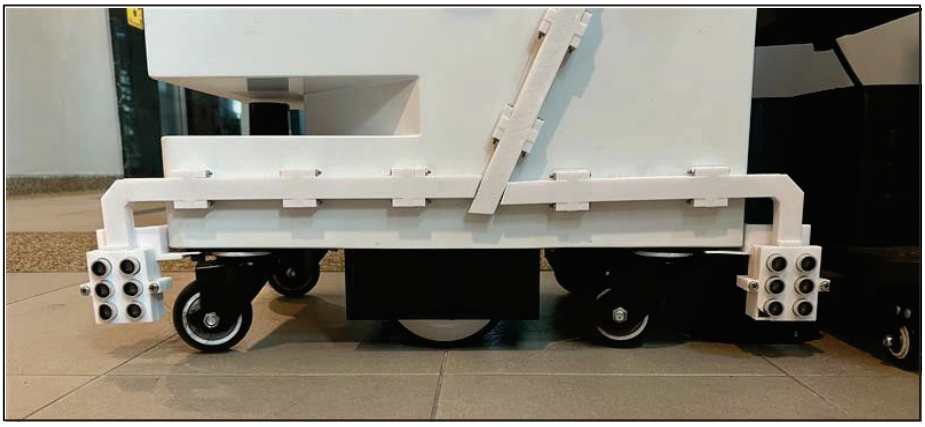


Figure 4: Ultrasound Sensors Design used for Shelf-following

To achieve the requirement, a few key tools has been utilized: a robot software platform called ROS, an array of distance-measuring sensors (ultrasound sensors), a control method called a PID controller, and a way to switch between different operating modes. Figure 4 illustrate the robot that equips with a series of three ultrasound sensors installed at the front and back of the robot that help to measure how far it is from nearby objects. These sensors give the robot the information it needs to understand its surroundings. When the robot is told to go to a specific shelf, the system sends it the shelf's location and the direction it should face. As the robot gets closer to the shelf, it checks whether it has arrived at the correct spot and if it's facing the shelf in the right orientation. If it's close enough and correctly aligned, it stops trying to navigate and switches to a mode where it follows along the shelf. As it moves alongside the shelf, the PID controller continuously makes small adjustments to help the robot stay at the right distance from the shelf and follow down the crooked library aisle smoothly. Once it reaches the end of the shelf, the robot stops following it and resumes back to its internal map to continue to the next shelf.

Antenna Scanning Position



Figure 5: Traditional RFID-based Handheld Inventory Scanner (Tun Hussein Onn Sunway Library)

In traditional RFID-based inventory systems, such as handheld scanners, a single RFID scanner is typically used to detect tags on items such as books. As illustrated in Figure 5, while this setup is simple and cost- effective, it becomes increasingly inefficient as the number of items increases. The scanner must be moved manually or mechanically across different sections of the shelf, leading to longer scanning times and increased labour.

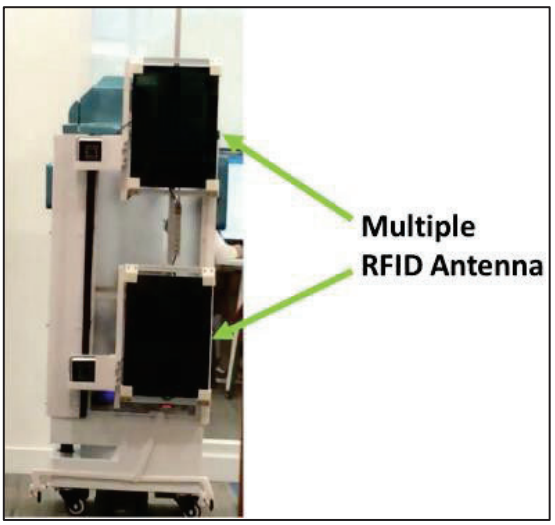


Figure 6: Multiple RFID antenna scanner

To overcome these limitations, a multi-antenna RFID configuration was developed, paired with a positioning algorithm to allow for simultaneous scanning of multiple regions. For this study specifically, two antennas are strategically placed on both the top and bottom of the bookshelf as illustrated in Figure 6, enabling them to scan the entire vertical space in parallel. The positioning algorithm dynamically manages the RFID readings and orientation of each antenna to ensure optimal coverage and minimize signal collision or interference. This coordinated approach ensures that all items on the shelf are accurately detected in a fraction of the time required by a single-scanner system.

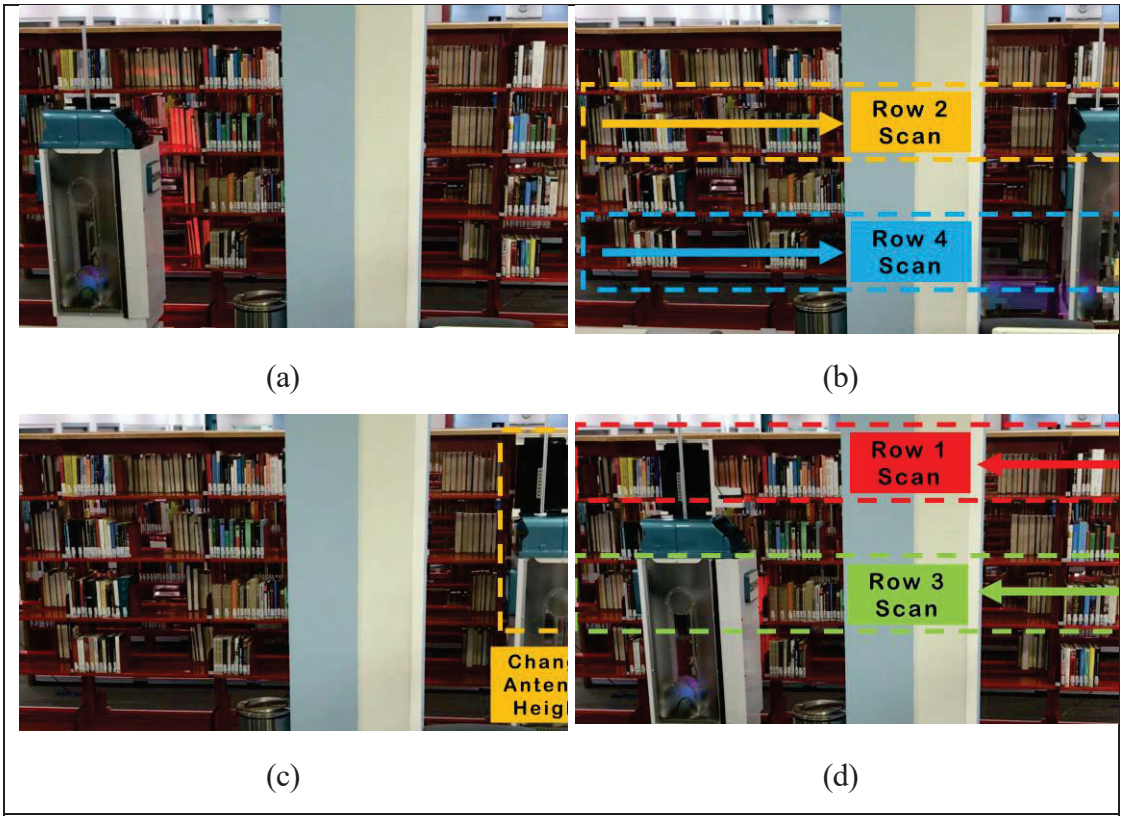


Figure 7: Robot scanning where:

(a) Robot get into position with antenna lowered;

(b) Robot scans both row 2 and row 4 with multiple

RFID scanners;

(c) Robot change the antenna height;

(d) Robot scan both row 1 and row 3

Figure 7 illustrates the process of implementing the two RFID scanners in the scanning process. Both antenna is designed in a way that is installed into a lift mechanism, where the lift mechanism can be adjusted vertically when switching to different rows. Initially, the robot enters the start position of the shelf as illustrated in Figure 7 (a), activating both RFID scanners and its sensors. The robot then proceeds to traverse forward to scan the books, covering both Row 2 and Row 4 in Figure 7 (b). Upon reaching the end of a shelf, the robot then activates the lift to elevate the RFID antennas to different row heights of Row 1 and Row 3 respectively as illustrated in Figure 7 (c), and proceeds with the scanning by traversing back in the opposite direction, covering both Row 1 and Row 3 as illustrated in Figure 7 (d).

By implementing this dual-antenna system, the total scanning time is effectively reduced by half, thereby improving operational efficiency. Additionally, the system's scalability makes it adaptable to a wide range of environments and shelf sizes. Beyond time savings, this setup also enhances the reliability of tag detection, as multiple read angles reduce the chances of missed scans due to tag orientation or obstruction. Overall, the proposed method presents a practical and cost-efficient solution for high- volume RFID applications, promising significant improvements in both speed and accuracy.

FINDINGS

From 2022 to 2024, HUMAC and the THOSL carried out various tests in 4 areas of the library, i.e. Harvard Collection, Open Shelf Collection classes T and R, and Malaysiana Collection. The section below documents the findings gathered from the tests carried out.

Overview of the Previous to Current Development

The current development of the library robot emphasizes the refinement of its book scanning capabilities and the evaluation of overall system performance. The robot is equipped with a hybrid scanning system that combines RFID and optical recognition to identify books accurately on shelves.

Table 1: Results of autonomous scanning

Stage	Shelf Area	No. of Books	Performance (Accuracy)	Problem Discovered	Next Enhancement / Resolve
1	-	-	Proof of concept, working prototype	-	Area mapping, wall following
2	Harvard Collection	2,440	83.19%	RFID signal not adjusted to minimize metal interference Metal Edge Book were not detected	Adjust the RFID parameter Install edge block spacer
3	Harvard Collection	2,440	90.77%	Hypothesis of Tag Collision Interference (TCI)	-
4	Open Shelf T class	11,496	70.96%	Confirmation of TCI Exist	Design new robot scanning method
5	Open Shelf T class	888	97.00%	-	Resolved TCI
6	Malaysiana Collection	9,655	77.16%	Unable to use the existing scanning method due to large TCI occurrence.	Redesign new robot scanning method Possible incorporate AI
7	Malaysiana Collection	11,774	94.09%	-	Resolve high density TCI Area Improve time
8	Open Shelf R Collection	4,540	97.00%	-	-

Through extensive testing, scanning speed and accuracy were optimised to enable the robot to reliably detect and log book data even in densely packed or misaligned shelf environments. The scanning module is also integrated with a real-time inventory management system, allowing for immediate updates to the library database upon each successful scan.

The development of the library robot has undergone multiple iterative stages, each aimed at enhancing scanning efficiency and resolving practical challenges observed in diverse library environments. Initial testing began with a working prototype focused on proof of concept and foundational navigation strategies, such as area mapping and wall following. As the robot was deployed in real library environments, including Harvard and other locations, performance metrics were closely monitored. At Harvard, with a collection of 2,440 books, the robot initially achieved an 83.19% scanning accuracy. This stage revealed key issues like RFID signal interference due to nearby metal structures and difficulties detecting books with metallic edges. Subsequent enhancements included adjusting RFID parameters and installing edge block spacers, which improved accuracy to 90.77%.

As testing scaled up to larger collections, such as the 11,496 book "Open Shelf T" environment, a notable drop in performance (70.96%) confirmed the presence of Tag Collision Interference (TCI), a major limiting factor in dense RFID environments. A new scanning method was developed and validated with a smaller dataset (888 books), where performance reached 97%, indicating successful resolution of TCI in controlled conditions. However, when applied to larger collections like the 9,655-book Malaysiana collection, the new method proved inadequate, leading to the redesign of a more advanced scanning system. By Stage 7, enhancements targeting high-density TCI zones and time optimization raised accuracy to 94.09%. Most recently, the robot achieved a stable 97% performance rate in the "Open Shelf R collection" environment, confirming the effectiveness of the latest system refinements and establishing a strong foundation for future scalability and AI integration.

Comparative Performance Evaluation of Robotic Systems Versus Handheld Digital Library Assistants (DLA) in Controlled Library Environments

Radio Frequency Identification (RFID) technology has significantly transformed library inventory and collection management, offering substantial gains in accuracy, speed, and overall operational efficiency. Among the widely adopted solutions is the Bibliotheca Digital Library Assistant (DLA), a handheld RFID device that has become an integral tool in supporting daily library workflows. Through features such as enhanced shelf-reading, efficient weeding, and precise item tracking, the DLA has streamlined various collection maintenance activities. The Bibliotheca DLA is designed to assist staff in locating misplaced or mis-shelved items, verifying the accuracy of shelving order, and conducting routine inventory tasks. Its “Boost Mode” functionality addresses one of the traditional challenges of RFID—reduced read performance near metal shelving—by amplifying tag detection capabilities in these difficult environments.

This enhancement contributes to improved scan accuracy and reduces the time required for labour-intensive processes.

Since its introduction at the Tun Hussein Onn Sunway Library in 2008, the DLA has supported the institution's strategic objectives of operational efficiency and enhanced user services. Over time, it has demonstrated consistent performance in improving collection accuracy, expediting stocktaking processes, and enabling more responsive shelf management. However, as libraries continue to explore deeper automation and scalability in collection management, handheld devices like the DLA face limitations in terms of labour dependency and coverage speed. In response, robotic RFID scanning systems have emerged as a promising alternative. These autonomous systems offer the potential for continuous, large-scale inventory operations with minimal human intervention This study examines the comparative performance of a robotic RFID inventory system and the established handheld DLA, under controlled conditions at the Tun Hussein Onn Sunway Library, to evaluate the potential of robotics as a scalable solution for future library environments.

Experiment Parameters

To ensure a fair and reliable comparison, both the handheld DLA and the robotic RFID scanning system were evaluated under identical and carefully controlled conditions at the Tun Hussein Onn Sunway Library. The testing environment was standardized to minimize external variables that could influence scanning performance. Additionally, both systems scanned the same collection sets, which consisted of a predefined number of items with a consistent mix of book types and RFID tag placements. Time of day and staff interaction were also standardized, ensuring that device handling, initiation procedures, and scanning routes were kept uniform across trials. These controls were implemented to isolate the performance characteristics of each system and ensure the validity and repeatability of the results obtained from the study. The parameters used in the study are tabulated in Table 2.

Table 2: Controlled Testing Parameters for DLA and RFID robot

Constant Parameter	DLA	RFID Robot
Shelves equipped with edge blocks No books placed on the lowest (fifth) shelf row No protruding or outward-leaning books Minimal presence of thin or slender volumes Consecutive scanning sessions performed on the same day	Close-contact scanning (1–2 cm) Antenna centrally aligned with the book spine	Maintained a consistent 7 cm distance between antenna and books Antenna parallel to spines

Results of Experiment

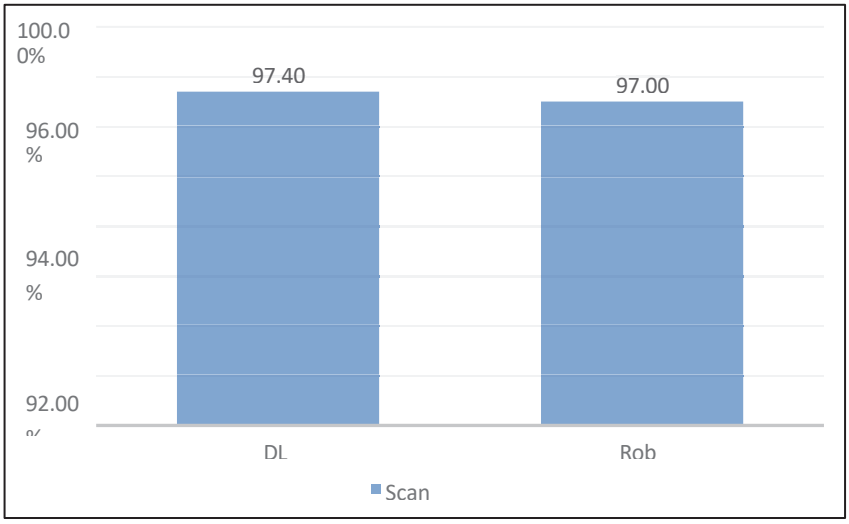


Figure 8: Accuracy comparison of DLA and robot scanning

Table 3: DLA and Robot Result Comparison

Metric	DLA	Robot
Total Books	888	888
Total Scans	865	861
Non-Call Number Scans	1	4
Unscanned Books	22	23
Scan Accuracy	97.4%	97.0%

Under controlled and identical testing conditions, both the handheld Digital Library Assistant (DLA) and the robotic RFID scanning system demonstrated high scan accuracy, with the DLA achieving a slightly higher success rate (97.4%) compared to the robot (97.0%) as demonstrated in Table 3 and Figure 8. The DLA's marginal advantage is likely attributed to its closer proximity to items and more precise antenna alignment during manual operation. However, the robot's autonomous and consistent scanning process presents a compelling opportunity to reduce manual labour, streamline inventory workflows, and improve operational efficiency, particularly in large-scale or high-volume library environments.

Analysis of the Overall Library Robot

Impact of Manpower on Operational Efficiency

The primary distinction between the two systems lies in manpower requirements. The handheld DLA necessitates active staff involvement during every scan, requiring personnel to move between shelves, handle each item, and maintain optimal antenna positioning. While effective, this approach is labour- intensive and becomes increasingly demanding in large libraries or during extended stocktakes. In contrast, the robot operates autonomously once programmed, navigating stacks, scanning items, and completing inventory tasks with minimal supervision. This hands-free capability not only reduces manpower but also allows staff to focus on higher-value responsibilities.

Labour Implications and Efficiency Gains

The DLA's dependence on human effort means that staff time is directly tied to repetitive scanning tasks. This can lead to inefficiencies and staff fatigue, particularly during large-scale

or frequent stocktaking cycles. The robotic system, on the other hand, allows libraries to do more with fewer personnel. Staff can be reallocated to areas such as user services, training, and programming, functions that directly enhance the library's impact on users. Additionally, while robotic systems may require a higher upfront investment, the long-term reduction in labour costs and time spent on inventory tasks provides operational savings. The robot's consistent performance further contributes to process reliability and efficiency.

Strategic Advantages of Robotic Systems

The scalability and flexibility of robotic systems offer strategic advantages, especially for libraries anticipating growth or higher inventory demands. Unlike manual scanning, which scales linearly with staffing, robotic systems can support expanded operations without proportionate increases in labour. Time saved through automation can be redirected to service innovation, space optimization, and user engagement strategies. Robotic systems, therefore, offer not only logistical improvements but also broader organizational benefits by enabling resource reallocation.

CONCLUSION

Technological advancement continues to reshape library services, offering new opportunities to enhance operational efficiency while maintaining high service standards. One such development is the integration of robotic systems into library inventory workflows—particularly for RFID-based scanning tasks. While handheld devices have long served as dependable tools for managing collections, recent evidence suggests that robotics offers transformative potential through automation, scalability, and labour optimization.

Although robotic systems may exhibit a slight trade-off in scan accuracy—typically around 0.4%—this minor variation is offset by substantial gains in speed, consistency, and reduced reliance on manual labour. Unlike handheld RFID devices, which require direct human operation, autonomous robots can conduct large-scale or routine inventory checks with minimal oversight. This capability is particularly valuable for institutions managing extensive or high-traffic collections, where maintaining up-to-date inventory records is both time-sensitive and labour-intensive.

Rather than positioning robots as replacements, a hybrid model is emerging as the most effective approach. Libraries can deploy robotic systems for scheduled or wide-area inventory sweeps, while handheld devices remain valuable for complex tasks such as spot-checking, reconciling discrepancies, or scanning irregular or delicate materials. This complementary framework ensures that each tool is used where it performs best, resulting in a higher overall system efficiency ensuring that the least effort is used while gaining the largest outcome.

From a staffing perspective, the shift toward automation offers meaningful benefits. By reducing the physical and cognitive demands of repetitive inventory scanning, library personnel are freed to focus on user-centred services such as programming, research support, and community outreach. In this way, robotic systems not only streamline backend processes but also indirectly improve the user experience by reallocating staff time toward more impactful engagements, providing an overall better library experience.

The successful integration of robotic and manual systems depends on several factors, including collection size, shelving configurations, item types, and available staff. Strategic planning and customization are essential to ensure the right balance between accuracy, efficiency, and flexibility. When implemented thoughtfully, this approach can contribute to long-term sustainability, service quality, and innovation in library management.

Future research should investigate the performance of robotic systems under more varied and unpredictable conditions, such as non-standard shelving layouts, misaligned tags, or mixed-format collections. Moreover, longitudinal studies assessing cost-effectiveness over time will offer valuable insights into the return on investment and total value of robotics in library operations.

In conclusion, robotic inventory systems represent a promising evolution in library infrastructure. When integrated thoughtfully alongside traditional tools, they enhance accuracy, streamline workflows, and support a more agile, responsive service model—allowing libraries to meet growing demands with confidence and adaptability.

ACKNOWLEDGEMENTS

The authors express their gratitude to Sunway University, the Tun Hussein Onn Sunway Library, and the Research Centre for Human-Machine Collaboration (HUMAC) for their support throughout this research. The authors also acknowledge the use of OpenAI's ChatGPT for grammar verification during the initial drafting phase.

Special thanks and credit are extended to Prof Yap Kian Ming, Ir Dr Steven Eu Kok Seng, Dr Janaki Sinnasamy, Mr Tony Lee, Dr Richard Wong Teck Ken, Prof Lau Sian Lun, Chan Yong Yee, Tan Ley Yee, Zulkifli Bin Samah, Hasrulnizam Abdullah, Raj Kumar Raghavan, Vickneshwaren Shamugam, Kumarissan Maniam, Rajender Singh Chanan Singh, Herrick Yeap Han Lin, Chew Zhe Zhi, Tay Jun Sheng, Lilian Ung Wei Fang, Brandon Choo Wee Kheong, Shahyza Dalyla Binti Md. Shah, Chua Yong Qi, Low Mei Jun, Lim Le Ying, Michelle Lim Chee Ern, Ong Hui Yan Kimberly, Brandon Chow Chen Hong, Ts. Dr Tan Tee Hean,Ng Yi Zhi, Ho Zhengying, Gan Zhi Yun, Ho Tong Qi, Sanzhar Kuatov, Kelvin Kan Chuan Jie, Natsai Victoria Chidavaenzi, and Adzim Bin Adil Putra for their valuable contributions, insights, and support during various stages of this research.

REFERENCES

Chew, Z. Z., Eu, K. S., Alexander, Yap, K. M., & Tan, P. (2024). Improving the navigation performance of simultaneous localization and mapping in narrow pathway between shelves. *AIP Conference Proceedings*, 3161, 020151-020151. https://doi.org/10.1063/5.0230067

Li, R., Huang, Z., Kurniawan, E., & Ho, C. K. (2015). *AuRoSS: An Autonomous Robotic Shelf Scanning system*. IEEE Xplore. https://doi.org/10.1109/IROS.2015.7354246

Liu, J., Zhu, F., Wang, Y., Wang, X., Pan, Q., & Chen, L.-J. (2017). RF-scanner: Shelf scanning with robot- assisted RFID systems. *IEEE INFOCOM 2017*, 1–9. https://doi.org/10.1109/infocom.2017.8056985

Yang, H., Wang, Z., Zhang, T., & Du, F. (2020). A review on vibration analysis and control of machine tool feed drive systems. *The International Journal of Advanced Manufacturing Technology*, *107*(1-2), 503-525. https://doi.org/10.1007/s00170-020-05041-2

Yao, F., Zhang, C., & Chen, W. (2015). Smart talking robot Xiaotu: participatory library service based on artificial intelligence. *Library Hi Tech*, 33(2), 245-260. https://doi.org/10.1108/lht-02-2015-0010

Zhou, L-X., & Li, P-Y. (2018). Finite element analysis of the axial stiffness of a ball screw. *IOP Conference Series: Materials Science and Engineering*, *372*, 012023. https://doi.org/10.1088/1757- 899x/372/1/012023

Transforming University Libraries in the Yangon Region: Exploring Digital Services and Operations for Empowerment and Inclusivity

Khin Lay Soe

Myanmar Library Association, Myanmar

Corresponding email: khinlaysoe62@gmail.com

ABSTRACT

University libraries in the Yangon Region are increasingly embracing digital operations to meet the evolving needs of students, faculty, and researchers in the era of technology-driven education. This study investigates the extent of digital services offered, including e-books, online journals, institutional repositories, digital archives, Library Management Systems (LMS), virtual reference services, and digital literacy programs. Using surveys and interviews with librarians and users, the research identifies successes and challenges, such as infrastructure limitations, funding constraints, and digital skill gaps. Findings reveal significant disparities in the digital capabilities of university libraries, highlighting the need for strategic investments in technology, staff training, and user education. The study emphasizes the critical role of digital library services in empowering academic communities, promoting inclusivity, and supporting research excellence. By addressing the barriers to equitable digital access, this research contributes to the broader discourse on modernizing library systems in developing contexts, underscoring their potential to transform educational and research outcomes in the Yangon Region.

Keywords: Digital Library Services; University Libraries; Library Management Systems (LMS); Digital Literacy; Yangon Region

INTRODUCTION

This paper presents findings derived from data collected through questionnaires and interviews conducted at six university libraries in the Yangon Region: The University of Yangon Library, East Yangon University Library, Dagon University Library, Yangon University of Education Library, Yangon University of Foreign Languages Library, and the Universities' Central Library. Questionnaires were distributed to students, faculty members, and staff through these libraries. The questionnaire comprised six sections: demographic information, awareness and usage of digital services, satisfaction and perceived weaknesses, general problems related to access, digital literacy and communication, and suggestions or predictions for improvement.

In addition, interviews were conducted with librarians using a structured questionnaire that included six key topics: online services and operations, collaborative digital library efforts, challenges faced in digital library development, training in digital tools and services, ICT infrastructure, and personal insights on the future of digital libraries.

The primary aim of this study was to assess the extent to which university libraries in Yangon have adopted digital operations and services, including the implementation of library automation systems, online services, and both current and planned digital library initiatives. As the research progressed, it became clear that digital transformation within these libraries is evolving. The emergence of hybrid digital libraries reflects an increasing institutional readiness to expand digital services. This research also addresses a significant gap in the literature on digital library development in Myanmar, where such initiatives have received limited scholarly attention despite growing momentum globally.

SUMMARY OF FINDINGS FROM THE QUESTIONNAIRES

Research Question 1

What types of digital services are currently being implemented in university libraries in the Yangon Region.

Universities such as the University of Yangon and Dagon University provide access to a wide array of digital materials:

1. eLibrary Myanmar Project: Offers over 140,000 e-books and 15,000 e-journals across various disciplines.
2. International Databases: Students and faculty can access resources from EBSCO, ProQuest, and OECD iLibrary, encompassing millions of academic articles, e-books, and data sets.
3. eTekkatho Digital Library: Provides both online and offline access to over 1,700 full-text resources, including MIT OpenCourseWare and multilingual Wikipedia content.

Some have established institutional repositories to promote open access:

1. University Repositories: University libraries in Yangon and Mandalay have created repositories to host theses, research papers, and academic journals, making them freely accessible.
2. MERAL Portal: The Myanmar Education Research and Learning Portal aggregates research outputs from 19 universities, facilitating nationwide access to academic materials.

To support digital services, universities have upgraded their technological infrastructure:

1. Improved Connectivity: Installation of fiber-optic internet lines and increased bandwidth have been implemented to ensure reliable access to digital resources.
2. Digital Facilities: Libraries are equipped with computers and Wi-Fi, allowing students to access e-resources using personal devices within library premises.

Collaborations have led to the digitization of valuable materials:

1. Heritage Digitization: Projects have been initiated to digitize historical documents and cultural artifacts, making them accessible for research and preservation.
2. Digital Archives: Collections such as the Journal of Burma Research Society and Burma Gazetteers are available in digital formats for scholarly use.

Libraries have implemented online systems to enhance user experience:

1. Online Catalogs: Users can search for books and resources through online catalogs using various search parameters.
2. Remote Services: Services such as book renewals and resource requests can be handled via email or phone, providing convenience to users.

Efforts have been made to enhance the skills of library staff and users:

1. Training Workshops: Librarians, faculty, and students have participated in training sessions to effectively utilize e-resources and digital tools.
2. Master Trainer Programs: Librarians have been trained to become master trainers, enabling them to conduct further training within their institutions.

Research Question 2

What made up the library holdings/collections and what were the general problems faced. What library systems have been installed and the extent of online library services and digital library initiatives that had been introduced, including the provision of budget and training?

Monograph still formed the bulk of library holdings followed by serials, CD-ROMs collections, audio visual materials, posters, maps, photographs and microforms. There were three major problems faced by university libraries. Top of the list was lack of budget, followed by the lack of IT personnel and of IT facilities, and lack of digital awareness. Given the above scenario, it could be easily understood why only a small percentage of the libraries had done some kind of digitization works and print-based still dominated. It is one of the issues transforming digital libraries. Due to the lack of IT personnel, almost one-fourth of the libraries were dependent on their parent organization's IT Unit for technical support, followed by outsourcing and utilizing their own internal IT units. Other than those problems stated above, university libraries were blessed with a good working attitude, higher demand for library resources, and good collaboration among librarians, and good management support. And some libraries had already perceived themselves to be hybrid in nature, which was a good indicator from digital library perspective.

All respondents had installed the same integrated library system. Every library in my study now has Internet access and Wide Area Network facilities. It was quite surprising that there were still some libraries the number of PCs owned was still comparatively small. As the data had revealed, only a very small percentage of the libraries had done some digital library initiatives. As for digital collaborative projects, again only a very small percentage of the respondents had some kinds of involvement with others. As part of the digital library initiatives, some services and operations were being provided online, though on a selective basis. Online circulation, web OPAC, websites services and online reference enquiries. Other online services like acquisition, selective dissemination of information services, self-check machine, mobile Internet services, interlibrary loan, smart card and Online ordering was not encouraging as this

needed to co-exist with suppliers, particularly local and government procurement that had yet to cater for e-payment.

Websites/homepages contents development had become the focus for preliminary online information services. Almost all libraries reported to have online the library general information to cater for user general information needs. Other major website contents were web OPAC, hypertext linkages with agencies, hypertext linkages to related websites, feedback and comment, access to online databases, new books list and access to e-books. The contents of websites in much less percentages were calendar of events, book/article reviews, local contents databases, FAQ, suggestion page, and location maps. The use of e-mail facilities has been tremendous as the main medium of communication with users.

The availability of the budget was indeed important for the success of any transformation of the digital library as proven from the literature review. As the research had found, the percentage of libraries that had started transforming digital libraries were very small and added by the fact that the lack of budget was also one of the problems faced.

Research Question 3

What training or capacity-building initiatives are in place to ensure effective use of digital services?

ICT training had been limited, with most sessions focusing on application software, basic computer use, and the World Wide Web. However, the more critical need was training in areas such as database management systems, operating systems, and content management. Librarians received training both internally and through external programs, but over half were self-taught, and participation in externally led training was relatively low. In terms of duration, most attended courses lasting around one week on average, which was inadequate.

Research Question 4

What policies or strategies are in place to ensure equitable access to digital resources?

To ensure equitable access to digital resources across Myanmar's university libraries, particularly in the Yangon Region, several key policies and strategies have been implemented through national initiatives and international collaborations.

1. Expansion of the eLibrary Myanmar Project

   Launched in 2013 by EIFL, the eLibrary Myanmar project aims to provide comprehensive access to high-quality international journals, databases, and e-books to universities under the Ministry of Education. The project has expanded to include 21 universities, ensuring that students and faculty across various institutions have equitable access to essential academic resources.

2. Development of Open Access Repositories

   To promote the dissemination of local research and ensure free access to scholarly outputs, several universities have established institutional open access repositories. Additionally, the Myanmar Education Research and Learning (MERAL) Portal aggregates research outputs from 31 universities, making them accessible to a broader audience.

3. Capacity Building and Training Programs

   Recognizing the importance of digital literacy, extensive training programs have been conducted for librarians, faculty, and students. These programs focus on information literacy, effective use of e-resources, and understanding of open access principles, thereby empowering users to make the most of available digital resources.

4. Infrastructure Enhancement

   To support digital access, significant investments have been made in improving technological infrastructure. This includes the installation of fiber-optic internet lines, provision of computers, and enhancement of library facilities, ensuring that students and faculty have the necessary tools to access digital resources effectively.

5. Community Outreach and Inclusion Initiatives

   Projects like eTekkatho and the Equal Access to Information Society in Myanmar have been instrumental in reaching underserved communities. By setting up self-contained digital libraries and extending library networks to rural areas, these initiatives have broadened access to educational resources beyond urban centers.

These concerted efforts reflect a comprehensive approach to ensuring that digital resources are accessible to all students and faculty members, regardless of their location or institutional affiliation, thereby promoting equity in higher education across Myanmar.

Research Question 5

What is the impact of digital transformation on the traditional roles and functions of university libraries?

The digital transformation of university libraries, especially in regions like Yangon, has significantly reshaped their traditional roles and functions. While the core mission of supporting learning, teaching, and research remains intact, how that mission is fulfilled has evolved in several important ways:

1. Shift from Physical to Digital Collections

   Libraries were custodians of physical books, journals, and archives. Libraries now prioritize electronic resources, such as e-books, e-journals, and databases. Physical space is increasingly repurposed for digital access points and collaborative learning environments. Access is 24/7 and not limited by physical location or library hours.

2. Reinvention of Information Access and Delivery

   Users relied on librarians for curated materials and mediated access. Users can independently search vast databases using online public access catalogs (OPACs) and digital repositories. Libraries serve as facilitators of access rather than gatekeepers. Services such as remote access, interlibrary digital loans, and AI-driven search tools streamline information retrieval.

3. Expanded Educational Role

   Libraries provided basic bibliographic instruction. Libraries now deliver workshops on digital literacy, plagiarism prevention, open access publishing, and data management. Librarians often co-teach or collaborate with faculty on curriculum development involving digital skills.

4. New Professional Competencies for Librarians

   Librarians managed cataloging, circulation, and reference queries. Roles now include digital curation, metadata management, UX design, and IT support. Librarians must be proficient with digital tools, content management systems, and data analysis platforms.

5. Transformation of Library Space

   Silent reading zones and stacks. Libraries are now dynamic learning hubs offering collaborative workspaces, maker spaces, and digital labs. These changes foster a broader range of academic and creative activities.

6. Promotion of Open Access and Knowledge Sharing

   Subscription-based access to resources. Libraries advocate open access publishing and maintain institutional repositories. This expands visibility of local research and ensures equity in information access, especially in resource-limited settings.

7. Policy and Governance Engagement

   Libraries followed institutional and national information policies. Libraries now play a role in shaping digital governance, intellectual property rights, and information ethics at the institutional level. In Myanmar, initiatives like the MERAL Portal and eTekkatho show libraries driving digital innovation in education policy.

Research Question 6

What were the digital libraries related problems and what kinds of digital library planning were in process?

The research has identified six main digital libraries related problems. These were staff shortage as digital projects had to be done with the number of the existing staff, absence of a digital library blueprint and National Information Infrastructure policy, digital library project was too expensive which could be due to budget constrain, lack of role model and problems related to Copyright Act clearance. Some of these problems, such as staff shortage and the digital library project, were too expensive and were on the same ground with the general library problems reported earlier i.e. lack of IT personnel and lack of budget. Whereas the need for a blueprint and National Information Infrastructure, together with Copyright Act clearance were more of a policy matter. The lack of role models was a kind of reaffirmation of the need of some kind of guidance since digital library was new to many of the respondents.

University libraries were at a certain level of digital library planning and some were still at the initial stage of planning. Their digital library planning seemed to be basic in nature, without any long-term projects and there was no mention of collaborative efforts at national or

international levels. Majority of the responses were in the process of going online, firstly through the installation of library systems with the intention of creating and providing more online services. Other plans were updating existing projects, establishing knowledge portals, promoting the use of electronic media, improving ICT infrastructures, acquiring more e-resources, asking for a budget increase, improving staff IT competency through ICT training and to establish more linkages with other libraries.

Research Question 7

What were the library heads' opinions on university digital library development?

Majority of the respondents were very positive about digital library development and they felt that majority of users too were ready for new digital information technology. Only slightly more than half believed that the digital format would dominate the entire library scene. However, there were some who felt that printed materials would stay intact despite the rapid increase in online services. Even with the increase in online services there had been no significant change in the collection development policy, meaning there had not been much change in terms of the acquisition of library materials.

The need for a national digital library blueprint that would serve as guidelines was agreed upon by almost all the respondents, just as they felt about the lack of role models. They also unanimously agreed that information professionals must embraced digital technology and not leave everything to the computer science people. And lastly, slightly more than half of the respondents did not agree that traditional libraries were on the brink of extinction, sending a message that books or print materials were here to stay. They could feel the wave of digital library was coming and that the traditional library set up would need to change accordingly to stay viable in the digital world. As such there were two schools of thought. One was optimistic about the new type of library which would be digital based, and that the old type would be replaced slowly. The other school thought was optimistic about having both types, running concurrently side by side, thus the high percentage of the respondents preferring the hybrid type would suit better the digital library environment.

SUMMARY OF FINDINGS FROM INTERVIEWS

The following findings were based on the three themes that had been grouped, thus answering the interview questions: (1) Current Digital Services in Yangon University Libraries, (2) Policies

and Strategies for Equitable Access, and (3) Impact of Digital Transformation on Traditional Library Roles. The perceived conditions for digital library future growth had been embedded accordingly within the three themes discussed.

University libraries in Yangon now offer access to international online resources through platforms like eLibrary Myanmar and eTekkatho. They also support local research by providing open access to digital repositories such as MERAL. The libraries have improved their internet connections using fiber-optic networks and have set up computer labs for better digital access. Important heritage materials are being digitized for preservation and research. Users can also search catalogs, request books remotely, and renew loans online. To support these services, libraries are offering training programs to help both librarians and users become more skilled in using digital tools.

Projects aim to give students and researchers far and near access to international academic resources. Open access platforms make research freely available to everyone, encouraging inclusive learning. To ensure people can make full use of digital services, training programs are available for librarians, faculty, and students to boost their digital skills. Upgraded infrastructure, including better internet, supports this digital shift. Outreach programs are also helping bring digital library services to areas with fewer resources.

Libraries are moving from focusing mainly on physical books to offering digital services and resources. Librarians now act as a guide for users in finding digital information and teach digital literacy skills. Libraries are now giving spaces for collaboration, learning, and innovation. New job roles have also emerged, such as managing data, curating digital collections, and providing tech support. Libraries are now active in promoting open access policies and supporting the growth of digital knowledge sharing.

RECOMMENDATIONS

Based on the collected survey data, and consolidated by the qualitative data particularly on the exploring digital services and operation, where there had been some convergence of findings, these were the recommendations proposed:

1. Strengthening digital literacy for all users

   It is recommended that librarians implement comprehensive digital literacy programs to ensure that all users, students, faculty, and staff, can effectively engage with digital resources. Regular training sessions should be conducted on navigating e-resources, evaluating information, and using citation tools. Special attention should be given to first-year students and non-ICT majors who may require additional support. To promote inclusiveness, libraries should develop user-friendly, bilingual guides and tutorials. Strengthening users' digital competencies will enhance equitable access, support academic success, and foster greater confidence in navigating the digital learning environment.

2. Enhance and promote open access initiatives

   University librarians should actively support and expand open access (OA) initiatives to increase the visibility and accessibility of local research. This includes maintaining institutional repositories, encouraging faculty and students to deposit their work, and offering guidance on copyright, licensing, and open publishing platforms. Promoting the use of Creative Commons licenses can help researchers share their work freely while retaining appropriate rights. Collaboration with national platforms like the MERAL Portal is also recommended to strengthen the impact of Myanmar’s academic contributions. By advocating for open access, libraries help bridge knowledge gaps and support a more inclusive scholarly community.

3. Expand outreach and inclusion programs

   Librarians should actively work to extend digital library services beyond the main university campuses to ensure inclusive access for all learners, including those in rural, underserved, or marginalized communities. This can be achieved by collaborating with departments, local communities, and organizations to set up satellite access points or portable digital libraries using tools such as offline servers. Programs should also address the needs of users with disabilities by ensuring digital platforms comply with accessibility standards and offering alternative formats where necessary. Outreach efforts such as mobile library units, digital literacy roadshows, and community workshops can further bridge the digital divide. These initiatives will help create a more equitable educational environment by ensuring that no student or educator is left behind in the digital age.

4. Invest in professional development for library staff

   To keep pace with the evolving digital landscape, it is essential for university libraries to prioritize the continuous professional development of their staff. Librarians should be

equipped with up-to-date skills in areas such as digital curation, metadata management, open access publishing, information literacy instruction, and emerging technologies like AI and data analytics. Universities should support participation in national and international training programs, workshops, and conferences to encourage knowledge exchange and innovation. Internal peer-to-peer learning sessions can also be implemented to foster collaboration and skill sharing. By investing in staff development, libraries can enhance service quality, increase user satisfaction, and position themselves as key players in digital education and research.

5. Improve user-centered library services

   Libraries should adopt a user-centered approach to ensure that their services are responsive, accessible, and aligned with the evolving needs of students and faculty. This includes redesigning library websites to be more intuitive, mobile-friendly, and integrated with search tools, digital repositories, and support services. Implementing features such as live chat, online consultations, and personalized user accounts can greatly enhance the user experience. Regular feedback mechanisms, such as surveys, suggestion boxes, and focus groups, should be used to assess user satisfaction and identify areas for improvement. By placing users at the heart of service design, libraries can create more engaging, inclusive, and effective learning environments.

6. Leverage data for service improvement

   Libraries should utilize data analytics to inform decision-making and enhance the effectiveness of their services. By tracking usage statistics from digital platforms, website traffic, and user engagement patterns, librarians can gain valuable insights into which resources are most utilized and where service gaps exist. This data can guide the acquisition of new materials, the design of user training programs, and the optimization of online platforms. Additionally, conducting regular user surveys and analyzing feedback will help libraries tailor their offerings to meet specific academic and research needs. Leveraging data in this way ensures that library services remain relevant, efficient, and aligned with user expectations.

7. Ensure sustainability and resilience

   To ensure long-term access to digital resources, libraries must invest in robust systems and strategies that safeguard against disruptions. This includes implementing backup solutions for digital content, such as cloud storage and offline access systems, to ensure uninterrupted service in case of network outages or technical failures. Libraries should also collaborate with IT departments to establish disaster recovery plans and maintain regular updates to software and hardware infrastructure. Additionally, securing

sustainable funding through partnerships, grants, or consortia can help libraries continually update their digital resources and technologies. By prioritizing sustainability and resilience, libraries can provide reliable access to information, even in the face of unforeseen challenges.

8. Champion library advocacy at the policy level

   Librarians should actively engage in advocating for policies that support the continued development and sustainability of digital libraries and equitable access to information. This involves collaborating with academic institutions, government bodies, and professional organizations to influence policies related to open access, copyright, digital resource funding, and infrastructure development. Libraries should also participate in national and regional discussions to shape the future of digital education and research. By positioning themselves as key stakeholders in academic and governmental policymaking, librarians can ensure that their institutions remain at the forefront of digital innovation and that libraries play an integral role in shaping educational and research landscapes.

CONCLUSION

Librarians are now digital knowledge enablers, inclusion advocates, and tech educators. Implementing these recommendations can help them fully embrace their evolving roles and ensure that university libraries remain central to learning and research in this digital age.

In a nutshell, university libraries were moving forward toward digital library development, at different phases and levels. Librarians were both very enthusiastic and positive. All libraries in the research had already installed the same integrated library systems, had embraced library automation and were ready for digital services, despite facing problems of various natures related to human resource, budget, ICT facilities and infrastructure and technical knowhow. Print materials still dominating but information surrogates of internal organizational publications had been rampant and the subscriptions of e-resources, particularly e-journals were on the rise.

The perceived conditions for digital operations and services from the interview sessions had significantly of the need that digital library foundation and framework be laid out to facilitate national digital library planning and to extend the spectrum in terms of participating libraries and digital library expertise. ICT facilities and national digital library infrastructure need to be

created and upgraded regularly, budget increased, expand in digital library research and training, consolidate collaboration between all information related agencies, and the introduction of a digital library blueprint and backed up with a strong national digital library policies and regulations and amendments to the copyright act.

To conclude, digital operations and services universities still need a lot compared with their western universities as we were developing areas that were done by them over 20 years ago. Myanmar digital libraries had a lot of prospects and from the digital library projects worldwide and with all the recommendations proposed, the future directions of university digital library development would become clearer. The information produced by this research would be useful to libraries, archives, museums and any other information related agencies and would serve as a contribution to the body of knowledge.

REFERENCES

Caballero-Anthony, M., Cook, A. D. B., & Chen, C. (2021). Knowledge management and humanitarian organisations in the Asia-Pacific: Practices, challenges, and future pathways. *International Journal of Disaster Risk Reduction*, 53 (November 2020), 102007. https://doi.org/10.1016/j.ijdrr.2020.102007

Dadhe, P. P., & Dubey, M. N. (2020). Library Services Provided During COVID-19 Pandemic: Content Analysis of Websites of Premier Technological Institutions of India.

Elengoe, A. (2020). Osong Public Health and Research Perspectives COVID-19 Outbreak in Malaysia. *Osong Public Health and Research Perspectives Journal*, 11(3), 93–100. https://doi.org/10.24171/j.phrp.2020.11.3.08

IFLA. (2020). COVID-19 and the Global Library Field. *IFLA* (pp. 1–17). https://www.ifla.org/covid- 19-and-libraries

Generative AI and Library Services: Evaluating How Perplexity AI Can Support Reference Services

Seow Hai Sim

National Library Board, Singapore

Corresponding email: Seow_Hai_Sim@nlb.gov.sg

ABSTRACT

This study evaluated Perplexity AI's performance in answering actual reference inquiries received by the Lee Kong Chian Reference Library's Reference Point (RP). The research explored how generative AI can support reference services. Using a set of RP questions varying in complexity and subject area, the study assessed Perplexity AI's responses based on accuracy, relevance, and completeness. The AI-generated responses were scored and compared with librarians' answers using identical evaluation criteria. While Perplexity AI quickly retrieved resources and provided citations, its performance in accuracy and relevance generally lagged behind that of human librarians. Librarians consistently delivered more refined, contextually accurate, and authoritative resources, reflecting a deeper understanding of each query's nuances. The findings suggest that while Perplexity AI shows promise as a supplementary tool for reference services, human oversight remains essential for filtering, validating, and contextualizing information to ensure the most appropriate resources are provided. Combining the capabilities of AI with the expertise of librarians could offer a practical approach to enhancing reference services.

Keywords: Reference Services; Generative AI; Perplexity AI; Artificial Intelligence

INTRODUCTION

Generative artificial intelligence (AI) has the potential to enhance library services by offering new ways to find, understand, and access information. Tools like Perplexity AI can generate content, summarise information, answer questions in real time, and provide responses with citations, features that align with the goals of reference services.

However, recent studies suggest that AI tools are often less effective than human librarians, particularly for complex or subject-specific queries. Yang and Mason (2023) found that "reference librarians markedly outperformed their robotic counterpart," noting that ChatGPT struggled to understand local policies and practices. Deike (2024) similarly observed that while ChatGPT and Perplexity AI are "capable of answering many research assistance questions at a satisfactory level, they do not often meet the bar of an outstanding transaction" in a business library context. Wheatley and Hervieux (2024) reported that although ChatGPT understands reference questions and provides relevant answers, the accuracy and quality of its sources may be lacking. Likewise, Li and Coates (2025) noted that while real-time chatbot ChatGPT offers helpful general guidance on locating information resources in academic libraries, its responses "might not be accurate or truthful all the time." Despite these limitations, generative AI can serve as a supplementary tool in the reference process, offering speed and conversational delivery. Nevertheless, human oversight and verification remain essential, as AI-generated content is prone to errors and hallucinations.

This study explores how Perplexity AI can support reference services by evaluating its performance on a set of ten reference questions previously submitted via email to the Lee Kong Chian Reference Library's (LKCRL) Reference Point. AI-generated responses are compared with those provided by librarians to assess the AI's effectiveness and potential role in reference work.

METHOD

This study used Perplexity AI for its ability to conduct real-time searches, generate responses with citations, and present information in a report-style format, making it a potentially useful tool for reference services. To evaluate Perplexity's performance, the author selected ten reference questions submitted to RP, an online advisory service, between September 2023 and March 2025. RP librarians assist users with queries about Singapore's history and heritage, as well as topics in the arts, business, science and technology, and the social sciences and

humanities. The test questions varied in complexity and covered a range of subject areas, including Singapore's history and culture. Table 1 presents the question topics in ascending order of difficulty.

Table 1: Topics of Reference Questions

ID	Question Topic	Category
Q1	(Least difficult) Toast Box, Ya Kun and Killiney Kopitiam	Business
Q2	Social and criminal system in Singapore for juvenile offenders	Criminal justice/ Social systems
Q3	Population policies of Singapore in the 1970s, 1980s, and 1990s	Government policy
Q4	Profanity in Singapore	Sociolinguistics
Q5	History of sports in Singapore	History of sports
Q6	Fitzpatrick's supermarket in Singapore in the early 1960s	Business history
Q7	Passenger list of SS Van Heutsz (1946)	Archival research
Q8	History of policing in colonial Singapore	Colonial policing
Q9	History of consumption of offal foods in Asia	Food history
Q10	(Most difficult) Nationalism in newspapers in colonial Singapore	History/politics/ Ideology

The questions were anonymised and entered into the browser-based version of Perplexity AI in April 2025. Perplexity Pro, which offers enhanced search capabilities, was used for all questions except Questions 7 and 8, where the standard mode was chosen because the Pro version performed unsatisfactorily. The responses generated by Perplexity and the answers provided by librarians were scored on a 5-point Likert scale, with 1 denoting the worst performance and 5 the best outcome. Three criteria, accuracy, relevance, and completeness, were used to evaluate the answers from both Perplexity and the librarians (Appendix A: Evaluation Criteria and Scoring Rubric).

RESULTS

The scores for answers to the reference questions provided by Perplexity AI and librarians are presented in Table 2.

Table 2: Scores of answers by perplexity AI and librarians to the reference questions

(A=Accuracy, R=Relevance, C=Completeness)

ID	Perplexity AI				Librarians			
	A	R	C	Overall	A	R	C	Overall
Q1	3	5	5	13	5	4	4	13
Q2	4	4	5	13	4	4	3	11
Q3	4	5	4	13	4	4	3	11
Q4	3	3	4	10	4	4	4	12
Q5	4	5	5	14	5	5	4	14
Q6	2	3	3	8	5	5	5	15
Q7	3	3	4	10	3	4	4	11
Q8	4	5	5	14	3	3	3	9
Q9	1	2	1	4	2	3	3	8
Q10	4	4	4	12	5	5	4	14
Total Scores	32	39	40	111	40	41	37	118

Overall Performance of Perplexity AI and Librarians by Question

Each of the three criteria, accuracy, relevance, completeness, was scored on a scale from 1 to 5, with a maximum total score of 15 per question. Across the set of 10 questions, Perplexity AI achieved a total score of 111, while the librarians scored 118, indicating that the librarians outperformed Perplexity AI overall (Figure 1).

Perplexity AI scored the same as or higher than the librarians on Questions 1, 2, 3, 5 and 8, which were generally considered less difficult (except Q8). In contrast, librarians outperformed Perplexity AI on the more difficult Questions 4, 6, 7, 9 and 10 (except Q4). These results suggest that librarians performed better on more complex questions.

Perplexity generally struggled with more difficult questions, particularly Questions 6 and 9. For example, on Question 6 (about the nuanced history of Fitzpatrick's supermarket), Perplexity scored 8 out of 15, while the librarians achieved a perfect score of 15.

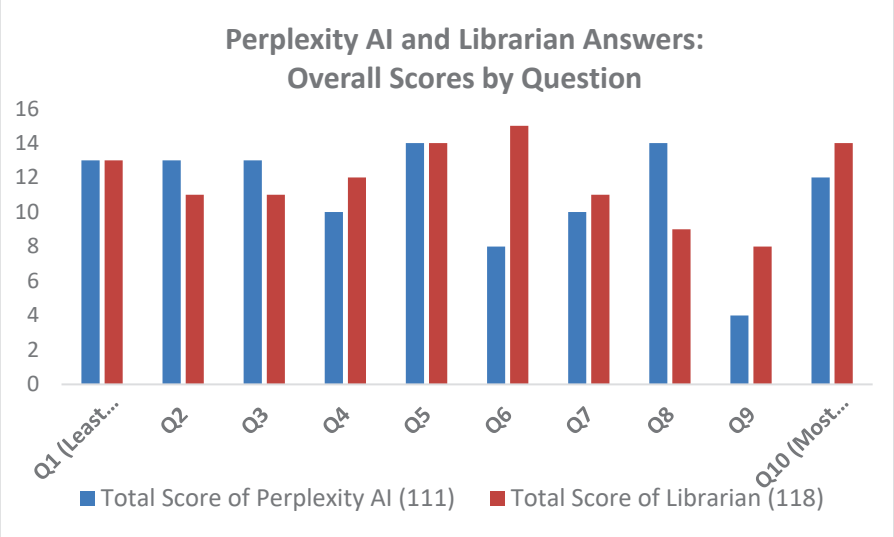


Figure 1: Overall scores by Perplexity AI and librarians

Overall Performance of Perplexity AI and Librarians in Accuracy, Relevance and Completeness

Each criterion was scored out of 5 per question, with a maximum score of 50 across 10 questions. Perplexity AI performed better overall in the Completeness criterion by 3 points (40 vs. 37), while librarians scored higher in both Accuracy and Relevance by 8 (40 vs. 32) and 2 (41 vs. 39) points, respectively (Figure 2).

Since Perplexity can quickly generate a broader range of results and data than humans, it is unsurprising that the AI scored higher than the librarians in Completeness. However, Perplexity also generated much more 'noise' in its responses.

Librarians performed particularly better in Accuracy compared to Perplexity, as they can interpret questions more effectively, including their nuances, and provide precise answers. Librarians also outperformed Perplexity in Relevance; their nuanced understanding and subject knowledge enable them to deliver more contextually appropriate and relevant answers that addressed the full scope of each question.

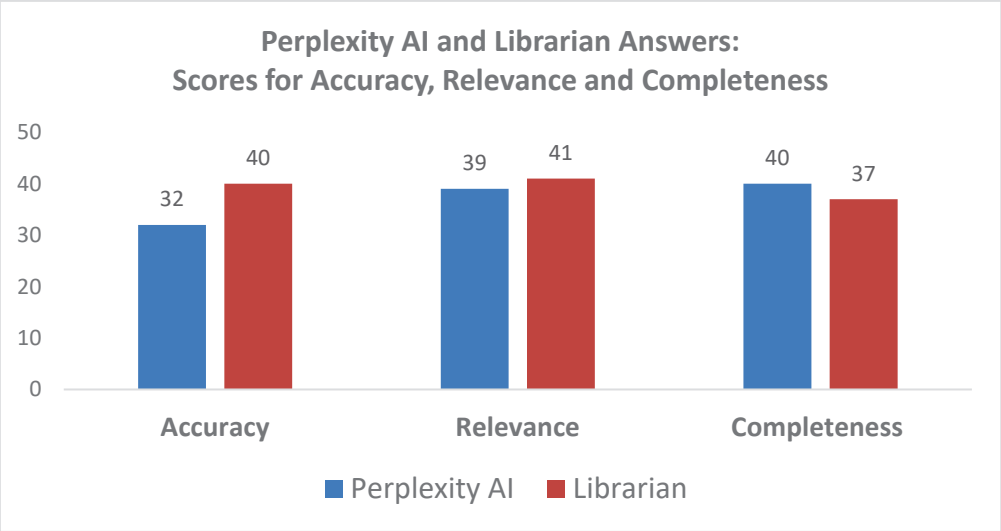


Figure 2: Scores of the three criteria for perplexity AI and librarians

Performance of Perplexity AI in Accuracy, Relevance and Completeness for Each Question

Perplexity AI did not perform well on Questions 4, 6, 7 and 9, with average scores of 3.3, 2.7, 3.3 and 1.3, respectively, across the three criteria. Questions 6, 7 and 9 were among the more difficult queries, suggesting that Perplexity tended to struggle with more challenging questions (Figure 3).

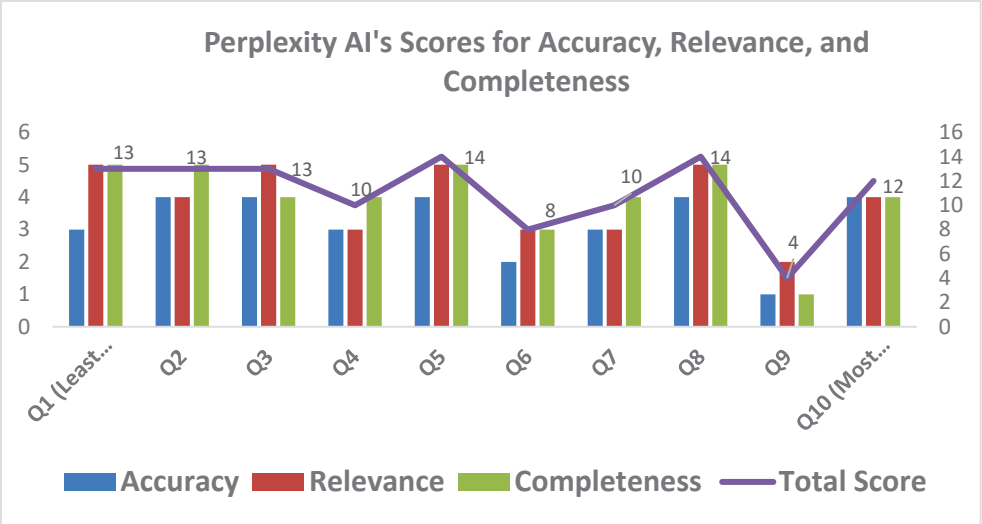


Figure 3: Scores for each question in three criteria for perplexity AI

Performance of Librarians in Accuracy, Relevance and Completeness for Each Question

Librarians performed very well on Questions 5, 6 and 10, each with an average score of 4.7, 5 and 4.7, respectively, across the three criteria (Figure 4). Overall, librarians performed consistently well across all three criteria for most questions, except Question 9 (regarding the history of offal foods).

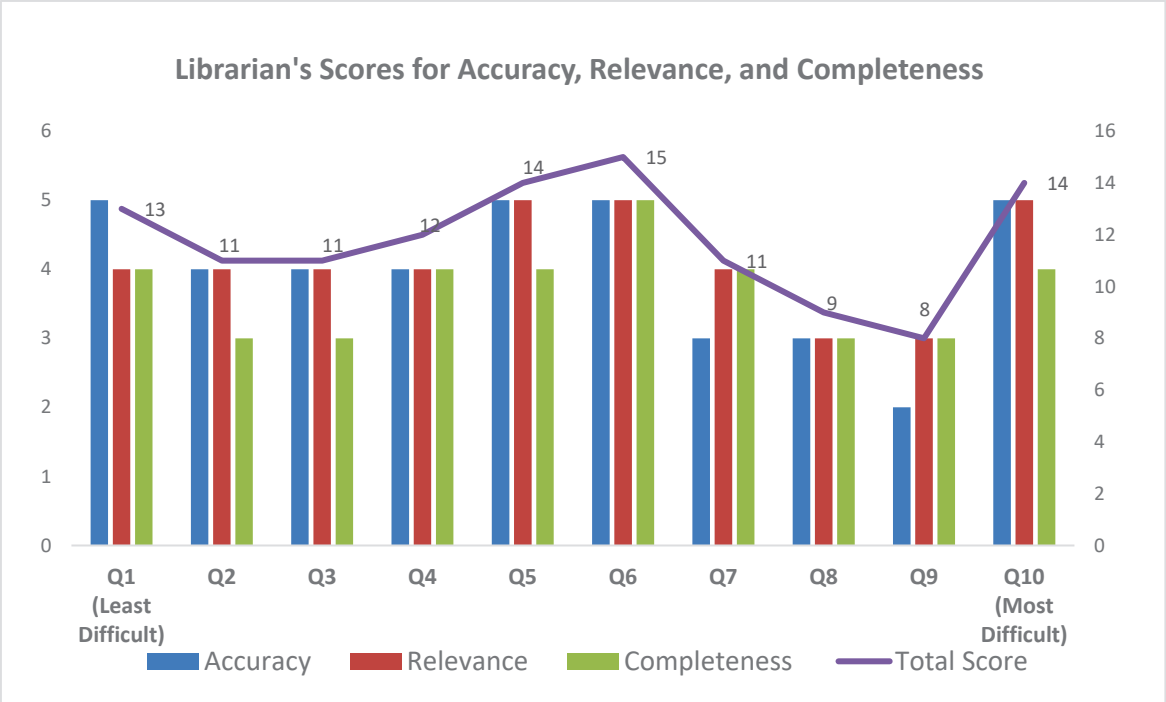


Figure 4: Scores for each question in three criteria for librarians

DISCUSSION

This study evaluates Perplexity AI's performance and assesses its potential as a tool to support librarians in answering reference questions. Using research queries submitted to LKCRL's Reference Point, the study examines Perplexity AI's strengths and limitations in providing accurate, relevant and complete answers, and compares its performance with that of librarians.

Overall, the findings suggest that Perplexity AI can serve as a useful initial discovery tool for retrieving a range of resources, particularly when prompts specify intended sources such as NewspaperSG and National Library Board (NLB) books. A notable strength is Perplexity's ability to retrieve materials at the "concept" level from the NLB Catalogue, as well as articles from NLB OneSearch. This broad retrieval capability can help librarians quickly identify relevant NLB resources for users.

However, the study also reveals that Perplexity's broad approach can yield numerous irrelevant or overly general sources that offer limited research value. As such, human oversight and well-

formulated search strategies remain essential for filtering and contextualizing the information provided by the AI.

In contrast, librarians consistently provided more refined and contextually relevant resources, demonstrating a deeper understanding of each query's nuances. They recommended authoritative sources, provided accurate citations, and offered practical search tips to guide users in further research. Librarian expertise remains essential for refining searches, verifying information, and contextualizing sources, especially for in-depth research. Therefore, reference services can be enhanced by combining the speed and breadth of AI with the depth and precision of human expertise.

The following section presents the author's commentary on the answers provided by both Perplexity AI and librarians. The original questions were reformulated as prompts for the AI. The prompts presented here have been edited for clarity. Representative examples of Perplexity AI's actual responses are provided in Appendix B.

Question 1

Toast Box, Ya Kun and Killiney Kopitiam

First Prompt

I am researching Toast Box, Ya Kun and Killiney Kopitiam. Please recommend books and other materials, including primary sources in NLB or National Archives?

Second Prompt

I am researching Toast Box, Ya Kun and Killiney Kopitiam. Please provide articles from NewspaperSG.

Comments on Perplexity AI Answer

Perplexity AI provided the book *Heritage of Singapore: Kopitiam*. It also referenced the resource page, "Food Culture," from the National Archives of Singapore, but this page was too

general for the user's inquiry. Other references cited were similarly broad and might not be useful for research.

Perplexity Pro generated 30 citations in response to the first prompt, including the following additional resources:

- "Killiney Kopitiam," Singapore Infopedia
- "Ya Kun," Singapore Infopedia (retrieved via NLB OneSearch)
- "The Straits Times," 11 July 2010 (retrieved via NewspaperSG)
- "Beyond Kaya Toast: The Culturally Cosmopolitan Coffee Shop of 1960s Singapore," Roots, National Heritage Board
- "Now Who's the Toast of The Town?" Straits Times, 22 May 2005
- "Which Popular Cafe Chain Offers the Most Value for Money Kaya Toast Set? We Tried Them All Out," CNA Lifestyle

Perplexity was able to retrieve NLB resources, such as NewspaperSG and Infopedia articles from OneSearch (Figure 5) and the Singapore Infopedia website (Figure 6). It cited the 11 July 2010 issue of the Straits Times from NewspaperSG (Figure 7), which contained a key feature article "Kopi Cats" about cafes specialising in local coffee. However, Perplexity cited only the newspaper issue, rather than specific articles. Users need to identify the correct articles within the issue by using a keyword search (e.g., 'coffee') to locate relevant content.

The second prompt instructed Perplexity to search for articles from NewspaperSG. Perplexity Pro provided a remarkable total of 27 newspaper issues (Figure 8). Its answer included brief summaries of four newspaper articles based on the exact text available from NewspaperSG (Figure 9). In summary, Perplexity retrieved relevant resources, including NLB materials. When specifically asked to provide articles from NewspaperSG in a second prompt, it performed very well. However, its initial response included numerous irrelevant sources because the first prompt did not specify any particular sources. Therefore, human selection remains crucial for identifying the right resources and crafting follow-up prompts to elicit the desired results when necessary.

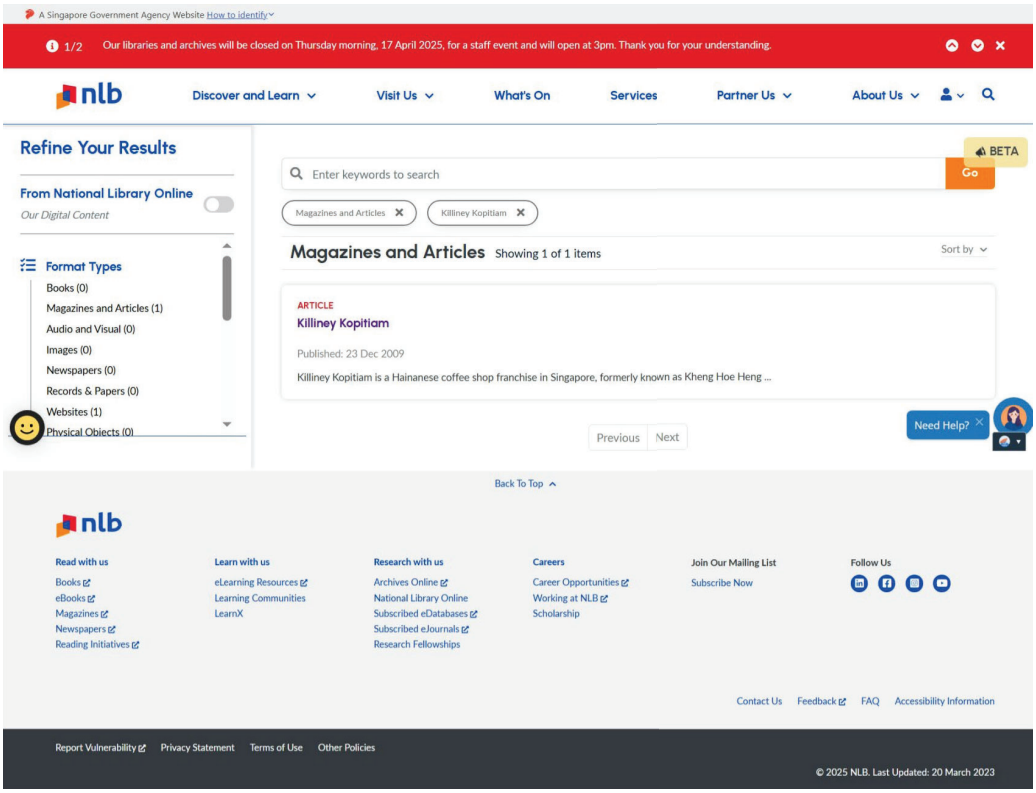


Figure 5: Perplexity AI retrieved Infopedia articles from NLB OneSearch

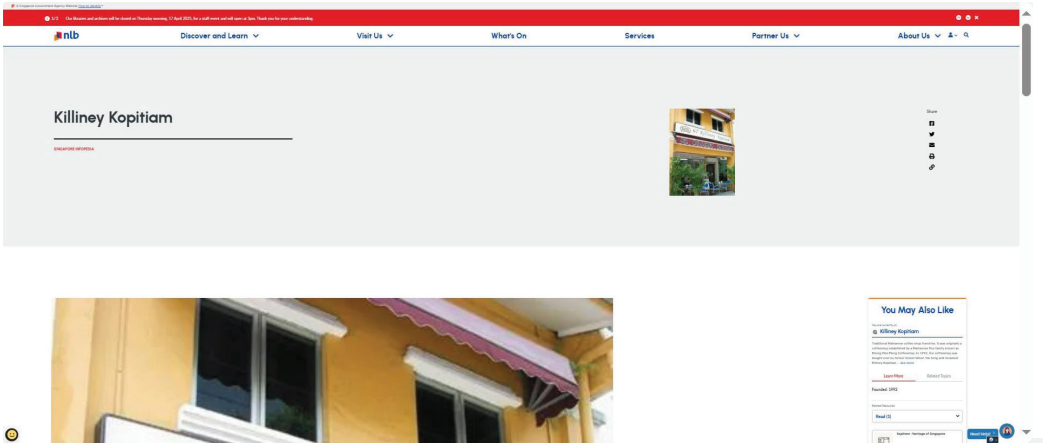


Figure 6: Perplexity AI retrieved articles from Singapore Infopedia

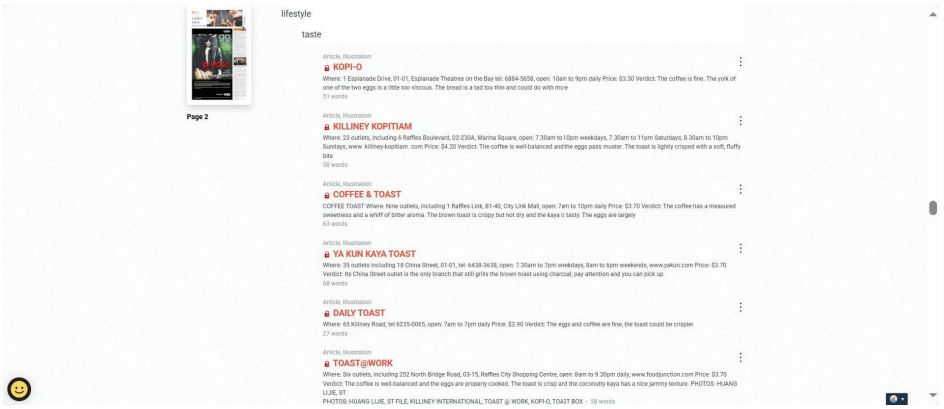


Figure 7: Perplexity AI retrieved newspapers from NewspaperSG

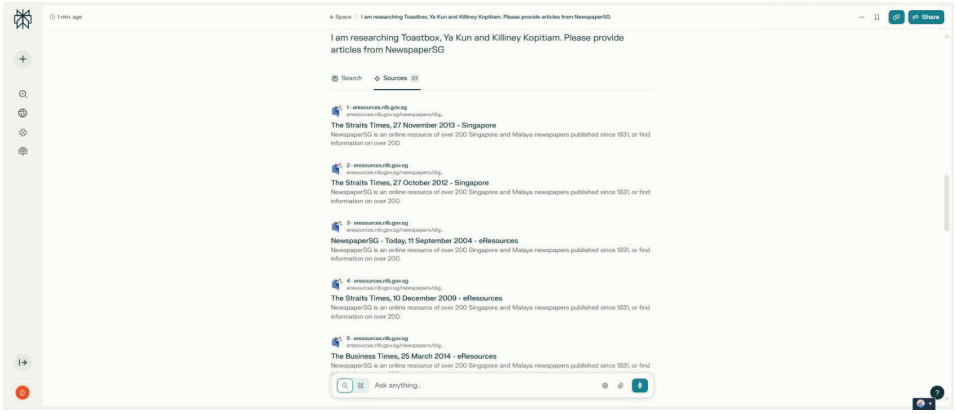


Figure 8: Perplexity Pro Cited sources from NewspaperSG

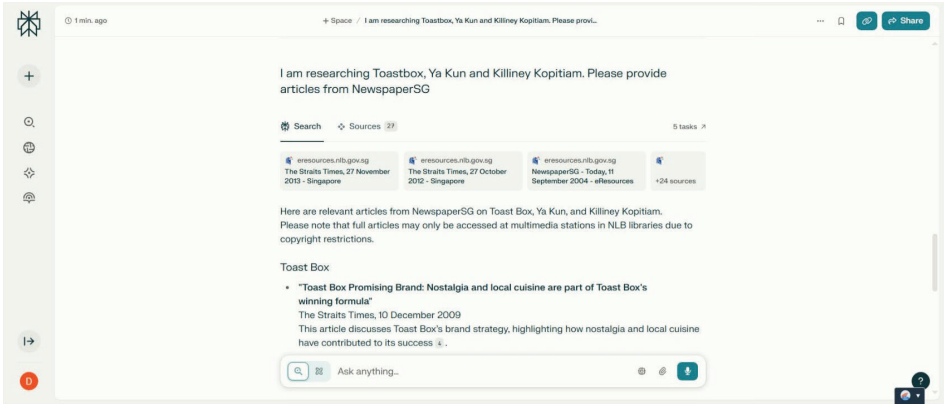


Figure 9: Perplexity AI's response included articles from NewspaperSG

Comments on Librarian Answer

The librarian provided a variety of resources from established sources, including Singapore Infopedia and Roots. She also provided search tips for using NewspaperSG and Archives Online (NAS).

Question 2

Social and criminal system in Singapore for juvenile offenders

Prompt

Provide resources available within NLB on how the social and criminal system works in Singapore for juvenile offenders.

Comments on Perplexity AI Answer

Perplexity AI included an introduction and a conclusion in its response. It featured books from the NLB resource guide "100 Seminal Books on Social Services Youths at Risk," an article from the Ministry of Social and Family Development (MSF), and a paper from United Nations Asia and Far East Institute. In total, Perplexity Pro generated 35 citations, including the *Report of the Committee on Crime and Delinquency* retrieved from NLB OneSearch.

Notably, Perplexity was able to retrieve books at the "concept" level from the NLB Catalogue, which presents related titles by concepts such as (see Figure 10):

- Juvenile courts—Singapore

  Juvenile Justice: Where Rehabilitation Takes Centre Stage.

  Family and Juvenile Court Practice

- Social work with juvenile delinquents—Singapore

  Proceedings of the Seminar on Crime and Society

  Seminar on Crime and Society

Perplexity also provided several useful citations from various sources:

- https://www.sps.gov.sg/learnaboutcorrections/communitytransition/youthoffenders/
- https://www.judiciary.gov.sg/criminal/youthoffender
- https://www.straitstimes.com/singapore/over2000youngoffenderscompletedrehabprogrammesinpast5yearsandavoidedbeingcharged
- https://www.msf.gov.sg/docs/defaultsource/ncpr/factsheetonyouthdelinquency2fa97ceebaa3401ca98671eb8871bb0b.pdf?sfvrsn=f3f45658_5

In summary, Perplexity provided relevant resources from both the NLB Catalogue and OneSearch, as well as other credible sources.

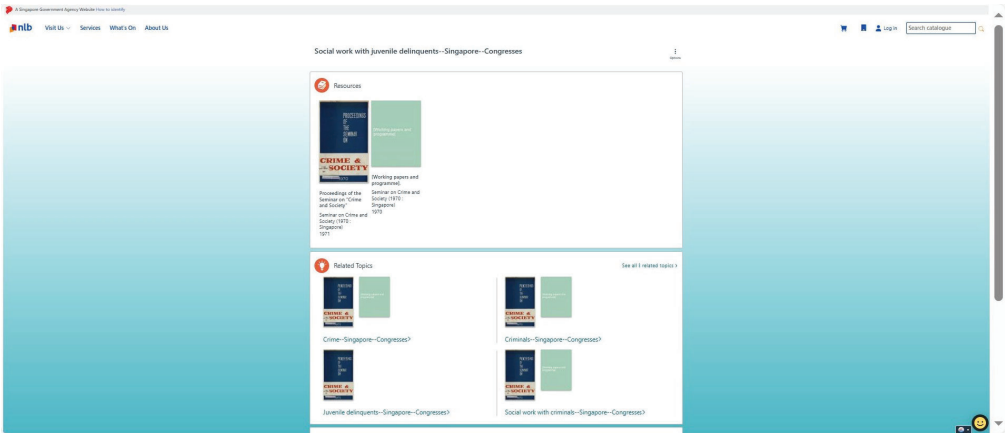


Figure 10: Perplexity AI retrieved books at the "Concept" level from the NLB Catalogue

Comments on Librarian Answer

The librarian recommended books from NLB and an online report from the MSF.

Question 3

Population policies of Singapore in the 1970s, 1980s and 1990s

Prompt

I would like to check what are some population policies of Singapore in 1970s, 1980s and 1990s?

Comments on Perplexity AI Answer

Perplexity AI provided these resources in its answer, including a BiblioAsia article:

- The Early Days of Family Planning in Singapore, *BiblioAsia*
- Phases of Singapore's Demographic Development Post World War II, *Ethos*, Civil Service College, Singapore
- Fertility and the Family: An Overview of Pronatalist Population Policies in Singapore by Theresa Wong and Brenda Yeoh, Asia Research Institute, National University of Singapore

Additionally, Perplexity Pro included the following resources among its 22 citations:

- Two Child Policy, *Singapore Infopedia*
- The Development of Population Control in Singapore by Saw Swee Hock, *Contemporary Southeast Asia*
- Balance in Family Planning, *World Health Forum*
- After the Honeymoon, Roots
- Incentives and Disincentives Used to Affect Demographic Changes in Fertility Trends in Singapore, SMA
- Do Pro-Fertility Policies in Singapore Offer a Model For Other Low-Fertility Countries In Asia? UNDP

In summary, Perplexity structured its response cogently into themes that aided understanding. It provided relevant resources, including articles from BiblioAsia and Infopedia, as well as journal articles by experts such as Saw Swee Hock and Brenda Yeoh.

Comments on Librarian Answer

The librarian recommended the highly relevant book *Population Policies and Programmes in Singapore* by Saw Swee Hock, as well as articles from BiblioAsia and Infopedia.

Question 4

Profanity in Singapore

Prompt

Recommend sources, primary or secondary, for my research regarding the history or the use of profanity in Singapore in the 20th century. How has our offensive language changed as Singapore and its people changed? Any historical events that impacted our use of profanity?

Comments on Perplexity AI Answer

Perplexity AI provided a relevant dissertation, which was also recommended by the librarian. It also supplied two journal articles, as well as search tips for further research using historical newspapers.

- Nudity, obscenity, and the rule of colonial difference in Singapore, 1900s–1930s (published in February 2025)
- Offensive language and sociocultural homogeneity in Singapore: An ethnolinguistic perspective

Comments on Librarian Answer

The librarian provided relevant resources, including a thesis, a book chapter, and NewspaperSG articles.

Question 5

History of sports in Singapore

Prompt

I am researching the history of sports in Singapore. Please provide sources, including books and primary sources.

Comments on Perplexity AI Answer

Perplexity AI provided relevant resources, including the BiblioAsia article “Singapore's Sporting Greats” and the following books:

- *Sport in Singapore: The Colonial Legacy*
- *Sport in Singapore: Visions for Change*
- *Singapore Olympians: The Complete Who’s Who, 1936–2004*

However, Perplexity initially cited an incorrect reference for *Singapore Olympians*. When clarified in a follow-up prompt, it corrected the citation to: Singapore Olympians: The Complete Who’s Who, 1936–2004 , Aplin, N., Waters, D., & Leong, M. L. (2005). This highlights the need for human oversight to verify reference accuracy.

Perplexity Pro provided a total of 29 citations, including resources from NLB’s BiblioAsia, Infopedia and books such as:

- Perplexity retrieved materials at the concept level from the NLB Catalogue:
  - Sports – Singapore –History
  - Singapore Sports Council, Singapore Infopedia
- Sporting Glory, *BiblioAsia*
- Physical Education and Sports in Singapore Schools (Part II): Developing National Sports Talents, *BiblioAsia*
- Pesta Sukan – Singapore’s first festival of sports begins, Singapore Infopedia
- Sports and Shrines: Uncovering Singapore's Hidden Wartime Sport History, ActiveSG,
- *Secrets of Singapore: Spectacular Sports*
- *Sport in Singapore: The Rocky Road to Kallang Park*
- *Singapore Chronicles: Sports*
- Sporting Singapore, National Archives of Singapore
- Sports in Colonial Times, Sports Singapore
- In Pictures – 50 Years of Sporting History, Petir

In summary, Perplexity delivered a wide range of resources, including BiblioAsia and Infopedia articles, as well as key books about sports in Singapore (available at the National Library). Notably, it included recent materials such as a March 2025 talk on Sports and Shrines.

Comments on Librarian Answer

The Librarian who answered the inquiry in October 2023 recommended relevant books from the National Library, as well as the article "The Malaysia Cup: Soccer and the National Imagining in Singapore, 1965-1996," published in the Journal of the Malaysian Branch of the Royal Asiatic Society.

Question 6

Fitzpatrick's supermarket in Singapore in the early 1960s

Prompt

Advise whether Fitzpatrick's supermarket in Singapore in the early 60s was under British or Australian management.

Comments on Perplexity AI Answer

Perplexity AI referenced the 26 June 1985 issue of the Business Times from NewspaperSG but did not specify the relevant articles. The author conducted a keyword search ('Fitzpatrick's) to locate the following articles:

- Fitzpatrick's — tiny office to major retailing chain
- A brief history; also recommended by the librarian
- HK Land to sell Fitzpatrick's

Perplexity Pro generated a total of 16 citations, many of which were irrelevant, including a photograph of Fitzpatrick's supermarket in 1961 from the National Library.

Comments on Librarian Answer

The librarian provided the precise newspaper article, "Fitzpatrick's comes full circle" from the Straits Times (29 November 1992), which directly answered the user's question, along with explanatory notes.

Question 7

Passenger list of SS Van Heutsz

First Prompt

Please advise whether the passenger list of ss Van Heutsz (万福士) leaving Singapore in May (?) 1946, for Xiamen, China, is available at the National Archives of Singapore.

Second Prompt

Please give actual resources from NewspaperSG.

*Comments on Perplexity AI Answer**

*This search was conducted using standard Perplexity, as the Pro version underperformed for this query.

The references cited in Perplexity AI's initial response were not useful. When prompted again for NewspaperSG resources, Perplexity retrieved four newspapers from 1946 containing Van Heutsz information. This illustrates that further human input is necessary to refine prompts and elicit desired results from the AI.

Comments on Librarian Answer

The Librarian provided useful articles from NewspaperSG, along with search tips such as using search terms like "Van Heutsz" and "萬福士" (in traditional characters) and narrowing the search by year.

Question 8

History of policing in colonial Singapore

First Prompt

You are a reference librarian at the National Library Singapore. Please answer this question: I am doing a project on the history of policing in colonial Singapore, which touches both conventional and unconventional forms of policing, such as the recruitment of Sikhs, collaborating with local leaders (Kapitan Cina), and inward policing via Chinese Clans. Please provide sources in your collection for my research.

Second Prompt

More books from the NLB Catalogue.

Comments on Perplexity AI Answer

Perplexity AI provided the relevant BiblioAsia article, "Men in Blue: A History of the Singapore Police Force," which was also recommended by the librarian. It also cited Singapore Police Force websites. When prompted further to identify books from the NLB Catalogue, it correctly retrieved the following titles:

- *Policing Singapore in the 19th & 20th centuries*
- *Malaya's Secret Police 194560: The Role of the Special Branch In the Malayan Emergency*
- *Singapore Chronicles: Policing*
- *The Mystery of "A Yellow Sleuth": Detective Sergeant Nor Nalla, Federated Malay States Police*
- *Sikhs in the policing of British Malaya and Straits Settlements (1874-1957)* (also recommended by the librarian)

The above search was conducted using standard Perplexity because the Pro version, which generated 44 citations, underperformed in providing quality resources. Nevertheless, Perplexity Pro included one useful resource from BiblioAsia:

- "Role of Chinese Leaders and Clan Associations:- Kapitan Cina and Clan Associations: Articles like "Chinese Clan Associations in Singapore: Then and Now" explore how influential Chinese leaders (e.g., Kapitan Cina) liaised with colonial authorities to maintain law and order within the Chinese community."

In summary, Perplexity demonstrated its ability to retrieve relevant resources, including BiblioAsia articles and, when further prompted, books from the NLB Catalogue.

Comments on Librarian Answer

The librarian who answered this inquiry in October 2023 recommended a relevant BiblioAsia article and books from the NLB.

Question 9

History of consumption of offal foods in Asia

First Prompt

You are a reference librarian at the National Library. Please provide a complete answer to the question: My research is on the history of the consumption of offal foods in Asia. Please provide books or articles regarding the history of offal consumption in Asian culture, or offal consumption in Singapore, and articles regarding offal trade or distribution for consumption in history.

Second Prompt

Yes, please provide specific books or articles at the National Library Singapore.

Third Prompt

Give the call numbers of books at NLS.

Comments on Perplexity AI Answer

Perplexity AI provided the article “Kway Chap” from Roots. However, many of its other cited references were too general or commercial in nature to be useful. It also identified the book, *Singapore Hawker Classics Unveiled*. Notably, Perplexity cited a fictitious book, *Feeding the City*. When asked if this was a real book, it acknowledged that it was not and suggested another book *Food and the City: Overcoming Challenges for Food Security*, which was irrelevant.

In summary, Perplexity performed poorly, providing only one relevant article and one book. Many of its citations were either too general or irrelevant, despite being informed that the resources were intended for research.

Comments on Librarian Answer

The librarian who answered this inquiry in October 2023 provided book resources, as well as search tips for the user to research further.

Question 10

Nationalism in Chinese and Malay newspapers in colonial Singapore

Prompt

I am researching the history of newspapers in colonial Singapore, focusing on nationalism in Chinese and Malay newspapers. Please provide relevant resources.

Comments on Perplexity AI Answer

Perplexity AI cited the following resources. It was able to summarise the key findings from the resources and identified key themes pertinent to the user's question.

- From Lat Pau to Zaobao: A History of Chinese Newspapers, *BiblioAsia* (also recommended by the librarian)
- Warta Malaya, Singapore Infopedia. (also provided by the librarian.)
- Culturepaedia, Singapore Chinese Cultural Centre
- A PhD dissertation, "Female Emancipation in a Colonial Context"

Comments on Librarian Answer

The librarian recommended the thesis, "The Role of the Press in Sustaining the Development of Overseas Chinese Nationalism in Singapore, 1914-19" from the National Library, as well as BiblioAsia and Infopedia articles. He also provided useful search strategies for conducting research.

CONCLUSION

This study evaluated Perplexity AI's performance in answering actual research questions submitted to LKCRL's Reference Point. The objective was to explore how generative AI can support librarians in reference services. While Perplexity AI quickly retrieved resources and generated responses with citations, its performance in accuracy and relevance generally fell short of that of human librarians. Librarians consistently provided more refined, contextually accurate, and authoritative resources, demonstrating a deeper understanding of each query's nuances.

The findings suggest that Perplexity AI holds promise as a supplementary tool for reference work, particularly for less complex or straightforward inquiries and when prompted with clear instructions. However, it struggles with more challenging or nuanced questions. Human oversight remains essential for filtering, validating, and contextualizing information to ensure the most appropriate resources are provided. Combining the strengths of AI with the expertise of librarians could offer a practical approach to enhancing reference services.

ACKNOWLEDGEMENTS

The author would like to thank Ivy Lee and Lee Meiyu of the National Library Singapore for their inspiration to learn more about AI.

REFERENCES

Deike, M. (2024). Evaluating the performance of ChatGPT and AI in business library reference services. *Journal of Business & Finance Librarianship, 29*(2), 125-154. https://doi.org/10.1080/08963568.2024.2317534

Li, L., & Coates, K. (2025). Academic library online chat services under the impact of artificial intelligence. *Information Discovery and Delivery, 53*(2), 192-205. https://doi.org/10.1108/IDD-11-2023-0143

Wheatley, A., & Hervieux, S. (2024). Comparing generative artificial intelligence tools to voice assistants using reference interactions. *The Journal of Academic Librarianship, 50*(5), 102942. https://doi.org/10.1016/j.acalib.2024.102942

Yang, S. Q., & Mason, S. (2023). Beyond the algorithm: Understanding how ChatGPT handles complex library queries. *Internet Reference Services Quarterly, 28*(2), 97–151. https://doi.org/10.1080/10875301.2023.2291441

Appendix A: Evaluation Criteria and Scoring Rubric

Evaluation Criteria

The answers provided by Perplexity AI and librarians were evaluated using three criteria:

- Accuracy: The degree to which the response is factually correct and free from errors.
- Relevance: The extent to which the response directly addresses the user's question. Relevant responses are focused and tailored to the specific inquiry.
- Completeness: The thoroughness with which the response covers all aspects of the question, without significant omissions.

Scoring Rubric

Each criterion is scored using a 5-point Likert scale as follows:

Score	Description
1	Very Poor: Completely inaccurate, irrelevant, or fails to address the question.
2	Poor: Mostly inaccurate, irrelevant, or incomplete.
3	Fair: Somewhat accurate, relevant, or addresses the main aspects but lacks detail.
4	Good: Mostly accurate, relevant, or addresses most aspects of the question.
5	Excellent: Fully accurate, highly relevant, or addresses all aspects of the question.

Appendix B: Sample of Actual Reponses Generated by Perplexity AI

Question 1: Toast Box, Ya Kun and Killiney Kopitiam.

First Prompt

I am researching Toast Box, Ya Kun and Killiney Kopitiam. Please recommend books and other materials, including primary sources in NLB or National Archives?

Perplexity AI Response

Here are some recommendations and resources that could enhance your research on Toast Box, Ya Kun Kaya Toast, and Killiney Kopitiam:

Books

1. "Heritage of Singapore: Kopitiam"

   Published by Cinnamon Art Publishing, this book explores the history and evolution of kopitiam culture in Singapore, including Killiney Kopitiam's role as the oldest Hainanese coffeeshop. It provides insights into traditional breakfast culture and the expansion of kopitiam brands locally and internationally [3].

2. "The Top Toast: Ya Kun & the Singapore Breakfast Tradition"

   This book specifically focuses on Ya Kun Kaya Toast, its origins, and its significance in Singapore's breakfast tradition. Since you've already found this book, it remains a valuable resource.

Primary Sources from National Archives

1. Oral History Recordings

   The audio recording you found on the evolution of Toast Box is a useful primary source. You can also explore other oral history interviews or archival collections related to food culture in Singapore through the National Archives portal [5].

2. Photographs and Documents

The National Archives holds photographs and documents related to Singapore's food heritage, including hawker culture and kopitiams. For example:

Historical photos of hawker stalls by the Singapore River.

Documentation from the inaugural Singapore Food Festival in 1994 [5].

Articles

1. "Food Feuds: Ya Kun Kaya Toast vs Toast Box"

   This article compares Ya Kun Kaya Toast and Toast Box, providing insights into their origins, branding strategies, and customer preferences [1].

2. "Which Is The Best Kaya Toast Franchise In SG?"

   A detailed ranking of kaya toast franchises in Singapore, including Killiney Kopitiam, Ya Kun Kaya Toast, and Toast Box. It discusses pricing, quality, and customer feedback [2].

Other Recommendations

Explore Wikipedia's entry on “Kaya Toast”, which includes historical context about Hainanese immigrants who popularized the dish and its integration into kopitiam culture [4].

Investigate quantitative studies or surveys on brand preferences for kaya toast chains through platforms like WordPress blogs or academic databases [6]. By combining these resources with your findings from NLB and National Archives, you can develop a comprehensive understanding of the cultural significance and business evolution of these iconic brands.

Citations:

1. https://hungrygowhere.com/criticsreviews/yakunvsToast Box/

2. https://eatbook.sg/bestkayatoastsingapore/

3. https://cinnamonartstories.com/products/heritageofsingaporekopitiam

4. https://en.wikipedia.org/wiki/Kaya_toast

5. https://www.nas.gov.sg/archivesonline/foodculture

6. https://yakuntoast.wordpress.com/assignment2b/quantitative/

Second Prompt

I am researching Toast Box, Ya Kun and Killiney Kopitiam. Please provide articles from NewspaperSG.

Perplexity AI Response

Here are relevant articles from NewspaperSG on Toast Box, Ya Kun, and Killiney Kopitiam. Please note that full articles may only be accessed at multimedia stations in NLB libraries due to copyright restrictions.

Toast Box

- "Toast Box Promising Brand: Nostalgia and local cuisine are part of Toast Box's winning formula" The Straits Times, 10 December 2009.

  This article discusses Toast Box's brand strategy, highlighting how nostalgia and local cuisine have contributed to its success 4.

- "Toast Box voted Top Brand (Cafe Category) in the Influential Brands study on Gen Y" The Straits Times, 27 November 2013

  Toast Box is recognized as a leading café brand among Generation Y, according to a study cited in this article 1.

Ya Kun Kaya Toast

- "Ya Kun from expanding. It plans to increase its 44." The Straits Times, 27 October 2012
- This article covers Ya Kun's expansion plans, detailing its strategies for growth and the challenges faced in scaling up its operations 2.

Killiney Kopitiam

- "Killiney favourites: Killiney Kopitiam is more than just a place for kaya toasts and cups of strong, old-fashioned coffee."
- Today, 11 September 2004

- This feature provides insight into Killiney Kopitiam's offerings and its reputation for traditional kaya toast and coffee3.

How to Access the Articles

- Visit NewspaperSG and search for the article titles or keywords (e.g., "Toast Box", "Ya Kun", "Killiney Kopitiam").
- Full articles can be read at NLB library multimedia stations.

These articles provide valuable historical and business context for your research on Singapore's iconic kopi and toast chains.

Citations:

1. https://eresources.nlb.gov.sg/newspapers/digitised/issue/straitstimes20131127-2
2. https://eresources.nlb.gov.sg/newspapers/digitised/issue/straitstimes20121027-1
3. https://eresources.nlb.gov.sg/newspapers/digitised/issue/today20040911-1
4. https://eresources.nlb.gov.sg/newspapers/digitised/issue/straitstimes20091210-1

Question 4: Profanity in Singapore.

Prompt

Recommend sources, primary or secondary, for my research regarding the history or the use of profanity in Singapore in the 20th century. How has our offensive language changed as Singapore and its people changed? Any historical events that impacted our use of profanity?

Perplexity AI Response

Here are some resources and insights regarding the use of profanity in Singapore during the 20th century, focusing on historical changes and sociocultural impacts:

Primary and Secondary Resources

1. Hokkien Swear Words in Singapore

   Samantha Catherine Bok's study, “Not so ‘chee bai’ anymore”, explores the diachronic change of Hokkien swear words in Singapore. It compares generational shifts among ethnic Chinese Singaporeans, noting a significant reduction in the swear word inventory over time due to language shifts and sociocultural changes. The study highlights how taboo topics like sex and ancestral insults remain potent but have undergone semantic weakening [1][2].

2. Colonial Regulation of Obscenity

   An article in “Modern Asian Studies” examines British colonial attitudes toward obscenity in early 20th century Singapore. It discusses how obscenity regulation intersected with racial and cultural differences, focusing on publications containing nudity or offensive content. This provides historical context for how colonial governance influenced perceptions of offensive language and materials [3].

3. Ethnolinguistic Perspective on Offensive Language

   The “International Journal of Language and Culture” discusses offensive language use across Singapore’s multiethnic communities. It identifies Hokkien vulgarities as culturally significant expressions shared across ethnic groups, reflecting sociocultural homogeneity in modern Singapore [4].

4. Hokkien Profanity Overview

   Wikipedia’s entry on Hokkien profanity provides an overview of common vulgarities, often centered on sexual references and insults to ancestors. It notes that Hokkien is historically preferred for swearing in Singapore, emphasizing its linguistic and cultural roots [6].

5. Educational Guide to Hokkien Swear Words

   LearnDialect.sg offers a practical guide to commonly used Hokkien swear words, explaining their meanings and origins. It highlights how these terms evolved into acronyms or shortened forms, reflecting linguistic adaptation over time [5].

Historical Insights

Generational Changes: Research shows that the inventory of swear words has decreased significantly across generations due to language shifts (e.g., from Hokkien to English) and

changing societal norms. For instance, younger generations tend to use fewer ancestral insults compared to their elders [1][2].

Colonial Influence: During the colonial era (1900s–1930s), obscenity was regulated inconsistently by British authorities, with little urgency given to offensive language among locals. This lack of enforcement allowed certain vulgarities to persist within local cultures [3].

Sociocultural Homogeneity: Offensive language in Singapore evolved into a shared lexicon across ethnic groups, symbolizing unity amidst diversity. This phenomenon reflects how language adapts to multicultural environments while retaining cultural significance [4].

Taboo Topics: Sexual references and ancestral insults remain central themes in Singaporean profanity, though their intensity has weakened over time due to secularization and changing values [1][6].

Recommended Sources for Further Research

Oral History Archives: Explore oral histories from institutions like the National Archives of Singapore for firsthand accounts of profanity use across generations.

Historical Newspapers: Examine archival newspapers for instances of public discourse or controversies surrounding offensive language during the colonial period.

These resources provide a comprehensive foundation for studying profanity's history and evolution within Singapore's dynamic sociocultural landscape.

Citations:

1. https://www.ntu.edu.sg/docs/librariesprovider120/lms/samplestudentswork/lms_ssw_ay2012samanthacatherinebokshiyun.pdf?sfvrsn=d28ed5d6_2

2. https://dr.ntu.edu.sg/handle/10356/50850

3. https://www.cambridge.org/core/journals/modernasianstudies/article/nudityobscenityandtheruleofcolonialdifferenceinsingapore1900s1930s/51419C3786D50F6C1314A5CF878B2CB8

4. https://www.jbeplatform.com/content/journals/10.1075/ijolc.2.2.01tie

5. https://www.learndialect.sg/singaporehokkienswearwordsvulgarities/

6. https://en.wikipedia.org/wiki/Hokkien_profanity

Question 6: Fitzpatrick's Supermarket in Singapore in the Early 1960s.

Prompt

Advise whether Fitzpatrick's supermarket in Singapore in the early 60s was under British or Australian management.

Perplexity AI Response

Fitzpatrick's supermarket in Singapore during the early 1960s was under Australian management. The company was founded by W.F. Fitzpatrick, an Irish Australian, in 1944, initially focusing on army contracts and ship chandling before expanding into food retail [1][4]. After Fitzpatrick's death in 1951, H. Holt took over the business and continued its operations, including opening the first supermarket on Orchard Road in 1958 [4][5]. Therefore, its management in the early 1960s retained its Australian roots through Fitzpatrick's founding and leadership.

Citations:

1. https://timesofmylife.wordpress.com/2007/03/22/shoppinginthepastyaohanfitzpatrickspart1/

2. https://www.dfiretailgroup.com/en/aboutus/milestones/

3. https://remembersingapore.org/2012/06/13/singaporeveteranshoppingmalls/

4. https://eresources.nlb.gov.sg/newspapers/digitised/issue/biztimes198506261

5. https://www.roots.gov.sg/CollectionLanding/listing/1401972?taigerlist=collections

Question 10: Nationalism in Chinese and Malay Newspapers in Colonial Singapore

Prompt

I am researching the history of newspapers in colonial Singapore, focusing on nationalism in Chinese and Malay newspapers. Please provide relevant resources.

Response from Perplexity AI

Relevant Resources for Research on Nationalism in Chinese and Malay Newspapers in Colonial Singapore

Chinese Newspapers

1. Nanyang Siang Pau and Sin Chew Jit Poh

   These newspapers played a significant role in fostering Chinese nationalism during the colonial era. Initially focused on political developments in China, they supported the anti-Japanese movement and later shifted to advocating for local anticolonial movements post World War II. They evolved from being China centric to promoting racial harmony and local sovereignty, reflecting the growing national identity among Singapore's Chinese community [1].

2. Postwar Chinese Newspapers

   The postwar period (1945–1955) marked a shift in the political stance of Chinese newspapers as they moved away from mainland Chinese consciousness to focus on local citizenship rights and nationalism. This transition was influenced by political changes in China, such as the Three Anti and Five Anti Campaigns, and Singapore's move toward independence [2].

3. Historical Perspectives

   Early 20thcentury Chinese newspapers were instrumental in spreading nationalism, influenced by events like the Sino Japanese War (1895) and Kuomintang activities. They disseminated patriotic messages, raised awareness of China's national crises, and united dialect groups within the overseas Chinese community [3].

4. Union Times vs. Chong Shing Yit Pao

   These newspapers were platforms for reformists and revolutionaries to debate their ideologies. The Union Times promoted reformist ideas, while Chong Shing Yit Pao countered with revolutionary perspectives, highlighting the role of newspapers in shaping political discourse within Singapore's Chinese community [5].

Malay Newspapers

1. Warta Malaya

   Established after Lembaga Melayu ceased publication, Warta Malaya aimed to uplift Malay nationalism and unify the Malay community. It criticized colonial policies affecting Malays but remained focused on pro-Malay interests rather than outright anticolonialism. It became an important voice advocating for Malay administrative representation [4].

2. Utusan Melayu

   Founded in 1939 by the Singapore Malay Association (Kesatuan Melayu Singapura), Utusan Melayu represented progressive Malay intellectuals seeking a racially inclusive Malaya. It challenged Arab Muslim dominance in leadership roles and provided a platform for reformist ideas among Malays of Nusantara origin [6].

3. Early Malay Journalism

   Malay newspapers such as Jawi Peranakan (1876), alImam (1906), and alIkhwan (1926) reflect diverse ideological orientations ranging from religious reformism to secular nationalism. These publications were pioneered by middleclass Malay intellectuals seeking modern communication tools to express political aspirations [6].

Key Themes

- Both Chinese and Malay newspapers played pivotal roles in shaping nationalism during colonial Singapore.
- Chinese newspapers transitioned from China focused nationalism to local anticolonial movements, while Malay newspapers emphasized uplifting Malay identity and representation.
- The press served as platforms for intellectual debates, political mobilization, and fostering community solidarity.

These resources provide comprehensive insights into how newspapers contributed to nationalist movements within Singapore's Chinese and Malay communities during its colonial history.

Citations:

1. https://culturepaedia.singaporeccc.org.sg/popularculture/newspapers/nanyangsiangpauandsinchewjitpohthehistoryofchinesenewspapersinsingapore/

2. https://culturepaedia.singaporeccc.org.sg/popularculture/chinesenewspapersinpostwarsingapore/

3. https://etheses.whiterose.ac.uk/id/eprint/6382/7/Female%20Emancipation%20in%20a%20Colonial%20Context%20the%20Chinese%20Community%20in.pdf

4. https://www.nlb.gov.sg/main/articledetail?cmsuuid=a8edfbe8a5e84c088b3f2908fcf56e2f

5. https://biblioasia.nlb.gov.sg/vol15/issue4/janmar2020/fromlatpauzaobao/

6. https://newnaratif.com/ahistoryofmalaysingaporeansintenobjects/

Elevating Literacy: The Role of Librarians in Building Digitally Inclusive Library Spaces

Mariella DC. Dorado[1], Marvilyn Micua-Rodriguez[2]

[1]De La Salle University, Manila, Philippines

[2]De La Salle-College of St. Benilde, Manila, Philippines

Corresponding email: mariella.dorado@dlsu.edu.ph

ABSTRACT

This research explores the critical role of academic librarians within the South Manila Educational Consortium – Library Committee (SMEC) in advancing digital inclusion and digital literacy to foster inclusivity. While academic libraries have long been educational hubs, challenges in ensuring inclusivity remain, particularly for marginalized or underserved groups such as students with disabilities, international students, and those from underrepresented backgrounds. As academic libraries adapt to address the needs of increasingly diverse populations, bridging the digital divide and promoting digital literacy have become essential components of creating equitable and accessible library spaces. This study employed a qualitative research design to explore digital inclusion practices. The scope includes librarians' practices in providing digital inclusivity aspects of library services that are targeted to equitable access to resources, effective digital library space utilization, and the development of digital literacy skills. The researchers collected insights from the respondents using a structured written interview questionnaire. Determining the major themes: identification and description of digitally inclusive library spaces for marginalized or underserved groups, key practices and strategies in creating and sustaining digitally inclusive library environments, challenges in the implementation and promotion of digitally inclusive library spaces, and engagement and collaboration feedback from users. This study elaborated on the practical experiences of the SMEC academic libraries in building these digital library spaces with high regards to inclusivity. In conclusion, these are the proposed actionable recommendations for enhancing inclusivity and elevating literacy across academic libraries: strengthening digital literacy training programs, integration of emerging AI-powered tools, and transformative digital literacy resources and services.

Keywords: Digital Literacy; Information Literacy Skills; Digital Library Space Utilization; Academic Libraries; Consortium

INTRODUCTION

Digital inclusion is a critical concept that ensures equitable access to and the effective use of information and communication technologies (ICTs) by all individuals, with particular emphasis on the most marginalized and disadvantaged groups (National Digital Inclusion Alliance, 2017). This concept extends beyond mere physical access to digital resources, encompassing the development of digital literacy skills that are essential for meaningful and productive engagement with technology (Martzoukou and Elliott, 2016). These competencies empower individuals to navigate the digital landscape effectively, fostering empowerment, self-sufficiency, and active participation in the digital economy.

Libraries, as foundational community institutions, are pivotal in advancing digital inclusion. By providing access to digital technologies, internet connectivity, and structured digital literacy programs, libraries become vital community hubs where individuals can develop and enhance their digital skills (Good Things Foundation, 2024). Through public access to computers, online resources, and specialized training initiatives, libraries address gaps in technological access, especially for underserved populations who may otherwise face significant barriers to digital engagement.

As essential advocates for digital literacy, librarians function as bridges connecting technology with users. This evolving role demands that they move beyond their traditional responsibilities as information custodians to become dynamic agents of change, encouraging active participation and cooperation in the digital realm.

Research Objectives

This qualitative study explores the significant contributions of academic librarians within the South Manila Educational Consortium – Library Committee (SMEC) in promoting digital inclusion to enhance inclusivity through digital literacy. This study aims to address the following research questions:

1. What are the digitally inclusive library spaces within SMEC libraries that cater to students with disabilities, international students, and underrepresented backgrounds?
2. What are the key practices and strategies of librarians in creating and sustaining digitally inclusive library environments?
3. How do the librarians face the challenges in advancing digital inclusion while exploring opportunities for further development?

REVIEW OF RELATED LITERATURE

In the context of higher education, academic libraries serve as vital centers for promoting digital literacy and inclusion. They offer essential resources such as ICT training and e-learning platforms, which are crucial for navigating the digital landscape (Adubika, 2018). Librarians are integral to this process, acting as educators and facilitators who integrate digital literacy into educational curricula and collaborate with faculty to develop online courses, thus fostering inclusive and digitally adept learning environments that cater to diverse academic needs.

The International Federation of Library Associations (IFLA) stresses the significance of training for librarians to proficiently teach digital literacy. This training is vital as it empowers librarians to optimally assist users in developing their digital skills. Moreover, IFLA advocates for supporting libraries in their mission to train users in digital literacy, which includes ensuring that librarians are equipped with the necessary competencies for effective teaching (IFLA, 2017).

For instance, Stony Brook University Libraries in New York exemplifies this commitment through its comprehensive initiatives, which have earned it the 2025 Library Excellence in Access and Diversity Award. The library integrates Diversity, Equity, Inclusion, and Accessibility (DEIA) concepts into its strategic plan, implementing these principles in staff hiring and retention, collections, teaching methods, service models, and programming (Stony Brook University Libraries, 2023). Teaching librarians incorporate Universal Design for Learning (UDL) into their practices, enhancing inclusivity. The library hosts diverse events such as the Human Library and AAPI Heritage Month Student Showcase, and has received grants to expand its collections with resources like The HistoryMakers Digital Archive to address the lack of documentation and preservation of the African American historical record (Chung, 2025).These efforts underscore the library's role in fostering an inclusive environment and promoting cultural awareness across the campus community.

In the Philippines, legislative initiatives such as Republic Act 7277, also known as the Magna Carta for Disabled Persons, exemplify the nation's commitment to promoting the rehabilitation and self-reliance of persons with disabilities (PWDs). This legal framework provides a foundation for the development of inclusive library services, ensuring equitable access to information and resources. The Library and Information Services Month (LISM) in the Philippines, as mandated by Proclamation No. 837 of 1991, underscores the pivotal role of libraries in fostering societal development (LawPhil, 1991). The National Library of the Philippines (NLP) and the National Commission for Culture and the Arts – National Committee on Library and Information Services (NCCA-NCLIS) spearhead this initiative, organizing activities that align with the evolving needs of libraries and information centers.

The 2024 theme, "LibVOCACY: Unity towards Inclusive and Empowered Libraries," emphasizes libraries' proactive role in advocating for diverse communities and promoting equitable access to information, aligning with the United Nations Sustainable Development Goals (SDGs) such as SDG 4, SDG 10, and SDG 16. Notable activities include the LISM Beats: Tunes For Libvocacy (Jingle-Making Contest), which encourages unity and inclusivity, the Outreach Program in Tondo, Manila, promoting literacy among children, and the LibVOCACY In Focus Seminar, which explores strategies for creating secure and inclusive library environments through advocacy, artificial intelligence, and collaboration (National Library of the Philippines, 2024).

The landscape of libraries and higher education institutions (HEIs) in the Philippines is undergoing a profound transformation towards inclusivity and accessibility, driven by national recognition of the rights of individuals with special needs and a broader commitment to equity, diversity, and inclusion (EDI). Despite these efforts, challenges persist, such as gaps in DEIA knowledge among library staff, highlighting the need for targeted training and development programs to enhance staff competencies. The status of digital literacy in academic libraries in the Philippines, particularly among students with diverse backgrounds such as Persons with Disabilities (PWDs), underserved, and marginalized groups, highlights several challenges and opportunities. Academic libraries have rapidly adapted to the digital landscape, especially during the COVID-19 pandemic, by shifting services online and introducing new initiatives to maintain access to resources, as observed by Abrigo et al. (2023). However, Esposo-Betan and Fresnido (2022) noted that these efforts have also exposed significant challenges, such as the lack of digital literacy skills among both librarians and students, which impedes the effective delivery of online library services.

Lagas and Isip (2023) observed that in Philippine academic libraries, the maturity of digital initiatives is characterized by a focus on digitization, but sustainability remains a concern due to barriers such as inadequate staff, space, equipment, and funding. The pandemic has accelerated the need for digital transformation, with libraries now envisioning a hybrid model where digital resources are increasingly prominent. To support this shift, librarians must enhance their digital literacy competencies, which are crucial for managing digital libraries and providing effective online services. For instance, a study conducted in Pampanga by Calilung (2022) aimed to assess librarians' digital literacy skills to design a training program, highlighting the importance of perceived ease of use and perceived usefulness in adopting digital technologies. Despite these developments, persistent challenges, such as limited access to technology and unreliable internet connections, continue to impact both librarians and students (Esposo-Betan & Fresnido, 2022). Addressing these challenges necessitates sustained investment in digital infrastructure and capacity-building programs for both librarians and students. For instance, research on the utilization of digital library services has shown that students' assessment and use of these services significantly influence their academic applications, underscoring the importance of high-quality digital library services (Acevedo, 2024; Esposo-Betan & Fresnido, 2022).

Digital literacy initiatives play a crucial role in empowering marginalized communities by enhancing their technological skills, thereby promoting socio-economic development and inclusion. These initiatives aim to bridge the digital divide by providing access to digital tools and resources, which are essential for navigating the digital economy and engaging in civic activities. However, challenges persist, including limited access to resources, technological infrastructure, and socio-cultural barriers (Prasastiningtyas et al., 2024).

Libraries are increasingly recognized as multifaceted hubs for digital inclusion, playing a pivotal role in bridging the digital divide and fostering equitable access to technology and information (Kulikauskienė & Šaparnienė, 2023; Prasastiningtyas et al., 2024). Kulikauskienė and Šaparnienė's (2023) study of Lithuanian public libraries highlights their efforts in providing ICT access, digital literacy training, and a range of digital services. These activities directly address the disparities in digital competence that disproportionately affect marginalized communities. Furthermore, Prasastiningtyas et al. (2024) demonstrate that such interventions can yield tangible benefits, leading to improved digital skills, enhanced employment opportunities, and increased community participation. The combined findings suggest that libraries serve not only as access points but also as critical spaces for developing digital literacies, fostering a more digitally inclusive society where individuals can fully engage in the digital economy and civic

life. While progress has been made in enhancing digital literacy in academic libraries, more targeted efforts are needed to ensure equitable access to digital resources and services for all students, including PWDs and marginalized groups. Continuous evaluation and improvement of digital literacy programs are essential to support the evolving needs of academic communities in the Philippines.

In the digital age, librarians have evolved to become crucial agents in fostering digital inclusion within communities. They provide essential services that bridge the digital divide by offering accessibility, trustworthiness, and a community-centric focus. Libraries support digital inclusion through a range of digital resources and services, including public access to WiFi, digital literacy programs, and partnerships with community organizations (Good Things Foundation, 2024; Tinder Foundation). Strategies employed by librarians to promote digital literacy include workshops, one-on-one assistance, and collaborations with local organizations (Tinder Foundation). Despite these efforts, librarians face challenges such as resource limitations, digital literacy gaps, and infrastructure barriers. To overcome these challenges, libraries can adopt best practices like advocating for increased funding, developing tailored programs, and ensuring continuous staff training (Good Things Foundation, 2024).

Librarians are central to the promotion of digital literacy, designing, implementing, and overseeing instructional programs that equip users with the skills necessary to navigate digital environments effectively. Their roles encompass developing digital literacy curricula, facilitating user engagement with digital content, and offering tailored support that caters to the diverse needs of library patrons (Institute for Emerging Issues, 2023). By empowering individuals with the skills to use digital tools effectively, librarians contribute to narrowing the digital divide and fostering greater societal inclusion (IFLA, 2023).

Libraries are transitioning from traditional repositories of books to dynamic digital spaces that offer a wealth of resources accessible anytime and anywhere. Ensuring these digital spaces are inclusive and accessible to all patrons, including those with disabilities, is a critical challenge (American Library Association, 2023). By adopting comprehensive strategies and best practices, librarians can play a pivotal role in building digitally inclusive library spaces that elevate literacy and foster community engagement (Institute for Emerging Issues, 2023).

Digitally inclusive library spaces require a multifaceted approach that includes community engagement, diverse collections, accessible digital spaces, inclusive programming, and comprehensive policies. By addressing the challenges of technological integration and balancing physical and virtual spaces, libraries can continue to serve as vital hubs of knowledge and community interaction in the digital age.

METHODOLOGY

This study employed a qualitative research design to explore digital inclusion practices within academic libraries in the South Manila Educational Consortium (SMEC). South Manila Educational Consortium (SMEC) is a group of 15 higher educational institutions in Manila. The Library Committee is one of the consortium committees that encourages collaboration to impact social transformation by promoting education and making quality and relevant learning accessible to many. The study collected insights from academic librarians and/or library administrators across SMEC libraries using a structured written interview questionnaire. The research focused on digital resource accessibility, inclusive practices, assistive technologies, and digital literacy initiatives, analyzing how librarians designed and implemented programs to ensure equitable access for diverse user groups. Data collection involved structured interviews with targeted questions on challenges, strategies, emerging technologies, and innovative practices for the digital inclusion of underserved groups.

This study utilized thematic analysis framed within a phenomenological approach to examine the participants' lived experiences. Following the procedures outlined by Moustakas (1994) and Creswell, the researchers initially engaged in bracketing by describing their own experiences with the phenomenon to minimize personal biases. Data were organized systematically, and an iterative reading of the transcripts was conducted, during which margin notes were made and initial codes were formed. Significant statements were identified and grouped into meaning units. These units were then organized into overarching themes through thematic analysis, revealing the essence of the participants’ experiences, culminating in a composite description that conveyed the fundamental nature of the phenomenon under investigation.

Ethical considerations were strictly observed, ensuring voluntary participation, confidentiality, and adherence to institutional guidelines. The study specifically examined digital inclusion practices within the Academic Year (AY) 2024-2025, providing a comprehensive understanding

of digital access in SMEC libraries and offering recommendations for enhancing digital inclusivity in higher education institutions.

RESULTS AND DISCUSSION

Data collected through the structured written questionnaire led to the identification of relevant and themes. This section presents an overview of the findings organized by main and sub-themes to explain their details, to come up with practical recommendations, and conclusions.

The four main themes were identified and established within the collected data. The main themes answered the research questions, pertaining to identifying the digitally inclusive library spaces that cater to the students with disabilities, international students, and underrepresented backgrounds; key practices and strategies of librarians in creating and sustaining digitally inclusive library environments; challenges encountered by the librarians in the implementation and promotion of digitally inclusive library spaces; and the engagement and collaboration feedback from users of digitally inclusive library spaces.

Main Theme 1: Identification and Description of Digitally Inclusive Library Spaces for Marginalized and Underserved Groups

The respondents identified the current digitally inclusive library spaces and services in their respective libraries.

Subtheme 1.1: Digital Resources, Materials and Accessibility:

All respondents identified e-libraries and database collections as integral components of digitally inclusive library spaces. Several emphasized the importance of lending electronic materials, such as laptops, to promote equitable digital access for underrepresented backgrounds. Additionally, the provision of free internet access across campus was highlighted as essential for bridging the digital divide. These findings underscore the critical need for accessible digital resources and the regular upgrading of both physical and digital infrastructures to ensure inclusive navigation and participation in library services.

Subtheme 1.2: Inclusive and Enhanced Digital Support

One respondent highlighted their library's commitment to maximizing inclusive digital support through the integration of electronic sign language and audio language tools. This includes the provision of online interpreting services during digital literacy sessions, enhancing accessibility for users with hearing impairments. Furthermore, the availability of screen readers and braillers supports users with vision disabilities, reinforcing the library's dedication to equitable access. The respondent emphasized that "inclusive approaches to library planning are always in mind," aligning with their institution's broader vision and mission focused on inclusion, innovation, and sustainability.

Main Theme 2: Key Practices and Strategies in Creating and Sustaining Digitally Inclusive Library Environments

Subtheme 2.1: Digital Literacy Skills Training

All respondents emphasized that, as digital literacy educators, staying responsive to the evolving needs of library patrons is crucial to maintaining inclusive digital library spaces. This proactive approach has translated into measurable improvements in the professional performance of library staff. Several respondents also highlighted the integration of international database support as a key strategy for ensuring the long-term sustainability of these initiatives. Moreover, the positive impact of digital literacy training on library users was noted, with some reporting greater confidence in independently navigating digital resources and improved academic performance as a result.

Subtheme 2.2: Online Multilingual and Audio Support

Respondents collectively identified several key language support strategies for international students, including the availability of digital resources in multiple languages, dedicated language and technical support, and personalized assistance or instructions. These practices aid in the increase of user engagement but also promote equity in access to information. Additionally, librarians utilized these tools to develop instructional videos with voiceovers, highlighting features such as the 'read aloud' function within the digital library resources, particularly beneficial for students with visual impairments.

Subtheme 2.3: Emerging Technologies for Underserved Populations

All respondents identified the use of emerging technologies, particularly AI-powered tools, as a key practice in supporting underserved populations and advancing digitally inclusive library spaces. These technologies are increasingly being used to personalize services, streamline information retrieval, and enhance accessibility for users with diverse needs. While one respondent acknowledged both the advantages and limitations of AI tools, they emphasized that incorporating such innovations represents an important expansion of the library staff's skill set. This reflects a broader shift toward embracing adaptive technologies to bridge access gaps and foster more equitable and inclusive digital environments.

Subtheme 2.4: Cross-cultural Digital Inclusivity

One respondent highlighted their institution's establishment of an Interracial Creative Room, a collaborative space designed to foster interaction and mutual respect among members of the academic community from diverse cultural backgrounds. Another respondent emphasized the promotion of cross-cultural exchange and leadership as a strategic approach to advancing the library's mission. These practices align with scholarly perspectives that underscore the value of inclusive leadership in achieving organizational goals (Northouse, 2006; Rank & Hutchison, 2000, as cited in ALA, 2012), reinforcing the role of culturally responsive environments in building digitally inclusive library spaces.

Main Theme 3: Challenges in The Implementation and Promotion of Digitally Inclusive Library Spaces

Subtheme 3.1: Technological Infrastructure, Access, and Support:

The implementation and promotion of digitally inclusive library spaces face several challenges related to technological infrastructure, access, and ongoing support. One respondent noted that reliable internet connectivity remains a persistent issue, with connection speed and availability affecting users' ability to access digital resources. Additionally, the maintenance and upgrading of digital materials and platforms involve significant financial costs, presenting budgetary challenges that can delay access and limit service continuity.

While tools such as chatbots and personalized learning assistants proved valuable, particularly during the pandemic, their effectiveness among underserved populations was limited due to

a lack of prior exposure or digital literacy. These challenges underscore the need for sustainable infrastructure investment and targeted support strategies to bridge existing digital gaps.

Subtheme 3.2: Marginalized and Underserved Groups Inclusivity Awareness Training

As academic libraries work to address the needs of an increasingly diverse user base, bridging the digital divide and promoting digital literacy have become essential to creating equitable and accessible library spaces. However, meeting the specific needs of marginalized and underserved groups requires more than just digital resources, it necessitates the implementation of inclusivity awareness training for both library staff and the broader academic community. Such training is crucial for fostering an environment that recognizes and responds to the unique challenges faced by these groups, ensuring that library spaces remain welcoming, accessible, and responsive to all.

Subtheme 3.3: Language and Technological Barriers

For students with disabilities, the lack of accessible digital tools, such as screen readers, braille displays, and audio support, can hinder their ability to navigate library systems and engage with educational content. International students often encounter challenges related to language proficiency, as many library resources, including digital platforms, are primarily offered in English, limiting their ability to fully access and utilize available materials.

Additionally, underrepresented students may face barriers to technology access, with insufficient devices, unstable internet connectivity, and a lack of digital literacy support further exacerbating their difficulties. Addressing these barriers requires a concerted effort to integrate multilingual support, adaptive technologies, and equitable access to digital resources, ensuring that all students can effectively engage with academic library services regardless of their background or ability

Main Theme 4: Engagement and Collaboration Feedback from Users of Digitally Inclusive Library Spaces

While respondents acknowledged ongoing challenges in building and sustaining digitally inclusive library spaces, user feedback has played a crucial role in reinforcing their efforts. Positive responses from library users have encouraged librarians to continue and enhance their

inclusivity initiatives. Collectively, the respondents reported that users experienced a stronger sense of inclusion, citing improvements in academic performance, research productivity, and digital literacy skills. These outcomes highlight the value of user engagement and feedback as both a measure of impact and a catalyst for continuous improvement in the development of inclusive digital environments.

CONCLUSION

This study underscores the critical role of SMEC academic librarians in championing the development of digitally inclusive library spaces that empower all members of the academic community. As literacy needs continue to evolve in the digital age, the librarians' proactive engagement has positioned them as key facilitators in bridging digital divides and promoting equitable access to information.

Based on the findings of this study, several practical recommendations can be proposed to further elevate literacy enhancing the digital inclusivity of library spaces of SMEC member libraries:

- Strengthening digital literacy training programs: Encouraging library staff through ongoing professional development opportunities such as conferences and peer networking.

- Integration of emerging AI-powered tools: Supporting adaptive, learner-paced digital education. Moreover, the findings point to an urgent need to expand and diversify digital resources, including e-books, audiobooks, databases, and digital media creation tools, to ensure comprehensive access for users regardless of technological proficiency or socioeconomic background.

- Transformative digital literacy resources and services: Diverse virtual library platforms, and digital self-service kiosks were identified to enhance user experience, streamline services, and extend the library's reach beyond its physical boundaries.

Through these innovations and inclusive practices, SMEC academic librarians continue to lead the way in building library environments that are not only technologically advanced. With regards to fundamentally accessible, learner-centered, and responsive to the needs of all, particularly to the marginalized and underserved populations.

ACKNOWLEDGEMENTS

This paper would not have been possible without the exceptional guidance and support of our institutions and colleagues, De La Salle University, De La Salle-College of St. Benilde, and the SMEC-Library Committee. We are grateful to our families, friends and for their encouragement and understanding as we finish this research. Glory to God!

REFERENCES

Abrigo, D. E., Eclevia, M. R., Samson, K. B., & Viray, M. A. (2023). Teaching information literacy during the pandemic: Current practice and challenges. *PAARL Research Journal, 9*(1, Special Anniversary Issue), 31-44.

Acevedo, C. G. F. (2022). Web 2.0 use, challenges and opportunities in the library: The Philippine context. *Pantao Journal, 1*(1).

American Library Association. (2012). *Diversity Standards: Cultural Competency for Academic Libraries*. American Library Association. https://www.ala.org/acrl/standards/diversity

Calilung, R. P. (2022). *Examining the digital literacy skills of librarians in Pampanga using Technology Acceptance Model (TAM*). https://animorepository.dlsu.edu.ph/conf_clis/2022/Schedule/12

Chung, S. (2025). *SBU Libraries received 2025 Library Excellence in Access and Diversity Award*. Stony Brook University Libraries. https://library.stonybrook.edu/2025/02/14/sbu-libraries-receives-lead-award/

Colmenero-Ruiz, M.-J. (2015). Discussion on digital inclusion good practices at Europe's libraries. In *Handbook of research on comparative approaches to the digital age revolution in Europe and the Americas* (pp. 352-369). IGI Global. https://doi.org/10.4018/978-1-4666-8740-0.ch021

Colmenero-Ruiz, M.-J. (2020). Discussion on digital inclusion good practices at Europe's libraries. In *Digital libraries and institutional repositories: Breakthroughs in research and practice* (pp. 166-194). IGI Global. https://doi.org/10.4018/978-1-7998-2463-3.ch011

Creswell, J. W. (2013). *Qualitative inquiry & research design: Choosing among five approaches* (3rd ed.). Sage Publications.

Esposo-Betan, S. M., & Fresnido, A. M. (2022). COVID-19 and Philippine academic libraries. *International Journal of Librarianship, 7*(1), 3-20. https://doi.org/10.23974/ijol.2022.vol7.1.215

Good Things Foundation. (2024). *Digital inclusion resources*. https://www.goodthingsfoundation.org/discover/digital-inclusion-resources

Institute for Emerging Issues. (2023). *The role of libraries in digital inclusion*. https://iei.ncsu.edu/2023/09/26/the-role-of-libraries-in-digital-inclusion/

Kulikauskienė, K., & Šaparnienė, D. (2023). The challenges and possibilities for digital inclusion increase in Lithuanian public libraries. *Management, Society and Religion, 9*(1), 45-56. https://doi.org/10.2478/mosr-2023-0004

Lagas, S., & Isip, J. (2023). Challenges to digital services in Philippine academic libraries. *Philippine Journal of Librarianship and Information Studies, 43*(1), 27-38. http://phjlis.org/index.php/phjlis/article/view/133

LawPhil. (1991). *Proclamation No. 837*. https://lawphil.net/executive/proc/proc1991/proc_837_1991.html

Martzoukou, K., & Elliott, J. (2016). The development of digital literacy and inclusion skills of public librarians. *Communications in Information Literacy, 10*(1), 99-115. https://doi.org/10.15760/comminfolit.2016.10.1.17

Moustakas, C. (1994). *Phenomenological research methods*. Sage Publications.

National Digital Inclusion Alliance. (2017). Definitions. https://www.digitalinclusion.org/definitions/

National Library of the Philippines. (2024). *Countdown to LISM 2024*. https://web.nlp.gov.ph/countdown-to-lism-2/

Obinyan, O. O., & Ugwuanyi, L. I. (2022). Digital literacy inclusion: The role of librarians in higher education in the new normal. *Library Philosophy and Practice*, Article 7430. https://digitalcommons.unl.edu/libphilprac/7430

Prasastiningtyas, W., Kurniawan, A. A., Ruswandi, A., Gymnastiar, I. A., & Amin, F. (2024). Digital literacy initiatives empowering marginalized communities through technology integration. *Indonesian Journal of Studies on Humanities, Social Sciences, and Education, 1*(2), 60-76. https://doi.org/10.54783/gf8b0m66

Real, B. (2021). Bridging digital divides during COVID-19: Findings from the 2020–2021 Connecticut State Library Digital Inclusion Survey. *Public Library Quarterly, 40*(4), 283-309. https://doi.org/10.1080/01616846.2021.1938918

Republic of the Philippines. (1992). *Republic Act No. 7277: An act providing for the rehabilitation, self-development and self-reliance of disabled persons and their integration into the mainstream of society*.

Stony Brook University Libraries. (2023). *Commitment to equity, inclusion, diversity & accessibility at the University Libraries*. https://library.stonybrook.edu/equity-inclusion-diversity/

Tinder Foundation. (n.d.). *An opportunity for public libraries to demonstrate their role in digital inclusion*. https://infolit.org.uk/an-opportunity-for-public-libraries-to-demonstrate-their-role-in-digital-inclusion/

Enhancing Systematic Search Support Across Disciplines: A Case Study from NTU Library

Sam C. F., Lena, Yasmin Lynda Munro, Yasmin Ally

Nanyang Technological University, Office of Information, Knowledge and Library Services, Singapore

Corresponding email: lena.sam@ntu.edu.sg

ABSTRACT

Nanyang Technological University (NTU) Library developed an integrated Systematic Search Service to enhance support for faculty, research staff, and students conducting systematic reviews across various disciplines. Prior to integration, the service was focused on the healthcare community at Lee Kong Chian School of Medicine; the service now extends to include Business, Engineering, Science, Social Sciences, and other disciplines at NTU's Yunnan Garden campus. Initial work plans for the service launch in 2022 involved capability building and on-the-job training for librarians and end user workshops to accelerate research upskilling. Following a 2021 soft launch and based on early user needs and librarians' assessments for more hands-on skills, the library quickly moved to adopt an inclusive approach to systematic searching that would benefit users conducting systematic reviews, as well as those seeking a systematic method for conducting literature reviews. Subsequent initiatives included: 1. Customised training content for users from Business, Management and Engineering disciplines, 2. Development of 'practical tips' style workshops and guides, 3. Exploration of GenAI tools and reviewing their implications on scholarly research, and 4. Building a knowledge base of replicable search strategies and search filters to support the community of systematic search users. This case study describes details of NTU Library's Systematic Search Service adaptation empowering users of different research skill levels to adapt the method for their information needs.

Keywords: Systematic Search Services; Systematic Reviews; Inclusivity; Changing Role of Libraries

INTRODUCTION

Prior to the integration of NTU Systematic Search Services (NTU SSS) in 2021, the Medical Library (at Lee Kong Chian School of Medicine) had been offering their systematic search service to the healthcare and medical community at NTU's Novena campus since 2017. Although requests were predominantly from the medical school, the systematic search service was open to users from NTU's Yunnan campus and there were occasional user requests for the service on topics related to healthcare. Due to growth in the number of user requests, and to enable better service accessibility to all NTU users, the NTU Library Academic Engagement team at Yunnan campus collaborated with the Medical Library to formalise an integrated service. This service extends to all NTU users irrespective of campus and discipline. As part of professional development, the Medical Librarian handling service requests conducted systematic search training and on-the-job shadowing sessions for librarians at Yunnan campus, and this training was further stepped up before the service launch. In the sections below, we describe details of ongoing service development and adaptive approaches taken to build a more inclusive service.

LITERATURE REVIEW

We searched for literature using two subscribed databases - Library Literature & Information Science Full Text (H.W. Wilson) and Library, Information Science & Technology Abstracts on EBSCOHost platform, and also searched in Google Scholar. We searched for recent peer-reviewed articles and grey literature within the last ten years, using terms related to systematic review services, systematic search services and knowledge or evidence synthesis services or support in libraries beyond healthcare disciplines. We also searched for literature on the use of GenAI or LLM (large language models) or automation text mining tools for systematic search support. The searches were conducted in April 2025.

The majority of papers on systematic review services described the development and implementation of the service and lessons learned e.g. different service models whether team-based or single librarian, whether formalized or not, as part of enquiry consultations. Several papers share details on specific aspects of development e.g. training, service evaluation, promotion, or service sustainability. There are also papers sharing data from surveys conducted on librarians' involvement in systematic review services including attitudes, preferences, and knowledge levels.

Most of the literature indicates an increase in the number of requests for systematic review support outside of healthcare or in multidisciplinary topics. This is the primary push factor for the development of a service model to meet this growing user need. Two papers (Scott and Vogus, 2022), (Premji, Splenda et al. 2022) summed up the benefits for librarians' participation in systematic review support succinctly as to "reap the rewards of working and collaborating more closely with faculty and graduate students, while improving their database-searching and time-management skills" and "partner with their constituents in a different way and … produce deeper and stronger relationships with their faculty and students that also helps raise the profile of the library on campus."

In addressing user requests from disciplines beyond healthcare and medicine, several papers addressed the role of the subject librarian as part of the systematic review service team. The subject library model has evolved with the changing role of libraries today. It may be that the traditional roles of a subject librarian in reference consultations, resource experts, deepening library user relationships and a myriad of other user engagement responsibilities have adaptively transformed subject librarians into the ideal model of the inclusive systematic search specialist service provider.

It is also noted that the systematic review support service description and service offerings in the literature reviewed are specific to the library's academic environment and may encompass a different scope of services from what is offered in NTU. The NTU SSS service description focuses on services related to systematic searching. Our systematic search service model could therefore be a useful starting point for libraries considering implementing this service in a sustainable manner.

For literature describing the use of GenAI (generative artificial intelligence), LLM (large language models) or text mining tools for supporting systematic searching in libraries, the scope of the search was limited specifically to systematic review support services, and this may have limited the literature retrieved. It is evident from libraries online libguide content that support in this area is available to their users. In section 4 below, we share tips from our explorations with GenAI tools in systematic search workflows.

SUPPORTING INCLUSIVITY IN SYSTEMATIC SEARCH TRAINING

Adapting for Disciplines "Beyond …" and Developing a Practical Approach

During the soft launch of NTU SSS, systematic search workshops were conducted to publicise the service to users from NTU and to offer instructional content on how to conduct systematic searching for review papers. A significant percentage (46%) of participants' post-workshop feedback requested for further sessions with content customised to specific subject disciplines - specifically for engineering, social sciences, management, "beyond the medical field", and "other disciplines". It was clear that the initial workshop content needed to be adapted for comprehensiveness and to address the finer needs of a broader group of researchers from different disciplines before the formal launch of the service. While the intended learning outcomes and learning topics were largely unchanged, the use of terms and concepts related to participants disciplines seems to have a positive impact on overall learning outcomes.

Another useful idea from workshop participants' feedback was to incorporate hands-on activities where participants could "work on real or existing topics" during the sessions, "following the systematic search steps" and working through the workflow of a systematic search. This suggestion resonated with our librarians, who took a similar practical approach when managing user requests for systematic search collaborations. Following revisions to the workshop content, the instructional session "Advanced Searching for Systematic Reviews" was re-titled "Practical Tips for Systematic Searching." This was designed to have broader appeal with an emphasis on applicable learning that participants could take away and use with confidence.

Concurrently, we developed accompanying online guides for participants' reference and self-help. These serve as standalone micro-learning content to answer ad-hoc enquiries on systematic searching and resources that the library provides. The entire systematic review process may take some time, and it is observed that users return to librarians for further support as their research and publication activities progress. In this scenario, bite-sized learning helps users easily access the information they need and to integrate what they learn into their workflows.

The revised workshop comprises customised content for business and engineering topics and worked examples for searches conducted on subject-relevant databases. The revised searches

made use of subject-specific subject terms, thesaurus and controlled vocabulary and we continue to review workshop feedback responses for further improvement.

Since the implementation of this open workshop series every semester, requests for customised course-embedded workshops in research methods classes have been received. These are specifically for psychology and social science at undergraduate and postgraduate level as well as “practical tips” workshops to work through team projects from research departments in NTU. We observe users requesting support for systematic searching of literature reviews or environmental scanning projects not leading to systematic reviews or other review types of papers. This is similar to observations by Kogut (Kogut, Ramirez et al. 2022). We view this as an opportunity to enhance inclusivity for a wider group of users, so that there is greater access and reduced barriers to adopting systematic searching techniques in academic research. It is beneficial not to restrict requests for support for “systematic literature reviews” as the outcomes lead to a higher quality of research. At NTU Library, librarians managing systematic search services also handle literature review consultations with little need to transfer requests to another team, resulting in more seamless user access to services.

Through these inclusive efforts, we have become more mindful of challenges faced by researchers and students, and our intention is to provide and improve access to support services and resources for systematic searching, whether it be for systematic reviews or for literature reviews in academic research.

As we continue to conduct workshops, we observe changes in user expectations for various aspects of the workshop and continue to adapt and update the content in response to the latest literature searching techniques or modes. These efforts have improved our service outreach to more user group types. We are currently developing a knowledge base of replicable search strategies and filters to serve as a resource for the NTU user community. Through this project, we aim to expand the thought leadership initiated at the Medical Library since the early beginnings of the systematic search service. We also continue to collaborate with users in the NTU community conducting systematic reviews on business, education, engineering, social sciences as well as multidisciplinary topics.

EXPLORATION OF GEN AI TOOLS AND REVIEWING IMPLICATIONS ON SCHOLARLY RESEARCH

In May 2023, with the GenAI (generative artificial intelligence) wave was at its peak, the NTU SSS team presented the topic "AI and Systematic Search Services: Moon-shot or Crash-landing?" at the Library Association of Singapore's Professional Sharing Session. Among the key topics of discussion at that time was the potential application of GenAI technology in systematic search service scenarios and the impact on the role of librarians in supporting systematic reviews. One year later, a Forbes article (Stadler, 2024) suggested that GenAI could be at a turning point in Gartner's Hype Cycle for Emerging Technologies 2024 report, as "companies adjust their AI adoption strategy" to focus on ROIs. In that year (2024), the number of requests for systematic search services received increased about 20% compared to the previous year and continues to grow. A recent paper (Chen & Feng, 2024) on the use of GenAI in systematic searching provided insight into how the GenAI tool ChatGPT could assist in systematic review steps however the human expertise of a librarian remained critical in ensuring methodological rigor. At the present stage of reviewing GenAI implementation, we take the opportunity to share librarian perspectives gained from exploring GenAI initiatives in systematic search service business processes and the associated concerns both as a librarian-user, as well as in educating users.

Gaining Practical Expertise

During an NTU group brainstorm session on GenAI in July 2024, librarians demonstrated interest in the use of GenAI tools but expressed concerns about the practical application in their work, and questioned outcomes that would justify changing existing practices. Some of the concerns included how long it would take to acquire GenAI skills, whether GenAI tools would have any real impact in improving efficiency or lead to actual improvements in results and finally, potential conflicts with systematic search methods. Librarians supporting systematic search requests use methods that are transparent, reproducible and reduce bias, characteristics that may not be supported by current GenAI tools. A practical expertise approach could balance developing practice-based skills in GenAI tools with sufficient competency to support, advise and inform users, while being mindful of librarians' concerns. We explored integrating GenAI initiatives into work plans and professional development and discovered that this approach offered organic opportunities for gaining practical expertise that helped offset "imposter syndrome" challenges from theoretical learning.

New Research Skills

While seeking to develop an informed practical expertise, one area identified for librarian skills development was Prompt Engineering. Several instructional levels of training materials are readily accessible from our library collection. Library websites and online libguides also provided useful curated guides to resources for staying updated, or for identifying GenAI training areas and resources. Although GenAI tools are advancing rapidly, results from applications of prompt engineering in practice scenarios for systematic search tasks are inconsistent. We observed similar results with simple prompts compared with complex versions of the same prompts. At this time, there may not yet be any GenAI tools that perform systematic search tasks accurately and users would need to critically evaluate results generated by GenAI tools.

Other practical ways to integrate GenAI into librarian-user practice include updating regular librarian operational systematic search training with AI and GenAI content, as this ensures a seamless refresh of highly relevant material. The content has potential to be used for informing end users and continuing important conversations and investigations into user behaviour with GenAI tools. Despite the potential for GenAI tools to improve efficiency of business processes, post-training feedback still indicates that librarians perceive GenAI tools implementation as “not practical” and concerns remain about coping with day-to-day tasks and adjusting to new workflows.

Informing and Educating Users

From a short informal poll conducted during a recent workshop on participants use of GenAI tools, it was found that about 40% were not using GenAI tools for their literature search. This could be due to concerns and uncertainties about the appropriate use in the academic environment. The role of advising users on the ethical use of GenAI tools in academic institutions lies largely with the academic faculty or school or university, and in scholarly communication, with publishers in the industry. Librarians play a key role in creating better awareness about potential practical areas for user exploration of GenAI tools in their research workflows with the goal of a more informed inclusive community of practice. This remains an important ongoing area of exploration and investigation in the systematic search area, where rigorous methods are essential considerations.

CONCLUSION

The development of NTU Library's integrated Systematic Search Service has been uniquely adapted to meet the information needs of the researchers from different disciplines across 2 campuses. Users from diverse disciplines with varied research skill levels seeking support in systematic searching have collaborated with librarians, opening greater opportunities to learn and distinctively adopt the method in their research workflows. Taking a hands-on approach in developing practical expertise GenAI tools could better position librarians to effectively collaborate with users amidst changes to the academic environment and the rapid integration of AI tools into scientific research.

ACKNOWLEDGEMENTS

We acknowledge the continuous support of Nanyang Technological University Library management for systematic search and systematic review training.

REFERENCES

Chen, X. S., & Feng, Y. (2025). Exploring the use of generative artificial intelligence in systematic searching: A comparative case study of a human librarian, ChatGPT-4 and ChatGPT-4 Turbo. *IFLA Journal*, *51*(1), 84–93 https://doi.org/10.1177/03400352241263532

Kogut, A., Ramirez, D., & Foster, M. J. (2022). Systematic review training model for education librarians: A case study. *The New Review Of Academic Librarianship*, *28*(2), 205-226. https://doi.org/10.1080/13614533.2020.1784761

Premji, Z., Splenda, R., & Young, S. (2022). An exploration of business librarian participation in knowledge synthesis reviews. *College & Research Libraries*, *83*(2), 314-336. https://doi.org/10.5860/crl.83.2.314

Russell, F., Grbin, L., Beard, F., Higgins, J., & Kelly, B. (2022). The evolution of a mediated systematic review search service [Article]. *Journal of the Australian Library & Information Association*, *71*(1), 89-107. https://doi.org/10.1080/24750158.2022.2029143

Scott, M. C., & Vogus, B. (2022). Academic librarians and systematic reviews: trends and services [Article]. *Public Services Quarterly*, *18*(3), 202-208. https://doi.org/10.1080/15228959.2022.2086664

Stadler C. (2024). The generative AI hype is almost over. What's next?. *Forbes*, Sep 2024.

Sutton, A., & Parisi, V. (2024). ChatGPT: Game-changer or wildcard for systematic searching? *Health Information and Libraries Journal*, *41*(1), 1–3. https://doi.org/10.1111/hir.12517

Systematic Reviews. *NTU Library Libguides.* https://libguides.ntu.edu.sg/systematic-reviews

Systematic Searching*. NTU Library Libguides*. https://libguides.ntu.edu.sg/systematic-searching

The Library Transformation Based on Social Inclusion Program in Indonesia: A Media Monitoring Perspective Using Machine Learning

Aldita Khoirun Nisa[1], Irhamni Ali[1], Radhitya Purnama[2]

[1]National Library of Indonesia, Indonesia

[2]Doctoral Candidate, Padjajaran University, Indonesia

Corresponding email: aldita.nisa@gmail.com

ABSTRACT

This study investigates the transformative role of libraries in Indonesia, with a specific emphasis on how social inclusion is represented in media coverage. As libraries transition from traditional repositories of knowledge to dynamic, community-centred institutions, they increasingly serve as hubs for social empowerment and inclusivity. This research employs unsupervised machine learning techniques to conduct a comprehensive analysis of media discourse surrounding library transformations. By doing sentiment analysis, clustering, and categorizing more than 12,000 media items, the study identifies prominent themes and narratives that illustrate the evolving function of libraries in fostering social inclusion. The analysis uncovers recurrent patterns in public discourse, revealing how Indonesian libraries are perceived as agents of societal change, especially in addressing social, economic, and digital disparities. Libraries are widely portrayed as inclusive, accessible institutions fostering community development, digital literacy, and resource equity. These insights highlight the significant potential of libraries in Indonesia, and across Southeast Asia, to leverage social inclusion as a tool for community empowerment and societal advancement. This research contributes to the broader discourse on library roles, demonstrating how strategic social inclusion initiatives can enable libraries to foster resilience, connectivity, and growth in the digital era.

Keywords: Library Transformation; Social Inclusion; Machine Learning; Digital Literacy; Community Empowerment

INTRODUCTION

Libraries have long played a vital role in society as centres for knowledge, learning, and community engagement. In Indonesia, library transformation has been a strategic initiative aimed at enhancing their relevance and impact to society (McKay, 2018). This initiative aligns with Sustainable Development Goals (SDGs), particularly addressing key pillars of sustainable development such as poverty alleviation, quality education, and reducing inequality. This transformation seeks to reposition libraries as active agents of community empowerment by providing access not only to books but also to training, skills development, and social engagement opportunities.

The role of libraries in promoting social inclusion has gained significant recognition in recent years. An inductive review of library research shows that is one of the most frequently studied themes in this field (Purnama, 2024). Libraries play an essential role in improving community well-being through information services that go beyond traditional formats. In village libraries, for instance, librarians can address needs that are not met by local public services. Benson (2016) provides an example where librarians offer specialised assistance to victims of domestic violence in rural areas, where access to shelters and legal aid is often limited. Libraries can also contribute to entrepreneurship development by taking a more active role in the entrepreneurial ecosystem. They can support businesses and foster an entrepreneurial spirit by creating an enabling information environment. The timely provision of quality information is crucial across various phases of the entrepreneurial journey.

By addressing inequalities in access to information and education, libraries contribute to lifelong learning and economic empowerment, particularly for marginalized communities (Pratiwi & Asyarotin, 2019). The TPBIS Program in Indonesian libraries exemplifies this effort by fostering digital literacy, entrepreneurship, and civic participation through library-based initiatives.

In the digital age, **media plays an increasingly important role in shaping public perception** of libraries and their societal contributions. Media coverage, public discourse, and digital

narratives may influence how libraries are perceived and whether their initiatives gain public support. How the media narrates an issue, including the sentiment it conveys, and the prominent topics it emphasises, can provide insight into how that issue is framed in news reporting. Media influences public perception by emphasizing certain aspects of reality while minimising or overlooking others (Entman, 1993). In this manner, news media do more than deliver information; they actively shape meaning and influence public discourse.

Leveraging machine learning (ML) for media monitoring offers a novel pathway to analyse public narratives, offering insights into media representation, public engagement, and sentiment analysis related to library transformation (Manning et al., 2008). This study aims to explore how ML-based media monitoring can provide data driven insights into the effectiveness and impact of the TPBIS Program in Indonesian libraries. By analysing vast amounts of textual data from various news media sources, this research seeks to (1) identify key narratives related to library transformation, (2) examining how the TPBIS Programme is represented in media coverage, and (3) assess the role of media in shaping the success and sustainability of library initiatives.

Findings from this research will contribute to the broader discourse on library development in the digital era. By integrating **artificial intelligence (AI) and big data analytics** into library evaluation, this study highlights the importance of strategic communication and evidence-based policymaking in ensuring the long-term sustainability of library transformation efforts in Indonesia. This study is one of the first to combine ML-based media monitoring with a national-level library transformation program in Southeast Asia.

LITERATURE REVIEW

The Concept of Social Inclusion in Library Services

Social inclusion in library services emphasises equitable access to resources, spaces, and programs for marginalised groups, including immigrants, low-income populations, and people with disabilities. Over the past two decades, this concept has gained prominence as public libraries have expanded their roles beyond traditional information organizations to become increasingly user-centered (Mi, 2015). Libraries today are also embracing users beyond the narrow confines of the library itself, extending their services into the broader community (Ganaie, 2014). By offering information services beyond conventional formats, libraries can

enhance community well-being, not only through information literacy initiatives but also by facilitating creative and collaborative learning for the community (Williams & Willett, 2019).

This shift aligns with broader government initiatives, such as the UK's early 2000s social inclusion policies, which positioned libraries as critical actors in addressing systemic exclusion through literacy programs, outreach, and cross-sector partnerships (Suga, 2006). Recent studies underscore the need for libraries to adopt critical social justice frameworks to dismantle systemic barriers (Mehra, 2021). Mehra & Rioux (2016) argue that inclusive programming must be co-created with marginalized communities and local organizations, moving beyond passive access to active empowerment. In line with this, Mahdi (2020) explains that the implementation of social inclusion in libraries must be pursued through strong collaboration between libraries and the communities they serve. Such collaboration is essential because the ultimate goal of social inclusion is to transform libraries into vibrant centers of diverse community activities. To achieve this, Mahdi highlights three critical aspects that must be considered: the provision of community empowerment programs, ensuring the right to access library services for all social groups, and improving the accessibility of library information for marginalized populations.

Digital inclusion has also emerged as a focal point in contemporary library practices. Bertot et al. (2010) demonstrate how libraries bridge the digital divide by providing free internet access, digital literacy training, and assistive technologies. For instance, 67% of U.S. public libraries now lend Wi-Fi hotspots, aligning with IFLA (2014) call for infrastructure investments.

However, inclusion efforts face persistent challenges. Ball et al. (2021) note that stigma and lack of awareness often deter marginalized groups from utilizing services, necessitating proactive outreach, such as trauma-informed staff training and collaborations with social workers, to build trust. By implementing these frameworks, libraries not only advance social justice but also create societal value. Yet, critiques remain: top-down policies risk tokenism without grassroots input, and disparities persist between well-funded urban libraries and under-resourced rural branches (Strover et al., 2020). Ultimately, social inclusion in libraries is not a static goal but an ongoing practice of listening, adapting, and advocating for equity at the margins.

Libraries as Agents of Social Change

Libraries and librarians have increasingly positioned themselves as dynamic agents of social change, addressing systemic inequities and fostering collective action across global contexts. Their role extends far beyond traditional information stewardship to active engagement in advancing literacy, combating misinformation, and nurturing civic discourse (Willingham, 2008). Grounded in a commitment to community service, public libraries leverage advocacy, programming, and equitable access to resources to empower marginalized groups and bridge societal divides (Apolinario et al., 2024). This transformative potential is encapsulated in frameworks such as the Library Community Convergence Framework (LCCF), which redefines libraries as hubs for collaborative problem-solving, applicable across urban, rural, and international contexts (Mehra & Srinivasan, 2007).

Libraries are increasingly recognized as "public spheres," DiGiacomo et al. (2021) describes, library facilitates dialogue on pressing issues such as racial equity, climate justice, and democratic participation. For example, urban libraries in Canada have partnered with grassroots movements to host anti-racism workshops and amplify marginalized voices, demonstrating their capacity to advance social justice through community-led coalitions (Vancouver Public Library, 2008). Similarly, Scandinavian libraries promote climate literacy via repair workshops, seed-lending programs, and sustainability toolkits, fostering environmental stewardship at the local level (Jochumsen et al., 2023).These initiatives align with the United Nations' the SDGs, particularly SDG 10 (reduced inequalities) and SDG 16 (peaceful societies), positioning libraries as critical allies in global equity efforts.

While libraries' civic mission is clear, challenges persist. Willingham (2008) emphasizes the need for sustained funding and political support to scale community-driven initiatives. Additionally, Apolinario et al. (2024) caution against conflating symbolic advocacy with tangible impact, urging libraries to adopt measurable frameworks for assessing social change outcomes. The evolving role of libraries as agents of societal transformation reflects their unique capacity to weave together resources, trust, and civic engagement. By embracing intersectional approaches, from anti-racism to climate action, libraries not only address immediate community needs but also contribute to systemic change. Future research should explore longitudinal impacts of library-led interventions and deepen partnerships with policymakers to align local actions with global SDG targets.

Previous Studies on Machine Learning in Libraries

The integration of ML and artificial intelligence (AI) into library science and media studies has opened new frontiers for enhancing services, optimizing workflows, and analysing public perception. Recent advancements demonstrate ML's dual role: improving operational efficiency within libraries and providing nuanced insights into how media narratives shape societal views of these institutions. ML techniques such as logistic regression, K-nearest neighbours (KNN), and AdaBoost have been instrumental in modernizing library operations. Applications span collection management, metadata generation, and resource discovery, enabling libraries to curate and retrieve materials with unprecedented precision (Das & Islam, 2021). For instance, semantic indexing models like CLIP facilitate searches for non-textual media (e.g., images, videos) without reliance on predefined taxonomies, allowing users to query content via keywords, synonyms, or summaries (Gonsalves et al., 2023). These innovations streamline access to digital collections, particularly in repositories with diverse multimedia assets (Beena & Kabir, 2019). However, ethical challenges loom large. Gonsalves et al. (2023) underscore risks related to privacy, informed consent, and data transparency, particularly when ML algorithms process patron data or sensitive materials. These concerns necessitate robust ethical frameworks to balance innovation with accountability.

Media monitoring for library performance profoundly influences public perception of libraries. Content analyses reveal stark regional differences: U.S. media often frames libraries as "neutral" spaces (Magee et al., 2022), whereas Scandinavian outlets depict them as proactive agents of community building (Appleton & Hall, 2023). ML tools like natural language processing (NLP) and transformer models (e.g., BERT) offer transformative potential for analysing these narratives at scale. Majhi & Mukherjee (2023) employed NLP to categorize 10,000+ news articles, identifying dominant frames (e.g., "heroic" vs. "obsolete" depictions) and systemic biases in media representations. However, challenges remain: algorithmic biases persist, as training datasets often underrepresent marginalized voices, thereby perpetuating inequities in sentiment and narrative analysis (Ali & Ryan, 2023).

The dual application of ML, enhancing library services and dissecting media narratives, reveals both promise and peril. While ML optimizes resource management and unpacks public perception, ethical gaps threaten its equitable implementation. Kalisdha (2024) describe "Fair ML" principles propose solutions, advocating for inclusive datasets, algorithmic transparency, and participatory design to mitigate bias. Future research must prioritize these frameworks while exploring intersections, such as using ML to audit library collections for diversity gaps or to counteract media misrepresentation through data-driven advocacy. ML and AI are

reshaping libraries as both operational hubs and subjects of media discourse. By addressing ethical challenges and leveraging these tools to amplify underrepresented narratives, libraries can strengthen their role as equitable, community-centred institutions. Further interdisciplinary collaboration (between technologists, librarians, and policymaker) will be critical to harnessing ML's potential responsibly.

METHODOLOGY

This study employs an exploratory experiment approach, which is widely utilized in ML to investigate the extent to which ML models can contribute to solving specific problems, particularly in the field of Natural Language Processing (NLP) (Aljabri et al., 2022). The research is structured into three main phases to ensure a systematic and rigorous methodological framework.

Phase One: Data Collection and Preprocessing

The first phase involves collecting data using Digivla Indonesia, a digital media monitoring platform. This system allows the National Library of Indonesia to aggregate news content from over 1,200 media sources, including print publications, online news portals, and television news excerpts. Between January 1, 2021, and October 4, 2024, the platform retrieved 14,559 media items using the keyword "transformasi perpustakaan berbasis inklusi sosial" (social inclusion-based library transformation).

After data collection, a preprocessing stage was carried out to sort the articles and remove noise or irrelevant content that could potentially skew the analysis. This preprocessing stage yielded a refined dataset of approximately 12,000 relevant news items.

Phase Two: Exploratory Data Analysis and Experimentation

The second phase comprises two crucial components: Exploratory Data Analysis (EDA) and Data Analytics, including:

- Exploratory Data Analysis (EDA): This process involves extracting and profiling data to identify key patterns, trends, and insights that will guide the subsequent stages of the study.
- Data analytics: The dataset is split into training and testing subsets, allowing for robust ML model evaluation. The research leverages Python-based programming available on

Kaggle.com, a widely recognized open-source platform for ML development. At this stage, unsupervised ML models employed, including sentiment analytics, topic modelling, and word relationship analytics to describe semantical meaning.

Phase Three: Reporting and Evaluation

The final phase focuses on reporting and evaluating the findings. This stage critically examines the entire research process, discussing the strengths, limitations, and implications of the study. Additionally, potential directions for future research in library science, media monitoring, and AI-driven text analysis are explored, particularly in relation to enhancing library transformation strategies through ML methodologies.

By systematically conducting an exploratory experiment in ML-based media analysis, this research contributes to the broader discourse on library transformation, social inclusion, and the role of artificial intelligence in digital information management.

RESULTS AND DISCUSSION

Exploratory Data Analytics

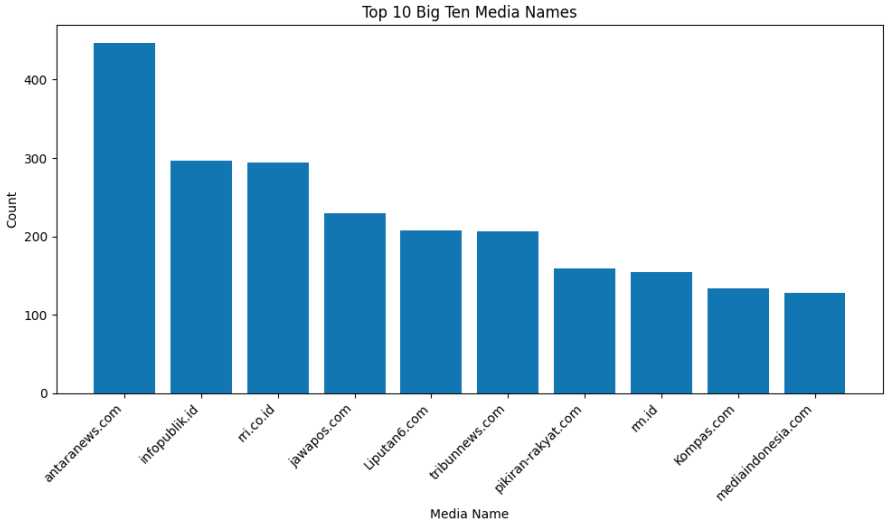


Figure 1: Top 10 big ten media names

Media Sentiment Analysis on Library Transformation

The sentiment distribution analysis, as depicted in graphic, reveals a strong dominance of positive sentiment across the dataset. The positive sentiment category exhibits the highest frequency, surpassing 11,000 occurrences, indicating that the majority of the texts carry a positive tone. The neutral sentiment category follows with approximately 2,500 occurrences, suggesting that a smaller but notable portion of the dataset consists of text with a neutral stance. In contrast, the negative sentiment category is significantly underrepresented, with a marginal number of occurrences.

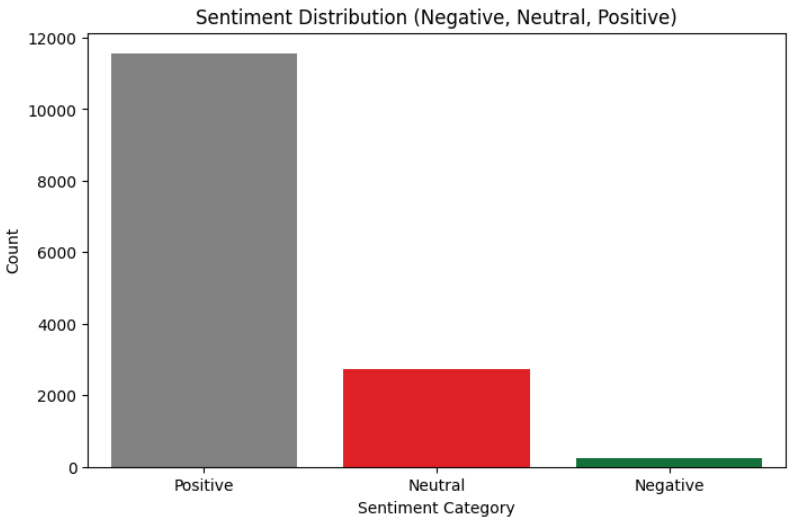


Figure 2: Sentiment distribution

These findings align with the polarity statistics, which indicate a predominance of neutral to slightly positive sentiment across the dataset. The stark imbalance between sentiment categories suggests that the corpus may be composed primarily of constructive, affirmative, or neutral discourse, with minimal presence of strongly negative content. This could be indicative of the sources and contexts of the texts, such as institutional reports, media coverage with a positive framing, or curated content emphasizing constructive narratives.

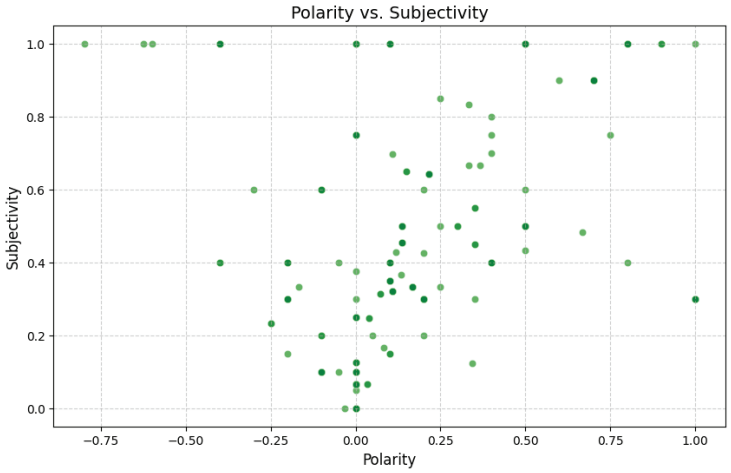


Figure 3: Polarity vs Subjectivity

1. Sentiment Polarity Analysis

The polarity analysis of the dataset reveals that the majority of texts exhibit a neutral sentiment distribution. The mean polarity score is **0,0059**, indicating that, on average, the texts do not exhibit strong positive or negative sentiments. The standard deviation is relatively low (**0,0607**), suggesting minimal variation in sentiment polarity across the dataset. The polarity ranges from **-0,8** (strongly negative) to **1,0** (strongly positive), with a median value of **0,000**, reinforcing the predominance of neutral sentiment.

These findings suggest that the corpus primarily consists of neutral or factual content, with only a limited number of texts exhibiting strong positive or negative sentiment. This distribution is expected in datasets composed of news articles, formal reports, or informational texts where subjective expression is minimized.

2. Subjectivity Analysis

The subjectivity analysis further confirms the objective nature of the dataset. The mean subjectivity score is **0,0147**, indicating that most texts are highly factual. The standard deviation of **0,1007** suggests low variability in subjectivity across the dataset. The minimum value of **0,0** confirms that a significant portion of the texts are entirely objective, while the maximum value of **1,0** indicates that a small subset of texts contains highly subjective language. The median subjectivity score is **0,000**, demonstrating that at least half of the texts lack subjective elements.

These results indicate that the dataset predominantly consists of **informational or news-oriented content**, rather than opinion-based narratives. This aligns with expectations for corpora derived from journalistic or institutional sources, where neutrality and factual reporting are prioritized.

Trigram - Chi Square Analysis

This study employed a Chi-Square analysis to identify significant trigrams in the dataset emerging from media discourse.

Table 1: Analysis of trigrams using the Chi-square test

No.	Trigram	Chi-Square Score	P-Value
1	Minat Baca Rendah	133.636960	9.574210e-30
2	Akses Layan Pustaka	42.587705	5.651937e-10
3	Literasi Tingkat Sejahtera	35.418727	2.036672e-08
4	Sukses Program Buku	28.175041	7.618467e-07
5	Basis Inklusi Sosial	24.372362	5.100454e-06

The analysis of trigrams using the Chi-square test revealed significant patterns in the discourse surrounding literacy and library services. The top-ranking trigrams with their respective Chi-square scores and p-values highlight key themes relevant to reading interest, access to library services, literacy impact, and inclusive literacy programs.

1. **Minat Baca Rendah (Low Reading Interest)** – The most significant trigram, with a Chi-square score of **133,64** ($p < 0,001$), indicates a strong emphasis on low reading interest. This finding underscores the critical issue of reading engagement in the studied population, suggesting a need for targeted interventions to promote reading culture.
2. **Akses Layan Pustaka (Access to Library Services)** – With a Chi-square score of **42,59** ($p < 0,001$), this trigram highlights concerns regarding access to library facilities. Limited access can be a major barrier to literacy development, emphasizing the need for improved library infrastructure and outreach programs.
3. **Literasi Tingkat Sejahtera (Literacy and Prosperity Level)** – This trigram, scoring **35,42** ($p < 0,001$), reflects the perceived relationship between literacy levels and societal well-being. The data suggest that literacy is seen as a driver of socioeconomic progress, reinforcing the importance of literacy programs for sustainable development.

4. **Sukses Program Buku (Successful Book Programs)** – With a Chi-square score of **28,18** ($p < 0,001$), this trigram indicates discussions about the effectiveness of book-related programs. This suggests that certain literacy initiatives have been well-received and could be scaled up or replicated in other areas.
5. **Basis Inklusi Sosial (Social Inclusion-Based Literacy Programs)** – This trigram, scoring **24,37** ($p < 0,001$), emphasizes the role of literacy initiatives rooted in social inclusion frameworks. The presence of this theme suggests that community-driven literacy efforts are a focal point in promoting equitable access to knowledge and education.

These findings provide empirical evidence of key issues in literacy development and library services, emphasizing the urgent need for strategic policies to improve reading engagement, accessibility, and inclusivity in literacy programs.

Social and Policy Implications

The findings indicate that media portrayals significantly influence both public perception and government recognition of library initiatives. Positive media narratives around TPBIS have likely contributed to its continued support, showcasing libraries as inclusive and socially relevant institutions. This emphasizes the importance of strategic communication and visibility for library programs.

Based on the media sentiment and thematic analysis, it is recommended that policymakers continue to integrate social inclusion principles into national library strategies. Strengthening digital infrastructure, expanding outreach to underserved populations, and investing in librarian training for inclusive engagement can enhance the long-term impact of the TPBIS program. Additionally, consistent media engagement and evidence-based storytelling can help sustain public interest and stakeholder commitment. One limitation of this study is the lack of direct user feedback to complement media data.

CONCLUSION

ML-based media monitoring reveals that narratives surrounding library transformation prominently feature themes of social inclusion, digital literacy, and equitable access to information. These narratives position libraries not merely as passive repositories, but as active agents of community empowerment.

Sentiment polarity analysis shows that the TPBIS Programme is predominantly portrayed in a positive or neutral light across news media, with very few negative depictions. This representation reinforces the program's association with developmental goals such as literacy advancement and social inclusion.

Moreover, the study highlights that favorable media framing plays a strategic role in strengthening public trust and influencing policymaker support, thus enhancing the overall success and sustainability of library transformation initiatives. Positive portrayals contribute to institutional legitimacy, attract policy attention, and open opportunities for continued investment and expansion of library-based social programs.

These findings underscore the importance of integrating media monitoring and ML approaches into library impact assessments. For policymakers, the results highlight the need for sustained investment in inclusive programs that enhance digital literacy, foster community empowerment, and address structural barriers to information access.

Future research should further explore longitudinal trends in media representation, incorporate user perception surveys, and examine how ML can inform library strategies across broader Southeast Asian contexts.

ACKNOWLEDGEMENTS

The authors would like to express their sincere gratitude to the National Library of Indonesia for its valuable support and contribution to this research.

REFERENCES

Ali, I., & Ryan, S. E. (2023). The law and policy of library development: A legal text analysis of Indonesian library bills. *Alexandria: The Journal of National and International Library and Information Issues*, *33*(1-3), 49-63. https://doi.org/10.1177/09557490241236949

Aljabri, M., Alhaidari, F., Mohammad, R. M. A., Samiha Mirza, Alhamed, D. H., Altamimi, H. S., & Chrouf, S. Mhd. B. (2022). An Assessment of Lexical, Network, and Content-Based Features for Detecting Malicious URLs Using Machine Learning and Deep Learning Models. *Computational Intelligence and Neuroscience*, *2022*, 1-14. https://doi.org/10.1155/2022/3241216

Apolinario, R. R., Ahmad, A., & Kadir, I. K. B. A. (2024). Librarians and social change: A systematic literature review. *International Journal of Asian Social Science*, *14*(12), 404-414. https://doi.org/10.55493/5007.v14i12.5263

Appleton, L., & Hall, H. (2023). The public library as public sphere: A longitudinal analysis. *Journal of Documentation*, *79*(1), 112-126. https://doi.org/10.1108/JD-02-2022-0031

Ball, A., Bowen, E. A., & Jones, A. S. (2021). Integrating Trauma-Informed Care and Collective Impact: Perspectives of Service Providers Working with Cross-System Youth. *Journal of the Society for Social Work and Research*, *12*(1), 59-81. https://doi.org/10.1086/712960

Beena, A. L., & Kabir, H. (2019). Machine Learning and Security Applications in Digital Library. *International Journal of Innovative Technology and Exploring Engineering*, *9*(1), 2165-2168. https://doi.org/10.35940/ijitee.A4718.119119

Benson, S. R. (2016). Assisting rural domestic violence victims: The local librarian's role. In *Law Library Journal, 108*(2), 237-250).

Bertot, J. C., Jaeger, P. T., Munson, S., & Glaisyer, T. (2010). Social Media Technology and Government Transparency. *Computer*, *43*(11), 53-59. https://doi.org/10.1109/MC.2010.325

Das, R. K., & Islam, M. S. U. (2021). *Application of Artificial Intelligence and Machine Learning in Libraries: A Systematic Review* (Version 1). arXiv. https://doi.org/10.48550/ARXIV.2112.04573

DiGiacomo, D. K., Oltmann, S. M., & Hall, C. (2021). Libraries Of, By, and For the People: Reimagining Strategies to Enhance Democratic Culture within LIS Spaces and Programming. In N. G. Taylor, K. Kettnich, U. Gorham, & P. T. Jaeger (Eds.), *Advances in Librarianship* (pp. 225-245). Emerald Publishing Limited. https://doi.org/10.1108/S0065-283020210000050010

Entman, R. M. (1993). Framing: Toward Clarification of a Fractured Paradigm. *Journal of Communication*, *43*(4), 51-58. https://doi.org/10.1111/j.1460-2466.1993.tb01304.x

Ganaie, S. A. (2014). Specialisation in Library and Information Science Curriculum: Steps towards Embedded Librarianship. *DESIDOC Journal of Library & Information Technology*, *34*(6), 449-454. https://doi.org/10.14429/djlit.34.6.6582

Gonsalves, R., Montajabi, Z., Mathur, S., & Bouguila, N. (2023). Machine Learning Applied to Media Libraries for Insights, Search, and Segmentation. *SMPTE Motion Imaging Journal*, *132*(3), 27-38. https://doi.org/10.5594/JMI.2023.3245685

IFLA. (2014). *Lyon Declaration on Access to Information and Development*. https://repository.ifla.org/handle/20.500.14598/3498

Jochumsen, H., Julsrud, T. E., Mia, M., Eigil Barratt-Due Solum, E. E., Guillen-Royo, M., Førde, A., & Bakkevoll, S. E. (2023). UPSCALE: Upscaling Sustainable Collaborative Consumption Using Public Libraries. *Nordic Journal of Library and Information Studies*, *4*(1), 94-105. https://doi.org/10.7146/njlis.v4i1.138194

Kalisdha, A. (2024). The Impact of Artificial Intelligence and Machine Learning in Library and Information Science. *International Journal of Research in Library Science*, *10*(1), 39-58. https://doi.org/10.26761/ijrls.10.1.2024.1733

Magee, R., Townsend, K., Cahill, M., Long, B., Adkins, D., Farmer, L., Koren, N., Dwyer, C., Acosta, D., Bonsignore, E., Santacruz, M., Petrella, J., Salib, G., Abbas, J., Agosto, D., & Zalot, A. (2022). Youth Services: Empowering Community, Inclusion, and Active Citizenship through Libraries. *Proceedings of the ALISE Annual Conference*. https://doi.org/10.21900/j.alise.2022.1084

Mahdi, R. (2020). Perpustakaan Umum Berbasis Inklusi Sosial: Apa dan Bagaimana Penerapannya? (Sebuah Kajian Literatur). *Fihris: Jurnal Ilmu Perpustakaan Dan Informasi*, *15*(2), 201. https://doi.org/10.14421/fhrs.2020.152.201-215

Majhi, D., & Mukherjee, B. (2023). Identifying research fronts in NLP applications in library and information science using meta-analysis approaches. *Digital Library Perspectives*, *39*(3), 393-411. https://doi.org/10.1108/DLP-12-2022-0099

Manning, C. D., Raghavan, P., & Schütze, H. (2008). *Introduction to information retrieval*. Cambridge Univ. Press.

McKay, V. (2018). Literacy, lifelong learning and sustainable development. *Australian Journal of Adult Learning*, *58*(3), 390-425.

Mehra, B. (2021). Social Justice Design and Implementation: Innovative Pedagogies to Transform LIS Education. *Journal of Education for Library and Information Science*, *62*(4), 460-476. https://doi.org/10.3138/jelis-62-4-2020-0094

Mehra, B., & Rioux, K. (Eds.). (2016). *Progressive community action: Critical theory and social justice in library and information science*. Library Juice Press.

Mehra, B., & Srinivasan, R. (2007). The Library-Community Convergence Framework for Community Action: Libraries as Catalysts of Social Change. *Libri*, *57*(3). https://doi.org/10.1515/LIBR.2007.123

Mi, M. (2015). Expanding Librarian Roles Through a Librarian Initiated and Facilitated Faculty Learning Community. *Journal of Library Administration*, *55*(1), 24-40. https://doi.org/10.1080/01930826.2014.978683

Pratiwi, A., & Asyarotin, E. N. K. (2019). Implementasi literasi budaya dan kewargaan sebagai solusi disinformasi pada generasi millennial di Indonesia. *Jurnal Kajian Informasi & Perpustakaan*, *7*(1). https://doi.org/10.24198/jkip.v7i1.20066

Purnama, R. (2024). Peran Pustakawan Terkini: Sebuah Tinjauan Literatur. *VISI PUSTAKA: Buletin Jaringan Informasi Antar Perpustakaan*, *26*(1), 83-104.

Strover, S., Whitacre, B., Rhinesmith, C., & Schrubbe, A. (2020). The digital inclusion role of rural libraries: Social inequalities through space and place. *Media, Culture & Society*, *42*(2), 242-259. https://doi.org/10.1177/0163443719853504

Suga, C. (2006). Introduction of the concept of social inclusion to public library policy in the United Kingdom: Analysis of Libraries for All. *Library and Information Science*, *55*, 25-46. https://doi.org/10.46895/lis.55.25

Vancouver Public Library. (2008). *Working Together: Community-Led Libraries Toolkit | Vancouver Public Library*. https://www.vpl.ca/working-together-community-led-libraries-toolkit

Williams, R. D., & Willett, R. (2019). Makerspaces and boundary work: The role of librarians as educators in public library makerspaces. *Journal of Librarianship and Information Science*, 51(3), 801-813). https://doi.org/10.1177/0961000617742467

Willingham, T. L. (2008). Libraries as Civic Agents. *Public Library Quarterly*, *27*(2), 97-110. https://doi.org/10.1080/01616840802114820

Empowering Inclusive Access for People with Disabilities: A Comprehensive Accessibility Analysis of Southeast Asian National Libraries' Social Media

Agus Triyanto[1], Yaya Ofia Mabruri[2]

[1]Nanyang Technological University, Singapore

[2]National Library of Indonesia, Jakarta, Indonesia

Corresponding email: AGUS002@e.ntu.edu.sg

ABSTRACT

Expanding library services to embrace diverse communities, particularly individuals with disabilities, relies on social media platforms to achieve broader and more inclusive outreach. This study assesses how effectively the national libraries of Southeast Asia comply with WCAG 2.2, focusing on perceivability, operability, understandability, and robustness. Using a quantitative approach, we screened Instagram accounts against predefined criteria and analysed a sample of 390 posts from 10,808. Over one year, fewer than 1 % addressed disability issues, with only 0.8 % explicitly mentioning disability (n = 13), which serves as a stark reminder of the work ahead. While 77.2% of videos include transcripts, only 50% of posts with links provide clear guidance, and many images remain unreadable by assistive technology, especially in event-related content. Screen-reader compatibility varied by country, with 78% compliance in Singapore compared with 49% in Indonesia and 43% in Malaysia. Nevertheless, most posts include captions and use language rated very good, with the National Library of Singapore applying accessible layouts consistently. Reference-type posts scored highest on accessibility metrics, whereas event and public-relations content lagged significantly. This first regional benchmark exposes critical gaps and paves the way for libraries to drive digital equity. We call for routine alt text, audio descriptions, and explicit link instructions, supported by targeted staff training, to transform social media into an inclusive platform where every user truly belongs.

Keywords: Accessibility; Social Media; Web Content Accessibility Guidelines; WCAG; Disability; Library Services

INTRODUCTION

Modern libraries must foster social inclusion and strengthen communities, providing every individual with equitable opportunities to learn and participate (Cahyaningtyas, 2024). This role extends beyond physical collections, libraries now create accessible physical and digital spaces that support users who are often marginalised, including people with disabilities. By broadening these opportunities, libraries can enhance personal potential and promote collective well-being (Zalmi, 2024).

However, people with disabilities still face substantial obstacles online. The World Health Organization estimates that one in six individuals lives with a disability (WHO, 2023), and in the Asia-Pacific region this equates to approximately 690 million people with vision, hearing or mobility impairments (Crosta & Sanders, 2021). When national libraries publish images without meaningful alternative text or videos without captions, and fail to support screen readers, they exclude these communities (Davies, 2019; Equidox, 2023). Thus, Southeast Asian libraries must prioritise accessibility across all digital channels, including Instagram.

Instagram has become a key channel for library outreach, with over 70% of libraries globally using social media to share news and services (McCallum, 2015). Yet mere presence is insufficient, posts must adhere to robust accessibility principles so that users with sensory, cognitive or motor challenges can engage (Stanley, 2022). Inclusive design is foundational to diversity and equity, and content is ineffective if users cannot access it (Spina, 2018). Therefore, accessibility practices are indispensable, not optional.

The urgency of improving accessibility is clear. A WebAIM study found that 94.8% of the world's top web pages violate WCAG standards, mainly due to poor colour contrast and missing image descriptions, while social-media homepages contain over 40 accessibility errors on average (WebAIM, 2025). Nearly 50% of health education posts also fail basic checks, depriving visually impaired users of vital information (Sharma et al., 2024). In Southeast Asia, data on how libraries' social-media feeds measure against these benchmarks is scarce, highlighting the

need for immediate research and action. This study evaluates the Instagram accounts of national libraries in Indonesia, Malaysia and Singapore using WCAG 2.2 criteria for perceivability, operability, understandability and robustness (Campbell et al., 2024). By analysing visual content, textual descriptions and navigation guidance, we address a significant gap in regional research and offer evidence-based recommendations for more inclusive digital strategies.

Our research contributes to the broader goal of building a truly inclusive society. National libraries serve not only as repositories of knowledge but as public platforms that must be accessible to all, including people with disabilities. By assessing how their Instagram content aligns with accessibility principles, we show how these institutions fulfil their responsibility to provide equitable information access. This work reflects the IFLA-UNESCO Public Library Manifesto's call for equal opportunity and aims to inspire libraries, policymakers and trainers to adopt social-media practices that welcome and empower every community member.

LITERATURE REVIEW

Libraries, Inclusion and Disability

Equal access is central to modern librarianship. The IFLA Public Library Service Guidelines and Code of Ethics require libraries to serve all users, explicitly including people with disabilities (IFLA, 2010; IFLA, 2012). This commitment is evident in talking-book collections, Braille lending and sign-language interpretation at events. However, physical adaptations alone, for example ramps and lifts, do not ensure full participation, because inaccessible formats, unclear signage and non-inclusive online services continue to exclude users (Ellis, 2018; WHO, 2023). Globally, Article 9 of the UN Convention on the Rights of Persons with Disabilities mandates that information and communication technologies be accessible to all (United Nations, 2006).

Development scholars further argue that digital inclusion is essential for reducing poverty and preventing entrenched social divides (Norris, 2001). As libraries extend their services online, these principles must guide every digital channel, from websites to social media (Henry et al., 2014). Given their traditional role in championing equitable information, libraries are well-positioned to lead this digital transformation and model best practices for accessibility and inclusivity.

Web Accessibility Standards

The Web Content Accessibility Guidelines (WCAG) are the global standard for digital inclusion. WCAG 2.2, adopted by the W3C in December 2024, rests on four principles, specifically perceivability, operability, understandability and robustness, and on more than 50 success criteria (Campbell et al., 2024). Under perceivability, content creators must provide meaningful alt text for images as well as captions or transcripts for video and sufficient colour contrast. Operability requires clear keyboard navigation and input modalities, while understandability demands plain-language text and predictable interfaces, and robustness ensures compatibility with current and future assistive technologies.

Although Malaysia's MAMPU and Singapore's IMDA reference WCAG Level AA in public-sector ICT policies, many major sites still neglect these basics (WebAIM, 2025). The WebAIM Million audit repeatedly highlights missing alt text and poor text contrast as the most common faults. Specialist teams have achieved near-full compliance on main library websites (Panda & Chakravarty, 2020), yet the dynamic, fast-paced nature of social-media content often slips through formal review processes (Stanley, 2022; Sehl, 2020).

Social Media Accessibility and Libraries

Social media underpins modern library outreach, with over 70% of libraries globally active on platforms such as Instagram and Facebook to share exhibitions, services and community updates (Young & Rossmann, 2015). Instagram's visual emphasis suits promotional content but can exclude users when images lack descriptive text, causing screen readers to announce only "image" (Brady et al., 2013). Videos without captions leave Deaf patrons and those browsing with sound off unable to follow content (Davies, 2019). Furthermore, specialist jargon, long strings of emojis or hashtags without CamelCase lead to confusion for users with cognitive impairments (A11Y Project, 2022).

While most platforms now offer built-in tools for alt-text entry and automatic caption generation, uptake remains limited. Stanley (2022) found that academic librarians recognise the importance of accessible social media but often lack the confidence and training to implement it. Spina (2018) recommends simple adjustments such as plain-language captions, CamelCase hashtags and consistent use of alt text, yet adoption remains inconsistent. Across sectors, nearly 50% of healthcare-education posts fail basic accessibility checks (Sharma et al., 2024), and Canadian public-library feeds show minimal alt-text use (Hill & Oswald, 2023).

Multilingual and Regional Considerations

Accessibility challenges multiply in multilingual contexts. Automated captioning services frequently misinterpret local dialects and mixed-language posts, and screen readers may mispronounce region-specific terms, undermining intelligibility (Ellis, 2018).

In Southeast Asia, which is a region of remarkable linguistic diversity, content creators must consider local scripts, diacritics and cultural conventions. For example, automated tools often mangle Bahasa Indonesia or Malay phrases when mixed with English, leading to incomprehensible captions. Moreover, visual designs that rely on text embedded within images risk rendering key information inaccessible unless explicitly described in alt text. Despite these complexities, few studies have examined how multilingual and multicultural factors affect social-media accessibility in regional libraries, leaving policymakers and practitioners without the nuanced data they need to craft effective guidelines.

Synthesis and Research Gap

The literature converges on two key points. The first is that inclusive digital communication is both an ethical and legal imperative for libraries, and the second is that despite clear standards and emerging tools, social-media practice often falls short, especially in the Global South. No study to date has audited the flagship Instagram feeds of Southeast Asian national libraries against WCAG 2.2, and regional policies seldom extend digital-accessibility mandates to social-media content.

Building on these identified gaps, this research fills that void by systematically evaluating posts from the National Library of Indonesia, the National Library of Malaysia and the National Library Board of Singapore. By providing the first empirical benchmark of social-media accessibility in this context, we equip library leadership with concrete evidence to inform future staff training programmes, strengthen digital-accessibility policies and guide platform design enhancements. In doing so, we offer a clear roadmap for libraries across Southeast Asia to transform their social-media channels into truly inclusive spaces where all users can engage fully.

METHODOLOGY

This study employed a quantitative content analysis to evaluate the accessibility of social-media content published by three leading national libraries in Southeast Asia, including the National Library of Indonesia, the National Library of Malaysia, and the National Library Board of Singapore. Content analysis is a well-established method in library and information science for systematically quantifying textual and visual communication features (Krippendorff, 2018; Neuendorf, 2016). We selected these institutions because each maintains an active Instagram presence of at least three years, boasts over 10,000 followers, and plays a prominent role in regional digital outreach. Instagram was chosen as the platform of interest due to its predominantly visual format and its widespread use by libraries throughout Southeast Asia.

Between January and December 2024, we retrieved every publicly available post from the three libraries' official Instagram feeds, yielding 10,808 entries as of 8 January 2025. We first identified posts that explicitly referenced disability or accessibility, discovering that fewer than six such posts appeared on any single account. To construct a representative sample that captured both seasonal variation and thematic diversity, we then applied random sampling within each month. This approach ensured an even distribution of posts across the calendar year and content types, avoiding potential bias toward periods of heightened activity or specific service themes.

To determine an appropriate sample size, we employed Slovin's formula with a five-percent margin of error ($\varepsilon = 0.05$). The calculation indicated that 390 posts would suffice to achieve statistical confidence given the population of 10,808 posts. Accordingly, we extracted the 130 most recent posts from each library's feed, resulting in a balanced dataset of 390 items. For each post, we recorded the media format (image or video), the caption text, any user-provided or auto-generated alternative text, the date and time of publication, and engagement metrics (number of likes and comments). We also classified each post according to the libraries' own service categories, specifically User Guidance, Event, Public Relations, Reference or Circulation (Akbar et al., 2018; Mabruri & Triyanto, 2022), to facilitate genre-specific accessibility comparisons.

Our coding framework was directly derived from the success criteria detailed in the Web Content Accessibility Guidelines (WCAG) 2.2 (Campbell et al., 2024). We organised the codebook around four principal dimensions, namely perceivability, operability,

understandability and robustness. For perceivability, we assessed whether images contained custom alternative text or whether the accompanying caption conveyed equivalent information. For video content, we noted the presence of open or closed captions as well as the inclusion of audio narration or descriptive commentary. We evaluated operability by examining how links and calls to action were presented, given Instagram's limitation on clickable captions, and deemed posts accessible only if they provided a clear, human-readable URL or explicit guidance to access a "link in bio." We measured understandability using a four-point plain-language scale adapted from federal guidelines (PlainLanguage.gov, 2020), with scores of three or above indicating satisfactory clarity, and judged whether multi-word hashtags employed CamelCase for improved screen-reader pronunciation. Finally, we tested robustness by using VoiceOver, which is Apple's built-in screen reader on iOS, to verify that non-text content, including images and videos, could be successfully interpreted through appropriate text alternatives in accordance with WCAG 2.2 Success Criterion 1.1.1 (Apple, n.d.; Campbell et al., 2024).

To ensure coding reliability, two researchers independently piloted the codebook on 30 randomly selected posts (ten per library). Discrepancies in their initial coding prompted a collaborative refinement of key definitions, such as "clear instruction" and "meaningful alt text." A second reliability check of 60 additional posts yielded a mean Cohen's κ of 0.88 for binary criteria, which under Landis and Koch's (1977) benchmarks indicates "almost perfect" agreement, and it also produced 85% exact agreement on caption-clarity ratings. Following these pilots, one researcher coded the full dataset while the second researcher conducted random reviews of ten percent of the posts to guard against coder drift.

Data analysis was conducted with Microsoft Excel. We calculated frequencies and percentages for each WCAG indicator using built-in formulas and pivot tables, ensuring that a post was marked compliant only when it met all relevant success criteria (for example, perceivability required both alt text and captions). Cross-tabulations in pivot tables then revealed which service categories, including event announcements and public-relations content, were consistently less accessible. All results were interpreted descriptively, without inferential statistics. Because our investigation relied exclusively on publicly available Instagram content and excluded any personally identifying user comments, formal ethical approval was not required. The complete dataset and coding framework are available from the corresponding author upon reasonable request.

DATA ANALYSIS AND FINDINGS

Content Profile

We analysed a total of 390 Instagram posts, 130 from each national library in Indonesia, Malaysia and Singapore, published between January and December 2024. Our breakdown of post formats shows that 76% combined text with static images, while the remaining 24% paired text with video content. When classifying by service category, Event posts dominated at 44%, reflecting libraries' emphasis on promoting workshops, exhibitions and community gatherings. Reference posts followed at 28%, signaling a strong focus on sharing factual information and research resources. Public Relations content accounted for 23%, User Guidance for 5%, and Circulation for just 1%, indicating limited messaging around borrowing procedures.

Geographic differences emerged in content strategies. Indonesian and Malaysian libraries relied heavily on Event posts, together making up over half of their activity, whereas Singapore's library leaned more toward Reference posts, which comprised nearly one-third of its output. Across all three institutions, image-based content was far more common than video, underscoring the importance of visual storytelling in library outreach.

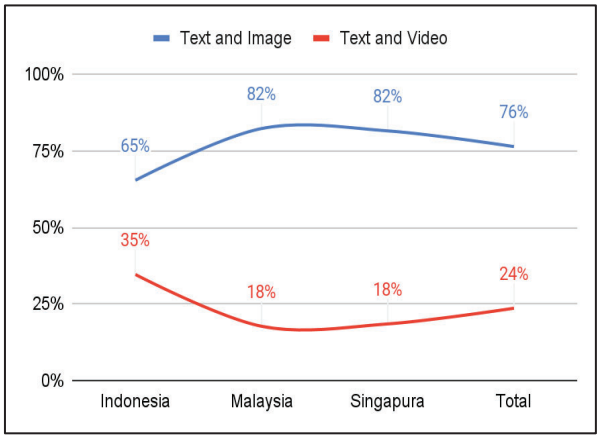


Figure 1: Percentage of news content forms per country

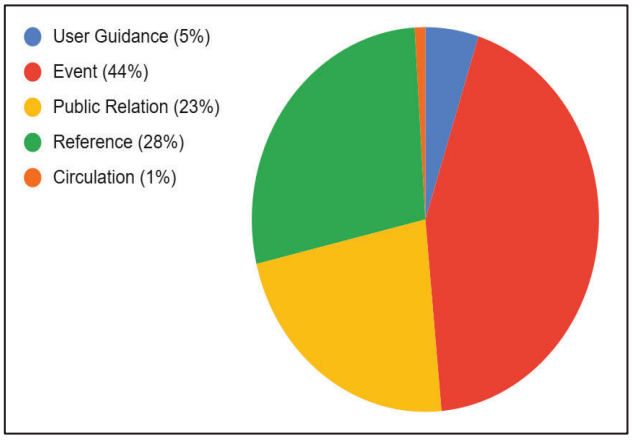


Figure 2: Percentage of content by service type

Beyond these content patterns, we specifically examined disability-related messaging. Strikingly, only 13 posts (0.8%) directly addressed disability themes. Both Indonesia and Malaysia contributed six posts each, covering service promotions for patrons with disabilities, mental health webinars and social inclusion workshops, while Singapore published a single post spotlighting accessible design innovations. This low frequency underscores that, despite the growing awareness of inclusive practices, disability inclusion remains a marginal element in the social-media strategies of Southeast Asia's national libraries.

WCAG 2.2 Dimensions

To assess the accessibility of Instagram content, we applied the four core principles of WCAG 2.2, specifically Perceivability, Operability, Understandability and Robustness, across eight targeted success criteria. Each dimension provides insight into how national libraries' social-media posts accommodate users with various sensory, cognitive and technological requirements.

Robustness addresses whether non-text elements remain usable as assistive technologies evolve. We tested image interpretability with VoiceOver, Apple's built-in screen reader, to determine whether images carried adequate alternative descriptions. Overall, 69% of images were successfully recognised. When broken down by service, Reference posts led at 86%, while Circulation posts lagged at 50%. Country comparisons revealed even wider disparities. Singapore achieved a perfect 100 percent, Malaysia reached 67%, and Indonesia attained only 3%. These findings underscore the necessity of embedding rigorous alternative text or comprehensive captions from the outset, particularly for services and regions where screen-reader compatibility remains inconsistent.

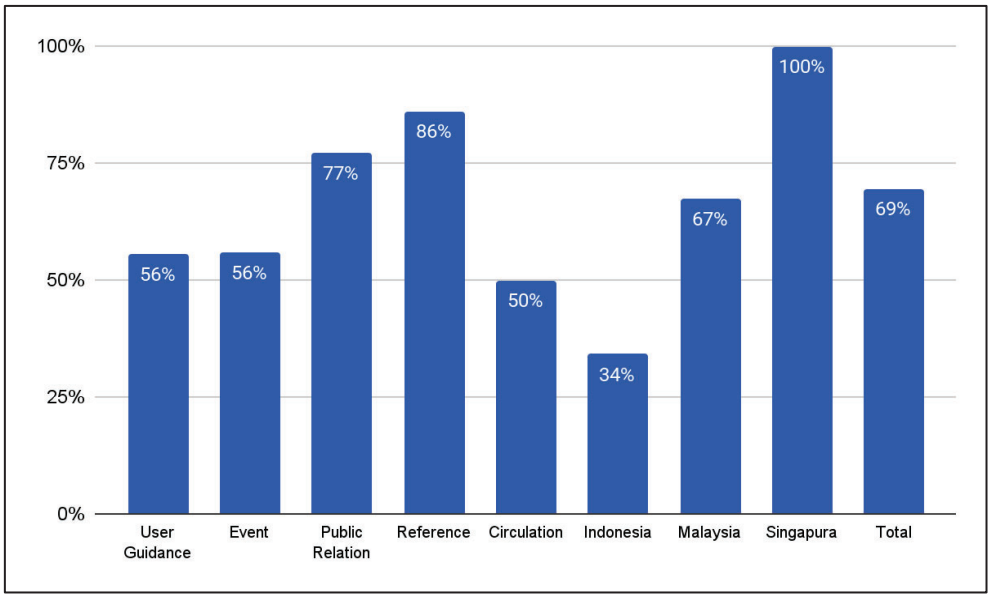


Figure 3: Percentage of image content recognisable by screen reader technology

Perceivability gauges how clearly users can perceive content both visually and audibly. In our analysis, we found a complete absence of custom alternative text for images (0 percent) indicating a fundamental gap in visual accessibility. In contrast, 77% of videos featured closed captions, with service-level compliance ranging from 100 percent in Reference to 60% in Public Relations. Nationally, Singapore captioned 92% of its videos, Indonesia 82% and Malaysia 52%. Audio narration was included in 46% of videos, led by Public Relations at 70%, while Malaysia used audio in only 22%. Although closed captions are becoming standard practice, the absence of image descriptions and the uneven adoption of audio commentary demonstrate that perceivability improvements remain incomplete.

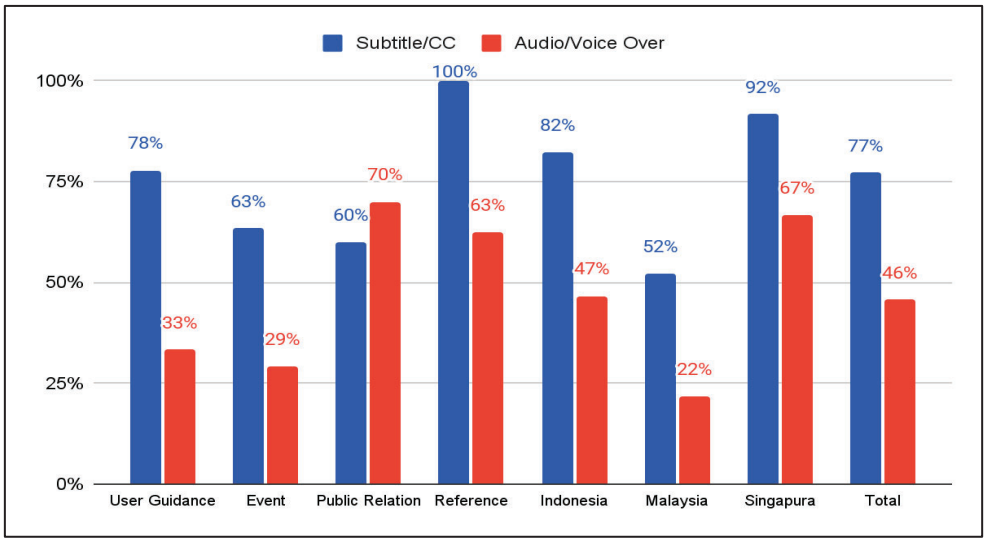


Figure 4: Percentage of video content including subtitles/closed captions and audio/voice over

Operability evaluates how effortlessly users can navigate interactive elements, including links. Only 46% of posts included any form of navigational link, with Reference posts containing links in 68% of cases and Circulation posts containing none. At the country level, 74% of Singapore's posts carried links compared with 22% in Malaysia. Yet link inclusion alone proved insufficient: only 49% of linked posts offered explicit guidance, such as "click the link in our bio." Service-based ease of navigation ranged from 91% in Reference down to 14% in Public Relations, and Indonesia provided no guidance despite some links. These results highlight that adding links must be accompanied by clear, human-readable instructions to satisfy operability standards.

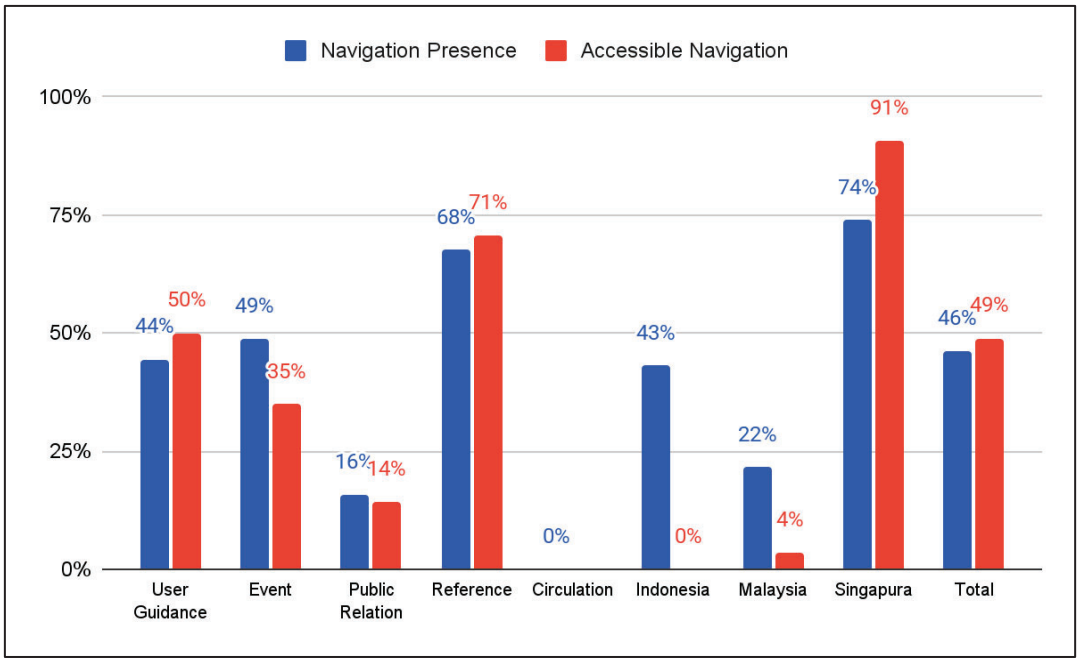


Figure 5: Percentage of posts including navigation and easily accessible navigation

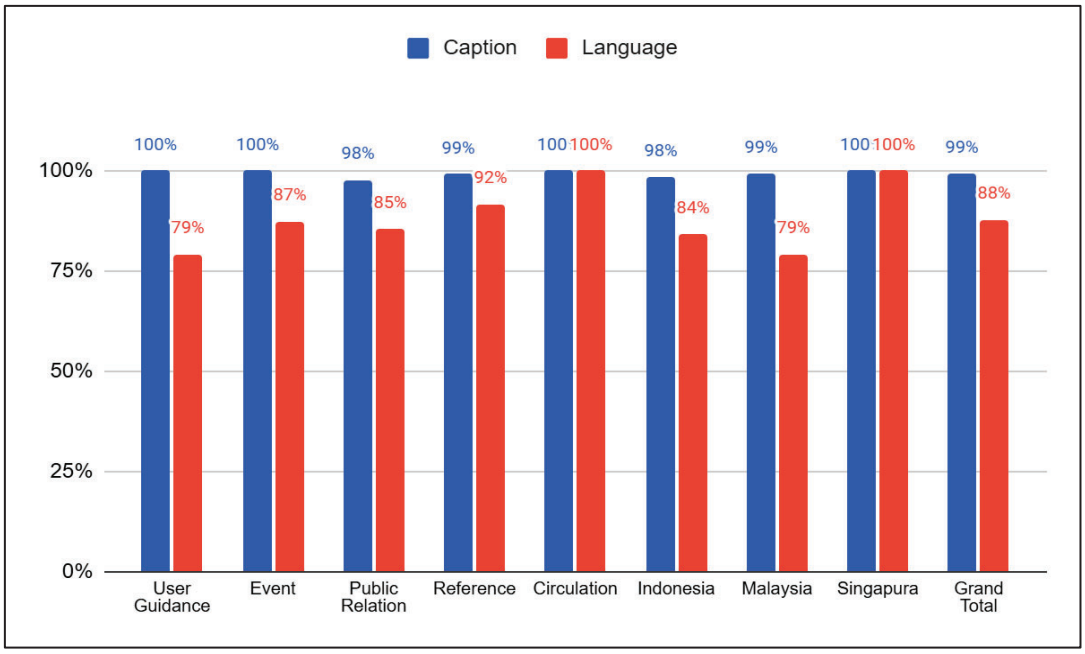


Figure 6: Percentage of Posts Including Captions and Easy-to-Understand Language

Understandability measures the clarity and simplicity of language and structure. We evaluated caption clarity using a four-point plain-language scale adapted from federal guidelines (PlainLanguage.gov, 2020). Nearly 99% of posts included captions, yielding an average language score of 3.51 out of 4 (88%). Service categories varied. Circulation content scored a perfect 4.0, while Public Relations and Event content scored 3.42 (85.5%) and 3.49 (87.3%), respectively. By country, Singapore and Circulation led at 100 percent, and Malaysia trailed with 79%. Although descriptive captions are almost universal, these differences in language quality suggest a need for targeted writing guidelines and training to standardise plain-language usage across all service types.

Accessibility by Service Type

Our analysis reveals distinct accessibility profiles across the five service categories, highlighting both strengths and areas for improvement in national libraries' Instagram content.

User Guidance posts presented a nearly equal split of text with images (56%) and text with video (44%). This category achieved a 55% average accessibility score, reflecting moderate compliance. Specifically, 56% of images were readable by screen readers, while 78% of videos included subtitles and 33% offered audio descriptions. Navigational links appeared in 44% of posts, but only half of those (22% overall) supplied clear instructions such as "see link in bio." Every post featured a caption, earning a language clarity rating of 3.17 out of 4 (7%). These results show that User Guidance content generally meets baseline standards, yet can improve on descriptive audio and precise link guidance to better support diverse learning needs.

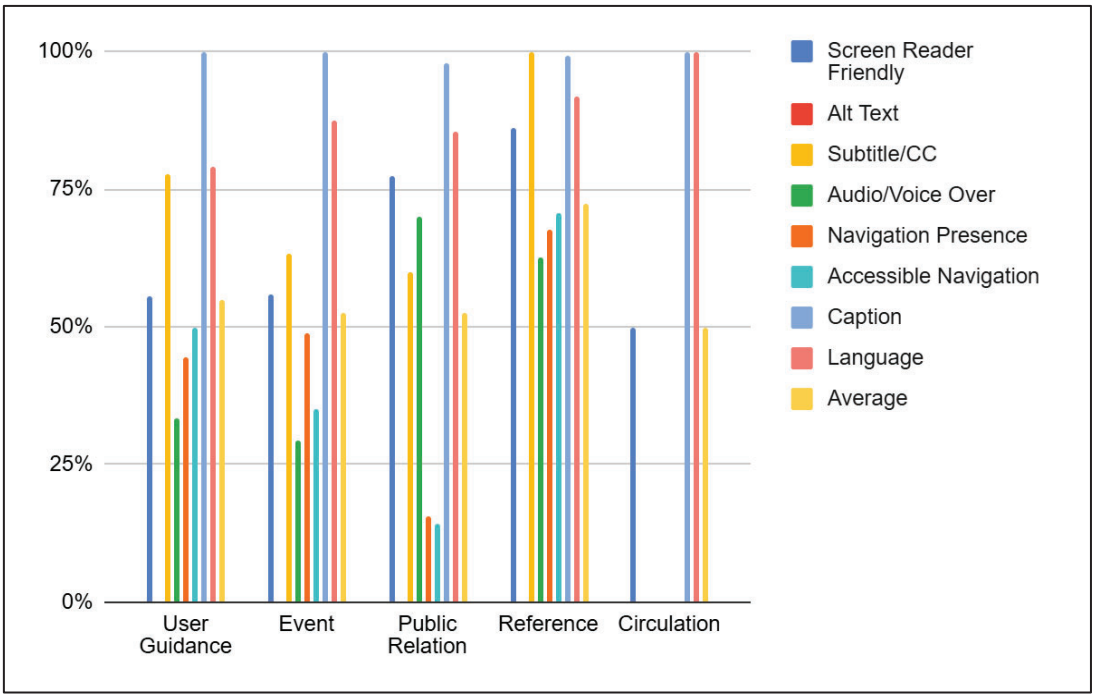


Figure 7: Content Accessibility by Service Type

Event posts were overwhelmingly image-based (88%) and scored 52% on average for accessibility. While image readability matched that of User Guidance at 5%, only 63% of event videos provided captions and a mere 29% included audio narration. Links were slightly more frequent than in User Guidance which was found in 49% of posts, but just 17% gave explicit navigation cues. Universal caption use resulted in a higher average language score of 3.49 out of 4 (87%). The heavy reliance on static visuals for event announcements, combined with inconsistent audio support and sparse link instructions, suggests that promotional messaging may inadvertently exclude users who depend on auditory or navigational assistance.

Public Relations content performed at 53% overall. It excelled in multimedia support, with 77% of images readable and 70% of videos including audio descriptions. However, only 60% of videos had closed captions. Links were scarce, appearing in just 16% of posts, and only 9% provided clear guidance. Captions appeared in 98% of content, yielding a language clarity of 3.42 out of 4 (86%). This profile indicates that while Public Relations teams effectively leverage rich media, they must prioritise accessible navigation and consistent captioning to ensure all followers can engage with announcements and brand messages.

Reference posts led the way with a 72% average accessibility score. 86% of images were screen-reader compatible, 100 percent of videos featured captions, and 63% included audio narration. 68% of posts contained links, although only 14% offered explicit “link in bio” instructions. Caption use was nearly universal, producing a language clarity score of 3.67 out of 4 (92%). These results underscore that informational content is more systematically optimized for accessibility, yet even this category can strengthen link guidance to complete the user experience.

Circulation content was the smallest category but achieved a 50% score. Image readability stood at 50%, captions were universal with a perfect language score (4.0 out of 4, 100 percent), and no videos or links were used. The absence of video content and navigational links simplifies evaluation but limits the scope of accessibility features that can be applied.

Overall, Reference leads at 72%, followed by User Guidance (55%), Public Relations (5%), Event (52%) and Circulation (50%). These patterns indicate that libraries more consistently implement accessibility best practices in informational content than in promotional or operational posts. Building on these insights, targeted improvements in audio description, link guidance and alt text can elevate accessibility across all service types.

Accessibility by Country

Our country-level analysis highlights significant variations in WCAG 2.2 compliance among the three national libraries. Indonesia averaged 49% across all dimensions, reflecting mixed performance. Only 34% of images were readable by VoiceOver, while 82% of videos included captions and 47% offered audio descriptions. Navigational links appeared in 43% of posts, yet none provided explicit guidance such as “see link in bio,” indicating a critical gap in operability. Caption coverage was strong at 98%, with an average language clarity score of 3.37 out of 4 (84.3%), but the absence of link instructions undermines user experience for those relying on keyboard or screen-reader navigation.

Malaysia recorded an overall compliance of 43%, trailing its neighbours. Image readability reached 67%, and 52% of videos featured closed captions, but only 22% included audio descriptions. Link presence was minimal at 22%, and guidance on how to use these links was

reported in approximately 11% of posts. Caption usage stood at 99%, with a language clarity rating of 3.17 out of 4 (79.3%), demonstrating that while Malaysian libraries recognise the importance of captions, they must improve on visual descriptions and navigational cues to meet diverse user needs.

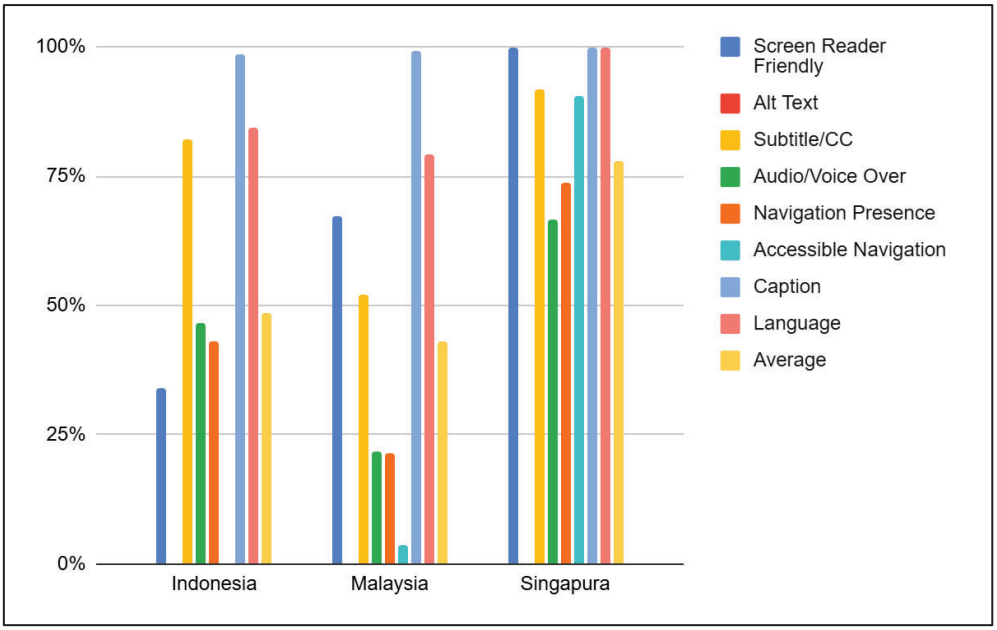


Figure 8: Content accessibility by country

Singapore led the region with 78% average WCAG compliance, setting a benchmark for best practice. All images (100%) were screen-reader compatible, and 92% of videos carried captions alongside 67% audio descriptions. 74% of posts included navigational links, with 91% of those providing clear instructions. Captions appeared in 100% of content and achieved a perfect 4.0 out of 4 (100%) language score, underscoring Singapore's systematic integration of accessibility features across media formats.

This cross-country comparison reveals strategic disparities. Singapore's consistent adoption of alt text, captions, audio descriptions and clear link directions contrasts sharply with Indonesia's and Malaysia's uneven practices. The data suggest that Malaysian and Indonesian libraries should look to workflows in Singapore, especially in link guidance and comprehensive audio support, to bridge regional gaps. By aligning content-creation processes with WCAG 2.2 principles from the outset, national libraries can foster equitable access and ensure that all users benefit from their social-media outreach.

DISCUSSION

Global Context of Digital Accessibility in the Social Media Era

Digital accessibility has emerged as a critical global concern as societies increasingly depend on online platforms for communication, information and essential services. A recent WebAIM study reveals that 94.8% of the world's most-visited websites fail to comply with WCAG guidelines, largely owing to low colour contrast and the absence of meaningful image descriptions (WebAIM, 2025). On social media, Sharma and colleagues (2024) found that nearly 50% of health-education posts do not meet basic accessibility checks, effectively barring visually impaired users from vital public-health information. At the international policy level, Article 9 of the UN Convention on the Rights of Persons with Disabilities enshrines the right of all individuals to accessible information and communication technologies (United Nations, 2006). Development experts such as Norris (2001) further underscore that digital inclusion is indispensable for alleviating poverty and narrowing social divides, placing an ethical imperative on institutions that produce and disseminate digital content.

Libraries, traditionally guardians of knowledge, now find themselves at the forefront of this digital transition. With social media becoming a primary channel for outreach, particularly on Instagram, whose visual emphasis offers both opportunity and risk, libraries must adopt inclusive designs from inception rather than retrofit accessibility as an afterthought (Henry et al., 2014; Young & Rossmann, 2015). Our findings align with this imperative. Based on 390 Instagram posts analysed, not a single image carried custom alternative text, mirroring global trends of alt-text neglect (WebAIM, 2025). This systemic oversight not only diminishes user experience but also contravenes libraries' mission to provide equitable access to information for all citizens.

Accessibility Challenges in Southeast Asian National Libraries

Despite progressive public-sector ICT policies, such as Malaysia and Singapore both referencing WCAG Level AA in governmental guidelines (WebAIM, 2025), our audit exposes significant shortfalls in actual practice. The dearth of regional studies on social-media accessibility has left a crucial gap in understanding how libraries implement these standards online. Panda and Chakravarty (2020) demonstrated that major university websites in South Asia can achieve high levels of WCAG compliance, with over 90% of images properly tagged. Nevertheless, their social-media feeds remain largely unevaluated, a phenomenon we also observed among national libraries, where accessible design principles are not uniformly applied across digital channels (Sehl, 2020).

Our analysis revealed that fewer than half of all Instagram posts included navigational links (46%), and of those, only 49% provided explicit guidance such as directing users to the profile "link in bio." This shortfall is striking given the importance of clear calls to action for users who rely on screen readers or keyboard navigation. By comparison, Canadian public libraries report similarly low adoption of alt-text on social platforms (Hill & Oswald, 2023). These parallels indicate that the global library sector, including Southeast Asia, may underestimate the unique challenges posed by fast-paced, visually driven environments like Instagram.

Accessibility Variations Across Service Types

Breaking down accessibility by service category underscores how content purpose influences compliance. Reference posts, which accounted for 28% of our sample, achieved the highest average accessibility score of 72%. These posts frequently included captions, alt text equivalents in captions when alt text was absent, and predictable navigation cues. In contrast, outreach-focused posts such as User Guidance, Event and Public Relations ranged between 50% and 55% on average, while Circulation content scored 50%. Such disparities suggest that libraries instinctively apply accessibility best practices to their informational content, while promotional and operational messaging is often viewed as less critical. For instance, Reference videos uniformly featured closed captions and screen-reader readable images, yet only 29% provided clear link instructions, highlighting an overlooked aspect of navigational operability. User Guidance and Event content showed moderate levels of perceivability through subtitles (78% and 63%, respectively) but lacked consistent audio descriptions (33% and 29%), pointing to a missed opportunity for multimodal accessibility. Public Relations excelled in audio inclusion (70%) and image readability (77%), yet provided navigation guidance in only 14% of cases. These findings corroborate Mabruri and Triyanto's (2022) observation that reference material garners the greatest accessibility attention, but extend it by quantifying the operational and outreach content that remains insufficiently accessible.

Country-Level Differences

Cross-country comparisons further illuminate strategic disparities. Singapore leads with a comprehensive 78% average accessibility score, reflecting a balanced mix of service types and systematic application of WCAG principles across its posts (Mabruri & Aisyah, 2022). By ensuring that 100% of images are screen-reader compatible and that nearly all videos carry closed captions (92%) and clear navigation cues (91%), Singapore's National Library Board sets a regional benchmark. Malaysia, at 43%, and Indonesia, at 49%, trail behind, primarily due to lower adoption of alt text (0% in all three countries), inconsistent audio descriptions (22% in Malaysia and 47% in Indonesia) and sparse link guidance. Both countries concentrate heavily

on event-driven content, which our data show frequently omits essential accessibility features such as audio narration and explicit link instructions.

Integrating Findings with WCAG 2.2 Standards

WCAG 2.2's four pillars, specifically Perceivability, Operability, Understandability and Robustness, provide a comprehensive framework to evaluate social-media content. Our study demonstrates that while some principles, like Understandability via captions (99% compliance), are widely adopted, others, notably Perceivability through alt text (0%), remain entirely unaddressed. Operability challenges persist in insufficient link guidance and keyboard navigation alternatives, and Robustness gaps appear in uneven screen-reader compatibility, particularly in Indonesian content (34% image readability). These patterns reflect global accessibility data from WebAIM and align with Hill and Oswald's (2023) findings in Canadian libraries, underscoring that without deliberate, systematic policies, ad hoc efforts will fail to achieve universal access.

Social Implications: Disability Inclusion and Library Responsibility

Ensuring digital accessibility transcends technical compliance, it embodies libraries' ethical obligation to serve all community members. The IFLA Code of Ethics mandates equitable information access (IFLA, 2010 and IFLA, 2012), and the UN Convention on the Rights of Persons with Disabilities codifies it as a human right (United Nations, 2006). Failure to provide alternative text, captions or clear navigation instructions effectively silences users with disabilities, contravening the core mission of libraries to democratise knowledge. Investing in accessibility supports broader societal goals of reducing information poverty and combating digital divides (Norris, 2001), positioning libraries as agents of social justice in an increasingly digitised world.

Strategies and Recommendations for Optimising Content Accessibility

Our results suggest a multi-pronged approach to elevate social-media accessibility in Southeast Asian national libraries.

Embed Accessibility in Content Creation

Develop and enforce guidelines that mandate alt text for all images, closed captions and audio descriptions for videos, and explicit link instructions, ensuring these elements are integral to editorial workflows (Spina, 2018; Stanley, 2022).

Staff Training and Awareness

Conduct regular workshops on WCAG 2.2 principles and social-media platform tools to build librarians' confidence and competence in producing accessible content (Henry et al., 2014).

Policy Integration

Align library social-media policies with national ICT accessibility standards, referencing WCAG Level AA or higher to provide a clear compliance benchmark that extends beyond traditional websites (WebAIM, 2025).

Routine Auditing

Implement quarterly accessibility audits using both automated tools and manual screen-reader testing to identify gaps and track progress, incorporating feedback loops to update guidelines accordingly (Sharma et al., 2024).

Collaborative Networks

Foster regional and international partnerships for sharing best practices, resources and training materials, leveraging success stories from Singapore to support capacity building in neighbouring countries.

Towards an Inclusive Library Future in Southeast Asia

By adopting these strategies, national libraries can transition from performing isolated accessibility fixes to fostering sustainable, organisation-wide practices. This shift will not only enhance the digital experience for users with disabilities but also strengthen libraries' broader role as inclusive knowledge hubs. In doing so, Southeast Asian libraries can exemplify how public institutions contribute to a digital ecosystem that upholds rights, equity and shared community values.

CONCLUSION

This study evaluated the accessibility of Instagram posts from the national libraries of Indonesia, Malaysia, and Singapore using WCAG 2.2 criteria. Findings indicate significant accessibility shortcomings. Content was predominantly image-based (76% of posts) and focused on events and reference services, but only 0.8% of posts explicitly addressed disability themes, reflecting limited inclusion of disability issues. Critically, no image post included

alternative-text descriptions, although nearly all posts provided captions (99%). Captioning was prevalent, yet only 77% of videos included subtitles and 46% included audio descriptions. Similarly, just 46% of posts offered navigational links, and only 49% of those provided clear guidance to linked resources. Accessibility compliance varied widely: Singapore's posts achieved full screen-reader compatibility, whereas Indonesia's images were only 34% compatible. Aggregating across eight WCAG 2.2 indicators, Singapore averaged 78% accessibility compliance, far above Indonesia (49%) and Malaysia (43%). Reference-service posts consistently scored highest across measures, indicating that informational content was more accessible than event or promotional content.

This study contributes novel empirical evidence on digital inclusivity in library social media. By systematically applying WCAG 2.2 criteria to library Instagram content, it establishes a baseline for accessibility practice in Southeast Asia. The stark country-level differences highlight the impact of organizational priorities: Singapore's strong performance suggests effective policies or awareness, whereas Indonesia's and Malaysia's lower scores reveal critical gaps. These results align with international commitments to inclusive information access and underscore that adopting web accessibility guidelines does not automatically extend to social media platforms. By mapping accessibility across services and nations, this research illuminates the uneven implementation of digital inclusion principles in Southeast Asian library contexts.

Practically, these findings imply that national libraries should integrate accessibility into their social media strategies. Key recommendations include consistently adding alternative-text to images, providing both captions and audio descriptions for multimedia content, and offering clear navigation cues (for example, explicit instructions to links in profiles or posts). Library social media policies and staff training programs should incorporate WCAG 2.2 standards to support these practices. Libraries should also enrich their content with disability-themed posts to promote awareness and inclusivity. Future research could extend this analysis to other platforms or conduct user studies to assess the impact of these enhancements. Such efforts will help libraries advance toward a fully inclusive digital outreach, ensuring equitable access to information for all community members.

REFERENCES

Akbar, M. T., Martutik, & Safii, M. (2018). Konten akun sosial media Twitter perpustakaan universitas perguruan tinggi di Indonesia. *Bibliotika, 2*(1), 41-49. https://doi.org/10.17977/um008v2i12018p041

Apple. (n.d.). *Turn on and practise VoiceOver on iPhone.* Apple Support. https://support.apple.com/en-sg/guide/iphone/iph3e2e415f/ios

Brady, E. L., Morris, M. R., Zhong, Y., White, S., & Bigham, J. P. (2013). Visual challenges in social-media accessibility for blind users. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 2117-2126). ACM. https://doi.org/10.1145/2470654.2481291

Cahyaningtyas, D. F. (2024). Pemberdayaan masyarakat melalui transformasi perpustakaan berbasis inklusi sosial: Studi di Perpustakaan Kabupaten Gunung Kidul. *Media Informasi, 33*(2), 1-15. https://doi.org/10.22146/mi.v33i2.11983

Campbell, A., Adams, C., Montgomery, R. B., Cooper, M., & Kirkpatrick, A. (2024, December 12). *Web Content Accessibility Guidelines (WCAG) 2.2.* World Wide Web Consortium. https://www.w3.org/TR/WCAG22/

Crosta, N., & Sanders, A. (2021). Overview: Disability in the ASEAN region. In N. Crosta & A. Sanders (Eds.), *Social enterprises and disability: Fostering innovation, awareness and social impact in the ASEAN region* (pp. 1-7). ERIA.

Davies, H. J. (2019, July 21). Lights, camera, caption! Why subtitles are no longer just for the hard of hearing. *The Guardian.* https://www.theguardian.com/tv-and-radio/2019/jul/21/subtitles-tv-hearing-no-context-twitter-captions

Ellis, K. (2018). *Disability and social media: Global perspectives.* Routledge.

Equidox. (2023). *Most frustrating digital-accessibility issues for people with disabilities.* https://equidox.co/blog/most-frustrating-digital-accessibility-issues-for-people-with-disabilities/

Henry, S. L., Abou-Zahra, S., & Brewer, J. (2014). The role of accessibility in a universal web. In *Proceedings of the 11th Web for All Conference* (Article 1). ACM. https://doi.org/10.1145/2596695.2596719

Hill, H., & Oswald, K. (2023). “May be a picture of a dog and a book”: The inaccessibility of public-library social-media feeds. *Partnership: The Canadian Journal of Library and*

Information Practice and Research, 18(1), 1–14. https://doi.org/10.21083/partnership.v18i1.7008

International Federation of Library Associations and Institutions. (2010). *IFLA public library service guidelines* (2nd ed.). De Gruyter Saur. https://repository.ifla.org/handle/20.500.14598/988

International Federation of Library Associations and Institutions. (2012). *IFLA code of ethics for librarians and other information workers.* https://www.ifla.org/files/assets/faife/documents/ifla-code-of-ethics-for-librarians-and-other-information-workers.pdf

Krippendorff, K. (2018). *Content analysis: An introduction to its methodology* (4th ed.). Sage.

Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics, 33*(1), 159-174. https://doi.org/10.2307/2529310

Mabruri, Y. O., & Aisyah, S. N. (2022). Utilisation of Instagram social media by national libraries in Southeast Asia during the COVID-19 pandemic. *Library Philosophy and Practice.* https://digitalcommons.unl.edu/libphilprac/6859

Mabruri, Y. O., & Triyanto, A. (2022). Kajian pengembangan konten digital perpustakaan untuk media sosial: Perspektif Perpustakaan Nasional di Asia. *Media Pustakawan, 29*(3), 254-267. https://doi.org/10.37014/medpus.v29i3.3454

McCallum, I. (2015). Use of social media by the library: Current practices and future opportunities. *The Australian Library Journal, 64*(2), 161-165. https://doi.org/10.1080/00049670.2015.1010191

Neuendorf, K. A. (2016). *The content analysis guidebook* (2nd ed.). Sage.

Norris, P. (2001). *Digital divide: Civic engagement, information poverty, and the Internet worldwide.* Cambridge University Press.

Panda, S., & Chakravarty, R. (2020). Evaluating the web accessibility of IIT libraries: A study of Web Content Accessibility Guidelines. *Performance Measurement and Metrics, 21*(3), 121-145. https://doi.org/10.1108/PMM-02-2020-0011

PlainLanguage.gov. (2020). *Federal plain language guidelines.* https://www.plainlanguage.gov/guidelines/

Sehl, K. (2020, October 15). *Inclusive design for social media: Tips for creating accessible channels.* Hootsuite Blog. https://blog.hootsuite.com/social-media-accessibility/

Sharma, M., Huertas, L., Shah, S., Gil, A., Bitrian, E. & Chang, T. C. (2024). Compliance with Web Content Accessibility Guidelines in ophthalmology social-media posts. *Scientific Reports, 14*, 9142. https://doi.org/10.1038/s41598-024-59838-2

Spina, C. (2018). Developing an accessible and inclusive social-media presence. *Marketing Libraries Journal, 2*(1), 53-60. https://journal.marketinglibraries.org/mlj-v2-i1-53-60/

Stanley, T. (2022). Accessibility matters: Supporting inclusive social media in academic libraries. *Journal of Social Media for Learning, 3*(1), 35-50. https://doi.org/10.24377/LJMU.jsml.article567

The A11Y Project. (2022). *Accessibility checklist.* https://www.a11yproject.com/checklist/

United Nations. (2006). Convention on the Rights of Persons with Disabilities. Treaty Series, 2515 UNTS 3. https://www.un.org/disabilities/documents/convention/convoptprot-e.pdf

WebAIM. (2025). *The WebAIM Million: An accessibility analysis of one million home pages.* https://webaim.org/projects/million/

World Health Organization. (2023). *Disability and health.* https://www.who.int/news-room/fact-sheets/detail/disability-and-health

Young, S. W. H., & Rossmann, D. (2015). Building library community through social media. *Information Technology and Libraries, 34*(1), 20-37. https://doi.org/10.6017/ital.v34i1.5625

Zalmi, F. A. Z. (2024). Penerapan transformasi perpustakaan berbasis inklusi sosial di perpustakaan umum: Sebuah kajian literatur. *Al Ma'arif: Jurnal Ilmu Perpustakaan dan Informasi Islam, 2*, 167-175. https://doi.org/10.37108/almaarif.v4i2.1741

Words Matter: Evaluatingn Inclusive Language on Malaysian and Philippine Library Websites

Nur Azleen Hasan[1], Janice Peñaflor[2], Efren Torres, Jr.[2]

[1]Universiti Putra Malaysia, Serdang, Selangor, Malaysia

[2]De La Salle University, Manila, Philippines

Corresponding email: azleen_h@upm.edu.my

ABSTRACT

This study examines the use of inclusive language on academic library websites at top institutions in Malaysia and the Philippines, identifying patterns, strengths, and critical gaps in the implementation of inclusive language on these platforms. A 32-item inclusive language audit checklist was used to evaluate library websites, applying five coding categories (Yes, No, Partially Present, Not Present, Inaccessible). Results were analyzed across nine inclusive language domains to assess compliance levels and domain-specific variations. The findings revealed limited overall adoption of inclusive language in both countries, with Malaysian libraries achieving higher compliance and greater consistency than their Philippine counterparts. Foundational practices such as gender-neutral language and avoidance of stereotypes were widely adopted, while complex aspects including invisible disabilities, pronoun usage, and age-related biases and stereotypes were not represented across the sample. Gender diversity and explicit DEI communications also received minimal attention. Inclusive language practices on academic library websites remain surface-level, with critical intersectional dimensions largely unaddressed. A shift toward comprehensive, identity-affirming communication strategies, underpinned by clear DEI frameworks and systematic audits, is necessary.

Keywords: Inclusive Language; Academic Libraries; Diversity Equity and Inclusion (DEI); Malaysia; Philippines; Library Websites

INTRODUCTION

Academic library websites today are no longer just static portals for information. They have become dynamic spaces where institutions showcase their commitment to values like diversity, equity and inclusion (DEI). As libraries increasingly see themselves not only as keepers of knowledge but as active agents for empowerment and community engagement, the language they use in these digital spaces matters more than ever. Inclusive language, defined as "a language free from words, phrases, or tones that reflect prejudiced, stereotyped, or discriminatory views of particular groups" (Government of British Columbia, n.d.), play a vital role in creating online environments that feel welcoming and accessible to all.

There is a growing recognition that language in digital environments is far from neutral. Words, after all, shape perceptions and open, or close, doors to information (Taheri, 2020). In academic settings, simple choices like gender-neutral terms, avoiding ableist expressions, and showing cultural sensitivity can make a profound difference. Libraries across the globe are beginning to weave and explore DEI principles into every aspect of their work, from collections and services to the language that frames their digital presence (Ely, 2022; Torres & Abrigo, 2025).

However, creating truly inclusive websites goes beyond just the words on the page. Design matters too. Accessibility standards such as the Web Content Accessibility Guidelines (WCAG) and the Americans with Disabilities Act (ADA) remind us of the importance of features like screen reader compatibility, alternative text for images, and clear, logical navigation (Taylor & Bicak, 2019). Many libraries are now embracing these best practices to ensure their digital platforms welcome users of all abilities (McHale, 2011).

Understanding how well digital spaces promote inclusivity has become increasingly important, particularly as users expect institutions to visibly embody values of equity and diversity. To assist in this, Morgan-Daniel et al. (2024) developed a detailed 32-item checklist that examines digital communications through the lens of gender neutrality, disability representation, and the visibility of DEI efforts. Although early applications of inclusive language audits have highlighted meaningful gaps and areas for growth in library communications, much of this work has been concentrated in Western contexts (Bitter, 2024).

In Southeast Asia, the picture is less clear. Malaysia and the Philippines, both rich in cultural, linguistic, and religious diversity, offer particularly compelling cases for exploration. While both nations have taken formal steps to embed DEI principles into higher education policy (Ministry of Education Malaysia, 2015; Commission on Higher Education [CHED], 2015), how these commitments manifest on library websites remains underexamined. Examining these digital communications is crucial for understanding how academic institutions in diverse societies translate policy into practice, and where gaps may persist.

Against this backdrop, this study investigates the use of inclusive language on library websites of leading universities in Malaysia and the Philippines, applying the checklist established by Morgan- Daniel et al. (2024) to assess key aspects such as gender neutrality, disability inclusion, and DEI visibility. Specifically, the study aims to answer the following research questions:

1. To what extent do the library websites of top academic institutions in Malaysia and the Philippines use inclusive language based on the 32-item checklist?
2. What are the common strengths, gaps and notable patterns in the use of inclusive language across the library webpages analyzed?
3. How do inclusive language practices differ between Malaysian and Philippine academic library websites, and what cultural or institutional factors might influence these differences?

METHODOLOGY

This study conducted an audit of library websites using a 32-item checklist designed to evaluate the presence and quality of inclusive language. The checklist was adapted from Morgan-Daniel et al. (2024), who developed the instrument to assess the inclusivity of language across a health science library's website, LibGuides, and signage. The checklist was constructed through a synthesis of nineteen institutional resources focusing on diversity, equity, inclusion, and accessibility in library and academic communications. Each checklist item addresses a specific aspect of inclusive communication, including gender inclusivity, racial and ethnic respect, accessibility for individuals with disabilities, and other markers of diversity and inclusion.

The websites analyzed in this study were selected from the top ten universities in Malaysia and Philippines, based on the Times Higher Education World University Rankings 2025 (Times Higher Education, 2025)). To protect institutional confidentiality, library names were anonymized and are referred to as 'MY Library' or 'PH Library' followed by a number. The institutional websites served as the primary source for evaluating the presence and quality of inclusive language across public-facing digital content.

To structure the analysis, the checklist items were organized into nine inclusive language domains. These domains were adapted from the APA Inclusive Language Guidelines (2023) and supplemented by frameworks from inclusive communication scholarship (American Psychological Association, 2023; Brown, 2021). Domains were separated to better highlight intersections between race, culture, disability, and gender, and to reflect real-world best practices in digital inclusivity.

Table 1: Audit checklist items categorized by inclusive language domain

Category	Checklist Item
1. Age	26. If age is mentioned, does the webpage avoid implying that a particular age group is more or less able? Note – remember that the words “older” and “younger” are context-specific, so should only be used if clearly described and very necessary.
	27. If age is mentioned, does the webpage avoid the use of the word elderly? The term “elderly” can have stereotypical connotations. An alternative phrase is “people over the age of 65”.
2. Body size and weight	28. Does the webpage avoid phrases that equate “thin” or “able-bodied” with health?
3. Citizenship and immigration status	32. Is “undocumented” used instead of “illegal immigrant” or “illegal”?
4. Educational and workplace inclusivity	17. Does the website have a DEI statement on the front page or prominently displayed?
	18. If any policies are listed on the website do they avoid the use of gendered language and stereotypes. For example., in relation to dress codes?

	19. Are the photos and pictures on the website reflective of the communities that are served? For example, a mixture of pictures is ideal, where possible encompassing all genders, non-white people, people who are disabled etc.
	31. Is student-first language used? For example, student, staff, and faculty.
5. Mental and physical disabilities	10. Does the webpage avoid using any ableist language or out- of-date terminology for people with disabilities? For example, remove any uses of the word handicapped.
	11. If the website does mention disabilities, does it use people-first language? For example, the website should say “person with a disability” instead of “disabled person”. Note: some groups of people use identity-first language, so disability-related language should be changed if user feedback is received.
	12. Are invisible disabilities recognized or does the webpage only refer to physical disabilities?
	13. Is information prominently displayed on the webpage about services for people with disabilities? E.g., ADA-compliant accessible tables.
	16. If mental health language is included, does the website avoid the use of any out-of-date, derogatory, or stigmatizing terms?
	25. Does the webpage avoid language that implies weakness or infirmity? For example, do not use the phrase “wheelchair- bound”, but instead say, “the employee uses a wheelchair”.
	29. Does the webpage avoid the use of terms that reinforce stigma, imply helplessness, or invite pity? For example, use the phrase “person with AIDS” instead of “AIDS victim”.
6. Race and ethnicity	5. Do any webpages or linked forms ask for information about race or ethnicity? If so, is this necessary and is the list alphabetical? For example, white should not be at the top of the list. Are there options to check more than one race or ethnicity category?
	9. Does the webpage avoid stereotyping population groups? Ensure that no personal assumptions are made based on gender, culture, ancestry, age, or other identities, For example, mom doing housework or girls wearing make-up.
	23. Are the proper names of nationalities, peoples, and cultures capitalized? For example, use Black not black.
	6. If asking someone’s religion or referring to holiday opening hours, does the webpage use more general terms like winter break instead of Christmas break? Is Christianity listed first in any lists of religions when lists should be alphabetical instead?

	24. Is “first name” used instead of “Christian name”?
	29. Does the webpage avoid the use of terms that reinforce stigma, imply helplessness, or invite pity? For example, use the phrase “person with AIDS” instead of “AIDS victim”.
	5. Do any webpages or linked forms ask for information about race or ethnicity? If so, is this necessary and is the list alphabetical? For example, white should not be at the top of the list. Are there options to check more than one race or ethnicity category?
	9.Does the webpage avoid stereotyping population groups? Ensure that no personal assumptions are made based on gender, culture, ancestry, age, or other identities, e.g., mom doing housework or girls wearing make-up.
	23. Are the proper names of nationalities, peoples, and cultures capitalized? For example, use Black not black.
7. Religion and culture	6. If asking someone’s religion or referring to holiday opening hours, does the webpage use more general terms like winter break instead of Christmas break? Is Christianity listed first in any lists of religions when lists should be alphabetical instead?
	24. Is “first name” used instead of “Christian name”?
8. Sexual orientation and gender diversity	1. Does this webpage use gender neutral/gender-inclusive language? Examples: using they instead of he or she, using patrons/folks/friends instead of ladies and gentlemen, not using sir/madam.
	2. Do team members share their pronouns on the website’s contact pages? If pronouns are requested by website forms, are there gender-inclusive options such as they?
	4. If any webpages or linked forms refer to or ask about gender identity, is this necessary? If it is necessary, for example if conducting a diversity-related survey, are additional options provided to man or woman, at minimum with an option to self-describe?
	4.If the webpage refers to restrooms, does it indicate the location of gender-inclusive restrooms, family restrooms, or lactation rooms (if there are any)?
	7. If any webpages or linked forms refer to or ask about marital status, is this necessary? If so, are the words spouse, partner, or significant other used instead of the words husband or wife? If parental status is mentioned, is the word parent(s) used instead of Mom and Dad? Ensure that the webpage avoids assumptions relating to children having two parents, two parents who are married, or spouses being of the opposite sex.
	8.If any career-related language is used, is it gender neutral? For example instead of the word policeman use police officer, unless it’s someone’s official title.

	14. Are responses to any website form submissions gender neutral? If the patron does not use a gender-specific identifier, ensure the response does not use gendered language either.
	For example, avoid the use of “Dear Sir/Madam” or “Dear Mr. [last name]. Instead, use “Dear [first name last name]”.
	15. If sexual orientation is mentioned, is this necessary? If so, is the list alphabetical? Ensure that there are a number of options provided, encompassing at a minimum: Asexual or Ace, Bisexual, Gay, Heterosexual, Lesbian, Pansexual, Queer.
	20. Do forms reflect that people can use the name that they generally go by rather than their legal name? (This is often very important for people who identify as transgender).
	21. Are the options for honorifics in forms gender-inclusive? This should include an opt-out option and a self-describe option, in addition to Dr., Ms., Mr., Mx. at a minimum.
9. Typography, transliteration, and pronunciation	22. Does the webpage avoid using slang or jargon?
	30. Are all acronyms spelled out once on each page?

Each checklist item was evaluated using a five-point coding scheme (Table 2). This coding system draws on prior inclusivity audit approaches used in web accessibility and diversity research (Brown, 2021; Shoemaker & Carter, 2019).

To ensure the reliability and clarity of the five-point evaluation checklist, a pilot testing phase was conducted. Ten randomly selected webpages from academic library websites were evaluated independently by two reviewers using the checklist. Discrepancies in coding were identified and resolved through discussion, which enhanced the understanding of how to apply the codes to specific scenarios, leading to clearer operational definitions without modifying the original wording of the checklist.

Table 2: Five-point coding scheme to audit library websites

Code	Definition	When to Use
Yes	The website meets the criteria of the checklist item fully and appropriately.	Expected inclusive, respectful, or neutral language/content is clearly present and correctly applied.
No	The website addresses the item, but uses non-inclusive, outdated, or inappropriate language or structures.	Content is present but does not meet inclusivity standards
Partially Present	The website shows some effort towardinclusivity, but the content is incomplete, inconsistent, or limited.	Inclusive language is applied in some parts but missing or poorly executed elsewhere.
Not Present	The website does not contain any content related to the checklist item.	Topic is not mentioned at all, meaning there is no basis to assess.
Inaccessible	The relevant content cannot be evaluated because it is blocked, requires login, or the page is broken.	Page or Link exists but cannot be accessed by the public.

This pilot validation process confirmed that the checklist items were generally interpretable, applicable across websites, and produced consistent coding outcomes across reviewers. The validation approach follows common best practices for checklist development and small-scale instrument testing (DeVellis, 2017).

In addition to coding each checklist item, the results were analyzed thematically by grouping related items into broader inclusive language categories (for example, gender-neutral language, mental health terminology, disability-inclusive language). For each category, the percentage of websites meeting the criteria was calculated by dividing the number of websites with a "Yes" response by the total sample size, then multiplying by 100. Each category was then assigned a strength label based on these percentages:

Strong if 70% or more of the websites meet the criteria

Moderate if 40–60% compliance was observed

Weak if less than 30% compliance was observed

Very Weak if fewer than 10% of the websites complied

Absent if no websites achieved compliance for that category

This thematic scoring approach allowed for a deeper understanding of notable patterns across the websites analyzed.

RESULTS AND DISCUSSION

Use of Inclusive Language on Library Websites of Top Academic Institutions in Malaysia and the Philippines

The evaluation of inclusive language practices on library websites from leading academic institutions in Malaysia and the Philippines revealed limited overall inclusivity. Malaysian libraries exhibited a lightly higher adoption, with 32.50% of checklist items fully inclusive, compared to 22.81% in the Philippines (Table 3). Despite this, the majority of checklist items were absent from both countries' websites (50.00% Malaysia; 62.50% Philippines), highlighting critical gaps particularly related to gender diversity, pronoun usage, inclusive honorifics, invisible disabilities, and explicit DEI communications. A minor proportion of websites were inaccessible, slightly more frequent in the Philippines (3.13%) compared to Malaysia (0.94%).

These findings align with prior research by Morgan-Daniel et al. (2024) and Graves and German (2018), who similarly observed insufficient integration of inclusive language practices, particularly in areas of disability inclusion and mental health language.

Table 3: Overall website inclusive language audit score

Domain-specific analysis (Table 4) revealed considerable variability in the integration of inclusive language. Both Malaysia and the Philippines demonstrated relative strengths in Educational and Workplace Inclusivity, indicating meaningful efforts toward gender-neutral policies and diverse representation. Malaysia showed notably stronger compliance in Religion and Culture (85%) and Sexual Orientation and Gender Diversity (52%), whereas Philippine libraries had considerably lower scores in these domains (55% and 35%, respectively).

In stark contrast, mental and physical disabilities emerged as a significant weakness, especially for Philippine libraries, which scored no affirmative responses across all disability-related items, highlighting severe underrepresentation. Malaysian libraries performed marginally better but still showed minimal compliance, underscoring a consistent and alarming neglect of disability- sensitive language, acknowledgment of invisible disabilities, and provision of supportive resources.

Domains related to age, body size and weight, and citizenship and immigration status were critically absent in both countries, indicating a general lack of attention by libraries to language practices addressing ageism, body discrimination, and immigration status stigma, areas that may not be as prominent in the societal context of Malaysia and the Philippines as they are in countries like the U.S. The domain of Typography, Transliteration, and Pronunciation showed moderate performance, slightly higher in the Philippines (50%) compared to Malaysia (45%), indicating a similar level of focus on clear and neutral language usage.

Overall, while Malaysia demonstrated higher absolute scores across most domains, both countries reveal significant opportunities for improvement in fully embedding inclusive language and representation throughout their websites

Table 4: Inclusive language audit results by domain

Strengths, Gaps and Patterns in Inclusive Language Use on Selected Library Websites

At the institutional level (Table 5), Malaysian libraries generally achieved higher compliance and demonstrated greater consistency, particularly MY Library 4, MY Library 7, and MY Library 10, scoring between 12 and 13 affirmative responses. Conversely, Philippine libraries clustered predominantly within lower compliance ranges, scoring mostly between 6 and 9 affirmative responses. This clustering suggests systemic institutional barriers and a possible lack of coordinated policy frameworks or resource allocations necessary to promote comprehensive inclusive language integration, reflecting findings by Price (2021), who noted that inadequate institutional priorities, limited resources, and lack of coordinated efforts hinder the realization of truly inclusive practices.

Notably, both Malaysian and Philippine libraries exhibited strong foundational inclusivity, consistently using gender-neutral terminology, avoiding stereotypical representations, and integrating neutral policy language. Malaysian libraries additionally showed exemplary practices in providing gender-neutral responses in forms and allowing preferred name usage. Philippine libraries excelled notably in avoiding jargon and using inclusive naming conventions.

Table 5: Library specific "Yes" responses on inclusive language checklist

Note: Library names have been anonymized.

The audit findings reveal distinct strengths in the inclusive language practices implemented on academic library websites in both Malaysia and the Philippines (Table 6). A perfect score of 10/10 indicates that all 10 library websites successfully included the specified inclusive language features for particular audit items. Both Malaysian and Philippine libraries demonstrated full compliance in using gender-neutral language (Item 1), avoiding population stereotyping (Item 9), and ensuring policies avoided gendered stereotypes (Item 18).

Additional strengths were noted for Malaysia, where all 10 libraries provided gender-neutral responses in forms (Item 14) and allowed users to use their preferred names rather than requiring legal names (Item 20). The Philippines also showed high performance in avoiding slang or jargon (Item 22) and using "first name" instead of "Christian name" (Item 24). These consistent practices indicate that foundational aspects of inclusivity, such as respectful communication, form design, and terminology, are deeply embedded in library website content across both countries.

Despite foundational strengths, significant gaps persist in inclusive language practices among Malaysian and Philippine academic library websites (Table 7). Several checklist items were entirely absent, with Malaysian libraries missing 10 items and Philippine libraries missing 15.

Specifically, Malaysian websites lacked gender-inclusive restroom details, gender-neutral career terminology, inclusive sexual orientation listings, and mental health-sensitive language. The Philippines exhibited broader deficiencies, notably in disability inclusion (items 10-13), DEI statement visibility (item 17), and appropriate terminology for immigration status (item 32).

While these absences indicate areas for potential improvement, it is also important to recognize that the absence of certain checklist items does not inherently signify exclusion. Indeed, a "not present" score can sometimes reflect a form of "silent inclusivity," wherein institutions intentionally avoid unnecessary or intrusive collection of personal data (such as gender identity, marital status, or sexual orientation) to respect user privacy and autonomy. For example, not explicitly referencing immigration status or marital status could suggest an inclusive stance that implicitly accepts all individuals without differentiation or judgment. This aligns with Ely's (2021) observation that inclusivity can sometimes be effectively practiced through intentional omission rather than explicit acknowledgement.

Table 6: Highest scoring audit items across Malaysian and Philippine library websites

Country	Audit Item	"Yes" Count
Malaysia	1. Use gender-neutral language	10/10
	9. Avoid population stereotyping	10/10
	14. Gender-neutral form responses	10/10
	18. Policies avoid gendered stereotypes	10/10
	20. Forms allow preferred name use	10/10
Philippines	1. Use gender-neutral language	10/10
	9. Avoid population stereotyping	10/10
	18. Policies avoid gendered stereotypes	10/10
	22. Avoid slang or jargon	7/10
	24. Use of "first name" not "Christian name"	10/10

Nonetheless, silent inclusivity carries the risk of invisibility, particularly when libraries fail to explicitly signal support for marginalized identities through affirming language or clear DEI statements. Abu Qaadan et al. (2024) caution that relying solely on implicit practices without explicitly communicating commitment may unintentionally perpetuate systemic barriers and limit users' perceptions of institutional support. Therefore, libraries must thoughtfully balance silent inclusivity, which respects user privacy and dignity, with visible inclusivity that explicitly affirms marginalized identities and clearly demonstrates institutional commitment.

Ultimately, addressing these nuanced gaps requires institutions to critically reflect on their communication practices, strategically choosing when explicit inclusive language and DEI visibility is essential, and when silence better upholds dignity and autonomy. This balanced approach should be guided by clear DEI frameworks and sustained institutional commitment to affirm inclusivity both explicitly and implicitly.

The audit results reveal significant variations in inclusive language practices across the nine evaluated domains (Table 8). Religion and Culture emerged as the strongest domain, with Malaysia (85%) considerably outperforming the Philippines (55%). Malaysian libraries notably emphasized inclusive references to religious and cultural observances, effectively using neutral, non-Christian-centric terminology. Domains such as Race and Ethnicity and Typography, Transliteration, and Pronunciation were moderately addressed by both countries, achieving compliance rates between 43% and 50%.

Educational and Workplace Inclusivity showed moderate progress (Malaysia 55%, Philippines 45%), reflecting efforts toward reducing gendered policy language, enhancing inclusive imagery, and promoting student-first terminology. However, significant improvements remain necessary, particularly regarding sustained integration of these practices.

Conversely, the domains Mental and Physical Disabilities, Age, Body Size and Weight, and Citizenship and Immigration Status were critically underrepresented. Disability inclusion was notably deficient, with Malaysia demonstrating minimal compliance (20%) and the Philippines achieving no compliance. Such gaps highlight ongoing neglect regarding inclusive language sensitive to mental health, invisible disabilities, and accessibility resources.

Table 7: Inclusive language items "Not Present" on Malaysian and Philippine library websites

No. of Libraries Audit Item	Malaysia	Philippines
4. Gender-inclusive restroom information	10	10
7. Inclusive marital/parental status language	-	10
8. Gender-neutral career-related language	10	-
10. Avoid ableist/outdated disability language	-	10
11. Use people-first disability language	-	10
12. Recognize invisible disabilities	-	10
13. Display disability services info	-	10
15. Inclusive, alphabetical sexual orientation list	10	10
16. Avoid outdated mental health terms	10	10
17. DEI statement visibility	-	10
21. Inclusive honorific options	10	-
25. Avoid weakness-implying language	10	10
26. Avoid age-based ability assumptions	10	10
27. Avoid use of "elderly" term	10	10
28. Avoid health-thinness assumptions	10	10
29. Use stigma-free health terms	10	10
32. Use "undocumented" for immigration status	10	10

Similarly, the complete absence of inclusive language addressing ageism, body diversity, and immigration status in both countries underscores systemic oversights reflective of broader societal neglect. Yet, it is essential to recognize that a lack of explicit references in certain categories (e.g., age or immigration status) may sometimes reflect intentional "silent inclusivity," where institutions deliberately refrain from highlighting differences, thus implicitly promoting acceptance and privacy. Ely (2021) suggests that such omissions can occasionally represent a positive practice, reinforcing inclusivity by not unnecessarily singling out specific groups.

However, relying exclusively on silent inclusivity also presents risks. Without explicit language affirming marginalized identities, users may perceive institutions as indifferent or unsupportive, unintentionally perpetuating stigma and exclusion (Abu Qaadan et al., 2024). Therefore, a balanced approach, explicitly affirming marginalized identities where visibility is crucial (e.g., disability services, mental health resources) while maintaining respectful omissions in areas less directly relevant is essential.

Ultimately, foundational inclusivity efforts evident in race, religion, and gender-neutral language must evolve toward comprehensive, intersectional strategies that proactively affirm diverse identities. Aligning library practices with evolving global DEI standards requires explicit institutional frameworks, thoughtful recognition of when explicit inclusivity is necessary, and ongoing reflection on how silent inclusivity can meaningfully complement explicit affirmations.

Differences in Inclusive Language Practices Between Malaysian and Philippine Academic Library Websites

The comparison between Malaysian and Philippine academic library websites reveals substantial differences in inclusive language implementation, institutional consistency, and systemic support. Malaysian libraries achieved a notably higher average inclusivity score (9.7 out of 32) compared to Philippine libraries (7.3), demonstrating stronger institutional coherence and narrower variation in scores.

Table 8: Inclusive language audit scores by domain for Malaysian and Philippine academic library websites

Inclusive Language Domain	Malaysia (Yes %)	Philippines (Yes %)	Malaysia Rating	Philippines Rating	Overall Pattern
Age	0%	0%	Absent	Absent	Critically Absent (No attention)
Body Size and Weight	0%	0%	Absent	Absent	Critically Absent (No attention)
Citizenship & Immigration Status	0%	0%	Absent	Absent	Critically Absent (No attention)
Educational and Workplace Inclusivity	55% (22/40)	45% (18/40)	Moderate	Moderate	Moderate (Better in MY)
Mental and Physical Disabilities	20% (12/60)	0% (0/60)	Very Weak	Very Weak	Very Weak (Slight effort in MY, none in PH)
Race and Ethnicity	43% (13/30)	43% (13/30)	Moderate	Moderate	Moderate Strength (Good but improvable)
Religion and Culture	85% (17/20)	55% (11/20)	Strong	Moderate	Strong (MY much stronger than PH)
Sexual Orientation and Gender Diversity	52% (31/60)	35% (21/60)	Strong	Moderate	Moderate to Weak (Higher in MY)
Typography, Transliteration, and Pronunciation	45% (9/20)	50% (10/20)	Moderate	Moderate	Moderate (PH slightly better)

Notably, Malaysian institutions such as MY Library 4, MY Library 7, and MY Library 10 exemplified structured and consistent approaches, indicating an established culture of inclusivity likely driven by formalized multicultural policies and national DEI frameworks like the Malaysia Education Blueprint.

Conversely, Philippine libraries exhibited broader variability, predominantly clustering at lower inclusivity scores (between 6 and 9). Institutions such as PH Library 4, PH Library 5, PH Library 9, and PH Library 10 scored at the lower end, highlighting limited institutional differentiation and potential systemic barriers, including inconsistent DEI policy enforcement and resource constraints. These patterns reflect a less institutionalized approach to inclusive language, possibly influenced by historical and cultural contexts, such as colonial legacies, Tagalog-centric narratives, and a predominantly Catholic cultural framework (Sevilla-Pavón & Alcantud-Díaz, 2021).

Furthermore, higher occurrences of inaccessible webpages in the Philippines underscore structural challenges that further complicate inclusive language practices. Such infrastructural issues may negatively affect institutional capacity to effectively communicate and sustain inclusivity online.

Despite these gaps, it is important to recognize that certain absences in explicit inclusive language might reflect intentional choices for "silent inclusivity," where libraries deliberately avoid explicit mentions of sensitive identity categories (e.g., immigration status or marital status) to maintain neutrality and respect user privacy. While such approaches can positively affirm inclusivity by refraining from unnecessary differentiation (Ely, 2021), exclusively relying on implicit inclusivity can also inadvertently perpetuate invisibility and reinforce exclusion for marginalized groups who seek explicit institutional affirmation and support (Abu Qaadan et al., 2024)

Ultimately, the observed differences indicate a critical need for strengthened institutional DEI infrastructures, clear national policy guidance, and targeted capacity-building in both countries, particularly within the Philippine academic library sector. Achieving meaningful progress will require balancing explicit, visible commitments to inclusive language with thoughtfully applied practices of silent inclusivity.

CONCLUSION

This study evaluated inclusive language practices on academic library websites from top institutions in Malaysia and the Philippines, revealing foundational strengths yet significant room for improvement. While both countries effectively adopted basic inclusive practices, particularly gender-neutral terminology and avoidance of stereotypical language, more nuanced, intersectional dimensions such as mental health sensitivity, disability inclusivity, ageism, body- size representation, and immigration status remain critically overlooked.

The comparative analysis showed Malaysian libraries generally achieving higher scores and demonstrating stronger institutional coherence, likely driven by formalized multicultural policies and systematic DEI frameworks. Philippine libraries, in contrast, exhibited greater variability and lower average compliance, reflecting possible systemic barriers including inconsistent DEI enforcement, infrastructural limitations, and complex historical-cultural influences.

The findings also introduced the concept of "silent inclusivity," highlighting that the absence of explicit inclusive language can sometimes reflect intentional practices aimed at neutrality and respect for user privacy. However, exclusively relying on silent approaches risks reinforcing invisibility and exclusion, underscoring the necessity for a balanced strategy combining explicit affirmation of marginalized identities with thoughtful omissions.

Ultimately, bridging the identified gaps requires shifting from basic inclusive compliance toward comprehensive, identity-affirming communication strategies. Academic libraries in both countries should implement clearly defined DEI frameworks, regularly audited and strategically balanced to explicitly affirm diverse identities while respecting user dignity. Such efforts will be essential to fostering genuinely inclusive digital environments in higher education.

RECOMMENDATIONS AND FUTURE DIRECTIONS

Academic libraries should adopt comprehensive DEI frameworks that balance explicit and silent inclusivity, ensuring both visible affirmation of marginalized groups and respect for user privacy. Regular inclusive language audits, guided by culturally sensitive checklists, should be institutionalized to systematically identify and address gaps. Efforts must also move beyond

foundational practices like gender neutrality, expanding to deeper intersectional areas such as disability representation, mental health sensitivity, age diversity, and immigration status. Building staff capacity through targeted DEI training and embedding inclusivity into website design and content policies are equally critical for fostering genuinely welcoming digital spaces.

Future studies should explore user perceptions of inclusivity on library websites to assess whether silent or explicit strategies are more effective in different cultural contexts. Comparative studies involving additional Southeast Asian countries would further illuminate regional patterns and contextual influences on digital inclusivity. Longitudinal research tracking the evolution of inclusive language practices over time, particularly following the implementation of DEI initiatives, would also provide valuable insights into institutional progress and challenges. Finally, expanding research into the intersection of digital accessibility and inclusive language could offer a more holistic understanding of equity in online library services**.**

REFERENCES

Abu Qaadan, A., Hamad, F., & Fakhouri, H. (2024). Facilitating digital accessibility for students with disabilities into information services at Jordanian academic libraries. *Library Management, 45*(8/9), 527-546. https://doi.org/10.1108/lm-01-2024-0001

American Psychological Association. (2023). *Inclusive Language Guidelines. APA Style*. https://apastyle.apa.org/style-grammar-guidelines/bias-free-language

Bitter, J. (2024). Text mining bibliographic metadata for inclusivity: Analyzing most frequent words in titles, summaries, and subjects. *Library Resources & Technical Services., 68*(4), 1-18 https://doi.org/10.5860/lrts.68n4.8329.

Brown, A. (2021). The language of inclusion: Best practices for communications and engagement. *Journal of Diversity and Communication Studies, 7*(2), 33-49.

Commission on Higher Education (2015*). CHED memorandum order No. 1, Series of 2015: Establishing the policies and guidelines on gender and development in higher education institutions*. https://ched.gov.ph/wp-content/uploads/2017/10/CMO-no.-01-s.-2015.pdf

DeVellis, R. F. (2017). *Scale development: Theory and applications* (4th ed.). Sage Publications.

Dixit, C., Dixit, K., Dixit, C., & Pandey, P. (2024). Role of academic libraries and information services: a study. *International Journal of Modern Achievement in Science, Engineering and Technology*. 1(2), 76-82. https://doi.org/10.63053/ijset.28.

Ely, E. (2021). Diversity, equity & inclusion statements on academic library websites. *Information Technology and Libraries, 40*(4), 1-22. https://doi.org/10.6017/ital.v40i4.13353

Ely, E.R. (2022). Exploring cultural competence: A case study of two academic libraries. *Portal: Libraries and the Academy, 22*(2), 395-419.

Government of British Columbia. (n.d.). *Words matter: Guidelines on using inclusive language*. https://www2.gov.bc.ca/assets/gov/careers/all-employees/working-with-others/words-matter.pdf

Graves, S. J. & German, E. (2018). Evidence of our values: Digital inclusion on library instruction websites. *Portal: Libraries and the Academy, 18*(3), 559-574. https://doi.org/10.1353/pla.2018.0033

McHale, N. (2011). An introduction to web accessibility, web standards, and web standards makers. *Journal of Web Librarianship, 5*(2), 152-160. https://doi.org/10.1080/19322909.2011.572434.

Ministry of Education Malaysia. (2015). *Malaysia education blueprint 2015–2025 (Higher Education)*. https://www.moe.gov.my/en/malaysian-education-blueprint-2015-2025-higher-education

Morgan-Daniel, J., Norton, H. F., Edwards, M. E., & Daley, M. (2024). Developing and conducting a language inclusivity assessment on a health science library's website, LibGuides, and signage. *Journal of the Medical Library Association, 112*(1), 48–54. https://doi.org/10.5195/jmla.2024.1691

Price, A. C. (2021). Barries to an inclusive academic library collection. *Collection and Curation, 41*(3), 97-100. https://doi.org/10.1108/CC-05-2021-0018

Sevilla-Pavón, A., Alcantud-Díaz, M. (2021). Tales from the Philippines: Fostering intercultural language learning through a literary journey around the Philippine archipelago. In: L. Escobar & A. Ibáñez Moreno. (Eds) *Mediating specialized knowledge and l2 abilities. Palgrave* Macmillan. https://doi.org/10.1007/978-3-030-87476-6_16

Shoemaker, S., & Carter, P. (2019). Auditing for accessibility and inclusion: A web content analysis framework. *Library Trends, 68*(1), 50-68.

Stephens, M. (2021, May 14). Why use inclusive language? Library Research Service. https://www.lrs.org/2021/05/14/guest-post-why-use-inclusive-language/

Taheri, P. (2020). Using inclusive language in the applied-science academic environments. *Technium Social Sciences Journal, 9*, 151-162. https://doi.org/10.47577/tssj.v9i1.1082.

Taylor, Z., & Bicak, I. (2019). Two-year institution and community college web accessibility: Updating the literature after the 2018 section 508 amendment. Community College Journal of Research and Practice, 43(10-11), 785-795. https://doi.org/10.1080/10668926.2019.1600604.

Times Higher Education. (2025). *World University Rankings 2025*. Times Higher Education. https://www.timeshighereducation.com/world-university-rankings

Torres, E. M. & Abrigo, C. A. (2025). Mapping cultural competence in LIS research: A scoping review and bibliometric overview. IFLA Journal. Online first. https://doi.org/10.1177/03400352251333794

UNESCO (2022). Current Practices and Challenges in Implementing Inclusive Education in Southeast Asia. UNESCO Report.

Community Service: Equipping Teachers and Librarians in Improving Students' Digital Literacy in the Mentawai Islands

Lolytasari Lolytasari

UIN Syarif Hidayatullah, Jakarta, Indonesia

Corresponding email: lolytasari@uinjkt.ac.id

ABSTRACT

This study aims to improve students' digital literacy in Tua Pejat Village, Mentawai Islands, using libraries as knowledge centres. The Mentawai Islands, which have the lowest Human Development Index (HDI) in West Sumatra, face significant challenges related to access to education, infrastructure, and information. Digital literacy is a strategic solution to overcome these challenges, with the role of libraries transforming from mere gatekeepers of information to knowledge centres through technology. As a digital-based library management platform, the Senayan Library Management System (SLiMS) offers great potential to improve access to digital collections and support distance learning. This study uses qualitative methods to explore how SLiMS can support digital literacy and expand access to information for school communities. Community service programs in the form of training for teachers and librarians are expected to improve their skills in utilizing SLiMS, which can improve the quality of learning and prepare the community to face the challenges of the digital era. The study's results can contribute to improving the Mentawai Islands Human Development Index and strengthening the role of libraries in providing access.

Keywords: Digital Literacy; School Libraries; Library Access

INTRODUCTION

Digital literacy is a basic need for 21st century education, and every student must be able to participate actively in a digital society (Zuhri et al., 2024). The Indonesian government is trying to implement various national programs to strengthen digital literacy as part of its human resource development strategy, including the National Literacy Movement (GLN) and Merdeka Belajar. However, achieving the national digital literacy target still faces challenges, especially in high-potential areas.

Since the issuance of the latest Law on Regional Expansion in 2022, with the addition of the latest provinces originating from the results of regional expansion in Papua, Indonesia currently has 38 provinces with diverse ethnic cultures and 416 districts. Every year, the government strives to improve access to education in various regions, including the 3T region, and the Human Development Index has reached 75.02, previously 74.39 in 2023 (Badan Pusat Statistik, 2024).

BPS-Statistics Keplauan Mentawai Regerency (2014) stated that the Mentawai Islands Regency is one of the West Sumatra Province areas with the lowest Human Development Index and is included in the 3T region category. Disadvantaged regions, or so-called 3T regions, are districts whose regions and communities are less developed than other regions nationally (Presiden Republik Indonesia, 2020). Many schools in this area do not yet fully have information and communication technology facilities that support digital learning, while teachers and librarians often do not receive sufficient training in mastering technology and digital literacy. As a result, students have difficulty developing digital competencies optimally, and the risk of a digital divide is increasing.

On the other hand, teachers and librarians in schools should be agents of change in building a culture of digital literacy in the educational environment. ALA defines digital literacy as using information and communication technology to find, evaluate, create and communicate information that requires cognitive and technical skills (Martin & Roberts, 2015). From this understanding, teachers act as learning facilitators, while librarians support providing relevant information sources and literacy services. Digital literacy includes technical skills in using digital devices and critical thinking skills in accessing, evaluating, and using information wisely and ethically. For this reason, information provider skills are needed in accessing and providing information online (Firdaus & Septiady, 2021).

Kuntoro and Suseno (2024) explained that the gap in digital access in developing countries, including Indonesia, is a serious problem. The results of the study show three main obstacles to the digitalization of public services in Indonesia: inadequate information and communication technology infrastructure, limited skills and human resources, and cybersecurity and data privacy issues. On the other hand, regarding internet access. Akbar and Wijaya (2024) stated that there is no difference between people in rural and urban areas. However, digital devices are more for entertainment and communication. Usually, the average adult spends 11 hours a day staring at screens, smartphones, computers and tablets without realizing it. With this access, people will not be left behind regarding educational information and job opportunities (Digital Promise., 2022).

To answer these challenges, strategic steps to overcome digital knowledge in high-potential areas need to be accompanied by universities so that they can assist and train schools. SLiMS (Senayan Library Management System) software is an open-source library automation system that can digitize library services, provide online catalogues, and expand access to collections and information for students and teachers (Lolytasari et al., 2023). In the context of digital literacy, SLiMS can be a strategic means to introduce students to information technology while encouraging the habit of searching for and managing information through library-managed and organized sources

Mentoring through Community Service is a form of contribution from UIN Syarif Hidayatullah Jakarta, an Islamic university developing school libraries in high-potential areas. One of the areas with the highest potential is the Mentawai Islands, located in West Sumatra Province, Indonesia. This community service activity aims to equip teachers and librarians in the Mentawai Islands with digital literacy skills through training and mentoring in the use of information and communication technology in education, using the SLiMS-based library management platform. The results of this study contribute to providing practical guidance for librarians and teachers trying to improve learning and digital access services by utilizing SLiMS and indirectly contribute to increasing knowledge on the Human Development Index (HDI) in high-potential areas.

PURPOSE

This study aims to analyze the readiness of teachers and librarians to understand digital literacy by utilizing SLiMS (Senayan Library Management System) as an information system in Tuapejat, North Sipora Mentawai.

LITERATURE REVIEW

Related Studies

Research related to the need to improve teachers and librarians, especially in high-potential areas to create digitally literate students in general, has not been widely conducted by researchers. The main argument built in this paper is the governance of school libraries that can manage access to digital information. Several researchers have begun to expand the concept of the gap in skills between teachers and librarians in the use of technology. Kurnianingsih et al. (2017) state that teachers, educators and librarians, as education personnel in the digital era, must have good information literacy skills to teach students. In reality, the information literacy skills of Teachers and School Library Personnel, especially in the digital era, are still limited. Rachmaningsih (2024) added that the lack of training for teachers, especially in 3T (Frontier, Outermost and Disadvantaged) or high-potential areas, results in unprepared teachers to teach literacy interestingly and interactively. Indirectly, it will have a direct impact on students' literacy skills. Various studies on digital literacy have been conducted by previous researchers, in this case the researcher focuses on the use of SLiMS as a learning application for accessing digital information.

Teachers and Librarians as Literacy Drivers

Central to the literacy movement, the library should be a favourite place for students to share knowledge other than in the classroom. However, in reality, libraries are not yet widely in demand by students at school. This is a challenge for educators and education personnel to collaborate in creating libraries as centres for learning resources (Kurniawan & Putri, 2020). Answering this challenge requires collaboration. Teachers and librarians act as educators to provide services to students on-site and offline and provide skills education in browsing various sources of information widely available online (Rianti & Lolytasari, 2021).

Central to the literacy movement, the library should be a favourite place for students to share knowledge other than in the classroom. However, in reality, libraries are not yet widely in demand by students at school. This is a challenge for educators and education personnel to

collaborate in creating libraries as centres for learning resources (Kurniawan & Putri, 2020). Answering this challenge requires collaboration. Teachers and librarians act as educators to provide services to students on-site and offline and provide skills education in browsing various sources of information widely available online (Rianti & Lolytasari, 2021).

Creating an interesting and enjoyable learning environment for students requires information technology media. In today's era, libraries as sources of information need to be designed as digital learning centres. Making it easier for users to access information requires applications that are easy to access and user-friendly. One user-friendly learning media is SLiMS, an open-source application widely used by various types of libraries in Indonesia. In developing digital libraries, SLiMS is designed to manage and disseminate data and information served by the library (Lolytasari et al., 2023). The library activities that can be integrated with the SLiMS information system include procurement, inventory, cataloguing, circulation of library materials, member management, statistics, and access to digital information. Kurnianingsih et al. (2021) stated that one indicator of the success of a library is the level of usability and usefulness for users who can provide the information solutions they need.

Mentawai Islands

Mentawai Regency is one of Indonesia's high-potential areas with 10 sub-districts and 43 villages. Mentawai is recorded to have a Human Development Index (HDI) of 63.92, which is included in the medium category and is the lowest in West Sumatra Province (BPS-Statistics Keplauan Mentawai Regerency., 2014). The percentage of the school-age population from 7 to 24 years is quite high but decreases at college age. Tuapejat Village, North Sipora District, Sipora Island, is the capital of the Mentawai Islands and the centre of government administration, economy, education, and public services. As the centre of the district, Tuapejat has excellent potential as a pilot project for developing digital literacy. The infrastructure provided is better than that of other sub-districts, although internet access and information and communication technology facilities are still limited for most schools and public services. Providing computers, stable internet access, and digital literacy support devices are still challenges in schools in Tuapejat. Another challenge is to ensure that students are enthusiastic and love school. Most students prefer to go to the sea because the sea is life.

METHODOLOGY

This study uses a qualitative approach with a case method as a phenomenon in the analyzed context (Huberman & Miles, 2014). The informant determination technique used is purposive sampling. At the implementation stage of the activity, the researcher conducted an initial survey by visiting two schools to identify the condition of the library and conducting interviews with high school and junior high school teachers and librarians to explore the needs of teachers and librarians to improve students' digital literacy in their school environment. The informant determination technique used is Purposive sampling, which takes research data sources based on specific considerations. The informants in this study were library managers, namely the Head of the Library, teachers and librarians who understand library governance and the implementation of digital literacy. Researchers and librarians expect the library to meet their information needs online wherever and whenever needed.

This research was conducted in November 2024. Data was collected during the training through questions and answers and observations. The informants interviewed were four middle and high school library managers. Observations during the training were carried out by observing SLiMS training activities, and participants could answer freely based on their knowledge.

FINDINGS

This study found that schools have not implemented digital literacy activities ideally. This is because internet access in the Mentawai region is still tricky. Internet access is not yet fully connected and is limited to mountainous areas. Then, the weather conditions that are often stormy make internet access less stable. The informant stated, "The internet in our school is unstable, especially when the weather is stormy." The further the journey into the interior, the more internet access disappears. Another informant stated, "Our school has not installed student internet facilities."

With the lack of digital facilities, teachers and librarians continue to try to educate students about the importance of digital literacy for students. Digital literacy is a process that combines knowledge literacy, internet literacy, web literacy, and digital literacy (Hildawati et al., 2024). Digital literacy is a process that includes the development of critical skills regarding information received via the Internet, media ethics, and the ability to protect themselves from digital risks such as online fraud (phishing). Students are accustomed to utilizing digital information but do

not yet have further insight into using digital tools more critically and safely. This can be seen from the informant's statement: "Students are accustomed to accessing information via the internet via cellphones" Lim (2020) stated that digital reading is not just reading text on a layer but involves multimodal reading (text, images, video, audio) and processing meaning from various critical sources. Digital reading is not just reading text on a layer but involves multimodal reading (text, images, video, audio) and processing meaning from various critical sources. Johnson et al. (2008) added that librarians must also develop critical skills regarding information in cyberspace.

Based on the observation results, as a learning centre and source of learning information, the library is still managed conventionally and has not touched on utilizing information technology. The informant stated: "We are still focused on managing library collections and accessing information manually and have not utilized applications for circulation and services-access to information provided by the library to students through books provided by the library. The training provided for library managers in classification and subject headings is held by the Archives and Library Service of the Mentawai Islands Regency (Dinas Kearsipan dan Perpustakaan Kabupaten Kepulauan Mentawai). The informant stated: "We attended training to determine the call number and library circulation". The informant continued: "There has been no library training using digital-based software".

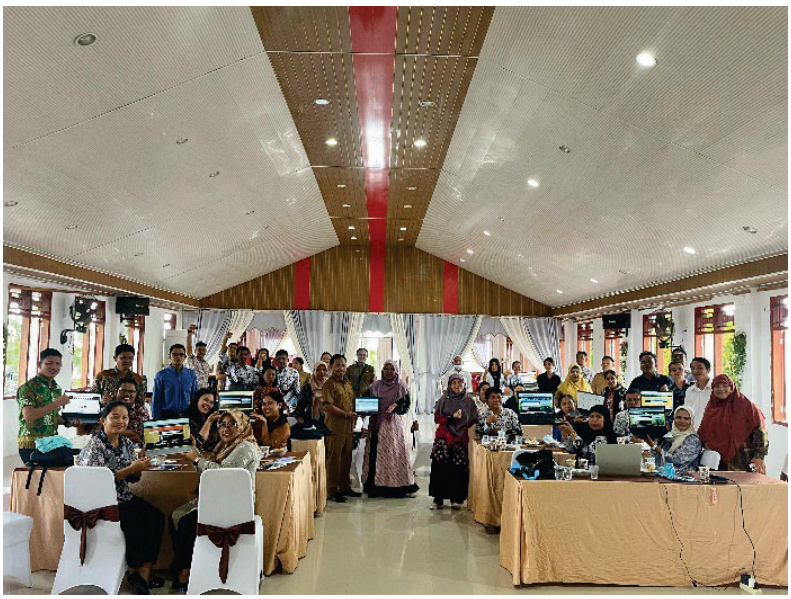


Figure 1: Implementation of assistance in the use of SLiMS as an information system

The challenges teachers and librarians face in facing increasingly tight global competition are increasing innovation, adaptation, mastery of technology, and management of intellectual assets. These challenges require a transformation in learning practices and library services, especially in the context of well-managed knowledge sharing, to improve students' information and digital literacy. In the digital era, school communities need easy access to information anytime and anywhere, which requires adequate technological infrastructure support in the school environment. Access to learning resources is no longer limited to physical collections but can utilize SLiMS as an information technology and library management system. However, the reality in the field shows that limited facilities are still the main obstacle. The informant stated: "There are no special computers or laptops in the library. The available laptops are used alternately with the Administration Administration service."

However, the limited facilities do not dampen the enthusiasm of teachers and librarians in providing learning services and access to knowledge. Teachers remain active in delivering materials creatively, and librarians strive to support student literacy despite the limited number of physical book collections.

CONCLUSION

The study found that, in general, librarians and teachers need further training regarding digital literacy. Developing basic and critical skills to read data and information in digital texts other than printed books is necessary in an increasingly digital environment. In addition, support is needed from the local government to develop infrastructure for accessing the Internet and support from schools in providing facilities and infrastructure that utilize information and communication technology. So, it will increase the literacy of teachers as teachers and librarians as the gateway to knowledge. With the increase and ability in literacy, the Mentawai Islands region will increase the Human Development Index.

This research can be used to assess teachers' and librarians' ability to improve digital literacy in high-potential areas. Then, this research can continue to develop a library information system as an application that can organize, manage, and access information provided by the library.

REFERENCES

Akbar, M., & Wijaya, G. (2024). *Digital Literacy of Rural Areas in Indonesia: Challenges and Opportunities*. https://doi.org/10.4108/eai.1-11-2023.2344347

Badan Pusat Statistik. (2024). Indeks Pembangunan Manusia (IPM) tahun 2024. In *Badan Pusat Statistik*. Badan Pusat Statistik. https://assets.dataindonesia.id/2024/11/19/1731999092025-33-19.-Berita-Resmi-Statistik-Indeks-Pembangunan-Manusia-IPM-2024.pdf

BPS-Statistics Keplauan Mentawai Regerency. (2014). *Kabupaten Kepulauan Mentawai dalam Angka 2024 (Kepulauan Mentawai Regency in Figures 2024* (Vol. 22). Badan Pusat Statistik Kabupaten Kepulauan Mentawai.

Digital Promise. (2022). *Promoting Digital Literacy for Adult Learners: A Resource Guide* (Issue April). The Barbara Bush Foundation for Family Literacy and Digital Promise. www.digitalpromise.org.

Firdaus, F., & Septiady, A. (2021). Peningkatan Kemampuan Literasi dan Numerasi di Sekolah 3T (Tertinggal, Terluar, Terdepan) di Masa Pandemi Covid-19 melalui Program Kampus Mengajar. *Jurnal Ekonomi, Bisnis Dan Teknologi*, *1*(2), 213-220. https://www.jurnal.yappsu.org/index.php/skylandsea/article/view/82

Hildawati, Haryani, Umar, N., Suprayitno, D., Mukhlis, I. R., Sulistyowati, D. I. D., Budiman, Y. U., Saktisyahputra, Ginting, T. W., Faisal, Thomas, A., Sampebua, M. R., Susiang, M. I. N., & Judijanto, L. (2024). *Literasi Digital: Membangun Wawasan Cerdas dalam Era Digital terkini* (Issue April). www.greenpustaka.com.

Huberman, M., & Miles, M. (2014). *Qualitative Data Analysis* (2nd ed.). Sage Publication. https://vivauniversity.files.wordpress.com/2013/11/milesandhuberman1994.pdf

Johnson, K., Trabelsi, H., & Tin, T. (2008). Library support for online learners: E-resources, e-services and the human factors. *Theory and Practice of Online Learning,* 349-366. https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.551.7167&rep=rep1&type=pdf

Kuntoro, S., & Suseno, G. (2024). Obstacles and solutions in the digitalization of public services in developing countries (Hambatan dan solusi dalam digitalisasi layanan publik di negara berkembang). *Jurnal Al-Mahkamah*, *1*(01). https://journal.syamilahpublishing.com/index.php/mahkamah/article/view/52

Kurnianingsih, I., Rosini, R., & Ismayati, N. (2017). Upaya peningkatan kemampuanl iterasi digital bagi tenaga perpustakaan sekolah dan guru di Wilayah Jakarta pusat melalui

pelatihan literasi informasi. *Jurnal Pengabdian Kepada Masyarakat (Indonesian Journal of Community Engagement)*, *3*(1), 61. https://doi.org/10.22146/jpkm.25370

Kurnianingsih, I., Wardiyono, W., Rosini, R., & Kangko, D. D. (2021). Program literasi Perpustakaan Desa Ciseeng berbasis inklusi sosial di masa pandemi. *Jurnal Widya Laksana*, *10*(2), 241. https://doi.org/10.23887/jwl.v10i2.22495

Kurniawan, S. J., & Putri, R. D. P. (2020). Peran guru dan pustakawan dalam Gerakan Literasi Sekolah ditinjau dari tahap pengembangan di SD Muhammadiyah Sumbermulyo. *Literasi Dalam Pendidikan Di Era Digital Untuk Generasi Milenial*, 477-492. https://journal.um-surabaya.ac.id/index.php/Pro/article/view/4873

Lim, F. V. (2020). How to teach digital reading? *Journal of Information Literacy*, *14*(2), 24-43. https://doi.org/10.11645/14.2.2701

Lolytasari, L., Istiqoriyah, L., & Munawwaroh, Z. (2023). Library services based on Senayan Library Information Management Systems (SLiMS) as software through community service development in Bogor, Indonesia. *Proceedings of the 8th International Conference of Asian Special Libraries (ICoASL) 2023 Library*.

Martin, A. M., & Roberts, K. R. (2015). Digital Native ≠ Digital Literacy. *Principal*, *February*, 18-21. https://www.ala.org/aasl/sites/ala.org.aasl/files/content/aaslissues/MartinRoberts_JF15.pdf

Presiden Republik Indonesia. (2020). Peraturan Presiden Republik Indonesia No. 63 Tahun 2020 tentang Penetapan Daerah Tertinggal Tahun 2020-2024. In *Kementerian Sekretariat Negara*. https://jdih.setkab.go.id/PUUdoc/176108/Perpres_Nomor_63_Tahun_2020.pdf

Rachmaningsih, D. M. (2024). Peran pustakawan dan guru dalam meningkatkan literasi siswa pada Daerah 3T. *Islamic Management: Jurnal Manajemen Pendidikan Islam*, *Special Issue*, 247-256. https://www.jurnal.staialhidayahbogor.ac.id/index.php/jim/article/view/7479/2802

Rianti, F., & Lolytasari, L. (2021). Peran edukator pustakawan di masa pandemi Covid-19: layanan literasi informasi jarak jauh. In *Teknologi Informasi dalam Transformasi dan Adaptasi Perpustakaan di Masa Pandemi* (1st ed.). Syiah Kuala University Press.

Undang-undang (UU) Nomor 29 Tahun 2022 Pembentukan provinsi Papua Barat Daya, Jdih Bpk Ri 1 (2022). https://peraturan.bpk.go.id/Details/232726/uu-no-29-tahun-2022

Zuhri, S., Suwindia, I. G., & Winangun, I. M. A. (2024). Literasi digital dan kecakapan abad ke-21 : Analisis komprehensif dari literatur terkini. *Education and Social Sciences Review*, *5*(2), 149-155. https://jurnal.iicet.org/index.php/essr/article/view/5003

Innovating Library Services and Spaces: Towards an Interactive Approach

Ahmad bin Samsudin, Lilian Baun Puli

Pustaka Negeri Sarawak, Jalan Pustaka, Off Jalan Stadium, Petrajaya 93050 Kuching, Sarawak, Malaysia

Corresponding email: ahmads1@sarawak.gov.my

ABSTRACT

Pustaka Negeri Sarawak has traditionally excelled in providing outstanding information services to the community, offering a diverse range of resources such as books, articles, journals, learning spaces, and facilities. These offerings have long played a crucial role in promoting knowledge dissemination and supporting lifelong learning. However, in response to the rapid pace of technological advancements and shifting societal trends, the library recognises the need to evolve in order to stay relevant and continue meeting the diverse and changing needs of the community it serves. As a public library, Pustaka Negeri Sarawak serves individuals from all walks of life, solidifying its role as an inclusive knowledge hub. The library is also committed to innovation, providing creative spaces, organising festivals, and hosting research-based competitions that promote collaboration and connection among community members. Through these initiatives, in partnership with government agencies, NGOs, individuals, and library associations, Pustaka Negeri Sarawak has successfully increased community engagement while enhancing its capacity to fulfil its mission. This paper explores these ongoing efforts, highlighting the importance of continued innovation and adaptation to ensure the library remains an essential resource for knowledge, creativity, and inclusivity in the digital age.

Keywords: Pustaka Negeri Sarawak; Information Services; Community Engagement; Innovation in Libraries; Knowledge Inclusivity

INTRODUCTION

Libraries are evolving rapidly to keep pace with changes in technology and user expectations. As one of the leading public libraries in Malaysia, Pustaka Negeri Sarawak (Pustaka) recognises the need to shift from being a traditional repository of books to becoming an interactive and dynamic community hub. Through a creative approach to designing library spaces and experiences, the library has reimagined its role as a catalyst for innovation, learning, and community engagement. This paper outlines the strategies and initiatives undertaken by the library to remain relevant and responsive to the needs of its diverse users.

This transformation is not unique to Pustaka but reflects a broader global trend. Libraries today stand at a pivotal intersection between tradition and transformation. Long regarded as quiet repositories of books and information, public libraries are rapidly evolving into dynamic spaces that facilitate learning, creativity, community engagement, and digital inclusion. This shift is driven by advances in information and communication technology, as well as changing societal expectations that demand more responsive, inclusive, and participatory public institutions (Abutayeh, 2021).

Globally, there has been a clear movement towards redefining libraries as “inspiring spaces” for learning and innovation - places not just to consume knowledge but to create and share it. Such spaces are increasingly equipped with technology labs, multimedia studios, maker zones, and flexible learning environments that attract diverse segments of the population, including children, the elderly, individuals with disabilities, and marginalised communities (Abutayeh, 2021; Urban Libraries Council, 2023).

In this evolving landscape, Pustaka has taken proactive steps to reimagine its services and spaces to better reflect the needs of a digitally literate and socially diverse population. Beyond its traditional role, the library has embraced its function as a social infrastructure, fostering collaboration through festivals, community-based competitions, and creative zones. These efforts mirror global trends where libraries are increasingly seen as “third places … neutral, welcoming environments where community members from all walks of life can gather, interact, and innovate” (Ismail & Ting, 2018).

The success of such transformations hinges on designing spaces that are not only functional but emotionally resonant spaces that evoke a sense of belonging, flexibility, and inspiration (Ismail & Ting, 2018). Libraries like Pustaka exemplify this model, showing that with innovative programming and inclusive space planning, libraries can thrive as hubs of civic life, digital equity, and lifelong learning. This paper discusses the interactive and adaptive approaches adopted by Pustaka, drawing parallels with international best practices to explore how libraries can sustain their relevance in the digital age.

The concept of the library as a "third place," articulated by sociologists like Oldenburg (1989), reinforces the idea of libraries as vital public spaces where people gather, share, and build community. These third places are characterised by accessibility, neutrality, and social engagement, all of which align with the goals of a modern library design.

TRANSFORMATIVE INNOVATIONS IN LIBRARY SPACES AND SERVICES AT SARAWAK STATE LIBRARY

Recognising the evolving needs of a diverse and digitally literate community, Pustaka Negeri Sarawak has redefined its role beyond that of a traditional library. Through deliberate design and strategic programming, the library has introduced a range of transformative spaces that foster creativity, inclusivity, learning and environmental consciousness. Each space, from the innovative Sensory Room to the vibrant *Ruang Daya Cipta*, has been purposefully developed to engage different community segments, empower lifelong learning, and support societal well-being. These initiatives reflect Pustaka's vision of becoming not just a custodian of knowledge, but an active catalyst for creativity, collaboration, and sustainable growth, positioning itself alongside global leaders in library innovation.

Sensory Space: A Commitment to Inclusive Access

The Sensory Space at Pustaka represents a significant advancement in the library's commitment to accessibility and inclusive service delivery. Specially designed to accommodate the needs of individuals with sensory needs and cognitive differences, particularly children with autism spectrum disorders and sensory processing sensitivities, the spaces feature calming lights, tactile panels, interactive technologies, educational materials, and soft furnishings to create a supportive and stimulating environment.

The positive reception from parents, educators, and support groups has underscored the importance of this space. It promotes social interaction, sensory integration, and a sense of

belonging for individuals who often find public spaces challenging. In 2024 alone, the Sensory Space recorded over 2,000 usage, demonstrating the significant impact of this initiative on the local special needs community.

***Ruang Daya Cipta*: A Hub for Innovation and Creativity**

Ruang Daya Cipta, meaning "Space for Creativity" is Pustaka's dedicated makerspace in collaboration with Yayasan Inovasi Malaysia (YIM). The spaces are equipped with coding and programming kits, 3D printers, laser cutters, craft tools, sewing kits, digital design software, a green screen studio and many more. This space fosters STEM learning, entrepreneurship, and innovation among users of all ages.

Programmes such as Makersmeet workshops and digital prototyping sessions have empowered users to transition ideas into tangible products, while partnerships with universities and local innovation hubs have strengthened the ecosystem of creative entrepreneurship. In 2024, the *Ruang Daya Cipta* hosted over 150 hand-ons workshops and engaged more than 2,000 participants, including students, startups, and hobbyists.

Green Space @Pustaka: Empowering Sustainability and Advocacy

The Green Space @Pustaka reflects Pustaka's proactive commitment to sustainability, environmental education, and community empowerment. Designed as a dynamic learning and engagement area, the Green Space @Pustaka integrates eco-friendly practices with public advocacy for sustainable living. It serves not only as a green oasis within the library grounds but also as a platform to promote the principles of Sarawak's sustainable development agenda.

Through initiatives such as hydroponic gardening projects, composting workshops, upcycling arts sessions, and green literacy programmes, Pustaka empowers visitors to engage actively with environmental issues. The space provides hands-on learning opportunities that promote understanding of sustainable practices and encourages behavioral change at the individual and community levels. Importantly, the Green Space aligns closely with the Post Covid Development Strategy (PCDS) 2030, supporting the state's broader vision for balancing development with environmental stewardship. Awareness campaigns, exhibitions, and collaborations with environmental NGOs are regularly hosted within the space to deepen public understanding of topics such as climate change, biodiversity conservation, and waste reduction.

In 2024, more than 2,000 visitors participated in the activities here, while partnerships with over 15 environmental organisations further amplified outreach efforts. By integrating sustainability education into its core services, Pustaka has established itself as a catalyst for cultivating eco-conscious citizens and advocating for a greener Sarawak.

Fostering Technological Integration

In order to remain at the forefront of digital transformation, Pustaka has significantly enhanced its technological offerings. Online databases, e-books, the library's mobile applications, the People Accessible Network for Digital Empowerment and Inclusivity (PANDei) Open Learning Platform, BookBear for book delivery, and virtual tours have collectively improved accessibility and user experience. A notable addition is the integration of augmented reality (AR) features within ARIC, an online database leveraging AR technology to display videos of artists presenting the backgrounds of their paintings.

ARIC addresses significant challenges by reducing costs and optimising time management, whilst also enhancing work efficiency for both library staff and visitors. In parallel, Pustaka has taken a bold step forward as a digital state library, encouraging the community to explore and utilise various technologies for obtaining information from the library. This initiative not only fosters appreciation for local visual arts but also supports their preservation by local artists, while making library materials accessible for research purposes. This innovation earned Pustaka the Gold Award in the Industry Revolution 4.0 category at the National Quality Innovation Award in 2019. The impact of these advancements is evident in Pustaka's digital engagement statistics, with a 30% increase in user interaction on its online platforms, including the mobile app and YouTube channel in 2024. This highlights the growing significance of a strong digital presence in reaching the tech-savvy audience.

Community Learning and Events

Pustaka offers a diverse range of thematic programmes and festivals designed to engage the community and promote lifelong learning. Key initiatives include STEM Week, which sparks scientific curiosity; MakersMeet, which fosters innovation and creativity; and Hobbies Sessions, designed to encourage personal skills and interests. The Children's and Literature Festival aims to cultivate early reading habits, while regular Library *Visits* help familiarise users with the library's services and collections.

Weekend engagement is further enhanced through the Weekend Kids Programme, offering a variety of educational activities tailored to young users. National reading campaigns, such as

the Let's Read Together for 10 Minutes and World Quran Hour, promote a culture of reading across all age groups. Signature events like the Sarawak Authors Festival and the Sarawakiana Festival celebrate local culture, history, and literary contributions, fostering pride in Sarawak's identity and heritage. Through these vibrant programmes, Pustaka Negeri Sarawak continues to serve as a dynamic platform for community expression, creativity, and inclusive knowledge sharing.

In addition to its many programmes, Pustaka Negeri Sarawak is proud to support the Book Share initiative, spearheaded by *Persatuan Pustakawan Malaysia (Sarawak Chapter)*. This programme encourages individuals to donate their pre-loved books, helping to cultivate a culture of sharing and sustainability within the community. By offering a designated donation box within the library, the initiative provides a convenient platform for users to contribute books they no longer need, while also allowing others to benefit from the donated materials. The Book Share initiative serves as a vital tool for promoting the exchange of knowledge and resources, ensuring that books continue to be accessible to those who may not have the means to purchase them. The library encourages all users to participate, either by donating, sharing, or taking a book, thus, fostering a sense of community involvement and mutual support.

Community Engagement Through Partnerships

Collaborative engagement forms the foundation of Pustaka's strategic outreach. Working with government agencies, NGOs, schools, and academic institutions, the library co-hosts programmes that address specific community needs, from digital literacy to environmental awareness. Through initiatives like the Reading Campaign, the library has successfully targeted younger audiences, encouraging the integration of AI technologies with reading habits and reinforcing the value of knowledge in a digital age.

Supporting Lifelong Learning

By offering free access to learning resources and hosting capacity-building workshops, Pustaka nurtures a culture of continuous personal development. Whether for children, youth, adults, or senior citizens, the library provides tailored programmes such as coding for kids, resume-writing clinics, and health literacy seminars. This inclusive approach ensures that all community members, regardless of age, background, or ability, feel valued, empowered, and connected through the library's offerings.

EVALUATION AND IMPACT

Pustaka Negeri Sarawak has successfully evolved into a dynamic, inclusive hub for learning, innovation, and community engagement. Its initiatives such as the Sensory Space, *Ruang Daya Cipta*, and Green Space, demonstrate a strong commitment to accessibility, creativity, and sustainability. These spaces have recorded thousands of users in 2024, highlighting their relevance and positive reception.

The library's digital transformation, including tools like ARIC and the PANDei platforms, has improved access to information and preserved local arts while increasing online engagement by 30%. Community programmes like STEM Week, literature festivals, and children's workshops promote lifelong learning and cultural pride across the age groups. Strong partnerships with schools, NGOs, and government agencies have extended the library's reach and impact, addressing digital literacy, environmental awareness, and personal development. Pustaka stands out as a forward-thinking model for libraries, blending tradition with innovation to meet modern societal needs. The impact of these innovations is measured through participation rates, feedback forms, and collaboration feedback. The increase in library visits, digital content engagement, and participation in programmes reflects a positive community response. As part of its mission to foster creativity, innovation, and lifelong learning, Pustaka regularly tracks and evaluates programme performance to ensure meaningful community engagement.

The following CEO Dashboard statistics for community engagement programmes, provide a snapshot of key initiatives (Tables 1 and 2), including the Makersmeet Programme (Table 3) and various children's activities (Table 4), highlighting participation trends and overall impact.

Table 1: Number of library activities from 2023 to 2024

Year	Number of activities	Beneficiaries
2023	505	111,053
2024	1750	125,621

Table 2: Number of library visitors

Year	Number of visitors
2023	158,931
2024	115,189

Table 3: Number of beneficiaries and collaborators of the MakersMeet Programme

Year	Beneficiearies	Collaborators
2022	9712	78
2023	6832	55
2024	10,091	87

Table 4: Number of children's activities from 2022 to 2024

Year	Beneficiaries	Collaborators
2022	1698	15
2023	2,279	42
2024	3,057	67

CHALLENGES AND FUTURE DIRECTIONS

While Pustaka celebrates its many successes, it recognises that challenges such as budget limitations, the digital divide, and the need for continuous staff development remain ever-present. Rising to meet these challenges, the library is forging sustainable partnerships, pursuing innovation grants, and investing strategically in building future-ready talent. Central to these efforts is the Innovative & Creative Circle (ICC) a dynamic platform that empowers employees to rethink, reinvent, and reimagine processes, services, and standards. By championing a knowledge-based and creativity-driven culture, ICC initiatives are catalysts for

meaningful innovation that adds lasting value to the community. Each year, Pustaka inspires its ICC groups to not only solve problems but also to uncover new opportunities for excellence and transformation. Looking ahead, the library envisions a future where technology and human ingenuity converge incorporating AI-powered services, expanding immersive AR content, and introducing personalised recommendation systems. All these are aimed at crafting a richer, more connected, and more inspiring experience for every visitor.

CONCLUSION

Pustaka has firmly established itself as a leader in redefining the role of public libraries in the 21st century. Through strategic innovations in space design, technology integration, inclusive programming, and community engagement, the library has transitioned into a vibrant hub for learning, creativity, and social connection. From the sensory-friendly environment of the Sensory Space to the tech-driven *Ruang Daya Cipta* and the sustainability-focused Green Space, each initiative reflects a deep commitment to serving the evolving needs of a diverse population. The library's growing digital footprint, innovative use of AR and strong community partnerships underscore its adaptability and future-readiness. Evaluation metrics and user engagement data confirm the library's positive impact, with increased participation across programmes and digital platforms. As it looks to the future, Pustaka remains focused on overcoming challenges through strategic planning, staff empowerment, and forward-thinking initiatives like the ICC. With plans to incorporate AI-driven services and immersive technologies, the library is poised to further enhance user experience and solidify its role as a catalyst for knowledge, inclusion, and transformation in Sarawak and beyond. Pustaka is not just keeping pace with change it is actively shaping the future of libraries.

ACKNOWLEDGEMENTS

We wish to formally express our deepest gratitude to the Board of Management of Pustaka Negeri Sarawak, along with the management and staff of Pustaka Negeri Sarawak, for their unwavering commitment and invaluable support in driving the library's transformation journey. Their dedication has been pivotal in reimagining Pustaka as a dynamic, inclusive, and innovative community hub that goes beyond its traditional role. Furthermore, we extend our sincere appreciation to our collaborative partners, including government agencies, NGOs, academic institutions, and innovation bodies such as Yayasan Inovasi Malaysia (YIM), whose expertise and cooperation have enriched the development of programmes such as *Ruang Daya Cipta* and numerous digital and outreach initiatives. We also gratefully acknowledge the educators, families, support groups, and wider Sarawak community, whose active engagement with library programmes ranging from STEM Week and Children's Activities to sustainability

workshops and the Makersmeet programme have made these initiatives truly impactful. Their involvement has helped shape inclusive spaces such as the Sensory Room, driven the success of environmental campaigns, and supported the advancement of digital literacy and creative learning. Lastly, our heartfelt thanks go to all those who have contributed feedback, shared ideas, and participated in the co-creation of meaningful experiences within the library. Together, these collective efforts continue to uphold Pustaka's vision of being the reservoir and fountain of information and knowledge to the state, enriching lives through access, engagement, and innovation.

REFERENCES

Abutayeh, N. (2021). The library as an inspiring space for learning and innovation. *Library Philosophy and Practice*, 6354. https://digitalcommons.unl.edu/libphilprac/6354

Beneyat-Dulagan, M. T. & Cabonero, D. A. (2023). Exploring library activities, learning spaces, and challenges encountered towards the establishment of a learning commons. *Evidence Based Library and Information Practice, 18*(1), 3-23. https://doi.org/10.18438/eblip30164

Farney, T. (2020). Library technology: Innovating technologies, services, and practices. *College & Undergraduate Libraries, 27*(2-4), 51-55. https://doi.org/10.1080/10691316.2020.1952776

Pustaka Negeri Sarawak. (2024). *Prodigy 6 (KiK)*. PustakaPedia. https://www.pustaka-sarawak.com/pustakapedia/index.php?title=Prodigy_6_(KiK)

Pustaka Negeri Sarawak. (2025). *Corporate profile*. https://www.pustaka-sarawak.com/pages.php?do=corporate_profile

Pustaka Negeri Sarawak. (2021). *PANDei e-Learning platform*. https://pandei.pustaka-sarawak.com/

Urban Libraries Council. (2023, May). *Libraries as spaces for innovation and productivity*. https://www.urbanlibraries.org/files/Libraries-as-spaces-for-innovation-and-productivity_5.25.2.pdf

Wan Ismail, W. H., & Ting, L. T. S. (2018). Public library as a social interactive space. *E-BPJ: Eastbound Proceedings Journal, 3*(7), 03-04. https://ebpj.e-iph.co.uk/index.php/EBProceedings/article/view/1270

Evaluating the Impact of Read Aloud Programs in Indonesia: A Case Study on Inclusivity and Empowerment in Library Services

Sadariyah Ariningrum Wijiastuti, Dewi Imelda Verawati Rambet, Yudhi Firmansyah, Fredy Ilafi, Josan Kusuma, Irhamni Ali

National Library of Indonesia, Jakarta, Indonesia

Corresponding email: ariningrum.sadariyah@gmail.com

ABSTRACT

This study explores the impact of read-aloud programs on literacy development and their role in fostering inclusivity and empowerment through library services. As libraries shift from traditional gatekeeping functions to inclusive community spaces, read-aloud programs emerge as a powerful tool for promoting literacy among diverse populations, particularly children and individuals with limited access to educational resources. Using T-test analysis, this research evaluates the effectiveness of read-aloud sessions in enhancing reading comprehension, language skills, and engagement among participants. The results indicate that the program can be implemented inclusively, regardless of age and job, and is effective in promoting inclusivity and empowerment among participants. The study also found that the program led to substantial improvements in participants' reading abilities across all participating regions. The findings highlight the potential of read-aloud programs to foster inclusivity and empower individuals through improved literacy, particularly in regions where access to educational resources may be limited.

Keywords: Read-Aloud Programs; Inclusivity; Empowerment; Indonesian Library Services; Literacy Development

INTRODUCTION

Read-aloud programs are widely recognized as an essential literacy tool used in various educational settings, particularly libraries. In these programs, a reader, often a librarian or a volunteer, reads a book aloud to a group of listeners, primarily children. The read-aloud has goal to engage young minds and cultivate a love for reading, and foster literacy development through active listening and participation ((Holyoke & Trelease, 1983). The read-aloud program offers numerous benefits to young learners, playing a crucial role in their early education and long-term development. Johnston (2015) highlights the significant impact of read-aloud programs on vocabulary acquisition, fluency, and oral language skills, as well as their ability to expose students to diverse cultures and complex texts. Lane & Wright (2007) emphasize that reading aloud contributes significantly to children's literacy development, with certain techniques being more effective than others. Despite these well-documented benefits, many elementary schools, particularly in developing country, have not yet fully implemented read-aloud activities as part of their literacy programs. (Nurkaeti et al., 2019) in her research note that there is lack of teacher knowledge about read-aloud strategies is a significant barrier to their successful implementation. As a result, there is a pressing need for teacher training and professional development to optimize these activities in primary schools.

Read-aloud programs have deep historical roots, it was all started in the 1920s when reading aloud was a common practice in homes and workplaces (Martin, 1993). The read-aloud tradition fostered shared literary experiences that bonded families and communities. Over time, read-aloud programs have evolved into essential tools in multicultural classrooms, offering myriad benefits to children's learning and development (Holyoke & Trelease, 1983). Libraries, such as Pustakalana Children’s Library in Indonesia, have adopted read-aloud sessions to enhance children's reading skills, creativity, and critical thinking (Afifatunnisa et al., 2023). The practice of reading aloud has adapted to changing societal needs, becoming more structured and focused on educational goals, such as improving language proficiency and promoting a lifelong love of reading.

Read-aloud programs play a vital role in promoting inclusivity and empowerment within library services. Libraries have long been recognized as inclusive spaces, providing equal access to information and education for all members of society. Read-aloud programs extend this mission by reaching diverse and underserved communities, ensuring that everyone—regardless of background—can benefit from these educational opportunities (Norris, 2020). This is especially critical in Indonesia, where read-aloud programs incorporating local languages are helping to bridge the literacy gap in rural and indigenous communities. In these regions, children often face barriers to literacy, including a lack of access to quality reading

materials and limited opportunities to engage with formal education. By using local languages and culturally relevant themes in their read-aloud sessions, libraries ensure that marginalized groups feel represented and included in the learning process to promoting inclusivity, read-aloud programs empower both readers and listeners (Lane & Wright, 2007). For children and young adults, particularly those from underserved backgrounds, participating in these sessions boosts their confidence and helps develop their communication skills through a shared story. Librarians and volunteers could take a lead in vital roles to advocates and contribute to their communities to educate, develop, and strengthen the social bonds through shared literary experiences through read aloud.

Globally, libraries have embraced read-aloud programs, continually adapting and enhancing their effectiveness. One popular approach is the interactive read-aloud, where the reader engages the audience by asking questions, encouraging predictions, and facilitating discussions about the story. The read aloud in library has promotes critical thinking and deepens the listeners' comprehension of the text. Additionally, incorporating multimedia elements in library, such as audio-visual aids and interactive digital books, has modernized the read-aloud experience, making it more dynamic and engaging for children. By integrating technology, libraries make read-aloud sessions more accessible and appealing to a wider audience, particularly in an increasingly digital world (Duursma et al., 2008). Libraries are also placing a greater emphasis on using inclusive and diverse reading materials. By selecting books that reflect the experiences of various cultures, races, and social groups, libraries foster empathy and understanding among young readers.

Based on the background, Indonesia has multicultural societies, where the population comprises a rich tapestry of ethnicities, languages, and traditions should ensure the inclusive reading materials ensure that all children see themselves reflected in the stories they hear, fostering a sense of representation and cultural pride. Thus, the purpose of this study is to evaluate the impact of read-aloud programs on inclusivity and empowerment within the Indonesian library context. Specifically, this research will address the following research questions (RQ):

RQ 1: Can read aloud implemented inclusively without seeing age and job?

RQ 2: How do effective the read aloud program training for common people?

The findings from this study will have significant implications for enhancing library services in Indonesia. By understanding the benefits and challenges of read-aloud programs, libraries can refine their strategies to better serve diverse and underserved communities. This research will contribute to the broader discourse on promoting inclusivity through library services, offering insights into how read-aloud programs can be harnessed to empower both readers and listeners. Additionally, this study will provide valuable recommendations for improving teacher training and community involvement in literacy initiatives, ultimately helping to shape a more inclusive and empowered society.

LITERATURE REVIEW

Theoretical Framework on Read-Aloud Programs

Read-aloud programs are structured literacy activities in which a reader, typically do by a teacher, librarian, or volunteer, reads a text aloud to a group of listeners. These programs serve as a powerful tool for literacy development, especially for young children. There are various read-aloud strategies exist, ranging from simple oral reading to more interactive techniques. Interactive read-aloud, for instance, involves engaging the listeners with questions, predictions, and discussions, which enhances comprehension and critical thinking. The effectiveness of read-aloud programs significantly hinges on the careful selection of reading materials. This process requires a comprehensive understanding of age-appropriate content, cultural relevance, and the cognitive development stages of the target audience. Librarians and educators must consider various factors, such as the complexity of language, themes, and illustrations in the chosen texts (Needlman et al., 2005). Meloy et al. (2002) additionally incorporate diverse genres and formats, including fiction, non-fiction, poetry, and visual narratives, can cater to varying interests and learning styles. This strategic selection not only engages young listeners but also enhances their comprehension and retention of the material. By providing access to a rich and varied collection, libraries can effectively stimulate children's imaginations and encourage a lifelong love for reading.

Read-aloud programs offer numerous cognitive and emotional benefits for both readers and listeners. Research indicates that these sessions enhance vocabulary acquisition, improve listening skills, and foster critical thinking among young learners. Furthermore, read-aloud activities serve as a platform for cultural exploration, exposing children to diverse perspectives and experiences. The shared reading experience also strengthens the bond between the reader and listeners, facilitating a sense of community and shared learning. By understanding these benefits, librarians and educators can effectively advocate for the implementation of read-aloud programs, emphasizing their role in literacy development and social-emotional

growth (Singh & Gupta, 2018). The awareness of reading experience helps to create an environment where children feel valued and encouraged to express themselves.

The success of read-aloud programs is further contingent upon the readiness of both the reader and the audience. Ledger & Merga (2018) describe success for readers entails not only proficiency in reading aloud but also an understanding of engaging storytelling techniques, such as voice modulation, pacing, and audience interaction. Thus, read aloud raining programs and workshops can equip librarians and volunteers with these essential skills, enhancing their effectiveness in delivering captivating read-aloud sessions. Meanwhile, in the listeners perspective, readiness involves creating a conducive environment that fosters attention and engagement, including seating arrangements, minimizing distractions, and encouraging active participation through questions and discussions (Fisher et al., 2004). By ensuring that both readers and listeners are adequately prepared, libraries can maximize the impact of read-aloud programs, transforming them into enriching educational experiences. Lane & Wright (2007) describe interactive read-aloud sessions can boost a child's understanding of complex texts by fostering deeper engagement with the material. Moreover, the strategy of dialogic reading—where listeners are encouraged to respond to and discuss the story—promotes vocabulary growth and oral language development. Read-aloud programs have also been recognized for their educational impact. Research has shown that they help improve literacy skills such as vocabulary acquisition, reading fluency, and listening comprehension (Johnston, 2016). These programs expose children to diverse linguistic structures, expanding their language repertoire. In the Indonesian context, libraries and schools have increasingly adopted read-aloud activities to enhance children's learning experiences, particularly in underserved and rural areas, where access to formal education may be limited.

In the perspective of knowledge benefits, read-aloud programs offer emotional and cognitive advantages for both the reader and the listener. For listeners, particularly young children, the act of hearing a story read aloud promotes a love for reading and literature, making the experience enjoyable and immersive. It also fosters the development of listening skills, narrative understanding, and empathy, as children are introduced to diverse characters and situations. Libraries that implement read-aloud sessions help create an inclusive environment where children feel encouraged to explore new ideas and perspectives through stories. (Afifatunnisa et al., 2023) highlight how libraries could use read-aloud activities to enhance children's creativity and critical thinking. For readers, particularly librarians or volunteers, the role of leading a read-aloud session can be empowering. It allows them to act as educators and community leaders, strengthening their communication and presentation skills. The process of reading aloud also requires an understanding of the material and the ability to engage an audience, which in turn promotes a sense of responsibility and leadership. In library

settings, these programs create a community-centered space where both readers and listeners contribute to a shared learning experience.

Inclusivity and Empowerment in Library Services through Read-Aloud

Inclusivity is at the heart of many library services and read-aloud programs are no exception. Libraries have historically been seen as safe spaces that provide access to knowledge and resources for all members of society (Small et al., 2015). Read-aloud programs extend this mission by creating opportunities for underserved communities to participate in literacy activities. This is particularly important in Indonesia, where rural and indigenous communities often face barriers to education. By incorporating local languages and culturally relevant themes into their sessions, libraries can ensure that children from diverse backgrounds feel included and represented in the stories they hear. In Indonesia, where many children speak local dialects, read-aloud sessions that incorporate these languages allow children from remote regions to engage more effectively with the material (Afifatunnisa et al., 2023). Additionally, by choosing books that reflect the experiences of marginalized communities, libraries help bridge the gap between mainstream education and local cultures. This promotes inclusivity by ensuring that all children, regardless of their background, have access to stories that reflect their lives and foster a sense of belonging.

Beyond promoting inclusivity, read-aloud programs have the potential to empower individuals by providing them with a platform for self-expression and learning. Meloy et al. (2002) emphasize that listener, particularly children, participating in a read-aloud session can enhance their confidence in language and communication skills through experience of listening to a story that resonates with their personal or cultural experiences fosters a sense of validation and self-worth. For instance, children who see their own challenges or dreams reflected in the stories are empowered to believe in their potential. Readers, such as librarians or volunteers, are also empowered through the leadership roles they assume during read-aloud sessions. By facilitating the activity, they become agents of change within their communities, promoting literacy and education. This responsibility reinforces their role as educators and advocates for learning. In a broader sense, the empowerment of both readers and listeners strengthens the social fabric of communities, turning libraries into hubs of collective growth and education.

Previous Studies of Read-Aloud Programs

Research on read-aloud programs has highlighted their positive effects on literacy development across different cultural and geographical contexts. Globally, studies have demonstrated the benefits of read-aloud activities in improving children's literacy skills. For instance, (Lane & Wright (2007) found that interactive read-aloud sessions promote early literacy development by enhancing children’s ability to engage with complex texts. Similarly,

Fisher et al. (2004) showed that reading aloud significantly improves vocabulary acquisition, listening comprehension, and oral fluency in children from diverse cultural backgrounds. In the Indonesian context, read-aloud programs have gained increasing attention as a means of bridging the literacy gap in rural and underserved regions. Nurkaeti et al. (2019) emphasize the need for more teacher training in read-aloud techniques to optimize literacy activities in primary schools. Their research highlights that, despite the potential of read-aloud programs, many educators lack the necessary skills to implement them effectively.

There are gaps in knowledge underscores the importance of investing in professional development for teachers and librarians. A study by Afifatunnisa et al. (2023) on Pustakalana Children's Library demonstrates how read-aloud programs have been successful in fostering creativity and reading skills in Indonesian children. These sessions are designed to create a more interactive and inclusive environment, encouraging children from various backgrounds to participate. Crone et al. (1997) similarly highlight the importance of using culturally relevant reading materials to ensure that children from indigenous communities feel represented in the stories they hear. Collectively, these studies indicate that read-aloud programs are highly effective in promoting literacy, inclusivity, and empowerment. However, they also suggest that further research is needed to explore how these programs can be optimized to serve more diverse populations, particularly in regions like Indonesia, where cultural and linguistic diversity presents both challenges and opportunities for literacy promotion.

RESEARCH METHODOLOGY

Research Design

This study employs a pre-test and post-test design to evaluate the impact of read-aloud programs. The respondents, who represent a diverse group of people including readers, listeners, and librarians, will participate in the program. The pre-test will assess participants' initial knowledge and attitudes toward the benefits and techniques of reading aloud. After the read-aloud program, a post-test will measure any changes in knowledge, perceptions, and readiness to implement read-aloud activities. The comparison of pre- and post-test results will provide insights into the effectiveness of the program in fostering literacy development and inclusivity. Participants will be selected from diverse backgrounds, ensuring a representation of various regions, cultures, and literacy levels. Demographic data such as age, educational background, and familiarity with read-aloud programs will be collected to analyze the influence of these factors on program effectiveness.

Data Collection and Data Analytics

Data collection will occur through surveys distributed to all participants before and after the read-aloud sessions. Both quantitative and qualitative data will be gathered through the questionnaires, allowing for a comprehensive understanding of the impact of the program. A T-test will be used to analyze the pre-test and post-test results, comparing differences between groups (Mishra et al., 2019). Descriptive statistics will summarize the demographic and general responses, while inferential statistics will highlight significant changes and differences between groups.

DATA ANALYSIS RESULTS

The data analysis result described a detailed examination of the effectiveness of the "Read aloud" reading training program conducted across various regions in Indonesia. The analysis begins with a demographic overview of the dataset, followed by a statistical examination of the program's impact. The demographic overview of our respondent describes in Table 1.

Table 1: Demographic of respondents

Job	Number of Respondents	Age (Years)	Number of Respondents
Parents	193	< 24	58
Librarian	220	25 - 39	351
Teacher	202	40 - 54	184
		55 - 69	22

The demographic analysis of the respondents involved in the study reveals a diverse representation across both roles and age groups, contributing valuable insights into the stakeholder engagement with the program. In terms of participant roles, the data indicates that librarians constitute the largest group, accounting for approximately 35.73% of the total respondents, with 220 individuals participating. This suggests a strong engagement from librarians, likely due to their pivotal role in promoting literacy and educational initiatives. Following closely are parents, representing about 31.34% of the respondents, which underscores their active involvement and interest in their children's educational experiences. Meanwhile, teachers make up around 32.93% of the participants, reflecting their significant investment in fostering learning environments. The near-equal distribution among these three

groups suggests a collaborative effort among key stakeholders, highlighting the importance of involving diverse perspectives in the evaluation process.

Examining the age distribution of the respondents further illuminates engagement trends. The 25 to 39-year age group stands out prominently, comprising approximately 57.05% of the total participants, indicating a strong interest from younger adults, many of whom may be both parents and educators. This demographic likely reflects a growing awareness of the importance of literacy and educational programs in fostering community engagement. In contrast, the under 24 years category represents only 9.43%, indicating lower involvement from the youngest adults, which could suggest a need for strategies to better engage this age group. The 40 to 54 years cohort comprises about 29.92%, demonstrating a moderate level of participation from middle-aged individuals, while the 55 to 69 years age group has the lowest representation at approximately 3.58%. This disparity suggests that older individuals may be less engaged with the program, which could present challenges for inclusivity.

Overall, the demographic breakdown reveals a predominantly young adult participation base, with a balanced representation from parents, librarians, and teachers. These insights can inform future initiatives aimed at enhancing literacy and educational outcomes, emphasizing the necessity of fostering engagement across all age groups and roles to create a more inclusive program that resonates with a broader audience. Further analysis will use statistic to answer RQ1 and RQ2

RQ 1: Can read aloud implemented inclusively without seeing age and job?

To answer RQ 1, a statistical analysis is using One-Way ANOVA for pre-test and post-test scores using Welch's ANOVA and Fisher's ANOVA to compare groups. In this analysis, a comparison between age and job of the respondent to see the inclusivity of the program.

Table 2: One-Way ANOVA result

		F	df1	df2	p
Skor Pre-test	Welch's	2.891	3	82.8	0.040
	Fisher's	3.100	3	611	0.026
Skor Post-test	Welch's	0.602	3	81	0.616
	Fisher's	0.905	3	611	0.438

Table 2 above describe the Pre-test Scores (Skor Pre-test) Welch's ANOVA: F(3, 82.8) = 2.891, p = 0.040. The p-value is 0.040, which is less than 0.05, indicating that there is a significant difference in pre-test scores across the groups. Welch's ANOVA is typically used when variances are unequal, and this result suggests that at least one group differs significantly from others (Muslem & Abbas, 2017). Fisher's ANOVA: F(3, 611) = 3.100, p = 0.026. Similarly, Fisher's ANOVA also shows a significant difference with a p-value of 0.026 ($p < 0.05$), confirming that the groups have significantly different pre-test scores. Meanwhile the Post-test Scores (Skor Posttest) Welch's ANOVA: F(3, 81.0) = 0.602, p = 0.616. The p-value of 0.616 is much higher than 0.05, meaning there is no significant difference in post-test scores between the groups. Fisher's ANOVA: F(3, 611) = 0.905, p = 0.438. Similarly, Fisher's ANOVA also indicates no significant difference in post-test scores with a p-value of 0.438.

The data analysis found that the Pre-test Scores: Both Welch's and Fisher's ANOVA indicate that there is a statistically significant difference in pre-test scores between the groups ($p < 0.05$). This implies that the groups may have started at different levels before any intervention or test. Meanwhile the Post-test Scores: Neither Welch's nor Fisher's ANOVA shows a significant difference in post-test scores ($p > 0.05$). This suggests that after the intervention or test, the performance of the groups is similar, and there are no significant differences in their post-test results. There is Significant Difference in Pre-test Scores: There was variation between groups before the test, meaning that the groups did not start on the same level. No Significant Difference in Post-test Scores: Despite initial differences in pre-test performance, all groups appear to have similar post-test outcomes, indicating that any intervention or testing process may have equalized the performance among the groups.

RQ 2: How do effective the read aloud program training for common people?

Table 3: Normality test (Shapiro-Wilk)

Normality Test (Shapiro-Wilk)

			W	p
Skor Posttest	-	Skor Pratest	0.899	< .001

Note. A low p-value suggests a violation of the assumption of normality

Another data analysis is normality test to assess whether the data follow a normal distribution, Shapiro-Wilk tests were employed. The results indicate that the data across the different regions do not conform to a normal distribution, as evidenced by p-values less than 0.05. Given this non-normality, the decision was made to employ non-parametric tests for subsequent analysis. A Wilcoxon Signed Ranks Test was used to evaluate the differences between pre-test and post-test scores, measuring the impact of the program across each region. This non-parametric test was selected due to the non-normal distribution of the data. The Wilcoxon Signed Ranks Test results demonstrate a statistically significant improvement in the post-test scores compared to the pre-test scores across all participating regions, with p-values consistently at 0.000. This suggests a positive and significant impact of the "Read aloud" program in the following regions:

- Jambi
- Kalimantan Barat
- Kalimantan Selatan
- Kalimantan Tengah
- Kepulauan Riau
- Nusa Tenggara Barat
- Riau
- Sulawesi Tengah

In each of these regions, the program led to substantial improvements in participants' reading abilities as reflected in the post-test outcomes. In an aggregate analysis of the combined data from all regions further supports these findings. The Wilcoxon Signed Ranks Test for the overall dataset also shows a significant difference between pre-test and post-test scores (p-value =

0.000). This confirms that the "Read aloud" program had a consistent positive impact on participants across all regions describe in Table 4 below.

Table 4: The Wilcoxon Signed Ranks Test results

Paired Samples T-Test

			Statistic	df	p	Mean difference	SE difference		Effect Size
Skor Posttest	Skor PratestTotal	Student's t	21.4	614	<.001	4.90	0.229	Cohen's d	0.863
		Wilcoxon W	129853 [a]		<.001	5.50	0.229	Rank biserial correlation	0.925

Table 4 describes the effectiveness of a program. Based on the comparison using pre-test and post-test scores, the T-test was employed to assess the statistical difference between post-test and pre-test scores. The results from the T-test, along with the Wilcoxon Signed-Rank Test and effect size metrics, offer critical insights into the program's impact on participants based on the student's T-test: The results from the paired samples T-test reveal a t-statistic of 21.4 with 614 degrees of freedom (df) and a p-value less than 0.001. The low p-value indicates a statistically significant difference between the post-test and pre-test scores, meaning that the change observed after the intervention is unlikely to have occurred by random chance. Given that the p-value is much lower than the conventional threshold of 0.05, we can confidently reject the null hypothesis (H_o), which posits no difference between the two sets of scores. Moreover, the mean difference of 4.90 highlights that post-test scores were, on average, higher than the pre-test scores, signaling an improvement in the participants' performance or understanding. This positive shift suggests that the program or intervention had a meaningful and measurable impact on participants.

The Wilcoxon Signed-Rank Test further validate the results, the non-parametric Wilcoxon Signed-Rank Test was conducted. This test, which does not assume a normal distribution of the data, produced a W-statistic of 129,853 and similarly yielded a p-value of less than 0.001. The consistent results between the T-test and the Wilcoxon test underscore the robustness of the findings. Regardless of any assumptions about the data's distribution, the post-test scores are significantly higher than the pre-test scores. Effect Size: In addition to statistical significance, the effect size offers insight into the practical significance of the findings. The Cohen's d value of 0.863 is considered large, as a value above 0.8 typically indicates a substantial effect. This large effect size suggests that the program or intervention not only produced statistically significant results but also had a meaningful impact on the participants' outcomes. The difference in scores is not just due to chance but reflects a real, observable improvement. Furthermore, the rank biserial correlation of 0.925 reinforces the strength of this relationship, indicating a very strong correlation between the participants' post-test and

pre-test performance. This high correlation further suggests that the program was effective in producing consistent improvements across the participant group.

DISCUSSION

Lessons Learned

The findings above helped answer the two of the research questions. For RQ 1: Can read aloud implemented inclusively without seeing age and job? One of the key results from this analysis is the significant difference in pre-test scores (Welch's ANOVA: $p = 0.040$, Fisher's ANOVA: $p = 0.026$). This indicates that participants entered the program with varying levels of prior knowledge, skills, or familiarity with the subject matter. Such differences suggest that the program reached a diverse audience, with participants coming from different backgrounds and experiences, perhaps due to differences in education, job roles, or access to literacy resources. However, despite these initial disparities, there was no significant difference in post-test scores across the groups (Welch's ANOVA: $p = 0.616$, Fisher's ANOVA: $p = 0.438$). This suggests that the program's intervention was successful in equalizing performance among the participants by the end. In essence, while participants may have started at different levels, they all benefited similarly from the program, demonstrating that the intervention was effective across various demographic groups.

In the context of RQ 2: How do effective the read aloud program training for common people? The statistical analysis of the "Read aloud" program highlighted several critical lessons regarding the evaluation of educational interventions. Initially, normality tests revealed that the data did not conform to a normal distribution, which necessitated the use of non-parametric tests, specifically the Wilcoxon Signed-Ranks Test (Berliana et al., 2023). This decision proved crucial, as the test indicated statistically significant improvements in post-test scores across all participating regions, underscoring the importance of selecting appropriate statistical methods based on the characteristics of the data. This finding emphasizes the necessity for researchers to thoroughly assess data distribution before conducting analyses to ensure accurate interpretations of their results. The analysis also showcased the significance of measuring both statistical and practical significance. The Wilcoxon Signed-Ranks Test and paired samples T-test produced consistent results, revealing a substantial improvement in reading abilities, with Cohen's d value indicating a large effect size (Mishra et al., 2019). This suggests that the "Read aloud" program not only achieved statistical significance but also had a meaningful impact on participants' learning outcomes. Such findings highlight the importance of including effect size metrics in evaluations, as they provide deeper insights into the real-world implications of the program's effectiveness.

Ultimately, the findings of this analysis reinforce the idea that comprehensive evaluation methods enhance the reliability of conclusions regarding educational programs. The consistent positive impact of the "Read aloud" initiative across multiple regions illustrates its potential to foster inclusivity and empower individuals through improved literacy. Moving forward, these lessons can guide future program designs to ensure they are tailored to the diverse needs of participants, ultimately leading to more effective and impactful educational interventions. These findings align with some previous research on inclusive educational programs that emphasize how structured interventions can bridge gaps in skills and knowledge (Apandi, 2018). However, this study also contributes new insights, particularly in the context of library services, showing how such programs can offer equal learning opportunities despite participants' varying starting points. The finding results highlight the program's inclusivity. The initial differences in pre-test scores suggest that the program engaged a wide range of participants from different backgrounds, but the lack of significant differences in post-test scores confirms that it provided equitable learning opportunities. This means that the intervention was effective across all demographic groups, enabling participants to achieve similar outcomes despite their initial skill levels. This finding is critical for assessing the program's inclusivity, as it demonstrates that individuals from different backgrounds were able to benefit equally from the intervention.

Empowerment people through Read-Aloud Beyond its inclusivity, the program also plays a crucial role in empowering participants. For readers, the program contributes to skills development, allowing them to enhance their literacy abilities and confidence (Burhansyah et al., 2022) . the read aloud program fosters engagement by providing them with access to reading materials and encouraging active participation. The impact of the program not only empowers individuals on both sides of the read-aloud process but also contributes to the broader goal of inclusivity in library services by ensuring that a wide range of audiences are both engaged and empowered. The read aloud program have contributions to Inclusive Library Services since the program's able to equalize outcomes among participants, despite their varied starting points, also contributes to making library services more inclusive. The study demonstrate that library could demonstrates its commitment to providing equitable access to learning opportunities for all members of the community and able to offer a program that can accommodate participants with different skill levels and still achieve similar post-test results. This kind of programming is essential in ensuring that libraries remain inclusive spaces, where everyone—regardless of background—has the opportunity to learn and grow.

Challenges and Limitations

While the program shows significant positive effects, several challenges were encountered during its implementation. Some participants faced difficulties in consistently attending the read-aloud sessions, resulting in variations in engagement levels across different demographic groups. In rural areas, access to diverse reading materials or a lack of adequate facilitators may have impacted the overall inclusiveness of the program. Furthermore, external factors such as technological constraints in online read-aloud sessions (if applicable) could have hindered full participation. As for the limitations of this study, the design of the research focused primarily on quantitative data, relying on pre-test and post-test measures to assess performance. This approach does not capture the qualitative experiences of the participants, particularly in understanding the nuanced ways the program may have contributed to individual empowerment or community cohesion. Another limitation is the reliance on participants' ability to attend multiple sessions; inconsistent participation might affect the generalizability of the results to all demographic groups. Despite these challenges, the study provides clear evidence that the read-aloud program has had a positive and measurable impact on both inclusivity and literacy development, reinforcing its value as an effective library initiative.

CONCLUSION

The study concludes the transformative potential of read-aloud programs in promoting inclusivity and empowerment within library services in Indonesia. The evidence indicates that these programs serve not only as effective tools for literacy development but also as vital instruments for bridging the literacy gap among diverse populations. One of the primary conclusions drawn from the study is that read-aloud programs can be implemented inclusively, transcending barriers related to age and profession. This flexibility allows individuals from various backgrounds to participate and benefit, fostering a sense of community and shared learning. The effectiveness of the program in promoting inclusivity is evident in its ability to engage participants from different demographics, thereby empowering them through access to knowledge and skills. This empowerment extends beyond mere participation; it equips individuals with the confidence to improve their reading abilities and engage more fully with the library’s resources.

Moreover, the study highlights that read-aloud programs provide equitable learning opportunities, ensuring that all participants have access to the benefits of literacy development, regardless of their background. The positive impact of these programs on participants’ reading abilities is particularly noteworthy, indicating that consistent engagement through read-aloud sessions can enhance literacy skills and foster a love for reading. To maximize these benefits, libraries are encouraged to continue implementing and expanding

read-aloud programs, particularly in rural and underserved regions where access to educational resources may be limited. By doing so, libraries can play a crucial role in promoting literacy development and bridging the literacy gap, ultimately contributing to a more informed and empowered society.

REFERENCES

Afifatunnisa, F. L., Rusmana, A., & Winoto, Y. (2023). Pemanfataan Koleksi Anak Di Pustakalana Children's Library Untuk Kegiatan Membaca Nyaring. *Info Bibliotheca: Jurnal Perpustakaan Dan Ilmu Informasi*, *4*(2), 82108. https://doi.org/10.24036/ib.v4i2.408

Apandi, A. (2018). The Effect of Interactive-Read Aloud Strategy on the Extroverted and Introverted Students' Reading Comprehension. *Academic Journal Perspective : Education, Language, and Literature*, *2*(1). https://doi.org/10.33603/perspective.v2i1.1658

Berliana, G. Y., Sugiyanto, S., & Fardhani, I. (2023). Student's Learning Outcomes and Scientific Literacy Improvement Through the Implementation of Reading to Learn and Discovery Learning Models. *Jurnal Penelitian Pendidikan IPA*, *9*(5). https://doi.org/10.29303/jppipa.v9i5.2573

Burhansyah, B., Marhaban, S., Maisyarah, S., & Bahri Ys, S. (2022). The Effect of The Think Aloud Strategy on Students' Reading Comprehension Ability. *English Education Journal*, *13*(3). https://doi.org/10.24815/eej.v13i3.27095

Crone, R., Halsey, K., & Towheed, S. (1997). A history of reading. *Choice Reviews Online*, *35*(01), 35-0059-35–0059. https://doi.org/10.5860/CHOICE.35-0059

Duursma, E., Augustyn, M., & Zuckerman, B. (2008). Reading aloud to children: the evidence. *Archives of Disease in Childhood*, *93*(7), 554-557. https://doi.org/10.1136/adc.2006.106336

Fisher, D., Flood, J., Lapp, D., & Frey, N. (2004). Interactive Read-Alouds: Is There a Common Set of Implementation Practices? *The Reading Teacher*, *58*(1), 8-17. https://doi.org/10.1598/RT.58.1.1

Holyoke, T. C., & Trelease, J. (1983). The Read-Aloud Handbook. *The Antioch Review*, *41*(2), 246. https://doi.org/10.2307/4611241

Johnston, V. (2015). The Power of the Read Aloud in the Age of the Common Core. *The Open Communication Journal*, *9*(1), 34-38. https://doi.org/10.2174/1874916X01509010034

Johnston, V. (2016). Successful Read-Alouds in Today's Classroom. *Kappa Delta Pi Record*, *52*(1), 39–42. https://doi.org/10.1080/00228958.2016.1123051

Lane, H. B., & Wright, T. L. (2007). Maximizing the Effectiveness of Reading Aloud. *The Reading Teacher*, *60*(7), 668-675. https://doi.org/10.1598/RT.60.7.7

Ledger, S., & Merga, M. (2018). Reading Aloud: Children's Attitudes toward being Read to at Home and at School. *Australian Journal of Teacher Education*, *43*(3), 124-139. https://doi.org/10.14221/ajte.2018v43n3.8

Martin, P. (1993). "Capture Silk": Reading Aloud Together. *The English Journal*, *82*(8), 16. https://doi.org/10.2307/819581

Meloy, L. L., Deville, C., & Frisbie, D. A. (2002). The Effect of a Read Aloud Accommodation on Test Scores of Students With and Without a Learning Disability in Reading. *Remedial and Special Education*, *23*(4), 248-255. https://doi.org/10.1177/07419325020230040801

Mishra, P., Singh, U., Pandey, C., Mishra, P., & Pandey, G. (2019). Application of student's t-test, analysis of variance, and covariance. *Annals of Cardiac Anaesthesia*, *22*(4), 407. https://doi.org/10.4103/aca.aca_94_19

Muslem, A., & Abbas, M. (2017). The effectiveness of immersive multimedia learning with peer support on english speaking and reading aloud. *International Journal of Instruction*, *10*(1). https://doi.org/10.12973/iji.2017.10113a

Needlman, R., Toker, K. H., Dreyer, B. P., Klass, P., & Mendelsohn, A. L. (2005). Effectiveness of a Primary Care Intervention to Support Reading Aloud: A Multicenter Evaluation. *Ambulatory Pediatrics*, *5*(4), 209-215. https://doi.org/10.1367/A04-110R.1

Norris, K. E. L. (2020). Using the Read-Aloud and Picture Books for Social Justice. *Kappa Delta Pi Record*, *56*(4), 183-187. https://doi.org/10.1080/00228958.2020.1813521

Nurkaeti, N., Aryanto, S., & Gumala, Y. (2019). Read Aloud: A Literacy Activity In Elementary School. *PrimaryEdu - Journal of Primary Education*, *3*(2), 55. https://doi.org/10.22460/pej.v3i2.1377

Singh, S. K., & Gupta, Dr. A. (2018). Reading, summarizing, and translating content. *International Journal of Applied Research*, *4*(11), 60-64. https://doi.org/10.22271/allresearch.2018.v4.i11a.11458

Small, R. V., Myhill, W. N., & Herring-Harrington, L. (2015). *Developing Accessible Libraries and Inclusive Librarians in the 21st Century: Examples from Practice* (pp. 73-88). https://doi.org/10.1108/S0065-28302015000004001

Sub - Theme 2

Bridging Divides Through SDGs As Libraries Make the Impossible, Possible

A Strategic Framework for Inclusive Libraries in Malaysia: Bridging Gaps and Empowering Equality

Mohamad Salbihan Salman, Mohd Helmi Masor @ Mansor, Fatimah Ahmad Bashir, Mohamad Azhar Azhari

Jabatan Perpustakaan Universiti Sains Islam Malaysia,

Bandar Baru Nilai, Negeri Sembilan, Malaysia

Corresponding email: salbihan@usim.edu.my

ABSTRACT

This paper addresses some gaps relating to the lack of inclusiveness of libraries in Malaysia by proposing a strategic framework for the underserved and vulnerable groups. It is important to remove the barriers which underserved and vulnerable communities' groups face in accessing essential services, particularly in this case, integrating educational resources which libraries provide, due to the rapid advancement of digital technologies. This framework advocates for the incorporation of socio-economic factors which define classism to demonstrate the role of libraries in serving vulnerable groups within a population while fostering citizenship through equitable access to information. It analyses the role of libraries to support social equity, education, and community empowerment within the framework of the United Nations Sustainable Development Goals (SDGs). This framework seeks to promote accessibility of libraries as pre-requisites to integrated digital literacy services for full participation in social activities, resource-sharing models, policy development, and digital literacy programmed that encourage open access to information to transform libraries into equitable institutions in Malaysia. Policy makers, educators, and especially educational librarians will find this research useful in addressing gaps within the library system in Malaysia in relation to social justice and inclusiveness. This study intends to set direction to aid in transforming these southernmost populations into what is termed the underserved global citizens.

Keywords: Inclusive Libraries; Digital Literacy; Social Inclusion; Sustainable Development Goals (Sdgs); Assistive Technology in Libraries

INTRODUCTION

Libraries serve as institutions that significantly contribute to social development and community engagement in education. As information centers, libraries function not only as knowledge repositories but also as agents of social change that are able to bridge the information gap between the society based on their level. In Malaysia, public and academic libraries are the heart of lifelong education, research, and learning, especially for young people and rural communities. However, the challenges, such as the digital gap, infrastructure issues, and lack of awareness of the role of libraries also prevent these institutions from functioning optimally.

In the global context, libraries have been recognized as an important component in achieving sustainable development as outlined in the Sustainable Development Goals (SDG) by the United Nations (UN). According to Smith (2017), libraries play significant role in supporting SDG 4 (Quality Education) and SDG 10 (Reduced Inequality). In developed countries such as Finland and Canada, libraries have become inclusive platforms that not only support educational needs, but also help marginalized groups such as people with disabilities and low-income groups (B40) to access information equally (Ogunmodede et al., 2023). In Malaysia, the National Library, *Perpustakaan Negara Malaysia* (PNM) have introduced initiatives such as u-Pustaka and mobile libraries to facilitate digital access. However, the Perpustakaan Negara Malaysia (2022) report shows that only 40% of public libraries in the country have adequate internet facilities, while many libraries in rural areas still face resource constraints to support disabilities people and marginalized communities.

As technology develops and society's demographics change, the need of inclusive libraries is growing in relevance than ever. Libraries can become more than just places with information access with the correct support from laws. Particularly in a nation like Malaysia, where many groups coexist, they can become centers promoting social unity. Libraries can help to build relationships and foster a more linked society by embracing inclusiveness.

LITERATURE REVIEW

Introduction to Inclusive Libraries

The concept of inclusivity has changed significantly and is now present in many different social systems; libraries lead front-stage in this change (Mahdi et al., 2020). Libraries have evolved from simple knowledge repositories to vibrant centers supporting fair access for every member of the society regardless of background or ability (Levin, 2021). Historically, libraries acted as gatekeepers of knowledge, usually catering to a specific population and hence serving as gatekeepers of information. Inclusivity in the context of libraries serves purposes much beyond simple physical accessibility; it also helps to create friendly surroundings that meet the various needs of their patrons (Powell & Tutt, 2002). To close the digital divide, this means offering goods and services in several forms, allowing different learning environments, and encouraging digital literacy (Vahid & Isfandyari-Moghaddam, 2008).

Inclusiveness also calls for proactive involvement with underprivileged groups so that their needs are satisfied and their voices are heard. By addressing inequalities in education, literacy, and information access, these kind of outreach initiatives help people to fully engage in civic life (Bendridi, 2024). By giving people from many backgrounds safe and friendly environments to connect, learn, and work together, libraries significantly help to promote social inclusion (Bouaamri, 2024). This builds community ties and helps one to feel like they belong (Bendridi, 2024).

From the points of view of teachers in various schools, libraries are rather underused; students mostly use them as study environments. Not only in the library environment and book collection but also in the roles of library staff, which at present lack clarity (Loh et al., 2021). Clearly, there is room for development. Library managers and employees have to be more proactive in addressing these issues since they have to deliberately embrace different information kinds and carefully handle different points of view. This will help them to establish a more inclusive and efficient library environment that more adequately satisfies the needs of every user (Meulemans & Matlin, 2019).

The Evolution of Inclusive Libraries Practices

The increasing awareness of the several needs of library users has marked a slow but notable process of change in libraries' interaction with the idea of inclusiveness. Libraries have historically occasionally adopted a one-size-fits-all approach that unintentionally leaves out people with disabilities, language difficulties, or socioeconomic disadvantage. In accordance

with the changing social attitudes toward inclusivity and diversity, libraries have started a number of initiatives seeking to promote equitable access and participation (McCluskey, 2014).

The initial focus of these efforts was to provide wheelchair users with access through the construction of elevators and ramps. However, the concept of inclusivity now also encompasses purposeful interaction with different communities to understand their particular needs and modify services to include easy-to-access and applicable formats like Braille and audiobooks for the visually impaired (Ogunmodede et al., 2023). This can include community needs assessments, partnership formation with local enterprises, and offering culturally appropriate resources and activities.

Technological innovations have greatly assisted in expanding the availability of inclusive library services. The creation of digital libraries and online resources has greatly improved information accessibility for disabled individuals, language barriers, and those with limited geographic mobility. Furthermore, libraries are also using assistive technologies such as text-to-speech and screen readers to make materials more accessible to users with visual or learning disabilities. Many libraries have adopted new technologies for creating participatory services that allow users to engage with the libraries and initiate discussions (Al Hijji & Al Hinaai, 2023).

However, the pursuit of inclusivity is an ongoing process that requires continuous evaluation and adaptation. As societal demographics shift and new technologies emerge, libraries must remain vigilant in identifying and addressing barriers to access and participation. Prior to the proliferation of digitized resources, libraries actively sought methods to accommodate users with disabilities, exploring diverse technologies and outreach strategies to ensure inclusivity (Ashmore et al., 2020).

The Role of Technology in Advancing Inclusivity

Increased accessibility within libraries has largely resulted from the evolution of technology over the years. Libraries, as well as other public places, have more accessible opportunities thanks to the improvements in technology. Technology that is adaptable gives visually impaired people the ability to independently access information sources, whether in print or electronic form (Neville & Datray, 1993). Libraries have digitized their resources and created digital libraries, which enable access to a wealth of information from anywhere, as long as there is internet connectivity (Towolawi, 2018). This helps individuals who have mobility impairments or live in remote areas.

Innovation is now possible for librarians due to the availability of new resources and tools, increasing the quality of the services offered by libraries. For instance, artificial intelligence and machine learning algorithms can be employed to customize content and recommend resources based on individual preferences and capabilities (Okunlaya et al., 2022). Libratians have new opportunities to improve their services with the use of technology that allows them to reinvent services, assess the needs of their institutions, and redefine what success looks (Lessick, 2015). Screen readers, screen magnifying tools, and speech recognition software have all become vital for individuals with hearing, visual, and motor disabilities (Alabi & Mutula, 2020)

Libraries are utilizing new augmented reality and virtual reality technology to enhance the learning experience for all users by making it more interactive and exciting. As Pavan (2013) notes, libraries use technology to provide translation services and multilingual materials which helps to bridge language barriers. Technology requires equitable application, and in this regard the library system must address the digital divide by providing computers and internet access as well as internet literacy instruction.

Moreover, libraries need to ensure that all assistive technologies for digital tools and services are integrated for people with disabilities, complying with relevant standards and other regulations on accessibility. As Chemnad & Othman (2024) puts it, libraries need to think of new ways to use technology in a way that supports inclusivity and equal information opportunities for all community members. On the other hand, Chemnad & Othman (2024) remind us that AI technology comes with risks such as the possible reinforcement of existing biases towards, and the neglect of the needs and experiences of, certain disabled people.

Global and Local Challenges in Complementing Inclusive Libraries

While considerable strides have been made in advancing inclusive librarianship, there are still some persistent local and global challenges. One of the most primary and problematic issues is the misunderstanding and under-appreciation of the diversity of people and populations. Libraries need to do a lot more to eradicate negative perceptions, misinformation, as well as rudimentary biases about disabilities. This attention should in turn enhance staff and public disability awareness. Such gaps often contribute to biases toward the provision of library services (Bertol et al., 2006).

Another barrier is the lack of resources, as noted in the 2014 report from the Health Organization, particularly in developing nations. Such gaps can limit librarians' accessibility to funding for the expansion of accessible infrastructures, assistive technologies, and tailored

staff training (WHO, 2014). Also, many of the modern advancements in technology pose a challenge to librarians. The integration of Artificial Intelligence into libraries is expected to transform these institutions, but may raise some privacy and ethical issues (Kumar & Jyoti, 2024). The changes AI brings should ensure that inclusivity remains a core value, which begs further inquiry into the ethics surrounding the adoption of new technology. Particularly for marginalized populations, libraries can aid social inclusion through fostering community relations by implementing initiatives that increase access to technology and provide training in digital literacy.

Digital inclusion guarantees that every individual has the appropriate skills and opportunities to use new technologies and participate meaningfully in society (Gates, 2025). Besides these global issues, libraries also contend with local issues that are peculiar to their areas. These issues may contain spatial constraints, social economic differences, or even some form of political hindrance. It is important for libraries to recognize and deal with these local issues to provide satisfactory services to their communities. On top of that, there is a subset of the population that may not have the internet as well as the skills to use digital services, and this may further entrench their exclusion. To meet these barriers, librarians need to design specific tailored responses that employ local assets, collaborators, and community demands. Also, some librarians seem overwhelmed by the pace at which online materials and technologies are permeating everyday life (Jutras, 2023). Remote access of materials brings a dip in the need for “traditional services” which makes librarian’s work indispensable in transforming library services and resources so that users maximize needed services when they need them, shiftwork. The responsive range of services pertaining to users’ needs includes the provision of online access and digital literacy programs, resources, and active participation of the community.

Current Status and Strategic Directions for Inclusivity in Malaysian Libraries

Libraries support the use of social inclusion by providing appropriate education and information resources to all citizens as libraries are regarded as entry points to information. Public and academic libraries in Malaysia have undertaken some initiatives aimed at helping people with disabilities to promote inclusivity. Nevertheless, the digital divide, lack of sufficient funding, and absence of some assistive technologies remain expositive challenges. This part will evaluate the status of public and academic libraries in Malaysia regarding the provision of inclusivity services.

Public Libraries

Public libraries in Malaysia have made significant progress in promoting inclusivity, particularly through expanding digital access and implementing mobile library services. These initiatives have played a crucial role in increasing access to information for diverse communities, especially those in rural communities and low-income group, helping to bridge the gap between urban and rural populations (Perpustakaan Negara Malaysia, 2022). One impactful initiative by Perpustakaan Negara Malaysia is the u-Pustaka platform, which offers free access to over 13 million digital resources such as e-books, journals, and audiobooks. By 2021, membership reached about 596,000 users. During the COVID-19 pandemic, usage surged—database access rose by 54.8% from 2019 to 2020, and by another 43.5% in 2021—highlighting the growing demand for digital library services during lockdowns (Perpustakaan Negara Malaysia, 2022).

However, public libraries still face several major challenges. A study by the Malaysian Institute of Microelectronic Systems (MIMOS) in 2024 found that 40% of rural public libraries in Malaysia lack the necessary equipment to fully leverage digital tools, while 55% report insufficient staff training (Abu et al., 2024). Report from Perpustakaan Negara Malaysia (2022), only 40% of the public libraries in Malaysia have a stable internet connection, while many rural libraries lack assistive technology such as screen readers, braille collections and audio reading materials. This digital divide is a major obstacle in the effort to achieve social inclusion. In addition, budget issues also make it difficult to implement disability-friendly infrastructure. Despite initiative such as the provision of wheelchair-friendly shelves in several state libraries, lack of coordination and resources remains a persistent issue.

Academic Libraries

Disability resource support provided by academic libraries in Malaysia has evolved over the years. For example, the University of Malaya (UM) Library provides services to students with visual impairments through the installation of a braille embosser, JAWS screen readers, and other types of computers. These facilities demonstrate a multidisciplinary approach to education at the University of Malaya (Universiti Malaya, 2022). Likewise, Universiti Kebangsaan Malaysia (UKM) incorporates assistive technologies to create more inclusive learning environments, introducing multilingual reading materials alongside sign language interpretation. These are part of the UKM research and development initiatives for learners with hearing disabilities (Alias et al., 2023). However, these improvements still face some obstacles. Kementerian Pengajian Tinggi Malaysia (2021) reports that more than 30 percent of academic libraries do not have the infrastructure necessary to aid students with disabilities. Cost limitations also restrict access to the latest technologies such as automatic screen

readers, virtual reality aids, and journals designed for easier navigation. In addition, the digital gap for those living in rural areas still impacts branch campuses of universities, restricting access for students to digital academic materials.

CASE STUDIES AND BEST PRACTICES

Case studies and best practices play a key role in understanding the effective approaches to promoting inclusive libraries. In this context, libraries in Malaysia and internationally have pioneered various initiatives that can be modelled. Domestically, public libraries such as the Sarawak State Library Bus and u-Pustaka digital platforms have demonstrated success in providing access to information to rural communities and digital users. The Oodi Library in Finland and the library transformation initiatives in Indonesia reveal internationally how innovation can help foster inclusivity in libraries.

Malaysia Case Studies

Malaysian libraries have made notable attempts in extending outreach services to the disadvantaged and rural populations. A classic illustration is the Sarawak State Library Bus. This initiative alone caters to more than 30,000 users in rural areas by providing them with reading materials, particularly in the difficult to access interiors of Sarawak. As revealed by Pustaka Negeri Sarawak (2021), this initiative has helped in improving the literacy levels among children and adults who previously did not have any means of accessing physical libraries. Furthermore, the PNMs u-Pustaka system has effectively increased the access to information in digital form. The system offers more than 13 million digital reading materials such as e-books, journals, and audio collections, with the number of u-Pustaka users growing from 1.2 million in 2018 to 2.8 million in 2022 (Perpustakaan Negara Malaysia, 2022). However, the poor connectivity in some rural regions greatly strains internet accessibility and hampers complete utilization of the platform's features.

International Case Studies

Related to library inclusivity, international standards suggest how imagination can be applied to increase inclusivity. One example of a multidisciplinary library is the Oodi Library in Finland which combines imaginative architecture with assistive technology and a reception area for users. The library is also equipped with modern screen readers, hearing aids, and several collaboration spaces for diverse users. In the words of Yeung (2023), Oodi Library is much more than just a traditional library; it is a center, a hub for the community that fosters a culture of lifelong learning and community involvement. This is an example of a growing and emerging innovation with the school library as a mobile library in Indonesia, which stands as a growing

effort to improve literacy levels in Southeast Asia. This mobile school library is provided for educationally neglected districts. Perpusnas (2022) showed that 80% of respondents claimed there was an improvement in reading and digital literacy after participating in the program. This is a strategy that can be adopted by libraries in Malaysia, especially in the rural areas of Sabah and Sarawak.

Table 1: Comparison of libraries in Malaysia and international

Key Features	Sarawak State Library Bus	u-Pustaka	Oodi Library, Finland	Indonesia
Targets	Rural communities	Digital users	Multicultural and disabled community	Rural communities
Main focus	Access to physical reading materials	Digital access	Assistive technology and creativity	Reading and digital literacy
Number of annual users	30,000	2.8 million (2022)	10,000 daily users	500,000 in 5 years
Challenges	Infrastructure in rural areas	The digital divide	High maintenance costs	Lack of funds and resources

Pusat Penyelidikan Ibnu Ummi Maktum (UMMI) at USIM – Inclusive Quranic Education

The Universiti Sains Islam Malaysia (USIM) undertakes activities aimed at promoting inclusivity in religious education through the 'Al-Quran' Braille, training sign language interpreters in Arabic and developing the Quran Isyarat mobile application for the hearing impaired. These initiatives assist in imparting and inclusively understanding religious concepts for individuals with sight and hearing disabilities. Also, "Al-Qur'an Braille" has further increased the ability of the visually impaired engaging with religious texts, in this case effectively able to spiritually grow. Besides, UMMI has also trained sign language experts who can translate Arabic, thus enabling the hearing impaired to interact more with the Al-Quran, improving the cultural appreciation of the language of the Quran.

In an even open attempt to facilitate further understanding, an Android application called Quran Isyarat was designed. It uses the Hijaiyyah sign code, Makhraj transliteration, and video sign language interpretations to various dramatized unparalleled teaching of the Quranic verses. The application, still in its early phase will feature 11 Surahs, aims to get all the 30 Juz'

of the Quran finally creating a model of education for deaf people which is friendly internationally (Sani, 2019). UMMI's engagement with Quranic teaching for persons with disabilities (PWD) has facilitated the design of inclusive practices for wider application. Their work with Al-Qur'an Braille and Quran Isyarat exemplifies how educational systems can meet particular needs while integration Islamic values (Ahmad Razuan et al., 2019). Using these methods, UMMI leads in opening opportunities for other institutions to integrate religious education within the context of disabilities, thereby promoting the use of inclusive educational materials. These initiatives are constrained by insufficient resources to widen coverage and train sign language instructors. With more assistance, there is an opportunity to broaden these services across the entire country.

REVIEW OF PREVIOUS FRAMEWORKS AND MODELS

To enhance the inclusivity of libraries, we need to analyze previous successful international and regional models and frameworks. These models provide keystones, critical learnings, and best practices which will help construct inclusive library systems within Malaysia. Studying global approaches assists in determining how access, equity, and diasporic engagement are enabled so actively and optimally in Malaysian libraries. This chapter aims to present an appraisal of primary frameworks and models from different countries' libraries including their relevance, strengths and weaknesses, as well as, the possibilities for adoption and adaptation in Malaysia's multiethnic and multicultural society.

Social Inclusion Theory

The theory of social inclusion focusses on granting equity of opportunity to marginalized and undeserved groups, disabled or not, no matter their social class, ethnicity, or the geographical barriers may face. According to Simplican et al. (2015) argued and maintained that social inclusion is defined as providing opportunities where individuals can have more meaningful connections and relationships outside of family of professional support networks. These interconnections and interactions represent the dramatic nature of meaningful relationship among people as social beings, and as communal institutions, libraries are spaces that provide bridge to communal areas for social networks, reciprocal relationships between people from different backgrounds and access to communal resources.

Moreover, Social Inclusion Theory identify four key dimensions of social inclusion that is Social Interaction, Community Participation, Independent Living and Defined Funded Social

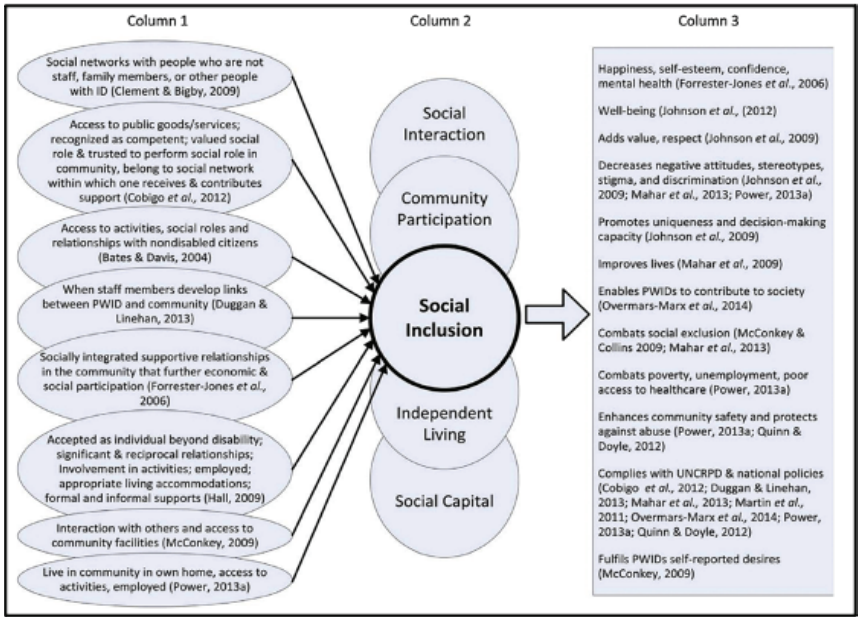


Figure 1: Social inclusion terminology and theory

by Simplican et al. (2015)

Capital. Social Interaction is the access to positive interaction with others, allowing individuals to develop self-confidence and alleviate stigma while also allowing a sense of social belonging (Allman, 2013). Community participation refers to the facilitation or participation by marginalized individuals in meaningful community roles and public service, a process which can combating the social inclusion and discrimination (Brik & Brown, 2024).

The concept of independent living can be attained where those resources, activities, and facilitate are provided to enable people to live in the community with control over their lives, to exercise the maximum autonomy, and to live independently (Gidley et al., 2010). In providing a range of accessible physical and digital infrastructure from assistive technologies and braille collections to audiobooks to accessible spaces which libraries plat a crucial role in supporting independent living for person with disabilities. It helps people find things on their own, and to participate in everyday life interaction fully confident. Social capital as one of the core elements of Social Inclusion Theory, relates to the formation of networks, mutual trust and collection support at the community level (Allman, 2013; Brik & Brown, 2024). This networking activities can grow in libraries via community programs, cultural exchanges and educational workshops. These activities improve individual well-being and mental health, as well as make the community stronger by contributing to collective safety, resilience and social (Brik & Brown, 2024; Gidley et al., 2010). More broadly implementing Social Inclusion Theory

in libraries helps meet individual hopes, societal connectedness, and synergy with significant pillars such as the UN Convention on the Rights of Person with Disabilities (UNCRPD).

IFLA Guidelines for Inclusive Libraries

The International Federation of Library Associations and Institutions (IFLA) has greatly influenced the global framing of inclusion practices in libraries over the years. IFLA has made inclusion especially vital to equity, diversity, and access within its framework of inclusive libraries, which underserves the dire need to focus on marginalized populations. One principle of the framework is that there is not only need to provide access to information, but also create opportunities that remove barriers to access (Ann et al., 2024). Through libraries, the entire world is accessible to all people, particularly those who are disabled or socially excluded; actively allowing their participation through inclusive foundation.

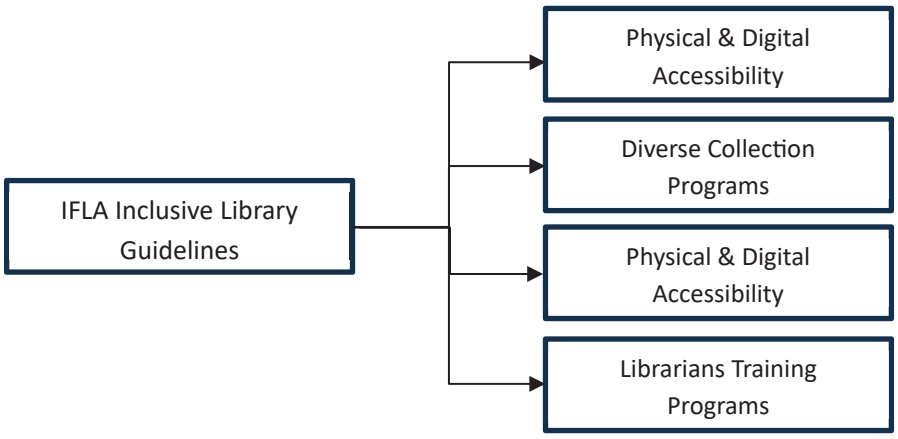


Figure 2: IFLA Inclusive Library Guidelines by Ann et al. (2024)

The IFLA framework identifies Physical and Digital Access as one of its key components. IFLA calls for libraries to create spaces in the libraries and access to digital resources for everyone especially for persons with disabilities. This means providing wheelchairs accessibility, signage that is clear to understand, and physical areas that are accessible to the user's library (IFLA, 2017). Digitally, libraries need to make their e-resources, such as e-books, databases and websites, accessible to assistive technologies, screen readers, voice recognition software and magnification tools, so that users can read the any access with either independent or dependence due to visual impairment (Ann et al., 2024).

Curation of Diverse Collection is another substantive element of the IFLA framework. It includes the effort for interdisciplinary inclusion that aims at fulfilling the psychosocial and identity needs of community members and offers resources in different language. In this regard, libraries also provide braille as well as audiobooks and e-books. E-books and audiobooks are also provided in braille, explaining different people who may need them. With these features, disabling language, ability and economic class barriers is possible (Ann et al., 2024). This fosters integration by removing barriers that divide humanity in the social sphere. Then, everyone can freely use libraries, which transform them into places of service for the whole society. IFLA also emphasizes the role of Community-Based Programs in supporting inclusion. It is advocated that libraries design programs that promote lifelong learning, community involvement, skills acquisition, and active participation, mainly for marginalized groups. Such programs include digital literacy training, job skills workshop, and community cultural engagement activities which all see to assimilate neglected groups into the wider society (IFLA, 2023). With these programs, libraries can assist in alleviating inequality and equipping learners with relevant skills to navigate and succeed in the contemporary world. Moreover, staff training is also important for the effective functioning of inclusive libraries. Library staff need to have the relevant knowledge to work with diverse groups which include persons with disability, the aged, and people from different cultures and socioeconomic statuses. Packaged training empowers library staff to custom design and deliver services that all users from diverse backgrounds can utilize (IFLA, 2017).

The SDGs Framework and Library Transformation

The United Nations Sustainable Development Goals (SDGs) outlines a specific framework directed towards promoting inclusivity, access to essential services, and information. In particular, SDG 4 addresses education which aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. SDG 10 targets the inequalities by reducing inequality within and among countries (Smith et al., 2020). These principles have been incorporated into the operations of libraries, which seek to provide both educational and informational resources to all members of society, particularly the marginalized. Libraries have a critical role in promoting digital inclusion through the provision of information and communication technologies (ICT). They also provide trained personnel who help users acquire new digital skills. In doing so, libraries help achieve SDGs 4 and 10, which promote inclusive and equitable quality education and lifelong learning opportunities for all (Mashroofa, 2022).

Libraries are essentials for fostering education since they provide both academic and extracurricular learning resources. They make sure that people, irrespective of where they live

or their economic background, have access to the infrastructure and information required for their full participation within the society. This is especially pronounced in rural and marginalized regions, which suffer from a lack of educational infrastructure. Public libraries help towards achieving these goals by providing access to educational literature and resources, digital learning tools and lifelong learning empowerment programs (IFLA, 2023). Besides development of education, public libraries and other type of libraries are also very important in the quest of eliminating inequalities. By granting unstrained access to information, libraries begin to assist in breaking the cycle of inequality among the disadvantage's groups. Libraries can offer a host of materials needed for self-advancement, such as job training resources, career guidance, and databases that help raise the economic and social status of this people (IFLA, 2023). Moreover, libraries help the users to develop necessary skills to be able to use electronic gadgets together with information and the internet resources through computers, tablets, e-readers and smartphone applications, especially with the current trend of information and technology. Many public libraries help with bridging the digital literacy gab by offering diverse digital literacy initiatives aimed at people of different socioeconomic status (IFLA, 2023).

Adaptation of Global Models to the Malaysia Context

Although international model for all-encompassing libraries attempts to integrate the needs of all users, considering the rural challenges encountered by Malaysian libraries requires a more tailored approach that takes into account that country's multicultural population and disparate access to technology. With Malaysia having a multicultural society comprising of Malays, Indians, Chinese, and Indigenous people, it is important for libraries to actively work towards inclusivity. Malaysian public libraries, especially those serving rural and underdeveloped areas, have much to learn from practices as Oodi Library in Finland, but custom alterations are imperative to better serve rural sectors (Gidley et al., 2010).

Within Malaysia, the enhancement of initiatives to foster digital literacy represents a significant shift. Programs such as u-Pustaka, which provides educational materials for library users, need to be adapted to increase access for rural residents. In response to the many rural communities that still struggle with access to digital resources and the internet, the expansion of mobile library services, like the Sarawak State Library Bus, could address those gaps. With the potential to mobilize information, these services can take educational materials and library resources to isolated communities, lessening the information gap and contributing to closing the digital divide (Bohari, 2022). Another noteworthy change is the attempt to address the cultural and language diversity within the scope of library. In Malaysia, the multilingual society faced, requires libraries to make provisions in Malay, English, Chinese, Tamil and even some

indigenous languages to include all ethnic groups inclusively. In Malaysia, libraries need to serve the multicultural face of the country by providing reading and educational materials to advance the various socio-cultural groups and communities. Multilingualism allows knowledge to be disseminated to every part of the society using their preferred languages which helps improve cohesion and integration (Ann et al., 2024; IFLA, 2023)

For that, Malaysia's libraries need to construct accessible building to people with other forms of disabilities. More assistive technologies like screen readers, braille materials, and audiobooks will enhance resources access for people with visual and other disabilities. The addition of these materials and the adaptation of basic level accessibility to people with movement disabilities is important to meeting the demands of an all-inclusive library system. The number of available aids to disabled people in Malaysia's libraries is still inadequate, and there is much room for development using model libraries like Helsinki Library in Finland (Hamzah et al., 2015).

The Proposed Framework of Malaysian Libraries for Inclusivity

Malaysian libraries require a multidisciplinary policy approach in providing services to ensure inclusivity for citizens with disabilities, the rural population, and those from the lower socio-economic class, also referred to as the B40 group. This strategy is required to effectively capture all the access disparities around knowledge and resource distribution, especially in mobility, technology, or other forms of services to specific aids. The integration of these policies (IFLA's and SDGs) along with Universal Design principles as framework will enable Malaysian libraries to provide socioeconomic support to all citizens and disable individuals. This will guarantee the alleviation of social inequalities and the compassionate inclusion of marginalized groups into society. An inclusive library is founded on five essential elements which are:

i. Physical & Digital Accessibility
ii. Diverse Collections
iii. Community-Based Programs
iv. Librarian Training
v. Partnerships and Collaborations

Physical and Digital Accessibility

Consideration of disabilities from physical enabling access to the library as well as equipment and technology to a designated activity has to be accommodated at the initial stages of architectural designs of libraries. Course, disabilities require the presence of ramps, toilets, tailored spaces for wheelchair users, and properly structured and dimensioned wide entrances

and exits. These also need to be considered as basic for all other users to enhance their autonomy towards achieving the set objectives. All available spaces in as far as reading and computer workstations are included should be ergonometric ally designed for the comfort of all types of users, including those with physically challenging conditions. In Malaysia, public libraries estimated to be 50% equipped with the infrastructure needed to aid ease movement of people with disabilities marks the missing end for the intended set goals (Perpustakaan Negara Malaysia, 2022).

Like any service today, modern libraries in the digital era also require access to the internet, though this particular feature is often taken for granted. All resources, especially the digital ones, should be accessible to everyone including those with hearing or sight disabilities. Assistive technologies such as screen readers, text-to-speech systems, and voice recognition enable disabled individuals to access e-books and online databases. This type of assistance is invaluable at the present time when numerous resources are available online. Public libraries in rural areas and lesser-served regions of the country are facing challenges with regard to the Internet where only 40 % of libraries in Malaysia report having sufficient access (Ashikuzzaman, 2024; Perpustakaan Negara Malaysia, 2022). Information services that are digitized are exceedingly difficult to obtain for many members of the socially disadvantaged groups when reliable Internet infrastructure is not available (ALA, 2025). Furthermore, projects such as u-Pustaka which supplies digital reading material to library patrons can be used to support wider access. Libraries ought to anticipate designing digital resources like audiobooks and braille e-books in order to cater for users with visual disabilities. Whether physical or virtual, libraries must ensure that all citizens have equitable access to collections, as this growing digitization of resources shouldn’t compromise a library’s core mission of inclusivity (ALA, 2025).

Diverse Collection

Diverse collections form essential components of an multiculturally sensitive library, ensuring that the library resources attend to the wide range of cultural, linguistic, and educational requirements present in the Malaysia. The multi-ethnic and polyglot characteristic of the population requires the libraries to provide learning materials in modern Malay, English, Chinese, Tamil and native tribal dialects. This allows the communities to access the library resources that are appropriate to their cultural and linguistic context. The provision of resources in diverse languages promotes cohesion and acceptance among various ethnic groups and positively impacts educational achievement for individuals from diverse cultures. Collections need to include materials that are adaptable to disabilities. Such materials include braille books, audiobooks, and e-books that enhance accessibility for people with visual

impairments or learning disabilities. According to Perpustakaan Negara Malaysia (2022) report, public libraries in Malaysia only meet 5% of the collection-disabled people's needs, which shows a lack of investment in accessible resources. Expanding accessible collections enhances equity by allowing users, including those with physical disabilities, to access library materials and information (Horton, 2021). The international models, like the Helsinki Library which allocates 20% of its collection to formats accessible to individuals with disabilities, can assist Malaysian libraries (Knology, 2023). Libraries can promote further inclusiveness among people with disabilities and marginalized groups by ensuring that both physical and digital materials are available in accessible formats.

Community Based Programs

Community Programs are significant for Libraries to promote social inclusion and incorporate marginalized and underserved communities in lifelong learning. Libraries need to provide programs that will help with digital literacy, job skills, and community empowerment especially focusing on B40, rural (less developed) community, and the disable group. With such programs, libraries are no longer simply homes for books but centers of learning and growth for those in need in the community. The digital divide is most pronounced in rural areas and low-income families, so programs like workshops for digital literacy are needed the most. Libraries are in a unique position to develop and run workshops that teach the use of computers, navigation of the Internet, and use of digital materials such as e-books and on-line databases. These programs help equip individuals with the skills necessary to thrive in the digital age, to receive education, and even enjoy some employment opportunities. An example of this is the Sarawak State Library Bus which is a mobile library intended to bring underserved communities digital resources and other programs on the go. All these initiatives help expand access to information and books for communities in remote areas (Ashikuzzaman, 2024; Perpustakaan Negara Malaysia, 2022). Beyond digital literacy, providing job skills training such as resume writing, interview techniques, and vocational training will enable community members to increase their chances for success when applying for jobs. Libraries can partner with local organizations to provide community development programs, building an inclusive society where opportunity is available to all regardless of their background. Such programs are vital to decreasing disparities and improving social mobility.

Librarian Training

Training librarians is critical to help them meet the needs of every member in the community, especially those who are marginalized in some way. Such training should include working with ableist communications, inter-ethnic group communications, and fostering respectful empathy. In this context, disability, age, and ethnocentrism need to be addressed. Vincent

(2024) said that, librarians need to be taught how to incorporate accessible resources like Braille and audiobooks into their offerings. This incorporation requires that some assistive strategies be put into place for the support of all users.

Librarians, inclusively trained, are required to modify their work and refresh him/herself to current technologies. By serving the changing needs, standards work of multidisciplinary inclusivity, consultancy, and public service engagement strategies on sociocultural diversity. Jointly with IFLA and UNESCO, reliance on other aid enabling bodies gives hope of charting inclusive curricula towards inclusiveness for librarians. The training modules need to address issues of multiculturalism, disability advocacy, and assist participatory comprehensive medical engagement geared towards active and effective services by librarians to the communities. Library patrons, irrespective of their diverse backgrounds and abilities, interact with libraries that strive to serve them in a respectful manner. Libraries, through dedicated training programs, can guarantee that their personnel are informed, caring, and willing to provide the ultimate services and support to all users of the library. Everything and everyone are approached with optimal regard where trained librarians go above and beyond not only meets the expectation, but fosters a space where inclusive library programs thrive for an environment of feeling supported and valued.

Partnership and Collaboration

Collaborations and strategic partnerships are invariably essential for reaching the maximum usefulness and impact of inclusive libraries. Libraries should liaise with government agencies, NGOs, and community organizations to promote the use of the library services and resources. Such collaborations are helpful for libraries to improve their service offerings, receive additional funds, and ascertain that they truly serve the needs of the local communities (UNESCO, 2023). In Malaysia, the main partners are the Perpustakaan Negara Malaysia (PNM) and the Dewan Bahasa & Pustakawa (DBP). PNM remains central in managing access to national resources and developing policies within a national strategic framework. Meanwhile, DBP assists in the development and promotion of the Malay language in a more holistic manner to ensure involvement in librarianship (Dewan Bahasa dan Pustaka, 2024; Perpustakaan Negara Malaysia, 2022).

Furthermore, IFLA and UNESCO provide international partnerships which enable libraries to have a global outlook, as well as research and approaches to inclusivity (UNESCO, 2023). With such collaborations, libraries can also receive global perspectives on usability and service provision modernization, thereby bringing Malaysian libraries up to date on global trends and

best practices. Libraries and other institutions which participate in international partnerships stand to benefit from current developments in library science, technology, and inclusivity (IFLA, 2023; UNESCO, 2023). Moreover, the participation of the local community in the design of library services actualizes users in the program designing. Libraries can collect feedback from users and partner with local institutions to ensure that their services are effective. Community partnerships and collaboration with the citizenry empowers libraries to change service delivery and to perform their functions as community educational and social resources for all residents inclusively.

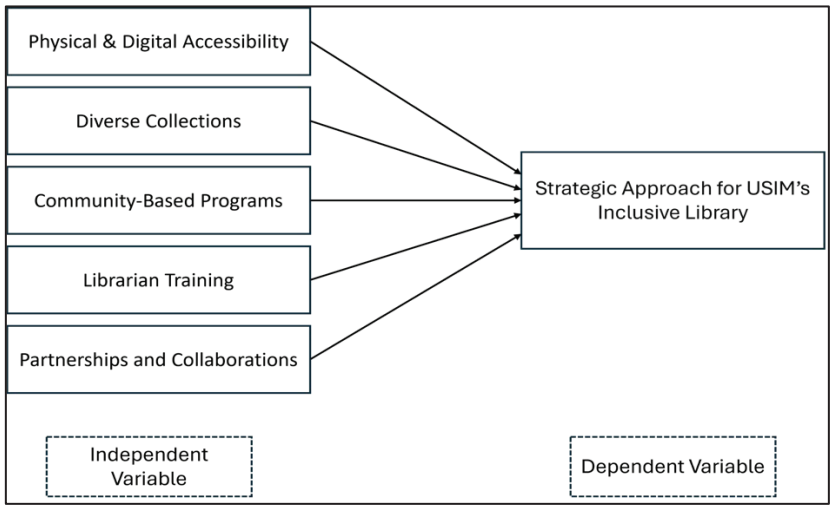


Figure 3: The proposed framework for the USIM inclusive library

Malaysia Inclusive Libraries Challenges

Establishing inclusive libraries in Malaysia faces a number of prominent challenges. One major challenge is the lack of physical accessibility as most library spaces have inadequate provisions for the disabled. The absence of ramps, narrow walkways, shallow corridors, and poor navigational aids hinder movement by people with disabilities, wheelchair users, or people with other mobility challenges. This makes it impossible for them to move about freely and fully utilize available resources within the library. Inadequate braille text, audio books, and other assistive tools also pose a challenge. Libraries are not adequately equipped, funded, or policymaking frameworks to offer these resources which enable access to information for people who have disabilities vison aspects of difference. Libraries that lack investment in inclusive resources risk alienating groups from vital educational and informational resources.

Gaps in curricula and policy also impede the operational effectiveness of inclusive libraries. There are national policies that favor inclusiveness but these policies tend to be inconsistently applied across the system, creating competition among different libraries in resolving access and inclusion issues. Without specific policies, marginalized groups find service provision gaps. Moreover, negative attitudes from the teachers and librarians create additional barriers. A lack of training or knowledge on disability inclusion practices often leads to the inadvertent exclusion of disabled persons or marginalized groups. Some staff in libraries may lack the appropriate training and knowledge to meet the differing needs of library users, which makes inclusivity very hard to attain. These barriers could be tackled more efficiently if different stakeholders worked together but that is not the case. There is a great need for the collaboration of librarians, teachers, policy makers, and advocacy groups to provide systematic solutions to the problems identified, but this collaboration is often lacking. That is what makes these services so difficult to access in a building designed to foster the opposite.

CONCLUSION

Within Malaysia, libraries have the unique opportunity to advance as multi-use facilities that encourage social equity alongside local development because of improved infrastructure access, computer facilities, and digital skills training opportunities for rural B40 communities and hardworking citizens. This advancement allows libraries to reposition themselves as institutions of social change. The melding of public and academic libraries serves as a strategic pillar towards achieving the goal of universal access to information regardless of social barriers like disability or remote geography. For example, academic libraries can take the lead in hosting progressive instructional aids like virtual reality (VR), while public libraries can focus on providing basic reading and relevant instruction to underserved citizens. In addition, Malaysian libraries OOP in Finland and the library transformation in Indonesia, which have effectively fostered the civic technology and social by ingenuity participation Hybrids is a helped public cap from other transforming ASED more needy students’ attention potential architecture, including ILFA and UNESCO offer new materials and give instructions for the amelioration of library activities.

Despite limited funding and the gap in digital information access and usage, libraries in Malaysia have been able to meet these challenges through the assistance and collaboration of the government, educational institutions, and the private sector. Through a comprehensive and anticipatory, as opposed to reactive, approach, libraries in Malaysia serve not only the multi-ethnic groups but also set themselves as models for other nations in developing truly multi-ethnic-inclusive societal libraries. This function embraces Malaysia's sustainable development and improves the identity of the country as an educated, unified nation.

ACKNOWLEDGEMENTS

We would like to extend our thanks to the staff members at the Jabatan Perpustakaan Universiti Sains Islam Malaysia for their assistance provided earlier during the development of this concept paper. The ideas and concepts examined in this body of work have been fully developed because of their expertise, insights, and feedback. The joint efforts along with the intense collaboration exhibited by the library staff have been greatly influential in constructing the framework presented here. We are also grateful for the academic material and references which have assisted us in recognizing the importance of libraries that need to be inclusive within the context of Malaysia. The material obtained from these references has greatly assisted in formulating the concepts of 'accessible', 'inclusive', and 'digitally literate' as they pertain to the libraries needed. Additionally, we would like to mention the moral support extended to us by our friends and family as well. There was a necessary amount of time and energy put into finishing this document due to their support and understanding. Last but not least, we would like to thank those who have helped in one way or another to ensure that this project is achieved successfully. It would have been impossible to create this concept paper without the assistance that was received.

REFERENCES

Ahmad Razuan, S. R., Mohd Raus, N., Hashim, M., Rasdi, M. N. A., Mohamed Yusoff, A., Ja'afar, N., & Muhamad, N. A. F. (2019). Pendidikan Al-Quran Bagi OKU: Pengalaman Pusat Penyelidikan Ibnu Ummi Maktum (UMMI). *'Abqari Journal*, *20*(2), 78-98. https://doi.org/10.33102/abqari.vol20no2.216

Al Hijji, A. K. Z., & Al Hinaai, B. S. (2023). *The Role of Libraries in Achieving the United Nations Goals of Sustainable Development 2030*. https://doi.org/10.17758/eares13.uh0523405

ALA. (2025). *Diverse Collections: An Interpretation of the Library Bill of Rights*. American Library Association. https://www.ala.org/advocacy/intfreedom/librarybill/interpretations/diversecollections

Alabi, A. O., & Mutula, S. M. (2020). Digital inclusion for visually impaired students through assistive technologies in academic libraries. *Library Hi Tech News*, *37*(2), 14-17. https://doi.org/10.1108/LHTN-11-2019-0081

Alias, A., Harun, A., & Kamaruddin, N. (2023). Principles and elements of interactive multimedia teaching aids design for hearing-impaired students. *Malaysian Journal of Society and Space*, *19*(3), 149–170. https://doi.org/10.17576/geo-2023-1903-11

Allman, D. (2013). The sociology of social inclusion. *SAGE Open*, *3*(1), 1-16. https://doi.org/10.1177/2158244012471957

Ann, J., Bolt, N., & Bolt, C. N. (2024). *IFLA Guidelines for Making Libraries Accessible for People with Disabilities* (Issue September).

Ashikuzzaman, M. (2024). *Training and Professional Development of Library Professionals*. LIS Education Network.

Ashmore, B., Grogg, J. E., & Rosen, H. (2020). An accessibility survey of libraries: Results, best practices, and next steps. *The Serials Librarian*, *78*(1-4), 214-218.

Bendridi, A. (2024). Information mediation practices in Algerian academic libraries: A case study of Setif 2 University. *Informatio*, *29*(2).

Bertol, J. C., Jaeger, P. T., Langa, L. A., & McClure, C. R. (2006). Public access computing and Internet access in public libraries: The role of public libraries in e-government and emergency situations. *First Monday*, *11*(9), 3. https://doi.org/10.5210/fm.v11i9.1392

Bohari, S. N. A. (2022). Pendekatan LMM Melalui Perpustakaan Desa Bagi Meningkatkan Tahap Literasi Maklumat Masyarakat Luar Bandar. *Prosiding Seminar Literasi Media Dan Maklumat Kebangsaan 2022*, 1-7.

Bouaamri, A. (2024). The roles of public libraries in enhancing educational systems and social inclusion in Africa. *Prospects*, *54*(2), 467-473.

Brik, A. Ben, & Brown, C. T. (2024). Global Trends in Social Inclusion and Social Inclusion Policy: A Systematic Review and Research Agenda. *Social Policy and Society*, 1-24. https://doi.org/10.1017/S147474642400054X

Chemnad, K., & Othman, A. (2024). Digital accessibility in the era of artificial intelligence. Bibliometric analysis and systematic review. *Frontiers in Artificial Intelligence*, *7*, 1349668.

Dewan Bahasa dan Pustaka. (2024). *Laporan Tahunan Dewan Bahasa Dan Pustaka 2022*. Dewan Bahasa dan Pustaka.

Gates, K. (2025). Bridgin the Empowering Communities Through Technology. *Computers in Libraries*, *45*(3), 13-15. https://doi.org/N/A

Gidley, J. M., Hampson, G. P., Wheeler, L., & Bereded-Samuel, E. (2010). Social inclusion: Context, theory and practice. *The Australasian Journal of University-Community Engagement*, *5*(1), 6-36.

Hamzah, M. F., Yahaya, M. A. F., & Abdul Hadi, A. T. (2015). Services to library users with disabilities. *The 6th International Conference on Asia-Pacific Library and Information Education and Practice*, 53-63.

https://www.researchgate.net/profile/Chihiro_Kunimoto/publication/297737599_ALIEProceedings2015/links/56e27b6e08ae3328e0775894/ALIEProceedings2015.pdf#page=52

Horton, V. (2021). *The Necessity of Collaboration*. American Libraries Magazine.

IFLA. (2017). *Access to Libraries for Persons with Disabilities*. International Federation of Library Associations and Institutions (IFLA).

IFLA. (2023). *Access to Libraries for Persons with Disabilities Guidelines*. International Federation of Library Associations and Institutions (IFLA).

Jutras, J. (2023). Library's Educational Role in Bridging the Digital Divide. *Pathfinder: A Canadian Journal for Information Science Students and Early Career Professionals*, *4*(1), 19-27. https://doi.org/10.29173/pathfinder85

Kementerian Pengajian Tinggi Malaysia. (2021). *Pelan Strategik Pendigitalan Kementerian Pendidikan Tinggi 2021-2025*.

Knology. (2023). *Better Programs, Deeper Impacts, and Expanded Capacities: What Makes Library Partnerships Valuable*. Programming Librarian. https://doi.org/https://programminglibrarian.org/articles/better-programs-deeper-impacts-and-expanded-capacities-what-makes-library-partnerships

Kumar, P., & Jyoti. (2024). Reshaping the library landscape: Exploring the integration of artificial intelligence in libraries. In *IP Indian Journal of Library Science and Information Technology, 9*(1), 29-36. IP Innovative Publication . https://doi.org/10.18231/j.ijlsit.2024.005

Lessick, S. (2015). Enhancing library impact through technology. *Journal of the Medical Library Association*, *103*(4), 222-223. https://doi.org/10.3163/1536-5050.103.4.015

Levin, P. (2021). *Inclusivity in Children's Services within the School and Public Library*.

Loh, C. E., Sundaray, S., Merga, M., & Gao, J. (2021). Principals and Teachers' Perspectives of Their School Libraries and Implications for School Library Policy. *Journal of Library Administration*, *61*(5), 550-571. https://doi.org/10.1080/01930826.2021.1924532

Mahdi, R., Hasanah, M., & Asari, A. (2020). Social Inclusion-Based Library Transformation: a National Library of Indonesia's Role to Support Sustainable Development Goals (SDGs). *Library Philosophy and Practice (e-Journal)*, *6028*. https://digitalcommons.unl.edu/libphilprac/6028/

Mashroofa, M. M. (2022). *Contribution of academic libraries towards sustainable development goals*.

McCluskey, M. (2014). *Transforming Libraries, Building Communities: The Community Centred Library*. Taylor & Francis.

Meulemans, Y. N., & Matlin, T. R. (2019). Are you being served? Embracing servant leadership, trusting library staff, and engendering change. *Library Leadership & Management*, *34*(1).

Neville, A., & Datray, T. (1993). Planning for equal intellectual access for blind and low-vision students. *Library Hi Tech*, *11*(1), 67-71. https://doi.org/10.1108/eb047875

Ogunmodede, T. A., Adio, G., Aboyade, M. A., Ebijuwa, A. S., & Oyetola, S. O. (2023). The Role of Library and Information Services in Achieving Sustainable Development: Issues and Challenges. *International Journal of Library and Information Science Studies*, *9*(2), 30-40. https://doi.org/10.37745/ijliss.15/vol9n23040

Okunlaya, R. O., Syed Abdullah, N., & Alias, R. A. (2022). Artificial intelligence (AI) library services innovative conceptual framework for the digital transformation of university education. *Library Hi Tech*, *40*(6), 1869-1892. https://doi.org/10.1108/LHT-07-2021-0242

Pavan, E. (2013). The Simpsons: Translation and language teaching in an EFL class. *Studies in Second Language Learning and Teaching*, *3*(1), 131. https://doi.org/10.14746/ssllt.2013.3.1.7

Perpusnas. (2022). *Perpusnas Gelar Sosialisasi Program Transformasi Perpustakaan Berbasis Inklusi Sosial*. Perpustakaan Nasional Republik Indonesia. https://www.perpusnas.go.id/berita/perpusnas-gelar-sosialisasi-program-transformasi-perpustakaan-berbasis-inklusi-sosial-tahun-2022

Perpustakaan Negara Malaysia. (2022). *Laporan Tahunan Perpustakaan Universiti Sains Malaysia 2021*. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.pnm.gov.my/pnm/resources/pdf file/Laporan Tahunan/Laporan Tahunan 2021.pdf

Powell, S., & Tutt, R. (2002). When inclusion becomes exclusion. *International Journal of Phytoremediation*, *30*(2), 43-46. https://doi.org/10.1080/03004270285200221

Pustaka Negeri Sarawak. (2021). *Perpustakaan Bergerak Sedia Perkhidmatan ke 189 Buah Sekolah Rendah*. Rakan Community.

Sani, R. (2019, November 4). USIM develops Quran application for the hearing impaired. *New Straits Times*.

Simplican, S. C., Leader, G., Kosciulek, J., & Leahy, M. (2015). Defining social inclusion of people with intellectual and developmental disabilities: An ecological model of social networks and community participation. *Research in Developmental Disabilities*, *38*(December 2014), 18-29. https://doi.org/10.1016/j.ridd.2014.10.008

Smith, M. (2017). *"At Risk": An Analysis of newspaper source materials digitized by US and European repositories*.

Smith, N. M., Hoal, K. E. O., & Thompson, J. F. H. (2020). Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. In *Mining, materials, and the sustainable development goals (SDGs)* (pp. 29–38). CRC Press.

Towolawi, K. (2018). A Survey of Awareness and Perception of Digital Library Services in Nigeria. *International Journal of Computer Applications*, *180*(24), 14–21. https://doi.org/10.5120/ijca2018916564

UNESCO. (2023). UNESCO-IFLA Advocate Libraries in Advancing Inclusive Knowledge Societies and Sustainable Development. *UNESCO*. https://www.unesco.org/en/articles/unesco-ifla-advocate-libraries-advancing-inclusive-knowledge-societies-and-sustainable-development

Universiti Malaya. (2022). *Laporan Tahunan Universiti Malaya 2022*.

Vahid, S. V., & Isfandyari-Moghaddam, A. (2008). Bridging the digital divide: The role of librarians and information professionals in the third millennium. *Electronic Library*, *26*(2), 226-237. https://doi.org/10.1108/02640470810864118

Vincent, J. (2024). *Making the library accessible for all: A practical guide for librarians* (Issue 81). Rowman & Littlefield.

WHO. (2014). Draft WHO global disability action plan 2014–2021: Better health for all people with disability. In *WHO global disability action plan 2014-2021: better health for all people with disability, 2*(April), 1-25).

Yeung, P. (2023). *Helsinki Built a Library That Brings a Whole City Together*. https://nextcity.org/urbanist-news/helsinki-built-a-library-that-brings-a-whole-city-together

Advancing Towards Sustainable Philippine Libraries: An Exploratory Study on SDG Initiatives and Librarians' Perceptions

Eunice Ann Yutuc Chua, Sharon Maria S. Esposo-Betan, Martian A. Jinio

University Library, University of the Philippines Diliman

Corresponding email: eychua@up.edu.ph

ABSTRACT

As the 2030 Sustainable Development Goals (SDGs) set by the United Nations (UN) is nearing, sectors worldwide are seen moving towards achieving the SDG targets by purposely designing and providing resources that would contribute to the realization of the SDGs. Despite the growing global and local efforts to connect libraries with the SDGs, there remains a scarcity of empirical data that systematically explores how Filipino Librarians perceive their roles in sustainable development and how their institutions are contributing to the SDGs. In the Philippines, a group of librarians established SDG Sulong to provide awareness on the significance of libraries in achieving SDGs; document SDG-related initiatives across diverse regions; and to inspire and motivate libraries and communities to create, act, and share initiatives in fulfilling the SDGs. In partnership with CE-Logic Inc., SDG Sulong organized a workshop to raise awareness on the global goals. 1,474 attendees participated, representing all types of libraries nationwide. Employing a descriptive quantitative design, this study assessed participants' familiarity with the SDGs before and after a webinar-workshop intervention; identified strategies they consider effective in promoting SDG awareness and action within their communities or institutions; determined the factors that hinder them in conducting SDG-related initiatives; and documented and thematically analyzed their workshop outputs. Post-workshop results revealed a significant increase in participants' familiarity with the SDGs, shifting from lower to higher familiarity levels. Participants also identified diverse strategic approaches to promoting SDG awareness, with greater emphasis on digital platforms and partnerships. However, practical barriers such as limited resources, training, and institutional support persist. While many expressed aspirational goals for SDG implementation, actual initiatives remained limited. Looking forward, SDG Sulong hopes to

inspire libraries to embrace this social responsibility and contribute meaningfully to the overarching goal of the SDGs – a sustainable and equitable future for all.

Keywords: Sustainable Development Goals; Filipino Librarians; SDG 17 (Partnership for the Goals); SDG Sulong

INTRODUCTION

As the global community advances toward the 2030 deadline set by the United Nations (UN) in 2015 for achieving the Sustainable Development Goals (SDGs), various sectors have begun aligning their efforts and actualising their initiatives with this transformative agenda. In academia, libraries are consistently instrumental in realizing the 2030 Agenda (Thorpe & Gunton, 2021). They also serve as information centers, leading a critical function in promoting sustainability by raising awareness and providing key information that enables communities to act (Das & Singha, 2023).

In the Philippines, efforts to localize and actualise the SDGs in the field of librarianship are taking shape through dynamic and locally-grounded initiatives. Among these is *SDG Sulong* – an initiative established and led by a collective of librarians to highlight the significance of libraries in achieving the SDGs, and to recognize and amplify the unique programs developed by libraries across the country. Through its efforts, SDG Sulong aims to position libraries as active contributors to sustainable development, emphasizing their role in community empowerment, knowledge access, and inclusive growth.

More than just a name, *Sulong* – a Filipino word meaning “to advance” (Sentro ng Wikang Filipino, n.d.) or “to move forward” (Commission on Filipino Language, 1992) – embodies an advocacy to inspire and motivate libraries, communities, and fellow librarians to create *(lumikha)*, act *(kumilos)*, and share *(magbahagi)* their contributions toward the realization of the global goals, coloring the Philippines with stories and hues reflective of the SDGs.

Despite the growing global and local efforts to connect libraries with the SDGs, there remains a scarcity of empirical data that systematically explores how Filipino librarians perceive their roles in sustainable development and/or how their institutions are contributing to the SDG targets. In response to this gap – and rooted in its mission to support librarians and libraries in achieving their goals, and in alignment with SDG 17: Partnership for the Goals – CE-Logic, Inc., a leading library, and research solutions provider in the Philippines, partnered with SDG

Sulong to organize a free webinar-workshop titled *"Where Are We Now? Gearing Up Philippine Libraries Towards Achieving SDG Goals."* Held via Zoom on 31 July, from 9:00 am to 11:30 am, the event examined how libraries can advance the SDGs and explored ways to align their services and programs with sustainable development priorities.

The program featured the following presentations:

- "*State of the Nation: Update on Initiatives Towards Achieving Sustainable Development Goals (SDGs) in the Philippines*" by Atty. Reverie Pure G. Sapaen, Director IV at the National Economic and Development Authority (NEDA), who provided an overview of national progress and policy directions related to the SDGs;
- "*Libraries and SDGs from a Global Perspective*" by Dr. Reysa C. Alenzuela, Head Librarian at the Oriental Institute of the Czech Academy of Sciences and member of the American Library Association - International Relations Round Table (ALA-IRRT), who shared international insights and practices;
- "*How Libraries and Librarians can meet SDGs: Inspiring Local Libraries*" by Elvira B. Lapuz, University Librarian at the University of the Philippines Diliman and member of the Asia-Oceania Regional Division Committee of the International Federation of Library Associations and Institutions (IFLA), who discussed practical strategies and local experiences.

Following the presentations, SDG Sulong conducted an interactive workshop. This activity encouraged dialogue, peer learning, and concrete planning to strengthen the contribution of Philippine libraries to sustainable development.

This paper draws from the survey responses and outputs generated during the webinar-workshop to examine how Filipino librarians perceive their roles in sustainable development and how their institutions contribute to the SDGs. Utilizing thematic analysis of workshop outputs, this study aims to provide insights into how libraries can further embrace their social responsibility and contribute meaningfully to the overarching goal of the SDGs – a sustainable and equitable future for all. Specifically, this research seeks to answer the following research questions:

1. To what extent are participants familiar with the SDGs before and after the webinar-workshop intervention?

2. What strategies do participants consider effective in promoting SDG awareness and action within their communities or institutions before and after the webinar-workshop intervention?
3. What factors hinder participants from promoting and implementing SDG-related initiatives?
4. What kinds of SDG-related initiatives are currently being carried out by libraries (institutions), as surfaced through the thematic analysis of workshop outputs?

LITERATURE REVIEW

United Nations' Sustainable Development Goals (SDGs)

In 2015, the UN Member States adopted the 2030 Agenda for Sustainable Development to implement shared guidelines that espouses peace for posterity. This agenda seeks to create a united response anchored on the 17 distinct SDGs, also known as Global Goals, with 169 individual targets under these goals – which recognizes the aim of a multi-faceted approach through the diverse sectors (i.e. social, economic, and environmental) (United Nations, n.d.). These targets are described as aspirational and global in nature, with each government establishing its own national targets, guided by the overall global ambition while considering national circumstances. (United Nations, 2015). According to Sorooshian (2024) these goals and its targets emphasize that effective global development initiatives are rooted in rigorous research and a deep understanding of the issues at hand.

Status of SDGs

Globally, according to the Sustainable Development Report 2024 (Sachs, Lafortune, & Fuller, 2024), no goal is currently on track to be achieved by 2030. A quick glance at the World SDG Dashboard 2024, also published in the report, shows that for all 17 goals, countries are either experiencing major or significant challenges. When it comes to the specific targets, only 16% are on track, while 84% are either lagging or at risk of backsliding, meaning progress could reverse.

The Philippine context reflects similar challenges. To embed and implement the SDGs at both national and local levels, NEDA plays a significant role. It leads the country's strategic direction on sustainable development by coordinating policies that align with the 17 global goals. Through the SDG Secretariat, NEDA ensures programs are properly identified, tracked, and supported financially. The Millennium Development Goals (MDGs), adopted in 2000, were the precursor to the SDGs and focused on addressing urgent global issues such as poverty,

education, gender equality, and health by 2015 (MDGMonitor, 2017). Building on its institutional experience from the MDGs, NEDA also works to embed sustainability into long-term governance frameworks and encourages collaboration across sectors to sustain progress beyond 2030 (NEDA, 2022).

Despite institutional efforts, the Philippines continues to face significant challenges in achieving the SDGs. According to the 2024 Sustainable Development Report dashboard (Sustainable Development Report, 2024), only one goal – SDG 12 (Responsible Consumption and Production) – has been marked as achieved. The remaining 16 goals are flagged with varying degrees of concern, categorized as challenges remain, significant challenges remain, or major challenges remain. In terms of progress trends, most goals are either moderately improving or stagnating, while SDG 13 (Climate Action) is notably declining. When looking at specific targets adopted by the country, only 31.1% have been achieved, while 39% show limited progress and 29.7% are worsening. These figures reflect the urgency of accelerating SDG efforts and addressing persistent gaps in implementation and impact.

Libraries and the SDGs

Library associations around the world have been actively advocating for the achievement and realization of the SDGs since their adoption in 2015. The International Federation of Library Associations and Institutions (IFLA) has highlighted the crucial role libraries play in providing access to information and knowledge, which in turn supports development and enhances quality of life. This makes libraries essential public institutions with a vital role in advancing societal development (IFLA, 2021).

As a response to the call of IFLA, the American Library Association (ALA) formed the ALA Special Task Force on Sustainability in 2017 to provide a better understanding on sustainability concepts; and to explore strategies on how libraries could engage in sustainability (Tanner, 2019). The Australian Library and Information Association (ALIA) has also expressed its strong support to the SDGs by identifying 10 specific goals which best relate to the Australian setting; and where they contribute the most (ALIA, 2018).

Public libraries, whose very mission is to provide everyone with knowledge and free access to information (IFLA Public Library Manifesto, 2022) – are in a unique position to contribute to the achievement of the SDGs by providing diverse library resources, building community partnerships, and supporting lifelong learning related to the SDGs for its wide range of users

(Aregbesola, 2023). Subsequently, the National Library of the Philippines (NLP) has published a resource material titled "Impact Stories: Public Libraries Contribution to the Community" to illustrate the efforts of public libraries to contribute to the UN 2030 Agenda. Through this material, NLP hopes that the readers will be encouraged and inspired to create and improve their own library services to serve their community even more (NLP, 2020).

Academic libraries, on the other hand, are instrumental in advancing SDGs as they contribute to the goals of an academic institution by providing valuable and reliable resources (Lahyani, 2023). As these institutions are designed to provide and preserve information, academic libraries may also be able to achieve the targets through awareness, provision of space, and teaching information literacy (Dei & Asante, 2022). Higher Education Institutions (HEIs) are also expected to greatly assist in the achievement of these goals by conducting several research (Chankseliani & Mccowan, 2020; Filho, 2023) – and supporting research is one of the many emerging roles of academic libraries. Beyond its traditional function as repositories of knowledge, academic libraries now serve as dynamic research partners – offering access to specialized databases, research data management services, and expertise in areas such as open access publishing, bibliometrics, and research impact (Koltay, 2019)

While there are already existing initiatives that respond to IFLA's call for libraries to contribute to the SDGs, and the awareness of these goals has grown within the LIS research field, a systematic literature study shows that a country's economic status continues to play a significant role in achieving them, as libraries in less economically prosperous nations still face considerable challenges and often lag behind in their contributions. Furthermore, there is a growing need to strengthen the presence of sustainable development concepts within the LIS curriculum to better understand the role of the libraries (Khalid, 2021; Islam 2024)

"The 2024 progress assessment reveals the world is severely off-track to achieve the 2030 agenda" (United Nations, 2024). As libraries are catalysts for communities across all sectors, these institutions play a pivotal role in providing critical information resources, thus, the need for participation and engagement in this global call for action. Given the persistent challenges outlined both globally and in the Philippine context, it becomes even more essential to strengthen the library sector's contribution to sustainable development. With their unique position at the intersection of information access, education, and community empowerment, libraries must be actively involved in driving awareness, fostering partnerships, and supporting programs that align with the SDGs. The urgency of the current global status calls

for more localized, innovative, and inclusive efforts, where libraries, regardless of type or setting, can become vital enablers of progress.

METHODS

Employing a descriptive quantitative design, this study aimed to assess participants' familiarity with the SDGs before and after a webinar-workshop intervention, identify strategies they consider effective in promoting SDG awareness and action within their communities or institutions, determine the factors that hinder them in conducting SDG-related initiatives, and document and thematically analyze their workshop outputs.

Prior to the workshop, a pre-test survey was administered to gauge participants' familiarity with the SDGs and their views on effective awareness strategies. The survey comprised close-ended questions, with items adapted from the study of Aregbesola et al. (2023). The same survey was given again after the webinar-workshop to measure any changes in perception. Participants also engaged in a structured activity using the SDGs Library Chart – an adapted tool based on the framework developed by the ALA Task Force on the UN SDGs (ALA, n.d.). The chart contains 17 boxes, each representing an SDG, where participants recorded library services and programs aligned with each goal.

Of the 1,474 unique attendees, 568 completed both the pre- and post-survey as well as the SDG Library Chart activity. These responses comprised the final sample for analysis. A coding scheme with predefined categories and subcategories, developed by the researchers, was used to classify the identified library services. Each response was assigned a primary category based on its dominant theme and could be linked to up to three subcategories, allowing for the identification of patterns, focus areas, and the diversity of services across different library sectors.

Given the time constraints in administering the tests and facilitating the workshop activity, the findings may not fully reflect the breadth of SDG-related efforts in Philippine libraries. Nonetheless, the national scope of the program provides a valuable starting point for understanding the current landscape.

RESULTS AND DISCUSSIONS

Table 1 presents a comparative summary of participants' self-reported familiarity with the SDGs before and after the webinar-workshop. The five-point scale ranges from "Extremely familiar" to "Not familiar at all." The results show a clear improvement in participants' familiarity with the SDGs following the workshop. A notable shift occurred from lower familiarity levels ("Not familiar at all" and "Somewhat familiar") toward higher familiarity levels ("Very familiar" and "Extremely familiar"). These structured learning experiences set out formidable avenues in equipping librarians with the knowledge to engage in SDG-related initiatives, a notion supported by the evidence from the education sector, that SDG retaining workshops significantly enhanced a teacher's pedagogical competencies which emphasizes the value of targeted professional development (Achimugu, Njoku, & Yomi, 2023). Furthermore, this indicates that participants not only gained knowledge but also developed greater confidence in their understanding of the SDGs after the intervention.

Table 1: Self-Reported Familiarity with the SDGs (Pre- and post-workshop)

Familiarity Level	Pre-Workshop (n=568)	Post-Workshop (n=568)
Extremely familiar	14 (2.46%)	157 (27.64%)
Very familiar	72 (12.68%)	296 (52.11%)
Moderately familiar	224 (39.44%)	97 (17.08%)
Somewhat familiar	166 (29.23%)	12 (2.11%)
Not familiar at all	92 (16.20%)	6 (1.06%)

The findings presented in Table 2 indicate a notable increase in participant-identified strategies for promoting SDG awareness following the workshop. Since participants were allowed to select multiple strategies, the total number of responses exceeds the number of participants, reflecting the multifaceted approaches individuals associate with SDG promotion.

Table 2: Participant-identified strategies in promoting SDG Awareness

Strategies	Pre-Workshop (n=568)	Post-Workshop (n=568)
Collaboration and partnership	330 (19.84%)	490 (20.57%)
Conducting outreach programs or community engagements	292 (17.56%)	448 (18.81%)
Educational campaigns or workshops	415 (24.95%)	515 (21.62%)
Integration of SDGs into organization policies and practices	310 (18.64%)	448 (18.81%)
Use of digital platforms and social media	316 (19.00%)	479 (20.11%)
Others	-	2 (0.08%)

Post-workshop responses show not only a higher overall count but also a more balanced distribution across strategies, suggesting that the webinar encouraged participants to consider a wider range of options. While "Educational campaigns or workshops" remained the most identified strategy, its relative proportion slightly declined, while approaches such as "Use of digital platforms and social media" and "Collaboration and partnership" saw modest increases – a change that aligns with the findings from the Atmiya University Library case study, which found that evolving library services, such as technological integration as well as community partnership, were fundamental to increasing SDG awareness and engagement (Tank, 2023). This shift suggests a growing emphasis on digital engagement and inter-institutional cooperation as effective means of advocating SDG awareness. Additionally, the emergence of context-specific strategies in the "Others" category, such as advocating for institutionalized funding and using localized PSA survey data, though infrequent, demonstrates a deepening awareness of systemic and data-driven approaches. These insights may have been influenced by workshop discussions or examples provided. Moreover, while the workshop already offered a holistic lens – incorporating global, local, and even Philippine government perspectives, their long-term impact can be strengthened when anchored inside community-driven and participatory frameworks. As emphasized in studies such as of Aregbesola et al., (2023), initiatives that are rooted in local contexts and actively involve community members are more likely to sustain engagement and relevance overtime.

Overall, the findings emphasized not only increased familiarity with the SDGs but also a notable evaluation in how participants approach advocacy and implementation. This suggests

a move beyond surface-level awareness toward a profound, more strategic, and sophisticated engagement with sustainability efforts, as well as an increasing understanding that effective SDG promotion necessitates multifaceted approaches tailored to particular institutional and community needs, as highlighted in the University of South Africa case, where library-led SDG advocacy proved most effective when incorporated into institutional strategy and policy frameworks (Nhamo & Malan, 2021).

Table 3: Challenges in Conducting SDG-related initiatives

Challenges	Post-Workshop (n=568)
Limited funding and staffing	498 (19.38%)
Limited awareness and engagement from the community	362 (14.09%)
Lack of training and expertise	360 (14.01%)
Lack of relevant resources	345 (13.42%)
Inadequate facilities and technology	323 (12.57%)
Lack of support from the institution	265 (10.31%)
Competing priorities of the staff	226 (8.79%)
Difficulties in measurement and evaluation	191 (7.43%)

In the post-webinar survey, an additional question was included to assess the challenges that hinder the participants in conducting SDG-related initiatives in their libraries. Participants were allowed to select multiple responses, which shows the complexity of the barriers encountered. The data exhibited in Table 3 reflect that after the workshop, participants were able to identify specific operational challenges, particularly those related to resource limitations, community engagement, and institutional support. These insights suggest that while there is heightened awareness of SDG-related goals, practical barriers to implementation remain significant.

The inclusion of difficulties in measurement and evaluation also suggests a growing recognition of the need for more effective tracking of SDG initiatives. Establishing clear impact assessment frameworks and evidence-based reporting mechanisms could help libraries better demonstrate their contributions to sustainable development. Additionally, staff workload and competing priorities emerged as recurring themes, indicating the organizational challenges libraries face in integrating SDGs without additional support or time. Another angle to this is the importance of clear communication from library supervisors or institution heads regarding the institutional commitment to SDGs. Even if staff members are passionate about

implementing SDG initiatives, they may be unable to do so if the organization does not prioritize or support these goals. The alignment of institutional priorities with SDG advocacy is integral to ensuring staff members can effectively contribute to these initiatives.

Furthermore, the large number of respondents who cited limited funding and staffing as a difficulty highlights the ongoing resource limitations that impede long-term effect and sustainable project design. This emphasizes the importance of more strategic budget allocation and the potential value of cross-sector collaboration or partnerships in addressing

financial gaps. The comparatively high percentage of answers that mentioned a Lack of training and expertise further suggests that library expansion plans need to include more robust and formalized capacity-building programs. Additionally, the interplay between community engagement and institutional support can create either a reinforcing loop or a barrier to success. When institutional leadership actively supports collaborations with local communities and aligns SDG efforts with community needs, library programs become more visible and relevant.

In essence, the effective implementation of SDG initiatives in libraries necessitates a comprehensive strategy that aligns institutional priorities, staff capabilities, and stakeholder involvement, rather than relying solely on internal motivation.

Category	SDG 1	SDG 2	SDG 3	SDG 4	SDG 5	SDG 6	SDG 7	SDG 8	SDG 9	SDG 10	SDG 11	SDG 12	SDG 13	SDG 14	SDG 15	SDG 16	SDG 17
Goal	283	263	258	257	258	245	249	260	265	248	254	235	249	240	245	254	269
No Response	167	198	153	79	137	232	224	224	230	215	234	228	216	266	258	247	215
Awareness & Education	66	43	80	204	107	46	22	53	43	53	40	20	42	46	37	54	4
Sustainability Practices	2	6	1	0	0	26	61	0	1	1	17	69	46	6	14	0	0
Health & Well-Being	2	15	65	1	35	11	0	5	2	7	1	0	0	0	1	2	0
Outreach & Community Engagement	34	29	4	11	1	1	2	3	1	6	9	2	5	6	9	2	6
Partnerships & Collaboration	3	7	2	1	2	1	2	5	2	1	7	5	4	1	0	3	66
Resource Access & Equity	7	0	1	6	14	2	2	4	4	32	0	0	0	1	0	2	0
Policy & Advocacy	2	5	1	3	13	4	3	2	0	3	3	2	5	1	2	2	1
Innovation & Technology	0	0	1	2	0	0	3	2	18	2	0	5	0	0	0	0	0
Research & Knowledge Support	0	2	1	2	1	0	0	1	1	0	1	1	1	1	1	0	5
Youth & Children's Services	2	0	1	0	0	0	0	7	1	0	0	1	0	0	0	1	0

Cultural Preservation	0	0	0	2	0	0	0	0	0	0	1	0	0	0	1	1	1
Ethical & Legal Support	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
Disaster Preparedness & Resilience	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Monitoring & Evaluation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Figure 1: Distribution of SDG-related initiatives

The heatmap summarizes the distribution of participant inputs across the SDGs and categories. To ensure inclusivity, this research includes the GOAL and NO RESPONSE categories, providing a descriptive and transparent context for the level of engagement with each SDG. A GOAL entry indicates that a participant has a vision or, more specifically, a goal, relevant to their work, but has not yet initiated a specific activity. On the other hand, a NO RESPONSE signifies that a participant intentionally left the corresponding SDG entry blank due to a lack of current engagement. These metrics aim to enhance the transparency of the dataset, helping to distinguish between aspirational interest and actionable planning.

Figure 1 revealed that all the SDGs received a high number of general goal mentions, and most SDGs also saw a high number of No Responses. However, a comparison with the activity categories shows that many of these goals have relatively few associated initiatives, indicating that while there is strong awareness or intent, concrete implementation remains limited in some areas. The category, “Awareness & Education” emerged as the most frequently cited category across multiple SDGs. Notably, 204 response entries were linked to SDG 4 (Quality Education), suggesting a clear alignment between traditional library roles and educational outreach. This category also appears prominently in SDGs 3 (Good Health), 5 (Gender Equality), and 1 (No Poverty), reinforcing libraries’ contributions to public awareness and information dissemination.

In SDG 4 (Quality Education), the majority of responses were sub-categorized under Literacy Programs(80) and the provision of SDG-related library collections (114). In SDG 5 (Gender Equality), most workshop outputs were sub-categorized into GAD Corner collections (66), the

construction or provision of safe spaces (42), workshops/training (17), and literacy programs (14). This classification reflects several policies and memoranda in the Philippines, particularly those related to the establishment of Gender and Development (GAD) Committees in each institution. Notably, academic institutions such as Ifugao State University and Silliman University have actively contributed to SDG 7 (Affordable and Clean Energy) by installing solar panels in their library buildings, promoting the use of renewable energy on campus. Similarly, several libraries like Isabela State University support SDG 2 (Zero Hunger) by cultivating vegetables outside the library and distributing them to users at no cost.

SDG 17 (Partnerships for the Goals) had the highest number of initiatives under Partnerships & Collaboration (66) that indicate that libraries recognize the value of cross-sector collaboration in achieving sustainable development.

Several categories had minimal representation, such as Cultural Preservation, Disaster Preparedness & Resilience, Ethical & Legal Support, Monitoring & Evaluation, and Innovation & Technology. These gaps may point to limited resources, training, or strategic emphasis in these areas within the library sector. For instance, only one initiative was linked to Monitoring & Evaluation and Disaster Preparedness & Resilience, suggesting a need to strengthen assessment practices and enhance efforts in disaster preparedness for SDG-aligned initiatives.

CONCLUSION

The findings in this paper affirm that SDG awareness and familiarity can grow significantly through structured learning experiences like workshops, especially when these are contextualized and localized for the audience. From the researchers' experience in co-conducting the webinar-workshop, it is important to match the level of discourse to the participants to make the discussions more grounded and relatable. As shown in the earlier sections, strategies may differ and challenges may arise, but what remains consistent is the strong focus on awareness and education based on the workshop outputs, something libraries continue to lead. While some initiatives are still in progress, the goal of contributing to the SDGs remains clear. These efforts do not have to be grand; meaningful action starts with what is already available and feasible in the library. Once these are done, sharing the experience and outcomes becomes just as important, helping other libraries and institutions find their own way forward, and turning small steps into shared progress.

RECOMMENDATIONS

To ensure the continued progress of SDG initiatives within the library sectors, sustained data collection is necessary for future research allowing for revised plans and informed decision-making. Additionally, SDG Sulong should be further leveraged as an advocacy by inviting librarians to actively participate and share best practices. Considering the budgetary constraints revealed, partnership and collaboration with various stakeholders such as government agencies, private entities, and academic institutions, can provide significant resources and expertise to expand and boost implementation efforts.

Moreover, as we develop and implement new SDG-related initiatives, it is important to align our actions with insights from annual sustainable development reports. These reports offer critical benchmarks to help ensure that our goals and targets are not only locally relevant but also aligned with global priorities.

Above all, SDG initiatives need not be large-scale to be meaningful. What matters most is their impact in serving the community, and its sustainability in fulfilling the commitment to sustainable development. Looking forward, SDG Sulong hopes to inspire libraries to embrace this social responsibility and contribute meaningfully to the overarching goal of the SDGs — a sustainable and equitable future for all.

REFERENCES

Achimugu, L., Njoku, Z. C., & Yomi, S. (2023). Impact of SDGs retraining workshops on pedagogical competencies of primary school teachers. *IAFOR Journal of Education, 11*(3).

American Library Association. (n.d.). ALA Task Force on United Nations 2030 Sustainable Development Goals. https://www.ala.org/aboutala/ala-task-force-united-nations-2030-sustainable-development-goals

Aregbesola, A., Owolabi, S. E., & Adebisi, T. (2023). Going to the cities: The strategic roles of public libraries in promoting Sustainable Development Goals. *Public Library Quarterly*, *43*(3), 367- 384. https://doi.org/10.1080/01616846.2023.2253692

Aregbesola, A., Owolabi, S. E., & Adebisi, T. (2024) Going to the cities: The strategic roles of public libraries in promoting Sustainable Development Goals. *Public Library Quarterly, 43*(3), 367- 384, DOI: 10.1080/01616846.2023.2253692

Chankseliani, M. & McCowan, T. (2021). Higher education and the Sustainable Development Goals. *Higher Eduation, 81*, 1-8. https://doi.org/10.1007/s10734-020-00652-w

Dei, D-G. J. & Asante, F. Y. (2022). Role of academic libraries in the achievement of quality education as a Sustainable Development Goal. *Library Management*, *43*(6/7), 439-459. https://doi.org/10.1108/LM-02-2022-0013

Filho, W. L., Salvia, A. L., & Eustachio, J. H. P. P. (2022). An overview of the engagement of higher education institutions in the implementation of the UN Sustainable Development Goals. *Journal of Cleaner Production*, 386, 135694. https://doi.org/10.1016/j.jclepro.2022.135694

Islam, M.A., Sultana, R. & Widén, G. (2024). Ascertaining the place of UN Sustainable Development Goals in public libraries: how much progress have public libraries made in Bangladesh? *Global Knowledge, Memory and Communication*, *73*(3), 354-374. https://doi.org/10.1108/GKMC-03-2022-0072

Koltay, T. (2019). Accepted and emerging roles of academic libraries in supporting Research 2.0. *The Journal of Academic Librarianship, 45*(2), 75–80. https://doi.org/10.1016/j.acalib.2019.01.001

Khalid, A., Malik, G. F., & Mahmood, K. (2021). Sustainable development challenges in libraries: A systematic literature review (2000–2020). *The Journal of Academic Librarianship, 47*(3), 102347. https://doi.org/10.1016/j.acalib.2021.102347

Lahyani, K., Diab, G., & Moukhliss, G. (2024). Role of academic libraries in the achievement of Sustainable Development Goals case study: The Mohamed Sekkat University Library. *Procedia Computer Science, 236*, 566–573. https://doi.org/10.1016/j.procs.2024.05.067

MDGMonitor (2017). *Millennium Development Goals*. https://www.mdgmonitor.org/millennium-development-goals/

NEDA. (n.d.). About Sustainable Development Goals. https://sdg.neda.gov.ph/about-sustainable-development-goals/

Nhamo, G., & Malan, M. (2021). Role of libraries in promoting the SDGs: A focus on the University of South Africa. In: Nhamo, G., Togo, M., Dube, K. (Eds.) *Sustainable Development Goals for Society*. Vol. 1. Sustainable Development Goals Series. Springer, Cham. https://doi.org/10.1007/978-3-030-70948-8_10

National Economic and Development Authority. (2022). *About sustainable development goals.*

Sachs, J. D., Lafortune, G., & Fuller, G. (2024). The SDGs and the UN Summit of the Future. *Sustainable Development Report 2024*. Dublin: Dublin University Press. https://doi.org/10.25546/108572

Sorooshian, S. (2024). The sustainable development goals of the United Nations: A comparative midterm research review. *Journal of Cleaner Production, 453*, 142272. https://doi.org/10.1016/j.jclepro.2024.142272

Sustainable Development Report. (2024). *Philippines: East and South Asia*. https://dashboards.sdgindex.org/profiles/philippines

Tanner, R., Aldrich, R. S., Antonelli, M. and Ho, A. K. (2019). Libraries as sustainability leaders: ALA's Special Task Force. *Library Faculty and Staff Publications, 302*. https://uknowledge.uky.edu/libraries_facpub/302

Tank, S. (2023). Libraries and Sustainable Development Goals: Case study of Atmiya University Library and Learning Centre. http://lms.atmiyauni.ac.in

PKI and 1965: Libraries as Gateways to Justice and Peace under SDG 16

Soraya Hariyani Putri

Directorate of Deposit and Library Collection Development,

National Library of Indonesia, Indonesia

Corresponding email: soraya.hariyani@gmail.com

ABSTRACT

"Truth and humanity cannot be silenced" inspires librarians at the National Library of Indonesia to actively acquire collections on the tragedy of 1965 and the Indonesian Communist Party (PKI) from diverse sources. The library acts not only as a collector of information but also as an access point to the forgotten history. Based on the principles of SDG 16, which promotes peaceful, inclusive, and social justice, the rare collections of National Library's contribute to connecting the society with historically inaccessible facts. This research adopts a qualitative approach of rare collections, including those related to the tragedy of 1965 and PKI. The data were collected through the literature review, observation, and interviews with librarians from the rare collections service. The finding shows that these collections providing a more inclusive and comprehensive perspective on history, supporting information access for social justice, and serving as an essential tool in fostering inclusivity within society. As a result of this research there should be a public discussion, an exhibition, and an interactive activity based on rare collections to raise awareness of history, justice, and humanity. The National Library should also expand its acquisition of collections from local and international sources and create mechanisms to evaluate its contribution to achieving SDG 16, particularly in justice, transparency, and inclusiveness. The role of libraries continues to evolve as a community empowerment agent.

Keywords: Rare Collections; PKI; 1965 Tragedy; Library; Sustainable Development Goals (SDG)

PREFACE

One of the darkest chapters in Indonesia's history is its participation in the 1965 genocide tragedy. No fewer than 500,000 lives were lost without trial, and more than one million individuals were arrested. The Indonesian Communist Party (Partai Komunis Indonesia, PKI) served as the primary justification for the widespread killings and arrests that occurred between 1965 and 1966. This humanitarian tragedy originated from internal conflicts within the Army, arising from the socioeconomic gap between enlisted soldiers and officers. The latent conflict, which had simmered for 17 years, found its manifestation in the rumor of a coup planned by the so-called Council of Generals against President Soekarno. Army officers who supported Soekarno's socialist policies decided to conduct a policing operation by bringing seven generals suspected of involvement in the Council before Soekarno. The operation initially aimed to present the seven generals alive; however, three of them were already deceased when apprehended.

Soeharto was the first to accuse the PKI of orchestrating the events of Friday morning, October 1, 1965. Without sufficient investigation or judicial process, he concluded that the PKI was responsible solely based on Colonel Untung's personal association with key figures in the PKI's Special Bureau. Colonel Untung had claimed leadership of the Revolutionary Council, which opposed the Council of Generals. As a result, communism was purged from political, social, and military life, and the PKI was declared a banned party.

The massacres began in January 1966, coinciding with widespread student demonstrations mobilized by the Army under General Syarif Thayeb, and peaked during the second quarter of 1966 before subsiding in early 1967, prior to General Soeharto's inauguration as Acting President. The purges started in the capital, Jakarta, then spread to Central and East Java, and subsequently to Bali. Thousands of vigilantes and Army troops captured and killed those accused of being PKI members. Although the killings took place across Indonesia, the most severe massacres occurred in PKI strongholds such as Central Java, East Java, Bali, and North Sumatra.

This genocide further tarnished the nation's human rights record. Such grave violations of human rights have been recorded by the United Nations and contributed to the formulation of the Sustainable Development Goals (SDGs), with particular relevance to Goal 16: "Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable, and inclusive institutions at all levels." Goal 16 emphasizes the importance of fostering peaceful and inclusive societies where everyone, regardless of

ethnicity, faith, or sexual orientation, can live free from fear and violence and feel safe in their everyday lives.

The National Library of Indonesia, functioning as a reference, research, preservation, and networking center, plays a crucial role in supporting SDG Goal 16. Beyond collecting materials related to the PKI, the National Library collaborates with publishers, researchers, and the public to facilitate discussions on this sensitive historical topic. Moreover, the National Library preserves diverse perspectives by acquiring rare collections, including those that were once subjected to censorship. This approach ensures equitable access to information and fosters inclusivity.

The objective of this study is to highlight the National Library of Indonesia's role in acquiring and disseminating its rare collections to support access to historical information for social justice, thus contributing to the implementation of SDG 16. It explores how rare collections, particularly those related to the PKI, are made accessible to the public, positioning the National Library as a vital bridge that connects people with their historical heritage in the pursuit of justice and inclusivity.

LITERATURE REVIEW

There are two primary strategies of intellectual activism. One involves speaking truth to power, using the force of ideas to challenge existing power relations. On a metaphorical level, speaking truth to power evokes images of transforming the foundations of social hierarchy, where the less powerful confront the dominant groups armed primarily with their ideas (Collins, 2013).

A simple Google search of the phrase "speak the truth to power" reveals numerous examples focused on confronting those who hold authority within existing social institutions. This highlights the continuing relevance of truth-telling as a means of pushing for social change.

In heterogeneous democratic societies, it becomes even more critical to find ways of communicating important ideas to diverse groups. Recognizing this need, Collins (2013) seeks to make the core ideas of intellectual work accessible to broad, nontechnical audiences, both within and beyond academia, by combining academic rigor with public accessibility. She argues that analysis of social issues is strengthened when people engage in dialogue, speaking *with* others, not *at* them.

Building on this perspective, those who participate in intellectual activism must do a better job of engaging with the public. Imagine how different our collective views on families, education, immigration, and governance might be if scholars presented their ideas not just at academic conferences, but also in public libraries, community centers, college classrooms, parenting workshops and even within their own families.

In addition to strategies for public engagement, theoretical tools can help shape intellectual activism. For instance, critical discourse analysis and discursive psychology can be examined for their alignment with Kevin Rioux's (2010) five underlying assumptions of a social justice metatheory: (1) All human beings have inherent worth and deserve information services that meet their needs; (2) People perceive reality and information differently, often within cultural or role-based contexts; (3) Information and knowledge exist in diverse forms and are essential societal resources; (4) Theory and research should ultimately aim to bring positive change to service constituencies; and (5) Providing information services is inherently a powerful act.

Building further on the concept of justice, John Rawls, in *A Theory of Justice* (1971), defines justice as fairness, emphasizing two principles: "First: each person is to have an equal right to the most extensive basic liberty compatible with a similar liberty for others. Second: social and economic inequalities are to be arranged so that they are reasonably expected to be to everyone's advantage" (p. 60).

These foundations contribute to the broader framework of social justice theory, which addresses three central areas: (1) Determining the role of the state in providing access to and distributing resources (while recognizing debates about whether society should ensure such access); (2) Identifying which resources and services individuals are entitled to based on need (favoring vulnerable or under-resourced groups) or merit (rewarding those deemed most deserving); and (3) Ensuring equal access to resources for all members of society (Cornelius & Harrington, 2014).

Finally, discussions about justice and access extend beyond immediate social services to include how cultural heritage is handled. The ways in which our heritage is collected, researched, interpreted, and presented have long been subjects of intellectual and political debate, particularly regarding their impacts on community memory and identity (Ritchie, 1990).

The National Library of South Africa As an Institutional Memory

Although there is nothing fundamentally different between, for example, library and museum practices of assembling collections of cultural heritage, libraries face a specific challenge in ensuring that documentary collections are accessible, i.e. users of most library collections must be able to read. The particular challenge for South African libraries – and for South Africa's National Library in particular – is that the vast majority of the NLSA's collections are only accessible to those with functional reading literacy.

The collections contain the memories of people, communities, institutions and individuals, the scientific and cultural heritage, and the products through time of our imagination, craft and learning. They join us to our ancestors and are our legacy to future generations. They are used by the child, the scholar, and the citizen, by the business person, the tourist and the learner. These in turn are creating the heritage of the future (Dempsey, 2000)

Libraries are increasingly being drawn on as sources of memory and cultural expression, becoming forums for creating and nurturing identity (at both a community and national level). Libraries are being called upon to be much more to a much broader range of audiences than they used to be (NLSA in the National Library of South Africa Act)

For example, there is a National Library clearly briefed to collect, preserve and make accessible South Africa's published documentary heritage. Collecting is the rationale for the National Library and, as pointed out above, the National Library was founded on the donation of a discrete collection and its milestones have often been marked with subsequent donations of private collections. The separate and combined wealth of these private collections now represents a rich source from which to build new histories, write new stories and from which to research both our collective, intertwined pasts and the multiple stories that make up our community histories

The Legal Deposit Act 54 is specifically aimed at preserving South Africa's intellectual and cultural heritage. The Act is specific – to provide for the preservation of the national documentary heritage through legal deposit of published documents; to ensure the preservation and cataloguing of, and access to, published documents emanating from, or adapted for, South Africa; to provide for access to government information; to provide for a

Legal Deposit Committee; and to provide for matters connected therewith (Preamble of Legal Deposit Act, No. 54 of 1997).

RESEARCH METHODOLOGY

This study employs a qualitative approach to explore the role of the National Library of Indonesia in providing access to rare collections related to the 1965 tragedy and the PKI. Data were collected through literature review, observation, and interviews with librarians in the rare collections service. The research aims to understand how the library can contribute to supporting SDG 16 by providing inclusive and just access to information.

DISCUSSION

The regulations of the National Library of Indonesia regarding the development of rare collections are outlined in the National Library Regulation No. 6 of 2022 concerning Library Collection Development Policies within the National Library of Indonesia. The National Library has acquired and provided content and access to rare collections related to the PKI and the tragedy of 1965. The rare collection mentioned in the guidelines must meet specific qualifications, such as:

1. Being over 50 years old when acquired by the team.
2. Falling within the topics of history, culture, customs, and geography of Indonesia.

The acquired collection include printed books, magazines, newspapers, and recorded collections such as films. The collections are not limited to officially published materials but also include those that were once censored in their time. The provision of collections from historical figures and research on the PKI and the tragedy of 1965 also aims to enable the library to play a role in providing access to information transparently, fairly, and inclusively. This aligns with the principles of SDG Goal 16.

The rare collection are located on the 14th floor of the National Library at Jalan Medan Merdeka in Central Jakarta. These collections consist of rare books, magazines, and newspapers. The rare book collection are divided into three specific segments, Forbidden Collection, Sukarno-Hatta Collection, and Douwes Dekker Collection. The focus of this study is on the forbidden collection. Currently, the National Library holds 1,477 forbidden items.



Figure 1: Segment of the Forbidden Collection

The public can access these rare book collection by visiting the National Library and scanning the barcode. Visitors who wish to find the title of a collection can refer to the barcode of the rare book segment. Visitors can also search through the Online Public Access Catalog (OPAC) available at the entrance, which can also be accessed remotely from outside the National Library.

The author tried to search for the rare book collection by entering the keyword "PKI" in the National Library's OPAC. The following display appeared:

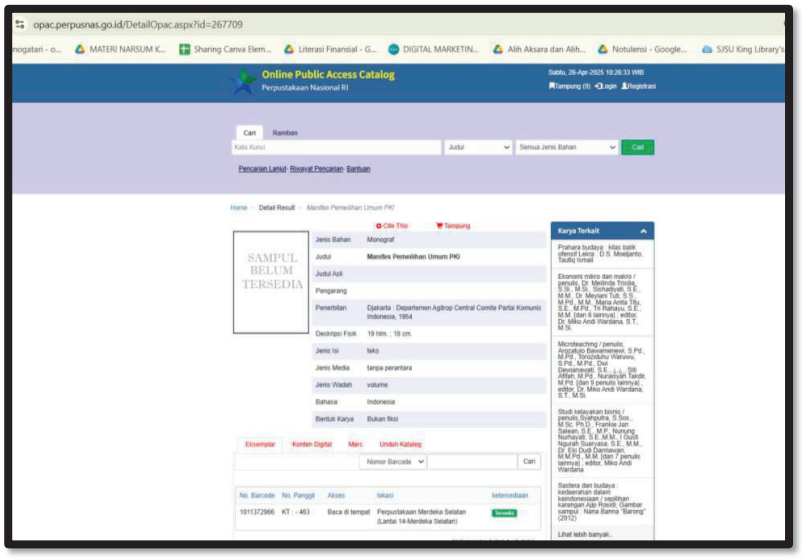


Figure 2: Display of the National Library OPAC

The rare book collection with the keyword "PKI" fall under the category of KT (Forbidden Collection). However, the label for the Forbidden Collection has been removed, and they are now labeled like other collection. Visitors who have accessed the OPAC and selected a collection will scan the barcode to reserve the collection, as access to these rare collection is assisted by the library staff.



Figure 3: Collection reservation form and reading room

In addition to reserving an item from the rare collection, visitors can also reserve a reading room for private use. The author then tried to reserve three books from the rare book collection using the keyword "PKI."

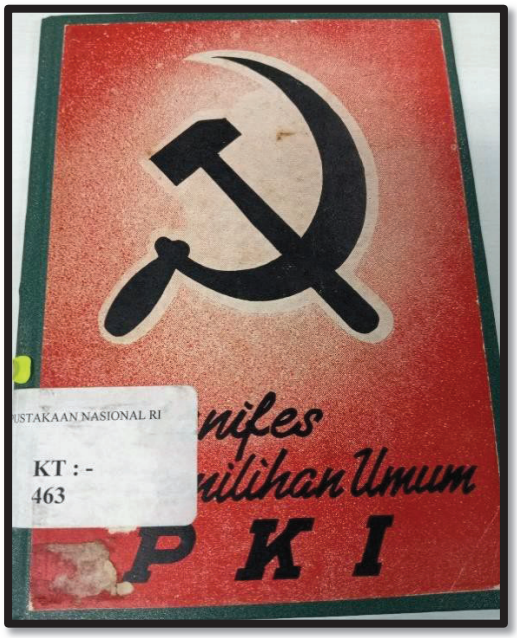


Figure 4: One of the forbidden books in the Rare Collections

The items with the keyword "PKI" were located in the rare book section and in the general collection on floors 21 and 22, specifically in the open monograph collection. However, due to the age of the collection, which is 50 years or older, they are placed in the rare collection section. Many PKI figures, both founders and historical witnesses from the PKI era, have written their thoughts in the form of books, which can be accessed openly at the National Library.

The Role of the National Library in Supporting the Principles of SDG 16: Transparency, Inclusiveness, and Justice.

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels. SDG Goal 16 clearly emphasizes two key terms: peaceful and inclusive. In this context, the National Library has provided equitable access to the public who wish to borrow rare collections. Although the label for "forbidden books" still exists in the system, in practice, it has been removed, allowing collections related to the PKI and the tragedy of 1965 to remain available.

According to Rioux's theory of social justice, the National Library has also provided information services in accordance with the needs of the community (all human beings have an inherent worth and deserve information services that help address those needs). The National Library has also engaged in rare collection acquisitions without restricting any particular topic (There are many different types of information and knowledge, and these are societal resources). Furthermore, the National Library provides information services by offering broad and open access to rare collections (The provision of information services is an inherently powerful activity).

In line with Rawls' theory in *A Theory of Justice* (1971), which states that justice has two principles, one of which is each person is to have an equal right to the most extensive basic liberty compatible with a similar liberty for others. The National Library, in this case, gives the public the right not only to access but also to suggest rare collections they would like to see added, in an open and free manner.

The National Library also determines the role of the state in providing access to and distributing resources (some argue that it is not the role of society to ensure access to resources or to redistribute them). This element is found in the social justice theory of Cornelius & Harrington (2014).

The National Library also plays a crucial role in determining the state’s responsibility in providing access to and distributing resources. Some argue that it is not the role of society to ensure access to resources or to redistribute them. This issue is discussed in the social justice theory of Cornelius & Harrington (2014). In the context of LIS professionals, they are situated within social institutions and tasked with serving diverse communities. While justice is an inherent concern of the profession, it is not always explicitly addressed or manifested in practice (Samek, 2000). Janke (2011) highlights that social justice is a critical issue for librarians because “all parts of a community are entangled” in social institutions, including libraries. As such, it becomes “the obligation of librarians to know their values and act on them” (p. 124).

In addition to this responsibility, LIS professionals, in their mandate to provide service, have often determined what patrons' information needs are, what resources are available, and to whom they are provided (Mehra et al., 2010). This raises important questions about how users, librarians, and other information professionals are discursively constructed within these

settings, and how these constructions enable librarians to exercise discursive power over users.

Libraries have the potential to serve as reference services that offer multiple viewpoints on complex issues. This role not only benefits users intellectually but also emotionally, fostering a well-rounded experience. A fundamental role of information professionals is ensuring that people have access to relevant information, as this is aligned with the profession's core principles. Such access helps to create an informed citizenry capable of sparking social change (ALA, 2008).

Both the American Library Association (ALA) and International Federation of Library Associations and Institutions (IFLA) address social justice, though their references are scattered throughout their core values and code of ethics. These references are intentionally broad and open to interpretation. For example, the ALA (2004) includes social responsibility in its core values, emphasizing efforts to "ameliorate or solve the critical problems of society," support initiatives that help inform and educate people, and encourage them to examine various viewpoints on societal issues. Similarly, IFLA (2011) advocates for "universal and equitable access to information, ideas, and works of imagination for the social, educational, cultural, democratic, and economic well-being of people, communities, and organizations."

To further this mission, librarians must explore and implement innovative ideas and programs that add value and relevance to libraries, transforming them from mere repositories of information and entertainment materials into vibrant community centers (Warren, 2011). This involves community engagement and initiatives that demonstrate how libraries can become epicenters for community learning and lifelong education.

Libraries offer an ideal, non-threatening environment for these efforts (Vårheim et al., 2008). The way in which our heritage is collected, researched, interpreted, and presented is an ongoing intellectual and political debate, particularly in terms of its impact on community memory and identity (Ritchie, 1990).

Memory institutions, such as libraries, museums, and archives, have a distinct role in collecting, preserving, and making accessible comprehensive and representative samples of

historical and contemporary culture. This function ensures that important context-driven questions can be posed at any time.

As dynamic and accountable public institutions, memory institutions shape and manifest the consciousness, identities, and understanding of communities and individuals in relation to their natural, historical, and cultural environments. Through collection, documentation, conservation, research, and educational programs, these institutions are responsive to the needs of society.

CONCLUSION AND RECOMMENDATION

The National Library not only serves as an institutional memory but also contributes to promoting peaceful and inclusive societies for sustainable development, providing access to justice for all, and building effective, accountable, and inclusive institutions at all levels by offering inclusive and equitable access to information, particularly concerning the PKI and the tragedy of 1965. The National Library does not merely preserve history but also fosters dialogue and understanding of past events. This effort is vital in cultivating a peaceful, inclusive, and just society.

The recommendations arising from this study include: organizing public discussions and thematic exhibitions based on rare collections to enhance public awareness of the history from the tragedy of 1965 and the PKI; developing a dedicated digital portal for related collections to broaden online access to information; establishing partnerships with academiccommunities and civil society organizations to enrich the narratives and interpretations of the collections; and implementing evaluation mechanisms to assess the library's contributions to supporting SDG 16, particularly in the areas of justice, transparency, and inclusivity.

ACKNOWLEDGEMENTS

I would like to express my gratitude to the National Library of Indonesia; the librarians of the Rare Book Collection services, namely Mrs. Dian and Mrs. Carissa; my mentors at the workplace, Mrs. Diah Budi; and last but not least, Mrs. Adriati, the Director of the Directorate of Deposit and Collection Development at the Library, for their invaluable support.

REFERENCES

American Library Association. (2004). *Core values of librarianship* [Online]. https://www.ala.org/advocacy/advocacy/intfreedom/corevalues

American Library Association. (2008). *Code of ethics of the American Library Association* [Online]. https://www.ala.org/tools/ethics

Collins, P. H. (2013). Truth-telling and intellectual activism. *Contexts, 12*(1), 36-39, 41. https://doi.org/10.1177/1536504213476244

Cornelius, L., & Harrington, D. (2014). *A social justice approach to survey design and analysis*. Oxford University Press.

Creswell, J. W. (2014). Research design: Qualitative, quantitative, and mixed methods approaches. SAGE.

Dempsey, L. (2000). Scientific, industrial, and cultural heritage: A shared approach: A research framework for digital libraries, museums and archives. *Ariadne, 22*.

International Federation of Library Associations. (n.d.). *IFLA: International Federation of Library Associations and Institutions*. http://www.ifla.org

Janke, D. (2011). *The atlas of new librarianship*. MIT Press. Legal Deposit Act, No. 54 of 1997. (1997). https://www.gov.za/sites/default/files/gcis_document/201409a54-97.pdf

Manžuch, Z. (2009). Archives, libraries and museums as communicators of memory in European Union projects. *Information Research, 14*(2), paper 400.

Mehra, B., Rioux, K., & Albright, K. (2010). Social justice in library and information science. In M. Bates & M. Maack (Eds.), *Encyclopedia of library and information sciences* (3rd ed., pp. 4820- 4836). Taylor & Francis.

Oliphant, T. (2015). Social justice research in library and information sciences: A case for discourse analysis. *Library Trends, 64*(2), 226–245. https://doi.org/10.1353/lib.2015.0016

Piliso-Seroke, J. (2001). Cultural genocide, identity and nation building in post-apartheid South Africa. Paper presented at the *Institute for Justice and Reconciliation Conference*, University of the Western Cape, Bellville, South Africa.

Rawls, J. (1971). *A theory of justice*. Harvard University Press.

Rioux, K. (2010). Metatheory in library and information science: A nascent social justice approach. *Journal of Education for Library and Information Science, 51*(1), 9-17. https://doi.org/10.2307/20720477

Robinson, H. (2012). Remembering things differently: Museums, libraries and archives as memory institutions and the implications for convergence. *Museum Management and Curatorship, 27*(4), 413-429. https://doi.org/10.1080/09647775.2012.720188

Ritchie, G. (2002). The culture of collecting: The National Library as a memory institution. *Historia, 47*(2), 511-530.

Samek, T. (2000). Intellectual freedom and social responsibility in American librarianship, 1967-1974. McFarland.

Stewart, K. N., & Richardson, B. E. (2011). Libraries by the people, for the people: Living libraries and their potential to enhance social justice. *Information, Society and Justice, 4*(2), 83-92.

Vårheim, A., Steinmo, S., & Ide, E. (2008). Do libraries matter? Public libraries and the creation of social capital. *Journal of Documentation, 64*(6), 877-892.

Warren, N. (2011). An essential community element: Public libraries as public space. *APLA Bulletin, 74*(3).

Empowering Sustainable Development Goals Through Library Programs: National Library of Malaysia's Approach

Yazid Ibrahim[1], Rayson Clinsmund Anak Jensonray[2]

[1] Prime Minister of Malaysia's Department

[2] Information Literacy Promotion Division,

National Library of Malaysia

Corresponding email: yazid.ibrahim@jpm.gov.my

ABSTRACT

This paper investigates how the National Library of Malaysia (NLM) contributes to reaching the Sustainable Development Goals (SDGs) set by the United Nations (UN). The research concentrates on assessing how well the library's programs, services, and resources support certain SDGs. The method of documentation research was used, utilizing data collected from the library's yearly reports spanning from 2017 to 2023. The results show that NLM played a part in achieving six SDGs: SDG 1 (No Poverty), SDG 4 (Quality Education), SDG 10 (Reduced Inequalities), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), and SDG 17 (Partnerships for the Goals). These findings emphasize the important contribution of the library in advancing sustainable development through its initiatives. The study's practical implications indicate that NLM is in a good position to increase its impact on the SDGs in coming years. Suggestions involve broadening initiatives aimed at more SDGs, enhancing collaborations with communities, and utilizing technology to advance sustainability efforts. By concentrating on these aspects, the library can remain a crucial ally in advancing national and worldwide development objectives. These actions will guarantee that the library continues to be a vital component of Malaysia's advancement towards sustainable growth.

Keywords: Sustainable Development Goals; SDGs; National Library of Malaysia; Libraries

INTRODUCTION

Sustainable Development Goals: A Concept

The Sustainable Development Goals (SDGs) were adopted by the United Nations General Assembly in 2015 as a response to the urgent need to address global challenges and promote sustainable development (United Nations, 2015). The SDGs are an extension of the Millennium Development Goals (MDGs), which were adopted in 2000 to address poverty, hunger, and disease in developing countries (United Nations, 2000). However, the SDGs are more comprehensive and ambitious than the MDGs, as they cover a wider range of issues and are applicable to all countries, not just developing countries.

The SDGs cover a range of issues, including poverty, hunger, health, education, gender equality, clean water and sanitation, affordable and clean energy, decent work and economic growth, industry, innovation and infrastructure, reduced inequalities, sustainable cities and communities, responsible consumption and production, climate action, life below water, life on land, and peace, justice, and strong institutions. The SDGs, according to Galyuon (2016) are as shown in Figure 1.

 End poverty in all its forms everywhere.	 End hunger, achieve food security and improved nutrition and promote sustainable agriculture.	 Ensure healthy lives and promote well-being for all at all ages.	 Ensure inclusive and equitable quality education and promote lifelong learning opportunity for all.	 Achieve gender equality and empower all women and girls.
 Ensure availability and sustainable management of water and sanitation for all.	 Ensure access to affordable, reliable, sustainable, and modern energy for all.	 Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all.	 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.	 Reduced inequality within and among countries.
Make cities and human settlements inclusive, safe,	 Ensure sustainable consumption and	 Take urgent action to combat climate	 Conserve and sustainably use the oceans, seas	 Protect, restore and promote sustainable use of

 resilient, and sustainable.	production patterns.	change and its impacts.	and marine resources for sustainable development.	terrestrial ecosystems, sustainably manage forests, combat desertification, halt, and reserve land degradation.
	 Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable, and inclusive institutions at all levels.		 Strengthen the means of implementation and revitalize the global partnership for sustainable development.	

Figure 1: UN's SDGs

The 17 SDGs are interconnected and must be addressed in an integrated manner to achieve sustainable development (United Nations, 2015). For example, achieving SDG 2 (Zero Hunger) requires addressing issues related to poverty (SDG 1), health (SDG 3), and education (SDG 4), among others. Similarly, achieving SDG 13 (Climate Action) requires addressing issues related to energy (SDG 7), industry (SDG 9), and sustainable cities (SDG 11), among others.

The SDGs provide a framework for countries, organizations, and individuals to work together towards a sustainable future for all (United Nations, 2015). Achieving the SDGs requires a coordinated effort and the involvement of all stakeholders, including governments, civil society, the private sector, and international organizations.

In conclusion, the SDGs represent a comprehensive and ambitious framework for addressing global challenges and promoting sustainable development. Achieving the SDGs requires a coordinated effort and the involvement of all stakeholders, and their success will depend on the commitment and dedication of the global community.

Malaysia and the Sustainable Development Goals

There have been several initiatives in Malaysia to support the SDGs. Here are some examples:

i. Sustainable Development Goals Roadmap for Malaysia.

The government of Malaysia has developed a SDGs Roadmap to guide its efforts in achieving the SDGs. The roadmap outlines specific actions and targets for each of the 17 goals, and identifies key stakeholders and partnerships to support implementation. The roadmap also emphasizes the importance of data collection and monitoring to track progress towards achieving the SDGs. Malaysia initiatives to achieving SDGs according to Ministry of Economy Malaysia (2021) as follows:

- Established a multi-stakeholder, participatory governance structure helmed by the National SDG Council chaired by the Prime Minister;
- Held several national SDG symposiums and focus group sessions to promote awareness and participation of stakeholders;
- Conducted studies on data readiness and gap analysis;
- Undertaken a mapping exercise involving nongovernment and civil society organisations and the private sector to align SDGs with 11Malaysia Plan (MP) initiatives;
- Formulated a National SDG Roadmap to guide implementation of the 2030 Agenda and the SDGs;
- Implementing SDG initiative under the framework of the 11MP. Moving forward, Malaysia will implement the 2030 Agenda under the framework of 11MP, whereby the means of implementation include:
    - Localising SDGs at sub-national levels by replicating the national multi-stakeholder governance structure at state levels;
    - Mobilising resources and funding through partnerships with stakeholders including crowd sourcing, social entrepreneurship, and Corporate Social Responsibility programmes besides public sector funding under 11MP; and
    - Strengthening data readiness and filling data gaps to develop a comprehensive dataset for SDG implementation.

ii. SDG Challenge by Malaysian Global Innovation and Creativity Centre

The Malaysian Global Innovation and Creativity Centre (MaGIC) launched an SDG Challenge in 2018 to encourage start-ups and social enterprises to develop innovative solutions to support the SDGs. The challenge provided training, mentoring, and funding to selected teams to help

them develop and scale their solutions. The SDG Challenge is offering a total of RM1 million in prizes, including cash prizes, mentorship, and access to MaGIC's network of partners and resources. MaGIC is encouraging start-ups and entrepreneurs from all over Malaysia to apply for the SDG Challenge (Economic Planning Unit, 2021). The challenge is an opportunity to showcase innovative ideas and make a real difference in the world.

In addition to the SDG Challenge, MaGIC is also supporting other initiatives to promote sustainable development in Malaysia.

- MaGIC is a partner in the Malaysia SDG Business Alliance, which is a coalition of businesses committed to sustainable development.
- MaGIC is also a member of the UN Global Compact, which is a global initiative that encourages businesses to adopt sustainable and responsible practices.

iii. Libraries for SDGs Initiative

The Libraries for SDGs Initiative is a collaborative effort by the International Federation of Library Associations and Institutions (IFLA) and the UN to promote the role of libraries in supporting the SDGs. In Malaysia, the National Library of Malaysia (NLM) took the initiative together with other libraries to raise awareness of the SDGs and to develop programs and services to support sustainable development. Libraries in Malaysia are actively involved in various SDG programs and initiatives to promote sustainable development and social progress. A summary of their involvements is as follows:

National Library of Malaysia (NLM): Organizes workshops, seminars, and exhibitions, digitizes resources for accessibility, contributing to SDG 4 (Quality Education).

Universiti Malaya Library (UM Library): Establishes an SDG Corner, organizes SDG-themed events like panel discussions and film screenings.

Universiti Teknologi Malaysia (UTM Library): Develops an SDG Dashboard to track progress towards SDGs, provides data and visualizations on SDG indicators (UTM, 2021).

The Association of Malaysian Librarians (PPM): Establishes an SDG Task Force, develops resources and training materials for librarians, organizes workshops and conferences on SDGs (IFLA, 2022).

Libraries in Malaysia also promote SDGs through their everyday work:

Providing access to information and resources on SDGs.

Promoting literacy and education. Supporting research and innovation.Committing to environmental sustainability and reducing their environmental impact.

Overall, Malaysia has made significant efforts to support the SDGs through government policies, private sector initiatives, and civil society partnerships. These initiatives demonstrate Malaysia's commitment to sustainable development and provide examples of best practices.

PURPOSE

This paper studies the NLM's contribution in supporting the SDGs' achievement. The focus of this study is to explore the compatibility of library activities with the UN SDGs.

METHODOLOGY

This study uses the documentation research method by examining the NLM's annual report from 2017 to 2023. Annual reports were checked against the recommended programs of IFLA and the UN. All reports on library activities (programs, services, and resources) were recorded and mapped based on the SDGs' list. The procedure in collecting data included three stages: 1. taking notes relating to library programs to support improving the quality of user studies and research; 2. taking notes of library facilities and services developed for easy access to information; and, 3. taking note of printed and electronic resources owned by the library. These programs, services and library resources that are recorded and mapped are only relevant to increasing access to information in supporting the quality of education and research within the NLM.

FINDINGS AND DISCUSSION

The NLM plays a vital role in promoting SDGs in Malaysia. The SDGs are a continuation of the MDGs, which officially ended in 2015. The UN also stated that the goals that had not been achieved in the MDGs would be continued by the SDGs.

In the pursuit of a sustainable and equitable future, NLM emerge as a beacon of hope, playing a pivotal role in advancing the UN SDGs. As advocated by the International Federation of Library Associations and Institutions (IFLA) and the UN, NLM is uniquely positioned to bridge the digital divide, empowering individuals, and communities to harness the transformative power of information and communication technologies (ICTs) for sustainable development.

To effectively support the achievement of SDGs, NLM adopt a multifaceted approach, encompassing digital inclusion, skills development, and community engagement. As highlighted by the UN, libraries provide essential means of reaching the next billion by facilitating access to ICTs and offering dedicated support to individuals in developing new digital skills. This commitment to digital inclusion ensures that no one is left behind in the digital age, unlocking the potential for individuals to participate fully in the knowledge society and contribute to sustainable development efforts.

NLM promotes SDG achievements by tailoring initiatives to align with specific goals that resonate with NLM's roles and functions. For instance, NLM contributes to SDG 4 (Quality Education) by offering literacy programs, early childhood development initiatives, and lifelong learning opportunities.

Table 1: Types of programs, services and resources at the NLM

Programs	Services	Resources
Member of IFLA and CONSAL	Membership service	Printed collections (books, journals, magazines, newspapers, etc.)
Internships for university students	National Union Catalogue	Electronic collections (e-books, e-journals, e-magazines, e-newspapers, etc.)
Partnership with other libraries and organization in exhibition activities	Digitizing Malaysiana and Malay manuscripts collections	e-Resources open access
Centre coordinator for Document Delivery System	Preservation of Malay manuscripts collections	Institutional repository
Information literacy training	Book circulation	Institutional knowledge management system
Resource Description Access training	International Standard Serial Number and the National Centre for the International Standard Book Number	
Classification training	National Depository Centre	
Library management trainings	Document delivery system service	
Integrated library system training including KOHA	Welcoming spaces	

Programs	Services	Resources
Reading programs and activities	Collaborative spaces, social spaces, research spaces	
	Services for the disabled	

The results of examining NLM's annual report from 2017 – 2023 illustrate that six SDGs are on the implementation of activities (programs, services, and resources) on achievements of SDGs as shown in Table 1 (National Library of Malaysia, 2017, 2018, 2019, 2020, 2021, 2022 and 2023). The SDGs include SDGs 4, 10,11, 12, 16, and 17 (Figure 2).

Eradicate Poverty





Lifelong Learning

- Circulations services
- Online resources (u-Pustaka)
- Reading programs and activities
- Information literacy programs and workshops
- E-LMM Portals (Self-learning information literacy skills)

- Information literacy
- Resource Description Access training
- Classification training
- Library management trainings
- Integrated library system training including KOHA
- Reading programs and activities
- Information literacy programs
- Jawi (Malay writing system) workshop

Equitable access to information

- Printed collections (books, journals, magazines, newspapers, etc)
- Electronic collections (e-books, e-journals, e-magazines, e-newspapers, etc.)
- e-Resources open access
- Institutional repository
- Institutional knowledge managements system
- Computers and internet services
- Document delivery system

Preserving Cultural Heritage

- Preservation of Personal Collection
- Preservation of Rare Books Collection
- Preservation of Malay Manuscript
- Preservation of Information Packaging
- Preservation of National Collection
- Preservation of Electronic Collection
- Implementation of Deposit of Library Material Act 1986

Conservation of Cultural

- Welcoming spaces
- OKU services
- Digitizing Personal Collection
- Digitizing Rare Collection
- Digitizing Malay Manuscript
- Digitizing Information Packaging
- u-Pustaka digital library
- Eco-craft workshop

Effective Partnership

- Library consortium for u-Pustaka
- Internship for university students
- Members of IFLA, CONSAL, CDNLAO
- Centre coordinator for Document Delivery System
- Centre for International Standard Serial Number
- Centre for International Standard Book Number
- MOU with government agencies, private agencies, Non-government agencies.

Figure 2: Contributions of the NLM towards the SDGs

SDG 1 (Eradicate Poverty)

SDG 1 aims to "end poverty in all its forms everywhere". Libraries play a crucial role in achieving this goal by providing information, resources, and opportunities to individuals and communities living in poverty. They serve as catalysts for social mobility and economic empowerment, helping individuals break the cycle of poverty and improve their livelihoods. IFLA recognizes that libraries can play a crucial role in supporting SDG 1, which aims to end poverty in all its forms and dimensions. NLM support SDG 1 in the following ways:

Providing circulation services: NLM offers a vast collection of physical and online reading materials that are available to members for free. This extensive collection caters to diverse interests and needs, encompassing a wide range of genres, subjects, and formats. The NLM's physical collection boasts millions of books, periodicals, newspapers, and other printed materials. From classic novels and contemporary bestsellers to specialized academic journals and rare historical manuscripts, the library's holdings cover a broad spectrum of literary genres, academic disciplines, and historical periods. In addition to its physical collection, NLM provides access to a comprehensive range of online reading materials through u-Pustaka. Through its digital library platform, members can browse and borrow e-Books, e-Audiobooks, and e-Journals from the comfort of their own homes. u-Pustaka also offers access to a variety of online databases, providing users with a wealth of information on diverse topics. According to NLM Annual Report from 2017 to 2023.

Providing membership services: NLM membership grants individuals access to the library's extensive collection of physical and online reading materials. Members can borrow books, periodicals, and other materials for free, with generous lending periods. Additionally, members enjoy access to the library's numerous facilities and services, including research spaces, study rooms, computer labs, and assistive technology such as virtual reality and augmented reality.

Table 2: Number of visitors, membership, circulation, and usage of online resources

No.	Programs/Activity		2017	2018	2019	2020	2021	2022	2023
1.	Visitors		3,061,861	3,113,416	3,208,357	108,012	15,846	61,199	103,538
2.	Membership registration	NLM	n.a	19,501	16,598	7,684	9,901	9,535	11,221
		u-Pustaka	n.a	19,771	23,322	50,163	66,787	44,123	42,538
3.	Circulation of physical books		2,572,180	2,739,276	2,883,260	208,233	101,336	201,802	245,935
4.	Usage of online resources		8,397,591	10,577,557	11,294,837	13,687,922	15,856,923	10,510,216	307,598

Table 2 shows the number of visitors, memberships, circulation of physical books, and usage of online resources at NLM from 2017 to 2023.The number of visitors to NLM has increased steadily over the years, from 3,061,861 in 2017 to 3,208,357 in 2019. The number of visitors decreased in 2020 due to the COVID-19 pandemic, but it is expected to increase again in 2021 until 2023. The number of memberships at NLM has also increased steadily over the years, from 9,901 in 2021 to 11,221 in 2023. This increase suggests that more people are interested in using the library's resources. The circulation of physical books at NLM has decreased slightly over the years, from 2,572,180 in 2017 to 245,935 in 2023. This decrease is likely due to the increasing popularity of e-books and other digital resources. The usage of online resources at NLM has increased dramatically over the years, from 8,397,591 in 2017 to 15,856,923 in 2021. This increase suggests that people are increasingly using the library's digital resources.

SDG 4 (Lifelong Learning)

The NLM has consistently strived to provide Malaysians with access to high-quality, comprehensive, and equitable education, fostering a culture of lifelong learning. To achieve this ambitious goal, NLM recognizes the significance of establishing a solid foundation for lifelong learning encompassing information literacy skills, relevant competencies, and a conducive learning environment.

Moreover, NLM cultivates relevant skills that align with current and emerging demands in the workplace and society. By recognizing the value of continuous learning, NLM equips Malaysians with adaptable skills that enable them to thrive in a rapidly changing world. This

focus on relevant skills ensures that Malaysians possess the expertise and adaptability necessary to compete successfully in the dynamic global landscape.

To further facilitate lifelong learning, NLM fosters a conducive learning environment that embraces inclusivity, accessibility, and innovation. By creating welcoming spaces that cater to diverse learning styles and needs, NLM ensures that all Malaysians have equal opportunities to pursue knowledge and personal growth. Additionally, NLM embraces technological advancements to enhance the learning experience, providing access to digital resources and innovative learning platforms.

According to the UN (2015), SDG 4 aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. The NLM contribute significantly to achieving this goal by offering educational programs and services to the public. The NLM organizes various seminars, conferences, forums, exhibitions to promote lifelong learning among the societies.

Table 3: Educational programs organize by the NLM

No.	Program/Activity	2017	2018	2019	2020	2021	2022	2023
1.	Reading campaigns	28	16	31	90	14	17	27
2.	Information literacy	283	72	-	-	4	-	20
3.	Seminars	2	1	2	-	-	2	-
4.	Workshops	3	2	13	3	9	4	1
5.	Forums	9	14	9	4	17	12	11
6.	Exhibitions	44	41	48	6	3	21	24

Table 3 shows the number of educational programs organized by the NLM from 2017 to 2023. The NLM organized a total of 369 educational programs in 2017, 146 educational programs in 2018, 103 educational programs in 2019, 103 educational programs in 2020, 47 educational programs in 2021, 56 educational programs in 2022 and 83 educational programs in 2023.

i. Fostering a culture of reading: The NLM contributes to fostering a culture of reading by organizing various programs, activities, and workshops. These initiatives are to promote reading habits, improve literacy levels, and encourage lifelong learning among

the public. Among the programs for promoting the reading habits are Lets' Read Together for 10 Minutes, My Favourites Books, storytelling session, *Singgah Santai*, Jawi Script Workshop and book launching. The NLM also invites academicians for example Dr. Lim Swee, and celebrities such as Emelda Rosemila and Najwa Latif to promote reading habits in Malaysia.

ii. Supporting professional development: The NLM supports the professional development of society by offering training and workshops on various subjects and areas. For example, in 2018, the NLM organized Training of Trainers of Media and Information Literacy for Media and Library Teachers. This helps to enhance the quality of information literacy education in schools. Besides that, NLM also organized intellectual forums such as *Bicara Havard* (Havard Talk)*,* and *Wacana Pemikir and Kalam Karyawan*. These forums invited an academician and notable person such as Tun Ahmad Sarji Abdul Hamid and National Laureates (Dato' Dr. Mohd. Anuar Ridhwan, Profesor Emeritus Dr. Muhammad Hj. Salleh, and A. Samad Said). The NLM also organized Technology Talk Program to introduce the latest technology in libraries and improve IT knowledge among the librarians and the public.

iii. Promoting information literacy: The NLM contributes to promoting information literacy by offering training and workshops on information searching strategies, evaluation of information, organising of information, ethical use of information, dissemination of information, and knowledge creation. By prioritizing information literacy skills, NLM empowers individuals to effectively navigate the vast expanse of information, critically evaluate sources, and construct comprehensive knowledge to ensures that Malaysians can confidently discern credible information from misleading or false content, a crucial skill in today's information-driven society. This can help to bridge the information skills divide and ensure that all members of society have access to the knowledge and skills required for the 21st century. Each year NLM will organize Information Literacy Week in the conjunctions of UNESCO's Media and Information Literacy Week. NLM also organizes information literacy workshops for government and private agencies such as lecturers, doctors, librarians, and other government servants.

iv. Supporting disadvantaged communities: The NLM had undertaken various initiatives to support disadvantaged communities, including individuals with disabilities and those residing in rural or remote areas. These efforts aim to ensure equitable access to education and information for all segments of society. For instance, in 2017 and 2018, NLM organized the *Program Bacalah Kamu Sinar Hidupku* and the Digital Exploration Program specifically for individuals who are visually impaired. More recently, in 2022 and 2023, NLM conducted information literacy workshops for Orang Asli (indigenous peoples) students in Kampar, Perak, and Rompin, Pahang.

In conclusion, the NLM's unwavering commitment to lifelong learning underscores its dedication to empowering Malaysians to become lifelong learners, equipping them with the knowledge, skills, and adaptability to navigate the challenges and opportunities of the 21st century. Through its holistic approach that emphasizes information literacy, relevant skills, and a conducive learning environment, the NLM is laying the groundwork for a society of lifelong learners who can contribute meaningfully to Malaysia's continued progress and prosperity.

SDG 10 (Equitable Access to Information)

Public, community, and village libraries around the world represent the place where people can get reliable access to light and electricity to read, study and apply for a job. These libraries also can provide public-access computers, allowing people to hold meetings, charge devices and access the Internet. To fulfil this role, the NLM develops and manages 507 village libraries to serve local communities. The NLM has allocated as much as RM42,350,000 for village libraries across the country which are managed by 1,153 staff. It aims to provide access to books and educational resources to rural communities in Malaysia. The libraries offer a range of services, including borrowing of books, storytelling sessions, and computer and internet access.

The NLM can play an essential role in promoting access to education and supporting lifelong learning opportunities. By providing access to information and fostering community engagement, libraries can help to ensure that everyone could learn and grow. The NLM offers a vast collection of information resources, including books, journals, newspapers, magazines, databases, and other materials. These resources cover a broad range of topics and can be used for educational purposes, job training, entrepreneurship, research, and personal development.

Table 4: Number of Collection Purchasing by the NLM

No.	Collection	2017 (copies)	2018 (copies)	2019 (copies)	2020 (copies)	2021 (copies)	2022 (copies)	2023 (copies)
1.	Monograph							
	- NLM	15,897	17,953	12,327	62,747	39,000	32,868	31,273
	- Village libraries	85,283	34,967	76,696	100,235	95,533	73,849	68,575
2.	Serial (copies)	976	825	12,591	13,369	7,526	18,583	16,883

3.	Media and electronic (unit)	670	109	237	259	76	50	77
4.	Electronic books	90,686	57,607	32,829	39,343	37,077	0	0
5.	Special collection	168	1,728	1,963	2,056	418	294	768
6.	Databases	18	15	15	19	17	22	22
7.	Augmented reality	0	0	15	0	0	0	0
8.	Virtual reality	0	0	Portal licenser and 8 unit set class VR headset	0	0	0	0

Table 4 shows the number of collections purchased by the NLM from 2017 to 2023. The most common types of collection purchased by the NLM was monographs, followed by serials, media and electronic collection, electronic books, special collections, and databases.

i. Access to quality reading materials: Committed to fostering a love of reading, the -NLM meticulously curates a diverse range of high-quality reading materials for both children and adults. These materials encompass a variety of formats, including books, newspapers, magazines, and digital resources, ensuring that readers of all ages and backgrounds have access to engaging and informative content. The NLM's collection development process prioritizes age-appropriateness and cultural relevance, ensuring that the materials resonate with the communities they serve. From 2017 to 2023, the NLM's commitment to enriching its collection was evident in its acquisition of 212,065 books, 70,753 serials, and 1,478 media and electronic resources. Additionally, the NLM maintains specialized collections for various departments, such as the Malaysiana Collection, Overseas Collection, Media and Electronic Collection, and digital collections encompassing e-books, e-magazines, e-journals, e-newspapers, and more. These extensive digital collections are readily accessible through the user-friendly u-Pustaka platform.
ii. Supporting disadvantaged communities: The NLM provides targeted services and resources to disadvantaged communities, including individuals with disabilities, special needs and those living in rural or remote areas. This helps to ensure that everyone can have access to education and information. For example, the NLM offer audiobooks and Braille materials for users with visual impairments. Village libraries were established to provide access to reading materials for rural residents as many as 509 village libraries

under the management of the NLM throughout Malaysia that help rural residents get information. The NLM also purchased 535,138 books for 509 village libraries.

iii. Supporting research and innovation: The NLM provides access to a wide range of research materials, including scholarly articles, academic books, online journals, and theses. This supports research and innovation in various fields and helps to promote the development of knowledge and skills. Furthermore, the NLM also offer research consultations that help researchers identify relevant sources, provide guidance on how to use the OPACs, databases and search engines.

iv. Supporting distance learning: The NLM provides access to online resources and digital materials, which can support distance learning and enable individuals to continue their education from remote locations. The NLM offer e-books, e-journals, online databases, and other digital materials. These resources can be accessed remotely, allowing individuals to access information from anywhere, at any time. For example, NLM established u-Pustaka which users can search for, and access information resources remotely, without having to visit a physical library. u-Pustaka offers two services, which is physical book borrowing from 12 consortium libraries, and electronic resources collection borrowing such as e-books, e-journals, e-newspapers and others through 22 databases ~~that~~ subscribed by the u-Pustaka.

v. Promoting inclusive education: The NLM contributes to promoting inclusive education by offering programs, training or services that cater to the needs of diverse learners, including those with disabilities and special needs. For example, the library can offer audiobooks and Braille materials for users with visual impairments. For example, on 29 October 2018 – Digital exploration program with the blind.

The NLM also provides the space that supports SDG 10, which aims to reduce inequality within and among the society. The NLM creates an inclusive, learning and training, community gathering, accessible, and innovation space. By doing so, the NLM can help to reduce inequality and create a more just and equitable society. Here are some library spaces in the NLM to support this goal:

i. Inclusive space: The NLM provide a n inclusive space where everyone is welcome, regardless of their socio-economic status, race, ethnicity, religion, or gender. By offering a welcoming and safe environment, libraries can help to reduce discrimination and promote social inclusion. The NLM provide designated area for individuals who need a quiet and safe space to study or work such as discussion rooms and carrel rooms. Besides that, the NLM provides an area for the disabled which is designed to

accommodate users with disabilities. This area has books with large print, braille, audio books, and tactile books for users with visual impairments.

ii. Community gathering space: The NLM fosters community engagement by providing a welcoming and inclusive space where people from diverse backgrounds can come together to exchange ideas, share stories, and promote mutual understanding. They also can learn, read, and participate in cultural activities. This helps to build social connections and promote lifelong learning. The NLM also organizes events and programs that celebrate diversity that help to reduce social inequality and promote cultural exchange.

iii. Innovation space: Libraries can provide an innovation space that encourages creativity, entrepreneurship, and social innovation. By providing access to tools and resources, libraries can foster a culture of innovation and help to reduce economic inequality. On 29 August 2019, under the Eleventh Malaysia Plan, the NLM developed the Library Services Centralization Project. This project aims to upgrade the services space such as discussion rooms, ICT area and reading area.

SDG 11 (Preservation of Cultural Heritage)

SDG number 11 also includes a target to "strengthen efforts to protect and safeguard the nation's cultural and natural heritage." Libraries can play an important role in achieving this target, specifically in preserving cultural heritage to ensure is protected and accessible for future generations. Preserving cultural heritage is an essential component of achieving the SDGs as it contributes to the conservation of human history, diversity, and identity. Libraries play a critical role in preserving cultural heritage, as they serve as repositories of knowledge and information that have the potential to educate, inspire, and empower individuals and communities.

The NLM houses three primary divisions dedicated to safeguarding the nation's cultural heritage, encompassing a vast array of book collections, periodicals, Malay manuscripts, and electronic resources. These invaluable assets, collectively constituting the national collection, are irreplaceable and must be meticulously preserved for the benefit of current and future generations. Their significance lies in their role as repositories of knowledge, chronicle of Malaysia's rich history, and testament to the nation's intellectual heritage.

Table 5 shows the number of materials referred to by the NLM users from 2017 to 2023. The Malaysiana collection consistently ranks highest in terms of materials referred to by the NLM users, with the peak year being 2019, when 213,247 materials were consulted. However, the

onset of the COVID-19 pandemic in 2020 and 2021 led to a decrease in the number of reference materials due to the temporary closure of the library. Following 2021, there was a noticeable increase in the number of materials accessed.

Table 5: Number of collections referred by the NLM's users

No.	Collections	2017	2018	2019	2020	2021	2022	2023
1.	Malaysiana	105,782	88,513	213,247	43,343	9,953	23,356	32,451
2.	Overseas	81,858	83,648	52,377		76		
3.	Malay Manucript	1,132	3,365	n.a	906	n.a	487	194
4.	Electronic sources	13,223	20,838	n.a	n.a	n.a	4,954,268	3,979,055

SDGs 12 (Conservation of Cultural Heritage)

According to IFLA, (n.d.) Libraries are sustainable institutions; they share resources within communities and across borders, to ensure that everyone has access to information. The NLM is a Secretariat of National Document Delivery System (DDS) for libraries in Malaysia. DDS is a service provided by libraries that enables users to borrow materials from other libraries outside of their own library's collection. Besides DDS, the NLM also offer interlibrary loan through u-Pustaka where members can borrow physical books from 12 consortium libraries. Here are some ways that DDS can support SDG 12:

Reducing resource consumption: DDS allows libraries to share their collections and reduce the need for duplicate copies of materials. This reduces the consumption of resources, such as paper, ink, and other materials, needed to create additional copies.

Encouraging sustainable reading habits: By providing access to a wider range of materials, DDS encourages sustainable reading habits. Instead of purchasing new books or other resources, users can borrow them from other libraries, reducing the need to consume additional resources.

Supporting responsible consumption: DDS can support responsible consumption by providing access to resources that help users make informed choices about their consumption habits. For example, users can borrow books on reducing waste, recycling, and other sustainable practices.

Building sustainable communities: DDS can also contribute to building sustainable communities by facilitating the sharing of knowledge and resources. Libraries can work

together to support sustainable initiatives and encourage sustainable consumption and production patterns within their communities.

Conservation of Cultural Heritage Materials

The NLM conserves cultural heritage materials include rare books, manuscripts, photographs, and other historical documents. By conserving these materials, libraries can ensure that they are accessible to future generations and protected from physical damage or destruction. Malay manuscripts have been recognized as a UNESCO Intangible Cultural Heritage of Humanity. In 2009, UNESCO added "*Hikayat Hang Tuah*" to its Representative List of the Intangible Cultural Heritage of Humanity, acknowledging its significance as a traditional Malay epic poem.

The NLM through Conservation and Preservation Department responsible to protect these manuscripts from damage and deterioration. Table 6 showed that from 2017 to 2023, the NLM conserved 9,707 sheets of Malay manuscripts, 64,045 pages of Special Collection (Rare and Personal Collection) and 11,008 copies for book binding.

Table 6: Number of Conservation Collections by NLM

No.	Collection	2017	2018	2019	2020	2021	2022	2023
1.	Malay manuscript	1,302 sheet	1,550 sheet	1,754 sheet	1,224 sheet	1,064 sheet	1,444 sheet	1,369 sheet
2.	Special collection	10,811 pages	11,104 pages	12,948 pages	5,706 pages	5,751 pages	9,259 pages	8,466 pages
3.	Binding	2,154 copies	2,006 copies	1,379 copies	1,308 copies	1,139 copies	1,307 copies	1,715 copies

The NLM also organizes conferences, seminars, exhibitions, and educational programs to promote awareness and appreciation of Malay manuscripts and other cultural heritage materials. Through these efforts, the library aims to preserve Malaysia's cultural heritage and promote a sense of national identity and pride. Here are some examples:

- The NLM organized the International Conference of Malay Manuscript in 2017 and 2019. These conferences brought together scholars from around the world to discuss the latest research on Malay manuscripts.

- The NLM organized International Exhibition of Malay Manuscript 2019. This exhibition showcased the beauty and diversity of Malay manuscripts.

The NLM's efforts to promote awareness and appreciation of Malay manuscripts and other cultural heritage materials are vital to preserving Malaysia's cultural heritage. Through these efforts, the library is helping to ensure that Malaysia's rich culture is passed down from generation to generation.

Digitization of Cultural Heritage Materials

In the realm of cultural preservation, library digitization stands as a beacon of technological advancement, safeguarding the tangible and intangible tapestry of human history. By meticulously converting physical artefacts into digital counterparts, digitization ensures the resilience of these precious materials against the ravages of time and environmental factors. This process transforms fragile manuscripts, weathered photographs, and intricate artefacts into enduring digital entities, safeguarding them for future generations.

Table 7: Number of digitization collections by the NLM

No.	Collection	2017 (pages)	2018 (pages)	2019 (pages)	2020 (pages)	2021 (pages)	2022 (pages)	2023 (pages)
1.	Malay manuscript	8,797	8,685	4,362	2,436	50,585	4,302	15,602
2.	National collection	1,848	476,822	16,217	412,146	0	151,928	652
3.	Rare collection	25,971	59,093	8,836	268	66,661	20,896	7,822
4.	Personal collection	95,603	156,134	968	332	6,003	13,418	20,444
5.	Malay Philology Journal	616	936	2,432	522	0	0	0
6.	Monograph (NLM Publishing)	2,084	116		2,214	0	0	0
7.	*Sekitar Perpustakaan*	0	0	348	0	0	0	0
8.	Newspaper/ Magazine/ Journal clipping	1,063	0	0	0	0	0	0
9.	Photo	123	0	29	0	0	0	0
10.	Ephemeral	40	0	0	0	0	0	0
11.	Audio visual	40	0	0	0	0	0	0
12.	Information repackaging	0	0	0	0	3,732	0	0
13.	Special project (books, magazine, serial)	132	442	0	0	0	0	0

The impact of library digitization extends far beyond mere preservation. It unleashes a transformative wave of accessibility, democratizing access to cultural heritage for a global audience. No longer confined to the physical walls of libraries and museums, digitized collections transcend geographical boundaries, reaching individuals who may not have the privilege of visiting these institutions. This unprecedented accessibility fosters inclusivity and cultivates a broader appreciation for the diverse cultural expressions that enrich our world.

The benefits of library digitization extend beyond the realm of public engagement, permeating the spheres of education and research. Digitized cultural heritage collections serve as invaluable resources for scholars and students, providing a wealth of material for research and exploration. These digital repositories fuel the pursuit of knowledge, fostering innovation and

intellectual curiosity. Moreover, library digitization aligns with SDG 4, which advocates for inclusive and equitable quality education and lifelong learning opportunities for all.

In essence, library digitization stands as a testament to humanity's commitment to preserving and sharing its cultural legacy. It safeguards the tangible remnants of our past, ensuring that the echoes of history continue to resonate through the ages. By democratizing access and fuelling intellectual inquiry, library digitization empowers individuals to connect with their heritage, fostering a deeper understanding of the cultural tapestry that binds us together.

Table 7 shows that the digitization statistic number of pages in each collection of NLM from 2017 to 2023. The National Collection has the highest number of pages digitized with 1,059,613 pages, followed by the Personal Collection with 292,902 pages and the Rare Collection with 189,547 pages.

SDG 17 (Partnership)

IFLA underscores the transformative power of libraries, highlighting their collaborative endeavours with diverse stakeholders at local, regional, and national levels. These partnerships pave the way for community-based programs and services that not only engage but also empower citizens, fostering stronger and more resilient societies. By leveraging their unique position as trusted community hubs, libraries can effectively contribute to the attainment of SDG 17.

The NLM collaborates with other organizations, including schools, universities, and community groups, to promote education and lifelong learning. These collaborations help to extend the reach of the library's services and resources and enable it to have a greater impact on the community.

In addition to providing access to resources and information, libraries also engage in a variety of partnerships, including schools, universities, and community groups, to promote education and lifelong learning that extend their reach and impact. These collaborations help to extend the reach of the library's services and resources and enable it to have a greater impact on the community. These partnerships can take many forms, but some common examples include:

i. Collaboration in reading programs: The NLM often partners with schools, community organizations, and other stakeholders to develop and implement reading programs. These programs can help to improve children's literacy skills and foster a love of reading. For example, the NLM collaborates with Council of Malaysia Public Libraries Director (MPAM) to organize “Let’s Read Together for 10 Minutes” program every year.
ii. Intellectual/academic programs and exhibition activities: The NLM often hosts exhibitions and events that showcase the work of scholars and artists. These events can help to raise awareness of important intellectual and academic issues and can also provide opportunities for public engagement.
iii. Interlibrary loan: Libraries often participate in interlibrary loan programs, which allow them to borrow materials from other libraries for their patrons. This can help to ensure that patrons have access to the materials they need, regardless of which library owns the item.
iv. Consortiums for digital libraries: Libraries often come together to form consortiums that pool their resources and expertise to develop and manage digital libraries. These consortiums can provide access to a wider range of digital content for their users and can also help to reduce the costs of developing and maintaining digital libraries.

Table 8 shows the number of the NLM’s collaborations by type of organization from 2017 to 2023. Government agencies had the most collaborations with the NLM, with a steady increase from 3 in 2017 to 9 in 2021, followed by a slight decline to 3 in 2020 and 4 in 2021 and 3 in 2022. However, in 2023, the number increased again to 9. Non-government agencies had fewer collaborations with the NLM, with 2 collaborations in 2017, none in 2018, 7 in 2019, 0 in 2020, 1 in 2021, 2 in 2022 and 1 in 2023. Private agencies had even fewer collaborations with NLM, with 3 in 2017, none in 2018 or 2020, and 1 in 2019 and none from 2020 until 2023. Foreign agencies had 6 collaborations with NLM in 2017, 1 in 2018, none in 2019 until 2023.

Table 8: Number of NLM’s collaboration

No.	Organization	2017	2018	2019	2020	2021	2022	2023
1.	Government agencies	3	4	9	3	4	3	9
2.	Non-Government agencies	2	0	7	0	1	2	1
3.	Private agencies	3	0	1	0	0	0	0
4.	Foreign agencies	6	1	0	0	0	0	0

RECOMMENDATIONS

Based on the findings and analysis of the NLM contributions to supporting the SDGs, the following recommendations are proposed to further strengthen and expand the library's role in promoting sustainable development:

i. Broaden Alignment with all 17 SDGs

While NLM currently contributes significantly to six SDGs, future strategic planning should aim to align activities across all 17 goals. Programs addressing climate action (SDG 13), gender equality (SDG 5), and sustainable economic growth (SDG 8) can be developed, such as green library initiatives, women's digital empowerment workshops, and entrepreneurship training through library platforms.

ii. Enhance Community-based Collaboration

Strengthening partnerships with local communities, indigenous groups, and civil society organizations is essential. By adopting a community-driven approach, libraries can ensure that programs are culturally relevant, accessible, and meet the actual needs of the target groups, particularly marginalized and rural populations.

iii. Leverage Emerging Technologies

The use of artificial intelligence (AI), virtual reality (VR), and other innovative technologies should be expanded to increase the accessibility and engagement of library services. AI-powered personalized learning, digital preservation initiatives, and smart library systems could significantly enhance user experiences and promote lifelong learning.

iv. Establish a Dedicated Sustainable Development Unit

A specific unit or task force within NLM focusing on SDG initiatives can help streamline efforts, monitor progress systematically, and foster innovation. This unit could also coordinate data collection, impact assessment, and best practice sharing with other libraries nationally and internationally.

v. Intensify Capacity Building for Librarians

Continuous professional development programs should be implemented to equip librarians with knowledge and skills related to sustainable development, information literacy, digital technologies, and community engagement strategies. Librarians must be prepared to act as "SDG champions" within their communities.

vi. Expand Inclusive Access Strategies

Inclusive services for persons with disabilities (PWDs), elderly populations, and language minorities must be strengthened. Initiatives such as multilingual digital content, assistive technologies, and accessible library spaces should be prioritized to ensure equitable access for all.

vii. Strengthen Monitoring and Evaluation Frameworks

Robust monitoring and evaluation systems are crucial to assess the effectiveness of SDG-related programs. NLM should develop specific KPIs aligned with each SDG, conduct regular impact assessments, and utilize data analytics to inform strategic improvements.

viii. Foster Regional and International Cooperation

As part of CONSAL and IFLA networks, NLM should actively participate in cross-border SDG collaborations, sharing expertise, resources, and best practices with libraries across ASEAN and beyond. Joint initiatives could amplify the impact of library-led sustainable development efforts.

ix. Promote Greater Public Awareness

Public advocacy campaigns should be launched to raise awareness of libraries' contributions to the SDGs. Showcasing success stories, organizing exhibitions, and leveraging digital platforms will help position libraries as dynamic agents of social transformation.

x. Develop a National Library Sustainability Blueprint

Finally, a comprehensive long-term sustainability plan should be formulated, integrating environmental stewardship, social responsibility, and economic resilience into all aspects of library management, services, and outreach activities.

CONCLUSION

This study has demonstrated the NLM's substantial involvement in achieving the SDGs, highlighting the library's commitment to sustainable development. The NLM activities have directly contributed to 6 of the 17 SDGs. The findings provide valuable insights for the NLM to enhance its alignment with the National SDGs by integrating sustainability principles into its facilities, services, and resource management strategies. Furthermore, the mapping of the NLM activities serves as a roadmap for refining and improving the alignment of library program activity planning with the SDGs. These findings have far-reaching implications, encouraging all libraries in Malaysia to actively contribute to achieving the SDGs. In essence, the NLM's

commitment to sustainable development is evident in its multifaceted approach to advancing six of the SDGs, paving the way for a more sustainable future.

In conclusion, public libraries stand as powerful allies in the pursuit of a sustainable and equitable future. By embracing digital inclusion, empowering communities with digital skills, and aligning their initiatives with the SDGs, public libraries can play a transformative role in achieving a better world for all.

REFERENCES

Economic Planning Unit. (2021). *Malaysia voluntary national review (VNR) 2021*. https://www.ekonomi.gov.my/sites/default/files/2021-07/Malaysia_Voluntary_National_Review_%28VNR%29_2021.pdf

Galynon, I. (2016). African's education and Sustainable Development Goals (2030): Where is the Nexus? *World Educators Forum* 9(1), 1-9. https://www.globalacademicgroup.com/journals/world%20educators%20forum/Isaac%20Galyuon.pdf.

International Federation of Library Associations and Institutions. (2018). *Libraries and the Sustainable Development Goals: a storytelling manual*. https://www.ifla.org/wp-content/uploads/2019/05/assets/hq/topics/libraries-development/documents/sdg-storytelling-manual.pdf.

International Federation of Library Associations and Institutions. (2022). *Librarians Association of Malaysia Role in Supporting the UN SDGs.* https://www.ifla.org/news/ppms-role-in-supporting-the-sdgs/.

International Federation of Library Associations and Institutions. (n.d.). *Libraries for the SDGs*. https://www.ifla.org/libraries-and-the-sustainable-development-goals.

MaGIC. (2018). *SDG Challenge*. https://mymagic.my/programmes/sdg-challenge/.

Ministry of Economy, Malaysia. (2021). *Sustainable Development Goals*. https://www.epu.gov.my/en/sustainable-development-goals.

Perpustakaan Negara Malaysia. (2018). *Laporan Tahunan PNM 2017*. Kuala Lumpur : Perpustakaan Negara Malaysia.

Perpustakaan Negara Malaysia. (2019). *Laporan Tahunan PNM 20*18. Kuala Lumpur : Perpustakaan Negara Malaysia.

Perpustakaan Negara Malaysia. (2020). *Laporan Tahunan Natonal library 2019*. Kuala Lumpur : Perpustakaan Negara Malaysia.

Perpustakaan Negara Malaysia. (2021). *Laporan Tahunan PNM 2020*. Kuala Lumpur : Perpustakaan Negara Malaysia.

Perpustakaan Negara Malaysia. (2022). *Laporan Tahunan PNM 2021*. Kuala Lumpur : Perpustakaan Negara Malaysia.

Perpustakaan Negara Malaysia. (2023). *Laporan Tahunan PNM 2022*. Kuala Lumpur : Perpustakaan Negara Malaysia.

Perpustakaan Negara Malaysia. (2024). *Laporan Tahunan PNM 2023*. Kuala Lumpur : Perpustakaan Negara Malaysia.

United Nations. (2000). *United Nations Millennium Declaration*. https://www.un.org/millennium/declaration/ares552e.htm.

United Nations. (2015). *Transforming our world: the 2030 Agenda for Sustainable Development*.https://sustainabledevelopment.un.org/post2015/transformingourworld.

UTM Campus Sustainability. (2021). *UTM Sustainability Report 2020*, https://chancellery.utm.my/wp-content/uploads/sites/10/2021/08/UTM-Sustainability-Report-2020-ebook-edition-2_compressed.pdf.

Implementation of the SDG 10 (Reduced Inequality) Program in The Library of UIN Sunan Kalijaga Yogyakarta, Indonesia

Marwiyah, Labibah Zain

Library and Information Science Department

UIN Sunan Kalijaga Yogyakarta

Corresponding email: marwiyah.mlis@uin-suka.ac.id

ABSTRACT

UIN Sunan Kalijaga Library is under the parent institution that promotes inclusiveness as a university value. Therefore, the library should also support the university by implementing inclusive values to reduce inequality that may occur in the library environment. Reduced inequality is one of the goals set by the United Nations those various institutions, including libraries, must implement. Therefore, this research aims to uncover whether UIN Sunan Kalijaga Library has implemented the SDG program. This research employs a qualitative approach to explore the implementation of SDGs in UIN Sunan Kalijaga Library. Interviews and observations are applied to gather data in which librarians become the informants. To analyze data, this research uses 2 targets of SDGs 10 developed by IFLA namely: 1) Neutral and welcoming spaces that make learning accessible to all, including marginalized groups like migrants, refugees, minorities, indigenous peoples, and persons with disabilities; 2) Equitable access to information to support social, politic, and economic inclusion. This research shows that UIN Sunan Kalijaga Library has implemented SDGs in UIN Sunan Kalijaga Library through several programs, namely: 1) library services for students with disabilities through “Difabel Corner”; 2) the “living collections” program, which is a program developed to promote diversity by inviting resource persons who have diverse backgrounds and conditions such as disabilities, multi-ethnicity, and religion to share their experience and knowledge relating to living in diverse community; 3) developing Book for Blind, Institutional Repository for blind library users; 4) accessible physical access for students with disabilities. Although UIN Sunan Kalijaga Library has made significant efforts to reach the target of SDG 10, the library should consistently develop programs to reduce inequality by improving physical access that meet

universal design and developing special collections for disabled users and providing more varied resources for the Living Collection program.

Keywords: Inclusive Library; Sustainable Develoment Goals; SDGs; Reduced Inequality; Academic Libraries

BACKGROUND

In 2016, the United Nations set what is called the Sustainable Development Goal, which consists of 17 main goals, among others, reduced inequality. It soon becomes a challenge to all countries. They must make contributions to making the program, which should be finished in 2030, successful. In this program, the idea of inclusiveness is a big theme, and it concerns, among others, about inequality, the tenth goal in the Sustainable Development Goals. As a matter of fact, inequality is a factor responsible for the difficulty in implementing human rights. It refers to a situation where people do not have the same right to access things, to the fact that there is an inequality (gap) between people, and to the fact that some groups of people are marginalized. According to the report of World Social Science by UNESCO, there are 7 dimensions of inequality: economic inequality, social inequality, cultural inequality, political inequality, environmental inequality, spatial inequality, and knowledge inequality, and all these may lead people to a poor society (Huck 2022). Poverty is where most discrimination, a form of human rights violation, is practiced (Scholz, 2023). The Agenda of the United Nations for 2030 promote “just, equitable, tolerant, open, and socially inclusive world, in which the most vulnerable needs of the people (including people with disabilities, women, and indigenous people) can be satisfied (World Bank Group, 2019). This implicitly shows that the United Nations promotes reduced inequality to create inclusive society where people are guaranteed the same rights for various things. The motto “leaving no one behind” as ascribed in the Sustainable Development Goal implies equality, and in relation to the tenth goal of the Sustainable Development Goals, it is meant to reduce inequality and to make sure that inclusion applies for all, regardless of age, sex, disability, race, ethnicity, origin, religion, economy, and other statuses (World Bank Group, 2019). On those aspects, it should be noted, inequality keeps happening in the world, which may lead to long term social-economic harms and destroy people’s sense of fulfillment and self-worth (United Nations, 2023). So, dealing with inequality is not only about closing the gap but also about doing something to guarantee the realization of the equality of basic human rights. And this is the responsibility of every country and institution, including university. In some countries, a university’s participation, and success in implementing the SDGs program will even be evaluated (Lahyani et al., 2024).

Since libraries are tools for the development of society, libraries can be the most potential university components for implementing SDGs. Libraries are there to function as information centers where people can acquire knowledge to reduce their ignorance and level of uncertainty about their environment (Abata-Ebire et al., 2018). Libraries provide the people (users) with library services and treat them equally; there is no sense of discrimination in the library services. Therefore, libraries have played important roles in promoting reduced inequality so far. The Manifesto Public Library, set by UNESCO and IFLA, explicitly states that public library services must be based on the principle of equality of access for all, regardless of age, ethnicity, gender, religion, nationality, language, social status, and any other characteristic (UNESCO, 2022). And this is in accordance with the motto of the UN Sustainable Development Goals (UNSDGs) "Leave No One Behind." The fact that libraries provide information access, develop inclusive environments, and give services to marginalized people and ethnic groups is also in line with the mission of the UNSDG (Islam et al., 2024). IFLA even adopts the United Nations' agenda for 2030 as part of its programs, making it possible for libraries and librarians to achieve the 17 goals set by the United Nations. This adoption illustrates how libraries and librarians focus on making their contribution to the success of SDGs (Mathiason & Jochumsen, 2022). IFLA, as we know it, is a strong activist that always tries, with its capacity and its global members' support, to develop a strategy to implement SDGs (Nicholson, 2020). IFLA has even stated that all libraries in the world offer various products and services that promote SDGs achievement, ranging from promoting literacy to digital inclusion programs (IFLA, 2018). In the meantime, as stated by Lahyani (2024), academic libraries are instruments for supporting the SDG program, particularly with their participation in field education by providing information resources. Concerning the tenth goal of the SDGs, academic libraries can play important roles in promoting inclusive services, especially those academic libraries under the parent institutions that promote inclusive value, in which users with disabilities receive what they deserve. Academic libraries also play important roles in promoting literacy, innovation, creativity, and in providing information access, which means promoting the achievement of SDGs as well (Dei & Asante, 2022).

UIN Sunan Kalijaga Library, as stated earlier, is one of the libraries that runs its programs under its parent institution, which promotes inclusive values. It accordingly has to implement inclusive values in servicing its users. This demand is felt even more, seeing the fact that UIN Sunan Kalijaga, as an inclusive campus, is open to diversity and is attended by students with various backgrounds in terms of social and economic status, ethnicity, sex, religion, and disability. UIN Sunan Kalijaga is even increasingly attended by students with disabilities (Marwiyah et al., 2024). Having users with various backgrounds, UIN Sunan Kalijaga Library is required to provide equitable services to its users. This is in line with the items of SDGs, especially with the item adopted by IFLA, that is, a neutral and welcoming space that makes

learning accessible to all and provides equitable information access to promote social, political, and economic inclusion (IFLA, 2016). It is, therefore, important to study the implementation of the tenth goal of the SDGs in UIN Sunan Kalijaga Library.

RESEARCH QUESTIONS

Based on the above elaborated background, this research aims to answer the following questions: how does UIN Sunan Kalijaga Library try to achieve SDG number 10, reduced inequality, in servicing the users with various backgrounds.

THE PURPOSE OF THE RESEARCH

This research aims to identify the library's efforts to participate in the accomplishment of the tenth point of the SDGs, that is, reducing inequality. In addition, this research is expected to give recommendations to UIN Sunan Kalijaga and other institutions for maximizing their efforts in supporting SDGs.

THEORETICAL FRAMEWORK

It takes a long time for the United Nations to develop the Sustainable Development Goals (SDGs). In 2013, the General Assemble of United Nations opened a Working Group, involving 30 members, to compose a proposal of SDGs and on January 2015 negotiation the process of development negotiation agenda began, resulting the adoption of 2030 Agenda for Sustainable Development with 17 main goals in the meeting of UN Sustainable Development Summit held on January 2015. This agenda was then adopted by all country members of the United Nations in 2015. This agenda was a document developed for the purpose of peace and prosperity for mankind and earth, now and in the future. This agenda stated 17 goals and 169 targets, they are:

(1) zero poverty; (2) zero hunger; (3) good health and well-being ; (4) quality education; (5) Gender equality; (6) clear water and sanitation ; (7) affordable and clean energy; (8) decent work and economic growth ; (9) Industry, Innovation, and Infrastructure; (10) reduced inequality; (11) sustainability city and communities; (12) responsible consumption and production; (13) climate action; (14) life below underwater; (15) life on land: (16) peace, justice and strong institution; (17) partnership for the goals (United Nations, n.d.-a). The goal studied in this research is goalnumber 10, that is, reduced inequality.

Reduced Inequality

The concept of inequality refers to a situation that prioritizes one segment and excludes the other segment. These inequalities can be mainly age, gender, disability, race, ethnicity, religion, origin, and economic situation (Kufeoglu, 2022). In Social Science, inequality refers to phenomena that is closely related to the inequity of rights and chances received by individuals and social groups. Bereman (2015) said that inequality typically refers to the inequality distribution of resources, opportunities, and outcomes within society. This covers disparities in income, wealth, healthcare, political power, and social status. The tenth goal of the SDGs, reduced inequality, set by the United Nations, is expected to function as a tool to reduce inequality occurrences. To put it into practice, the United Nations has set 10 targets and indicators for it, they are:

1. By 2030, progressively achieve and sustain income growth of the bottom 40 percent of the population at a rate higher than the national average;
2. By 2030, empower and promote the social, economic, and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status;
3. Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies, and action in this regard;
4. Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality;
5. Improve the regulation and monitoring of global financial markets and institutions and strengthen the implementation of such regulations;
6. Ensure enhanced representation and voice for developing countries in decision-making in global international economic and financial institutions to deliver more effective, credible, accountable, and legitimate institutions;
7. Facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies (United Nations, n.d.-b).

IFLA supports this agenda and explicitly brings libraries into the development agenda by stating that equity of information is crucial in the development of education, gender equality, and sustainability (Shesha & Singh, 2024). Further, in relation to the tenth point of the SDGs, IFLA

has also set some targets for it, giving emphasis on Reduced Inequality Within and Among Countries. Libraries, in this case, support the tenth point of the SDGs by providing:

1. Welcoming, neutral space that makes learning accessible to all people, including marginalized social groups, like migrant groups, minority groups, refugees, indigenous people, and people with disabilities.
2. Equitable access to information that supports social, political, and economic inclusion (IFLA, 2016).

So, libraries, including university libraries, should take follow-up actions to the targets. As a matter of fact, libraries are institutions that play important roles in overcoming the digital divide, and this is the key to the success of SDGs. Nowadays so many libraries, particularly those in the third-world countries, offer information facilities, with which people can search for information in the Internet, get literacy contents and learning system, and all this is in line with the tenth point of SDGs, that is, reduced inequality (Shesha & Singh, 2024).

RESEARCH METHOD

This research is qualitative; it is aimed at making a comprehensive understanding of social phenomena in their natural situation (Chinyere & Val, 2023). Data collection is done by using two techniques, they are, observation and interview. Observation is done by observing the library to identify the physical accessibility to the library for disabled users and information access facilities in the library. In addition, the social media account of the library is treated as an information resource to get information about the library's programs and activities in promoting the inclusive value, which is, in this case, reduced inequality. Interview with the librarians is conducted to enrich the data concerning the policies the library makes in promoting inclusive values and reducing inequality.

The purpose of this research is to understand the implementation of the tenth point of SDGs in UIN Sunan Kalijaga Library, and this is the reason why the targets of the tenth point of SDGs developed by IFLA becomes the base for analyzing and seeing whether or not UIN Suna Kalijaga Library has applied the principle needed to reduce inequality, that is, welcoming, neutral space that makes learning place accessible to all people, and providing equitable information accesses that supports social, political, and economy inclusion. The steps taken in analyzing the data are based on Cresswell's theory (2018), organizing and preparing the data for analysis,

reading, or looking at all the data, coding data, generating a description and themes, and lastly presenting the data.

FINDINGS AND DISCUSSION

As an inclusive campus, UIN Sunan Kalijaga is highly demanded to create it an inclusive campus environment. At the same time, UIN Sunan Kalijaga Library, as part of the campus, must support and promote inclusivity. UIN Sunan Kalijaga Library, therefore, always tries to create an inclusive environment in the library by reducing inequality occurrences felt by library users, particularly by library users with disabilities. What the library does is in line with the tenth goal of the SDGs. The library has provided the users (academic society) with access facilities and has developed some programs for them, as you will see in the following discussion.

Physical Access for Users with Disabilities

As an inclusive university, UIN Sunan Kalijaga has students with various disabilities, and their number is increasing. In 2025, UIN Sunan Kalijaga has 84 students with disability. Therefore, UIN Sunan Kalijaga must provide them with an accessible environment. UIN Sunan Kalijaga Library, as an important university element, must be highly accessible for students with disabilities. Physical access the library provide includes areas outside the library, ways to get into the library, and access to the library collections and services (Irval & Nielson, 2005). Based on the observation result, it is known that the area outside the library building, covering the parking lot and the entrance into the library building, is accessible for users with disabilities. Even though there is no specific parking spot for the disabled with the international symbol in it, the available parking lot is wide enough, and part of it leading to the entrance door is empty and can be used for them. Users with wheelchairs can get into the library safely.

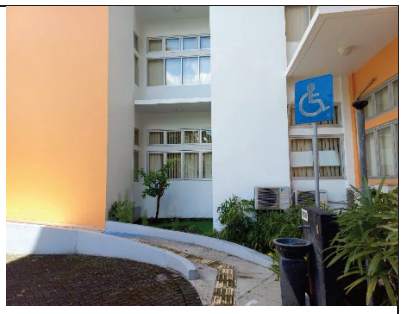
Another thing to note is that the library provides enough ramps for users with wheelchairs. Although the ramp is not completed with left-right railings, they are usable for users with wheelchairs because the floor is made rough, not steep, and with no barrier all along to the entrance door. The ramp connects the outside area to the entrance door with an international symbol for the disabled, which is clear enough and readable for all users.



The parking area that is close to the ramp



Parking area



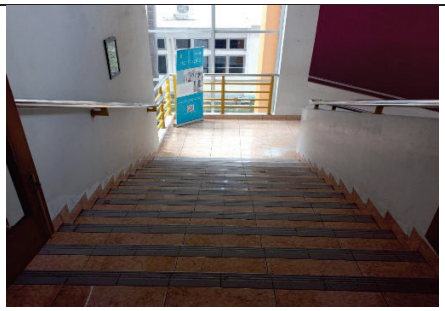
Ramp to access the library entrance

Figure 1: Physical access, outside area of the library

The second aspect of the physical access for users with disabilities is 'getting into the library.' Based on the observation result, it is known that the area towards the entrance door is good for the disabled, particularly the users with physical impairment. The area in front of the entrance door is wide enough, allowing users with wheelchairs to get into the library or even to turn their wheelchairs around. This area is also safe for users with visual impairment because there are no objects and no doorstep in front of the door. The fact that the door is always open also benefits the disabled users. Access to get into the upstairs collection room is completed with stairs, in which the steps are marked with a contrasting color.



The entrance door, widely open, with no barrier



Stairs and steps are marked with a contrasting color

Figure 2: Physical Access, getting into the library

The third aspect of physical access is about access to the library collections and services. The IFLA standard states that space must be arranged in a good, logical design and be completed with clear signage. UIN Sunan Kalijaga Library gives information services on the first-floor floor close to the entrance door to be easily found. The first floor is a wide space and can be easily accessed by users with wheelchairs. Access to the library collections is good for disabled users. The bookshelves are arranged in a way that gives space to the users with wheelchairs to pass through. In addition, the library building is completed with specific spacious toilets for users with disabilities, with braille and sign language on the entrance door.



First floor wide area



Bookshelves arranged in spacy line



Braille and sign language on the entrance door

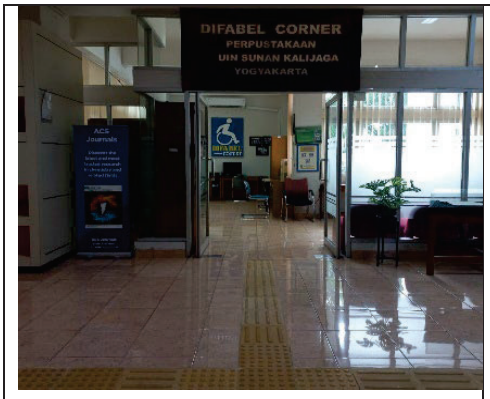
Figure 3: Physical Access, access to collections and services

Providing a Library Service Section for Users with Disabilities

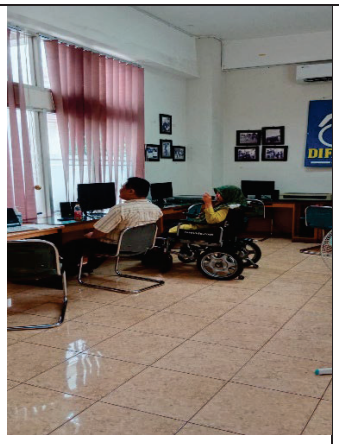
According to the service guideline for disabled users developed by IFLA, a library should have a department for persons with reading, hearing, and other disabilities (Irvall & Nielson, 2005). A library must provide disabled users with services, facilities, and collections for users with all sorts of disability, and librarians capable of servicing disabled users, like having enough knowledge of disabilities. In accordance with this guideline, UIN Sunan Kalijaga Library gives services to disabled users through *Difable Corner*, a specific department to provides the disabled users with the facilities they need. It was formally founded in 2011 in cooperation with the Center for Disability Services (an institution under UIN Sunan Kalijaga that provides services for people with disabilities). It is located near the entrance door of the library so that is easily reached by users. For the benefit of blind users or users with low vision, the library floor is completed with a brightly yellow guiding block, stretching from the entrance door to the door of Diffable Corner.

This *Difabel Corner* provides facilities accessible for users with disabilities, particularly those with visual impairment and those with wheelchairs. It provides wheelchairs, wide and tall tables (so users with wheelchairs can use them without moving to other chairs) for users with physical impairment. The room of the *Difabel Corner* is also wide enough, making it possible for users with wheelchairs to move in and out easily. *Difabel Corner* also provides computers equipped with Job Access with Speech (JAWS) for users with physical impairment. They are computers with a screen reader that enable blind users to read the screen. For now, *Difable Corner* provides 5 computers, hoping that more blind users can access information in the library.

In addition, UIN Sunan Kalijaga Library also provides scanners for blind users. They can use the scanners to scan reading material, to transform it into PDF format, and by using OCR, it can be transformed into the audible format. This scanned collection by the student is then added to the audible, electronic collections and uploaded to the repository for blind users, that is, *Book for Blind*, which numbers only a few. The-*Difabel Corner* also provides Braille books and digital talking books, but only in a very small number, and the blind users seem more comfortable with audible e-books than with Braille ones. The availability of scanners is, therefore, very important, and for now, the library has only 3 scanners. These scanners have supporting features, like an automatic document feeder and Optical Character Recognition. Additionally, the *Difabel Corner* also functions as a comfortable meeting and discussion place for users with disabilities.



Entrance Door of Diffable Corner



Difabel CornerRoom



Printer Completed with OCR

Figure 4: Difable Corner Facilities

Providing e-book Through *Book for Blind*

Book for Blind is a collection repository for disabled users. It is developed by the library using the E-print platform. It contains e-books and collections for users with visual impairment. The collections are produced through scanning and conversion-to-audible format using OCR. This process (activity) is originally done by librarians with the help of volunteer students, including blind students, to provide audiobooks. The books to be scanned are selected by blind students so that they are hopefully relevant to the blind users' needs. The selected books are then scanned by the volunteer students and, after some touch of finalization, are uploaded to the Diffa repository by IT-section librarians. For this scanning process, the library, in cooperation with the Center for Disability Services, has made some consideration of copyright issues. After a consultation with the Center for Disability Services, the library issued a rule that *Book for Blind* can only be accessed by blind users with a permitting access from the Center for Disability Services. These scanned books number as many as 222 titles. The number is now increasing as the students can now scan books independently in the *Difabel Corner* and then share them with other blind users. This habit has initiated an important principle in library life: users with visual impairment may benefit each other by making use of scanned books made by others, and this is called "from users to users."

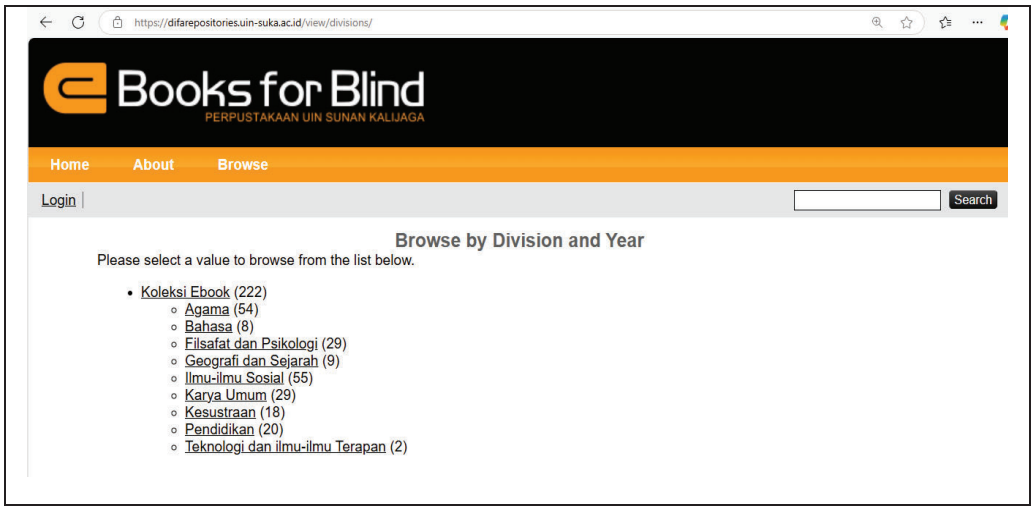


Figure 5: Book for blind feature in Diffarepository

Living Collections Program

Implementing diversity principles and ideas in campus life, UIN Sunan Kalijaga launches the program of Living Collection as a new type of library collection. It is an innovative library

program developed by the UIN Sunan Kalijaga Library in 2022. The concept of living collection service is adopted from the concept of human library, which is a global, innovative, and hands-on learning platform mostly developed to promote diversity and an inclusive society. (https://humanlibrary.org/about). This human library provides a place for people who are negatively stigmatized and discriminated against due to their differences to speak up. Those speaking up are then treated as human books.

The living collection developed by the library takes a wider scope, not only of marginalized people, but also of the group of people who have a unique way of life. This can be another way of transforming tacit knowledge into explicit knowledge, more accessible for society. UIN Sunan Kalijaga, in this case, has provided living collections in the form of persons. These persons will give the users information on a specific theme of inclusive value in order that negative stigma suffered by some group of people in the society can be reduced. The main goal of the *living collection* program is to promote inclusive values in campus life, hoping that the academic society develops a proper mindset about it. For this program, the library invites resource persons representing an inclusive society that promotes inclusivity and openness. These resource persons will share their experience and thoughts with the users for 20-30 minutes, with a librarian as the moderator. The event will be streamed on Instagram Live, before being shared in the library's YouTube account, that is, @sukalib to be accessed by the society, anywhere, anytime. For this program, the library has invited 7 persons representing a particular society, like the China-Indonesia minority society, Arabic descendant society, diffable society, non-Muslim society, that is, a student, who is also a nun, a local faith believer (Javanese indigenous religion believer). The library has also invited resource persons to represent social groups promoting humanism and plurality. These resource persons share their experiences and thoughts, like how they must adapt to local culture, on one hand, and restore values in their original culture, in another hand. The resource person representing minority groups, like the student (who is a nun) studying in this Islamic campus, shares similar things. With this living collection program, it is expected that people will understand more about Indonesian diversity.

UIN Sunan Kalijaga Library's inclusive promotion program, developed into 4 activities, as elaborated above, shows that UIN Sunan Kalijaga Library has implemented the tenth item of the SDGs. In line with this tenth goal of the SDGs, the library is expected to serve as a neutral, welcoming place that enables society, including the minority and marginalized groups, and the disabled community, to access learning facilities. UIN Sunan Kalijaga Library has provided facilities accessible for the disabled community, and this shows equality among the users. What shows equality even more is that the library also provides collections in an audible

format accessible for users with visual impairment. This means that the library has made equitable access to information to support learning activities, and this may lead to civil engagement. Further, the disabled users are also involved in the production or development of audible collections, which means that the library has done even more in promoting equality values in library life. The existence of *Difabel Corner can* also be taken as a symbol of the existence of a welcoming space for users with disabilities because this facility is specifically made for them, not only to access information and library collections but also as a place for them to socialize with each other.

The other aspect of the tenth of SDGs, that is, creating a neutral and welcoming space that makes it possible for all people to access learning, has also be done by UIN Sunan Kalijaga Library as it, with its program of inclusive society to reduce inequality, serves as a welcoming place for all users. In an inclusive society, diversity, in terms of culture, ethnicity, religion, and language, matters. UIN Sunan Kalijaga Library, with its program of *Living Collection*, has tried to reduce inequality in campus life. The program, as we see it, emphasizes promoting diversity and multiculturalism. In a wider scope, the emphasis on promoting diversity is highly contextual to a country with cultural, religious, ethnic, and linguistic diversities, like Indonesia.

From the above discussion, we can see that UIN Sunan Kalijaga Library, as an academic library, is an important instrument in advancing the Sustainable Development Goals. This is also the case with what has been done by the world libraries, like Hongkong Library of Chinese University with its program of Health Literacy, in China, and Ghana Central Library with its training program aiming to provide the students with basic computer skills, in Ghana, and the library in South Africa with its activities to support gender disparities program and its activities for combating violence and sexual harassments within the university (Lahyani et al., 2024). UIN Sunan Kalijaga Library, in this case, focuses on the tenth goal of SDGs, which is in line with the value promoted by the university, that is, by creating a neutral and welcoming space for all users and by providing equal information access for users to support learning, and this is in accordance with the target and principle of the tenth item of SDGs.

CONCLUSION

UIN Sunan Kalijaga is an inclusive campus, and UIN Sunan Kalijaga Library, as part of the campus, must support and promote inclusivity. UIN Sunan Kalijaga Library, therefore, always tries to create an inclusive environment in the library by reducing inequality occurrences felt by library users, both users with disabilities and the marginalized or minority social groups, in particular. UIN Sunan Kalijaga Library has tried to implement the tenth goal of SDGs, reduced

inequality, in servicing the users with various backgrounds by providing four sorts of service, namely physical access for users with disabilities, library service section for users with disabilities, e-book through *Book for Blind*, and Living Collection to combat prejudice. However, it is worth noting that efforts to reduce inequality need to be carried out consistently. Therefore, the library needs to develop a strategic plan for the sustainability of the programs to support SDGs 10, such as developing a living collections program by inviting more various resource persons, developing more accessible eBooks for visual impairment users, and ensuring that physical access to the library for people with disabilities has met universal design.

REFERENCES

Abata-Ebire, B. D., Adetayo, A. J., & Ojokuku, B. Y. (2018). Achieving Sustainable Development Goals (SDGS) in Nigeria : The roles of libraries. *International Journal of Applied Technologies in Library and Information Management*, *4*(2), 89-95. http://www.jatlim.org/volumes/volume4/Volume 4 No 2 /Blessing.pdf

Berreman, G. D. (2015). Inequality: Comparative aspects. In *International Encyclopedia of the Social & Behavioral Sciences (Second Edition)* (pp. 894-898). https://doi.org/https://doi.org/10.1016/B978-0-08-097086-8.12093-8

Chinyere, N., & Val, E. (2023). International digital organization for scientific research qualitative research. *International Digital Organization for Scientific Research IDOSR Journal of Computer and Applied Sciences*, *8*(1-January), 20-35.

Creswell, J. W., & Creswell, J. D. (2018). Research design qualitative, quantitative, and mixed methods approaches. In *Writing Center Talk over Time*. https://doi.org/10.4324/9780429469237-3

Dei, D. G. J., & Asante, F. Y. (2022). Role of academic libraries in the achievement of quality education as a sustainable development goal. *Library Management*, *43*(6-7), 439-459. https://doi.org/10.1108/LM-02-2022-0013

Huck, W. (2022). Goal 10 Reduce inequality within and among countries. *Sustainable Development Goals*, 387-418. https://doi.org/10.5771/9783748902065-387

IFLA. (2016). Libraries can drive progress across the entire UN 2030 Agenda. *Access and Opportunity for All: How Libraries Contribute to the United Nations 2030 Agenda*. https://www.ifla.org/files/assets/hq/topics/libraries-development/documents/sdgs-insert.pdf

IFLA. (2018). *Libraries and the Sustainable Development Goals: A storytelling manual*. 1-29. https://www.ifla.org/files/assets/hq/topics/libraries-development/documents/sdg-storytelling-manual.pdf

Irvall, B., & Nielsen, G. S. (2005). Access to libraries for persons with disabilities - Checklist. *IFLA Professional Reports*, *89*, 1-17.

Islam, M. A., Sultana, R., & Widén, G. (2024). Ascertaining the place of UN sustainable development goals in public libraries: how much progress have public libraries made in Bangladesh? *Global Knowledge, Memory and Communication*, *73*(3), 354-374. https://doi.org/10.1108/GKMC-03-2022-0072

Küfeoğlu, S. (2022). SDG-10: Reduced inequalities. *Sustainable Development Goals Series*, *Part F2738*(July), 371-384. https://doi.org/10.1007/978-3-031-07127-0

Lahyani, K., Diab, G., & Moukhliss, G. (2024). Role of academic libraries in the achievement of sustainable development goals case study: The Mohamed Sekkat University Library. *Procedia Computer Science*, *236*, 566-573. https://doi.org/10.1016/j.procs.2024.05.067

Marwiyah, Zain, L., Chasanawati, A. Y., & Khotimah, K. (2024). Accessibility of UIN Sunan Kalijaga Library for Students with disabilities: An evaluation. *University Library at a New Stage of Social Communications Development. Conference Proceedings*, *2024*(9), 157–173. https://doi.org/10.15802/unilib/2024_318855

Mathiasson, M. H., & Jochumsen, H. (2022). Libraries, sustainability and sustainable development: a review of the research literature. *Journal of Documentation*, *78*(6), 1278–1304. https://doi.org/10.1108/JD-11-2021-0226

Nicholson, J. (2020). IFLA and the role of libraries in the UN Sustainable Development Goals. *Journal of Health Information and Libraries Australasia*, *1*(1), 15–17. https://doi.org/10.55999/johila.v1i1.8

Scholz, I. (2023). Reflecting on the right to development from the perspective of global environmental change and the 2030 Agenda for Sustainable Development. In *»Entwicklung« als Paradigma*. https://doi.org/10.1515/9783839462454-005

Shesha, A., & Singh, R. (2024). *The role of indian academic libraries in advancing and achieving Sustainable Development Goals: Overview of Sustainable Development Goals (SDGs)*. *1*(1). https://doi.org/10.48165/lt.2024.10.5

UNESCO. (2022). The IFLA-UNESCO Public Library Manifesto 2022. *AIB Studi*, *62*(2), 431–434. https://doi.org/10.2426/aibstudi-10097

United Nations. (n.d.-a). *Do you know all 17 SDGs?* https://sdgs.un.org/goals#

United Nations. (n.d.-b). *Reduce inequality within and among countries*. https://sdgs.un.org/goals/goal10#targets_and_indicators

United Nations. (2023). *What can we do? What is goal 10-reduced inequalities*. *August*, 1-2. https://www.un.org/sustainabledevelopment/wp-content/uploads/2019/01/Goal-10-Fast-Facts.pdf

World Bank Group. (2019). *Sustainable Development Goal 10 – Reduced Inequalities: Progress and Prospects*. *2018*, 1–15.

USM Library SDGs Initiative in Preserving the Cultural Identity and Heritage of Melayu Tanjong/Jawi Pekan in Pulau Pinang

Fujica Azura Fesal, Radia Banu Jan Mohamad, Noor Azlinda Wan Jan

Perpustakaan Hamzah Sendut, Universiti Sains Malaysia,

Penang, Malaysia

Corresponding email: fujica@usm.my

ABSTRACT

The USM Library plays a pivotal role in promoting a continuous consciousness of the Melayu Tanjong/Jawi Pekan/Jawi Peranakan social identity in Pulau Pinang, with a focus on capturing their historical wealth and fostering cultural literacy. This initiative aligns with Sustainable Development Goal (SDG) 11: Sustainable Cities and Communities, emphasizing cultural preservation and community resilience. The objectives of the initiative are to raise and sustain awareness of the cultural identity of Melayu Tanjong/Jawi Pekan in Pulau Pinang; to document and curate the histories and cultural expressions of Tanjong, especially between the late 1800s and World War II and to develop cultural literacy that highlights Tanjong's ethnographic heritage for Pulau Pinang, Malaysia, and Southeast Asia. The methodologies of the initiative are through oral histories session, curation and engagements and digital accessibility of online archive. The initiative unearthed significant historical materials, revealing Tanjong's dynamic role in the socio-economic and cultural evolution of Pulau Pinang. The recommendations of the initiative are expansion of documentation efforts, enhance digital presence, strengthen educational integration, and foster collaborative networks. This initiative by the USM Library highlights the critical role libraries play in preserving and promoting cultural heritage. By safeguarding the legacy of Melayu Tanjong/Jawi Pekan, the library not only ensures the sustainability of this identity but also fosters a shared understanding and appreciation of Southeast Asia's rich cultural diversity.

Keywords: USM Library; Jawi Peranakan; Sustainable Cities and Communities, Cultural Identity; Sustainable Development Goals

INTRODUCTION AND BACKGROUND

Libraries today are recognized not only as custodians of knowledge but also as dynamic institutions that actively contribute to community development, cultural resilience, and heritage preservation. In alignment with the Sustainable Development Goals (SDGs), particularly SDG 11 (Sustainable Cities and Communities), SDG 4 (Quality Education), and SDG 17 (Partnerships for the Goals), Perpustakaan Hamzah Sendut, Universiti Sains Malaysia (USM Library) has embarked on a significant initiative aimed at preserving the cultural identity and historical memory of the Melayu Tanjong/Jawi Pekan community in Pulau Pinang.

The Melayu Tanjong, also referred to as Jawi Pekan or Jawi Peranakan, is a distinct socio-cultural identity that emerged from a historical process of intermarriage, assimilation, and localized cultural evolution. At its core, the term originally referred to descendants of Indian Muslim men from the Coromandel and Malabar coasts of southern India who married local Malay women. Through generations of cultural integration, particularly in language, cuisine, attire, and religious practice, the community developed a hybrid identity in which Malay elements predominated, though traces of Indian and Hadrami lineage may still be present (Soh, 2018; Tan, 2019). This identity is further shaped by geography and local history. The term *Orang Tanjong* (or People of the Cape) typically refers to those born and raised in the northeastern region of Penang Island, particularly the area stretching from Tanjong Penaga (now George Town) to Gelugor, with linguistic, culinary, and social differences distinguishing them from Malays in Balik Pulau or Seberang Perai. The Tanjong identity is thus both localized and nuanced, with variations in accent, customs, and intergenerational memory.

From the mid-1700s, particularly during the British colonial era, this community experienced a vibrant period of cultural, religious, and intellectual development, becoming a literate and socially conscious group that influenced broader Malay political and religious discourse in the Malay Peninsula and Singapore. Their use of Bahasa Melayu as lingua franca, subtly interspersed with English, Tamil, Hindi, Urdu, and Arabic vocabulary, exemplifies the multicultural roots of this community. Their cuisine similarly blends Malay Archipelagic and Indo-Arab influences, reflecting a dynamic cultural synthesis rooted in mobility and exchange (Ahmad Murad Merican, 2021).

Despite their historical importance, much of the cultural memory and contributions of the Melayu Tanjong remain underrepresented in mainstream narratives. The USM Library's initiative addresses this gap by documenting oral histories, curating archival materials, and fostering intergenerational knowledge-sharing platforms. In doing so, the library not only preserves an invaluable heritage but also positions itself as a catalyst for community-driven sustainable development, aligned with global goals. This paper explores how the USM Library leverages its resources and partnerships to safeguard the cultural identity of the Melayu Tanjong, and how this work exemplifies the evolving role of libraries as active agents of community development, inclusive education, and cultural sustainability.

OBJECTIVES OF THE INITIATIVE

In 2021, USM Library received the invitation to participate in a project initiated by International Institute of Islamic Thought and Civilization, International Islamic University Malaysia (ISTAC-IIUM) in a purposeful mission to safeguard and revitalize the unique cultural identity of the Melayu Tanjong/Jawi Pekan community in Pulau Pinang. USM Library agreed to participate in the project to enrich the existing collection of Kaum Peranakan Asia Tenggara. In alignment with the library's evolving role in community development and the SDGs, the initiative outlines the following core objectives:

1. To promote a continuous consciousness of the social identity of Melayu Tanjong/Jawi Pekan/Jawi Peranakan in Pulau Pinang: By raising awareness through community engagement, exhibitions, and academic collaboration, the initiative aims to ensure that the legacy of the Melayu Tanjong remains a visible and celebrated part of Penang's multicultural fabric.
2. To capture and curate the wealth of histories and expressions in Tanjong, particularly between the late 1800s and World War II: Through oral histories, archival recovery, and digital preservation, the initiative seeks to document a critical historical period that shaped the intellectual, social, and cultural life of the community.
3. To create cultural literacy in Pulau Pinang, the nation, and the region regarding the ethnography of Tanjong: By integrating this heritage into educational materials of Kaum Peranakan Asia Tenggara collection, public resources, and research platforms, the initiative supports a broader understanding of Southeast Asia's hybrid cultural identities and fosters intergenerational knowledge transmission.

METHODOLOGIES AND APPROACHES

The *Melayu Tanjong-Malaysiana Project* was collaboratively undertaken by three key groups: **I**STAC-IIUM, USM Library, and Ikhwan Jawi Pekan.

a. ISTAC-IIUM

   ISTAC-IIUM is a leading centre for Islamic studies, contributing to research on Southeast Asian heritage, particularly the Melayu Tanjong and Jawi Pekan communities, while promoting cultural preservation through initiatives like the Melayu Tanjong-Malaysiana Lecture Series**.**

b. Arkib USM (formerly known as Bahagian Malaysiana dan Arkib), USM Library
   The Malaysiana Section of Arkib USM plays a vital role in preserving and documenting the heritage of the Melayu Tanjong (Tanjong Malay) and Jawi Pekan communities. As a key repository of archival materials, oral histories, and scholarly resources, it supports ongoing efforts in cultural preservation and research.

c. Ikhwan Jawi Pekan [Facebook Public Group]

   Ikhwan Jawi Pekan is a Facebook group that promotes the heritage of the Jawi Pekan (Melayu Tanjong) community through the sharing of history, culture, and genealogical insights.

These organisations worked together under a structured framework aimed at systematically documenting and preserving the rich heritage of the Melayu Tanjong community. The project employed multiple complementary methodologies to ensure a comprehensive and inclusive approach:

1. Community Engagement Activities

   Outreach programmes in the form of Melayu Tanjong-Malaysiana Lecture series were organised to strengthen intergenerational bonds and cultivate a deeper sense of heritage appreciation among younger members of the community. The series covers topics such as cultural interactions, local culinary traditions, and influential figures from the community, offering valuable insights into its significant role in Malaysian history. These lectures are available on YouTube through the USM Library TV channel. The full playlist is accessible from the link:

https://www.youtube.com/playlist?list=PLd74fT488gdTdW5qLxl_zEVavxR6Q8qMG. The series helps preserve and share the unique cultural heritage of the Melayu Tanjong community with a wider audience.

The following is the list of lectures conducted under the Melayu Tanjong–Malaysiana Lecture Series, aimed at fostering deeper understanding and appreciation of local heritage, identity, and historical scholarship:

i. Melayu Tanjong: The Spectrum of Self-Identity

   Speaker: Prof. Dato' Baharudin Ahmad

   Date: 26 January 2022 | Time: 10:30 am

   Synopsis: This lecture, Prof. Dato' Baharudin Ahmad, Distinguished Fellow at the Muslim World Research Centre, delves into the multifaceted identity of the Melayu Tanjong community. He examines how historical, cultural, and religious influences have shaped their self-perception and societal roles. Through a nuanced analysis, Prof. Dato' Baharudin explores the complexities of identity formation within this community, highlighting the interplay between tradition and modernity. This presentation offers a comprehensive understanding of the Melayu Tanjong's evolving self-identity in the contemporary world.

ii. Apa Cerita?: Kronologi Kewartawanan Tanjong dari Jawi Peranakan ke *Saudara* = Apa Cerita?: The Chronology of Tanjong Journalism from Jawi Peranakan to Saudara
   Speaker: Prof. Dato' Dr. Ahmad Murad Merican (ISTAC-IIUM)
   Date**:** 16 February 2022 | Time: 3:00 – 5:00 pm

   Synopsis: In this lecture, Prof. Dato' Dr. Ahmad Murad Merican of ISTAC-IIUM explores the history of Malay journalism in Penang, tracing its development from the Jawi Peranakan era to the publication of *Saudara*. He highlights the significance of newspapers such as *Tanjong Penegeri* (1894–1895), published by S.P.S.K. Kadar Sahib—a prominent Jawi Peranakan figure—which marked the first Jawi-script publication in Penang. The lecture also discusses other influential publications like *Pemimpin Warta* and *Lengkongan Bulan*, which played a crucial role in disseminating information and shaping the Malay identity in the region. Prof. Ahmad Murad further examines how the Jawi Peranakan community used media as a platform to define their identity within the broader Malay world while preserving their unique

cultural heritage. His analysis offers valuable insight into the role of journalism in cultivating cultural awareness and identity among the Melayu Tanjong community.

iii. Wakaf Land in Penang: The Future is in the Past

Speaker: Dr. Muhammed Abdul Khalid

Date: 18 March 2022

Synopsis: In this insightful lecture, Dr. Muhammed Abdul Khalid, former Director of Khazanah Research Institute and former Advisor to the 7th Prime Minister of Malaysia, explores the untapped potential of wakaf (endowment) land in Penang. He emphasizes the significance of these lands, which are often underutilized, and advocates for their development to address contemporary urban challenges. Dr. Khalid discusses how leveraging these historical assets can contribute to sustainable urban development, enhance social welfare, and preserve cultural heritage. His analysis underscores the importance of integrating traditional Islamic endowment principles with modern urban planning to create inclusive and resilient communities.

iv. Ekspresi Warisan & Evolusi Kulinari dan Budaya Sebuah Keluarga Peranakan Arab di Tanjong = Heritage Expression & Culinary and Cultural Evolution of an Arab Peranakan Family in Tanjong.

Speaker: Zakaria Basheer Ahmad Basheer

Date: 15 June 2022

Synopsis: In this enlightening lecture, Zakaria Basheer Ahmad Basheer, a descendant of the eighth generation of an Arab Peranakan family in Kampung Masjid Melayu, Lebuh Acheh, Penang, delves into the rich heritage and culinary evolution of his family. He shares insights into how his ancestors, who were traders and religious leaders, integrated Arab and Malay traditions, creating a unique cultural identity. Zakaria highlights the significance of culinary practices in preserving cultural heritage, showcasing how traditional recipes have been passed down through generations, reflecting the fusion of Arab and Malay influences. This presentation offers a profound understanding of the role of food in cultural expression and the importance of preserving culinary traditions for future generations.

v. Upbringing and Personality: The Socio-Cultural Environment and Jawi Peranakan Characteristics.
Speaker: Dato’ Halimah Mohd Said

Date: 16 June 2022 | Time: 2:30 – 4:00 pm

Synopsis: In this insightful lecture, Dato' Halimah Mohd Said, a renowned writer and editor, delves into the unique socio-cultural environment that shapes the upbringing and personality traits of the Jawi Peranakan community in Penang. She explores how the community's distinct heritage, stemming from intermarriages between Indian Muslim traders and local Malay women, has influenced their values, social norms, and identity. Dato' Halimah examines the community's emphasis on education, strong family ties, and cultural preservation, highlighting how these factors contribute to their resilience and adaptability in a rapidly changing world. Through her analysis, she provides a comprehensive understanding of the Jawi Peranakan's enduring legacy and their role in the broader Malaysian society.

vi. Naton Kong, Rempah dan Cina Peranakan: Interaksi Awal = Naton Kong, Spices, and Chinese Peranakans: Early Interactions

Speaker: Dr. Iskandar Tan Abdullah

Date: 26 July 2022 | Time: 10:00 am – 12:00 pm

Synopsis: In this lecture, Dr. Iskandar Tan Abdullah delves into the early interactions between the Jawi Peranakan and Chinese Peranakan communities in Penang, focusing on their shared heritage and cultural exchanges. He examines how these communities, while distinct, influenced each other's culinary traditions, language, and social practices. Dr. Tan highlights the role of spices (*rempah*) in their kitchens, tracing the origins and adaptations of various dishes that reflect a blend of Malay, Chinese, and Arab influences. Through this exploration, he sheds light on the complex tapestry of identities and the process of cultural assimilation that has shaped the unique Peranakan heritage in the region.

vii. Pengkisahan Riwayat Hidup Haji SM Zainul Abidin = The Story of the Life of Haji SM Zainul Abidin

Speaker: Dato' Haji Zainul Arshad bin Haji SM Zainul Abidin

Date: 10 August 2022 | Time: 3:00 – 4:30 pm

Synopsis: In this insightful lecture, Dato' Haji Zainul Arshad, the youngest son of Haji SM Zainul Abidin, offers a comprehensive account of his father's life and contributions. Born on October 3, 1898, in Penang, Haji SM Zainul Abidin was a distinguished educator, community leader, and a pivotal figure in the Malay nationalist movement. He was among the first Malays to obtain a Bachelor of Arts degree from the University of London in 1933, and dedicated over 20 years to teaching at Penang Free School. His leadership extended to various roles, including headmaster of Francis Light School, school inspector, and member of the University Court of Malaya. Politically, he was a founding member of UMNO in Penang, served as its chairman, and was elected as the Member of Parliament for Balik Pulau in the inaugural 1955 general election. His legacy is commemorated through institutions such as Kolej Tingkatan Enam Haji Zainul Abidin and landmarks like Taman Abidin and Jalan Zainul Abidin in Penang.

viii. Arab Tanjong: Jejak Salasilah

Speaker: Dr. Habsah Abdul Rahman (Ahli Jam'iyah Al-Ikha, Pulau Pinang)
Date: 13 March 2023 | Time: 10:30 am – 12:30 pm

Synopsis: In this lecture, Dr. Habsah Abdul Rahman explores the genealogy of the Arab Tanjong community in Penang. She traces the history of the Az-Zubaidi clan, who migrated from Yemen to Penang in 1799. Initially settling in areas like Tanjong Penaga and George Town, the community played a key role in trade and cultural exchange, particularly in spices and textiles. Over time, as the population grew and intermarriage with local Malays, many Arabs moved to rural areas, leading to a disconnection from their ancestral records. Dr. Habsah emphasizes the importance of preserving genealogical ties and the efforts by descendants to reconnect with their roots, using family gatherings and digital platforms to document their lineage.

The Melayu Tanjong–Malaysiana Lecture Series, which has engaged wide campus audiences and fostered cultural insight, is summarised below with attendance and feedback for each session.

Table 1: Lectures' Feedback

No.	Title/Speaker/ Date & Time	Statistic participants (registered)	Views @ USM Library TV (live and recorded)	Link @ USM Library TV	Overall Satisfaction
1.	Melayu Tanjong: The Spectrum of Self-Identity Prof. Dato' Baharudin Ahmad, Distinguished Fellow, Muslim World Research Centre	17 Academic staff: 1 Administrative staff: 8 Undergraduate student: 8	162	https://www.youtube.com/watch?v=lY0Yl4PKdFI&list=PLd74fT488gdTdW5qLxl_zEVavxR6Q8qMG&index=6&t=12s	• The program was highly successful • The content was relevant and appreciated. • Speaker was very knowledgeable. • The online event quality was good (platform/technical aspects went smoothly) • Participants are generally satisfied and thankful.
2.	Apa Cerita? Kronologi Kewartawanan Tanjong dari Jawi Peranakan ke Saudara Professor Dato' Dr Ahmad Murad Merican ISTAC-IIUM	7 Academic staff: 1 Administrative staff: 4 Undergraduate student: 2	172	https://www.youtube.com/watch?v=MrcpEWcq9lk&list=PLd74fT488gdTdW5qLxl_zEVavxR6Q8qMG&index=7	• The program was very well-received. • Participants found the topic very valuable. • Speaker was very knowledgeable. • Online event quality was strong, with a few very minor suggestions for improvement. • Overall satisfaction was extremely high.
3.	Wakaf Land in Penang: The Future is in the Past Dr. Muhammed Abdul Khalid Former Director of Khazanah Research Institute and former Advisor	5 Academic staff: 1 Administrative staff: 3 Postgraduate student: 1	250	https://www.youtube.com/watch?v=XiElqa8VZfI&list=PLd74fT488gdTdW5qLxl_zEVavxR6Q8qMG&index=8	• The program achieved great success. • The content was pertinent and well-received. • The speaker demonstrated exceptional expertise. • The online event ran smoothly, with technical and platform aspects functioning well.

	to the 7th Prime Minister of Malaysia				• Participants expressed general satisfaction and gratitude.
4.	Ekspresi warisan & Evolusi Kulinari dan Budaya sebuah keluarga Peranakan Arab di Tanjong (Kampung Masjid Melayu, Lebuh Acheen (Acheh) Zakaria Basheer Ahmad Basheer Generasi ke-8 Keturunan Keluarga Peranakan Arab di Pulau Pinang	16 Administrative staff: 16	192	https://www.youtube.com/watch?v=XpZ8L8MkrfI&list=PLd74fT488gdTdW5qLxl_zEVavxR6Q8qMG&index=9	• The program was highly appreciated. • Attendees considered the topic to be highly valuable. • The speaker demonstrated extensive knowledge. • The online event was of excellent quality, with only a few small suggestions for enhancement. • Overall, satisfaction was exceptionally high.
5.	Upbringing and personality: The Socio-Cultural Environment and Jawi Peranakan Characteristics Dato' Halimah Mohd Said, Penulis & Penyunting	22 Academic staff: 2 Administrative staff: 19 Undergraduate student: 1	87	https://www.youtube.com/watch?v=zxmBbXV_6Q4&list=PLd74fT488gdTdW5qLxl_zEVavxR6Q8qMG&index=10	• The program was warmly received. • Participants found the topic to be extremely valuable. • The speaker exhibited a deep understanding of the subject. • The quality of the online event was top-notch, with just a few minor suggestions for improvement. • Overall, satisfaction was overwhelmingly positive.
6.	Naton Kong, Rempah dan Cina Peranakan: Interaksi Awal	5 Academic staff: 1	103	https://www.youtube.com/watch?v=PJeDdTqT9Sw&list=PLd74fT488gdTdW5qLxl	• The program was a resounding success. • The content was highly relevant and appreciated. • The speaker displayed remarkable expertise.

	Dr. Iskandar Tan Abdullah	Administrative staff: 3 Undergraduate student: 1		_zEVavxR6Q8qMG&index=11	• The online event proceeded seamlessly, with no technical issues. • Participants conveyed overall satisfaction and appreciation.
7.	Pengkisahan Riwayat Hidup Haji SM Zainul Abidin BA, JMN, JP; Seorang Pendidik, Pemimpin Masyarakat dan Aktivis Politik Dato' Haji Zainul Arshad bin Haji SM Zainul Abidin Anak Bongsu Haji SM Zainul Abidin	**6** Administrative staff: 6	106	https://www.youtube.com/watch?v=71AkE3RLM4A&list=PLd74fT488gdTdW5qLxl_zEVavxR6Q8qMG&index=12	• The program was very successful. • The content was useful and liked. • The speaker knew a lot about the topic. • The online event went well, with no technical problems. • Participants were happy and thankful.
8.	Arab Tanjong: Jejak salasilah Dr. Habsah Abdul Rahman Ahli Jam'iyah Al-Ikha, Pulau Pinang	10 Academic staff: 1 Administrative staff: 6 Undergraduate student: 3	222	https://www.youtube.com/watch?v=M7x2VcZkJSA&list=PLd74fT488gdTdW5qLxl_zEVavxR6Q8qMG&index=13	• The program was a big success. • The content was helpful and appreciated. • The speaker had great knowledge. • The online event went smoothly, with no issues. • Participants were pleased and thankful.

2. Curated Online Exhibitions

The Melayu Tanjong-Malaysiana virtual exhibition on Artsteps provides an immersive and educational experience about the Melayu Tanjong community's heritage. With its engaging design and informative content, the exhibition successfully conveys important stories and history. It is a great example of how technology can be used to preserve and promote cultural heritage through this link: https://tinyurl.com/MTM2022exhibition

3. Digital Archive Development
   A digital platform, USM Digital Library was developed to provide open public access to oral recordings, scanned documents, and curated cultural content. It can be accessed at https://libdigital.usm.my/

4. Dedicated Online Portal

   The *KAUM Peranakan* collection is hosted on a dedicated website (http://www.kaumperanakan.usm.my/), serving as a comprehensive resource for materials related to the Peranakan communities of Southeast Asia, with particular emphasis on the Melayu Tanjong/Jawi Pekan heritage in Pulau Pinang. Materials from this collection are catalogued under the symbol "rbm KPM" in the USM Library's archival system. The establishment of the Southeast Asian Peranakans Collection at USM Library is the inspiration of Prof Tan Sri Dato 'Dzulkifli Abdul Razak, USM Vice-Chancellor during Opening Ceremony of Penang Chinese Peranakans and Chinese Muslim Conference in 2008. He wished to perceive the information of peranakans group are collected and united. Due to the relevancy and proximity of this peranakans relationship with the Malay community and culture, it is necessary to preserve the information on this community as a historical and research materials.

5. Multimedia Outreach/ Social Media Platform

   To further disseminate project outputs, multimedia resources such as oral history recordings have been made available through platforms like YouTube (USM Library TV, Arkib USM Playlist), social media platforms of the groups involved in the project in expanding the project's reach to digital audiences and future generations.

LIBRARIES AS CATALYSTS FOR CULTURAL PRESERVATION AND SDG IMPLEMENTATION

The ISTAC & USM Library's initiative to preserve the cultural identity and heritage of the Melayu Tanjong/Jawi Pekan community in Pulau Pinang is a multi-dimensional project that aligns with three key United Nations Sustainable Development Goals (SDGs):

- SDG 11.4 – Strengthen efforts to protect and safeguard the world's cultural and natural heritage.
  This initiative aligns strongly with the United Nations Sustainable Development Goal (SDG) 11.4, which aims to strengthen efforts to protect and safeguard the world's cultural and

natural heritage. By recovering, documenting, and integrating the cultural legacy of the Melayu Tanjong community into educational and public domains, the ISTAC & USM Library initiative exemplifies how academic institutions can contribute meaningfully to global sustainability agendas. The project not only conserves cultural assets but also ensures their transmission to future generations, reinforcing cultural resilience in an increasingly globalized world.

- SDG 4.7 – Ensure all learners acquire knowledge of sustainable development and appreciation of cultural diversity through education.

  By incorporating the cultural heritage of the Melayu Tanjong community into library collections and educational activities, the initiative supports SDG 4.7 by promoting awareness of cultural diversity, valuing local knowledge, and encouraging inclusive education. This helps learners better understand and respect different cultures, which is essential for building a more sustainable and harmonious society.

- SDG 17.17 – Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships.

  The partnership between ISTAC, USM Library, and the Melayu Tanjong community exemplifies SDG 17.17, as it unites the public sector (university and government), private sector (through support from donors and sponsors), and civil society (community engagement) to preserve cultural heritage and advance education. This collaborative approach amplifies impact by leveraging the collective resources, expertise, and networks of all involved parties, ensuring a more sustainable and effective outcome.

This tri-SDG approach emphasizes not only the preservation of heritage (SDG 11) but also the integration of that heritage into education systems (SDG 4), and the creation of collaborative networks to sustain and expand these efforts (SDG 17). By documenting and disseminating the stories of underrepresented communities like Melayu Tanjong, ISTAC & USM Library aligns with these goals and promotes cultural literacy, one of the key enablers of community resilience and identity.

OUTCOMES AND COMMUNITY IMPACT

The collaborative initiative between ISTAC and the USM Library has yielded several meaningful outcomes, particularly in the preservation and promotion of local heritage. One of the most notable achievements is the recovery of cultural materials, specifically the acquisition of rare Peranakan collections in the form of books. These materials represent valuable historical and cultural narratives that were at risk of being forgotten, and their recovery marks a significant

step in safeguarding the legacy of the Melayu Tanjong community. In addition to these tangible collections, the project also successfully captured tacit knowledge—insights, lived experiences, and oral histories—from community experts and descendants of the Melayu Tanjong lineage. This has helped highlight their contributions to the multicultural fabric of Pulau Pinang, encouraging a broader understanding and appreciation of Malaysia's diverse cultural identities. This invaluable cultural wisdom complements the physical archives, enriching the documentation of the community's identity and contributing to a more holistic preservation of its heritage.

Another key outcome is the integration of these cultural resources into educational settings. The recovered materials are now part of the USM Library's collections, making them accessible for academic research and reference. This ensures that the knowledge and cultural insights embedded in the materials will continue to inform scholarly work and inspire future generations of students and researchers. Importantly, the initiative also serves as a model for future projects. By documenting its processes and best practices, the ISTAC & USM Library initiative provides a replicable framework that other institutions across Malaysia and Southeast Asia can adopt. Its emphasis on community involvement, academic integration, and cultural preservation presents a sustainable and inclusive approach to heritage work—one that can be tailored to various cultural contexts and communities.

In summary, through exhibitions, lectures, and public engagements, it has sparked renewed interest in the history and heritage of the Melayu Tanjong people. This initiative not only preserves a crucial part of Malaysian heritage but also sets a precedent for how libraries and cultural institutions can play an active role in heritage recovery, education, and community engagement.

CHALLENGES AND LESSONS LEARNED

The initiative has seen success, but several challenges have emerged that need attention.

Firstly, limited documentation is a key challenge. Due to the historical marginalization of the Melayu Tanjong community, few written records exist, making oral history essential. However, this form of documentation is time-sensitive, as it depends on the knowledge of older generations who may no longer be around to share their stories. Preserving these oral histories should be a priority.

Secondly, there are technological limitations. Creating a digital archive that is accessible, user-friendly, and sustainable requires significant technical resources. Ensuring the archive's long-term viability and ease of use for a broad audience is a challenge that needs careful planning and investment. Additionally, engagement fatigue can be a concern. Repeated outreach efforts within small communities can lead to participant burnout. To avoid overwhelming participants, outreach should be managed thoughtfully and done in a way that keeps engagement meaningful and sustainable.

These challenges emphasize the importance of collaborative networks. Involving relevant stakeholders, such as academic institutions, community leaders, and technical experts, which will help address these issues and ensure the project’s long-term success and sustainability.

RECOMMENDATIONS AND WAY FORWARD

The Melayu Tanjong community’s rich cultural heritage holds significant value, and efforts to document and preserve it should be expanded and enhanced. To ensure the continued growth and sustainability of this heritage project, several key recommendations can guide future phases and initiatives.

Firstly, it is important to expand the documentation scope to include the artistic, linguistic, culinary, and spiritual traditions of the Melayu Tanjong community. By broadening the scope of documentation, the project will offer a more comprehensive view of the community’s heritage, highlighting its multifaceted nature and ensuring that no crucial aspects of its culture are overlooked. These elements are integral to understanding the community’s identity and history, and their inclusion will enrich future research and educational endeavours. Next, there is a need to enhance digital tools to facilitate greater engagement and educational use. Developing apps, incorporating Geographic Information System (GIS) mapping, and adding interactive features would allow users to explore the community's heritage in a more dynamic and immersive way. These tools can provide an accessible platform for younger generations, scholars, and the wider public to engage with the community's history, ensuring that the heritage is preserved and promoted through modern digital means.

Additionally, strengthening academic partnerships is crucial for fostering collaboration and expanding research. Encouraging interdisciplinary partnerships across Southeast Asian universities can promote comparative heritage studies, creating a more global and interconnected understanding of the Melayu Tanjong community's place within the region's cultural landscape. Such collaborations would enhance scholarly discourse and open up new

opportunities for research, publication, and cultural exchange. Finally, it is essential to promote policy dialogue that supports community-based heritage initiatives. Advocating for policies that offer funding and institutional backing will ensure the sustainability of these efforts. By engaging with policymakers, the community can secure the resources and recognition needed to preserve its cultural heritage for future generations. Strong institutional support will also help amplify the impact of community-driven initiatives, ensuring they reach a broader audience and have a lasting legacy.

CONCLUSION

In conclusion, the preservation and celebration of the Melayu Tanjong community's heritage can be significantly advanced through expanding the documentation scope, enhancing digital tools, strengthening academic partnerships, and promoting supportive policies. These efforts will not only enrich the current project but also establish a sustainable model for preserving cultural heritage in the digital age.

Furthermore, the ISTAC-IIUM and USM Library initiative demonstrates how academic libraries can serve as vital partners in community development. By aligning with SDG 11 and embracing their role as custodians of cultural memory, libraries like USM's preserving historical narratives while ensuring that diverse identities, such as the Melayu Tanjong and Jawi Pekan, are recognized, respected, and revitalized for future generations. Through this, the library transcends its traditional role, becoming a bridge between communities, a keeper of culture, and a catalyst for sustainable, inclusive development.

REFRENCES

Ahmad Murad Merican. (2021, November 7). *The Melayu Tanjong Project: The Melayu Tanjong Story Programs and Lecture Series.* (Proposal paper). International Institute of Islamic Thought and Civilization, International Islamic University Malaysia (ISTAC-IIUM).

Bennett, R. (2021). *Exhibiting the past: Museums, libraries, and archives in the digital age*. Museum Publishing.

Chong, S. (2020). Oral histories as cultural preservation tools: A case study from Malaysia. *Heritage Studies Journal, 12*(3), 55-72.

Hajar Abdul Rahim (2015). *Bahasa Tanjong: The heritage language of the Jawi Peranakans of Penang*. Universiti Sains Malaysia.

Hernandez, L., & Zhang, Y. (2021). Libraries as partners in fostering cultural literacy. *Journal of Library Science, 29*(1), 15-31.

Leong, Y. (2021). Cultural memory in Malaysian libraries: A people-first approach. *Malaysian Library Journal*, *20*(4), 90-105.

Miller, A. (2020). Building digital archives for cultural preservation. *Information Science Quarterly, 13*(2), 77–89.

Ng, P. (2020). Cultural heritage and its impact on community identity: A case study of Melayu Tanjong. *Southeast Asian Cultural Journal, 27*(3), 67-81.

Perpustakaan Hamzah Sendut, Universiti Sains Malaysia. (2022). *Pameran Projek Melayu Tanjong-Malaysiana*.. Artsteps. https://www.artsteps.com/view/615065f9353abce639bc33b6?currentUser

Perpustakaan Hamzah Sendut, Universiti Sains Malaysia. (n.d.). *Laman Rasmi Kaum Peranakan USM*. http://www.kaumperanakan.usm.my/

Perpustakaan Hamzah Sendut, Universiti Sains Malaysia. (n.d.). *USM Library Digital Resources*. Universiti Sains Malaysia. https://libdigital.usm.my/pages/home.php?login=true

Smith, J. (2019). Libraries as pillars of community resilience. *Global Journal of Library Studies, 18*(4), 52-63.

Soh, E. (2018). Reclaiming heritage: Cultural identity and historical narrative in Southeast Asia. *Asian Studies Review, 35*(1), 19-34.

Tan, W. (2019). Jawi Peranakan heritage and urban identity in Penang. *Journal of Malay World Studies, 5*(2), 41-58.

Tan, W., & Yeo, L. (2021). Integrating heritage education in libraries: Best practices. *Educational Library Review, 14*(2), 61-74.

UNESCO. (2021). *Cultural heritage and sustainable development: The role of libraries*. Paris: United Nations Educational, Scientific and Cultural Organization.

USM Library TV. (2023, January 15). *Exploring the Art of the Renaissance*. YouTube. https://www.youtube.com/watch?v=A-IhbQgq0qM&list=PLd74fT488gdTdW5qLxl_zEVavxR6Q8qMG

Achieving Quality Education (SDG 4) Through Literacy: Story from #Sepekan1Buku Programme

Yaya Ofia Mabruri, Ilsa Nurul Oktaviani

National Library of Indonesia, Jakarta, Indonesia

Corresponding email: yaya.mabruri@gmail.com

ABSTRACT

The #Sepekan1Buku program is an innovative literacy initiative developed by the National Library of Indonesia to support the achievement of Sustainable Development Goal (SDG) 4, particularly targets 4.1 and 4.6 concerning quality education and literacy proficiency. The program encourages junior and senior high school students to read one book per week and express their understanding through written or video reviews published digitally. This study employs a mixed methods approach to analyze the program's concept, implementation, evaluation, and impact on strengthening literacy culture and developing 21st-century skills. The findings indicate that the program successfully engaged 982 participants from 200 schools across 23 provinces, generating a total of 1,786 book reviews. Assessment results showed the highest scores in the book discussion dimension, followed by language proficiency, while creativity, particularly in video formats, remains an area for improvement. Surveys of students and School Literacy Teams confirmed the program's positive impact on enhancing literacy skills, critical thinking, and promoting literacy activities within schools. The evaluation identified six key development issues, including program expansion, access to reading materials, activity innovation, and digital platform optimization. These findings affirm that #Sepekan1Buku serves as an effective productive literacy model, supporting SDG 4 through the integration of reading, writing, and digital technology utilisation. Recommendations focus on strengthening cross-sector collaboration and fostering sustainable development through an inclusive and adaptive literacy ecosystem.

Keywords: Literacy; SDG 4; Quality Education; Book Review; Reading Habits

INTRODUCTION

Inclusive, equitable, and quality education serves as the cornerstone for achieving sustainable development objectives. This principle is encapsulated in Sustainable Development Goal (SDG) 4, which not only emphasize access to education but also highlights the importance of lifelong learning opportunities. A critical element in achieving SDG 4 is the strengthening of literacy, which extends beyond basic reading and writing skills to include comprehension, analytical abilities, and the application of information in everyday life (Kementerian PPN/Bappenas, 2024). However, literacy among Indonesian students continues to face significant challenges. The 2022 PISA results indicate that Indonesia's reading literacy score stood at only 371, well below the OECD average—and lagging behind neighboring countries such as Singapore (543), Vietnam (450), Thailand (392), and Malaysia (388) (OECD, 2023). Furthermore, the 2024 Indonesian Education Report reveals that although there has been progress, only 68.27% of junior high school students and 70.3% of senior high school students have reached the minimum literacy competency level, with even greater disparities in non-formal education (Kemendikbudristek, 2024).

To address these challenges, the Indonesian government launched the School Literacy Movement (GLS) in 2015 to cultivate a reading culture through three stages: habituation, development, and learning (Kemendikbud, 2016). However, the development stage, intended to encourage critical responses to texts, had the lowest average achievement (66.0), and learning resources beyond textbooks remain underutilized (Kemendikbud, 2018). This indicates the need for innovative literacy programs that are engaging, reflective, and centered on the production of creative work. In response to this evaluation, the National Library of Indonesia introduced the *#Sepekan1Buku* (#OneBookAWeek) program in 2024 as an alternative strategy to strengthen the literacy culture while addressing gaps unfulfilled by the GLS. The program combines reading challenges, reflection through journaling, and digital creative content in the form of book reviews. Beyond promoting reading, this initiative embodies the mandate of Law No. 43 of 2007 on Libraries, which emphasizes the promotion of a reading culture to build a lifelong learning society.

This study aims to analyze the concept and design of the *#Sepekan1Buku* program. This includes the implementation, execution in enhancing students' reading and writing skills, and its contribution to the achievement of SDG 4. By adopting an innovative and participatory approach, the program is expected to be replicable and scalable as part of a sustainable national education system.

LITERATURE REVIEW

Sustainable Development Goal (SDGs)

The Sustainable Development Goals (SDGs) were adopted by 193 United Nations member states in September 2015 and officially came into effect on January 1, 2016. This global agenda aims to eradicate poverty, protect the environment, and ensure prosperity for all. Comprising 17 goals and 169 targets, the SDGs address a wide array of global challenges, including poverty alleviation, equitable access to education, climate action, and social justice (World Health Organization, 2015; United Nations, 2019). Given the scope and complexity of these objectives, achieving them requires active collaboration among various stakeholders. Each of the SDGs serves as both an aspiration and a challenge for all nations, regardless of their level of development. The SDGs reinforce the principle of "leaving no one behind," emphasizing the need to prioritize the most vulnerable populations, those living in poverty and social exclusion (Kumi et al., 2020). No goal is considered fully achieved until it is realized equitably by all, everywhere (Chetty, 2018).

SDG 4: Quality Education

Quality education is grounded in access to information and knowledge, which are essential foundations for the growth and development of individuals, organizations, and societies (Karkouti et al., 2021; Dei, 2017). Information and knowledge serve as critical instruments for informed decision-making and sustainable development (Centobelli et al., 2018). SDG 4 specifically aims to ensure inclusive, equitable, and quality education and to promote lifelong learning opportunities for all. In the Indonesian context, the government has established the 2024 Social Pillar Metadata as a framework to monitor the achievement of SDG 4 targets (Kementerian PPN/Bappenas, 2024).

Target 4.1 emphasizes that, by 2030, all children should complete free, equitable, and quality primary and secondary education. One key indicator used to measure this target is the percentage of students in grades 5 (elementary), 8 (junior high), and 11 (senior high) who meet the minimum proficiency standards in reading and numeracy. Reading proficiency is assessed through the National Assessment (Asesmen Nasional), which classifies student performance into four categories: Needs Special Intervention, Basic, Proficient, and Advanced. At the Advanced level, students demonstrate the ability to integrate information, evaluate texts critically, and reflect on their meaning in real-life contexts. Target 4.6 focuses on increasing literacy and numeracy skills among youth and adults, measured by the literacy rate of individuals aged 15 years and older. This indicator reflects the ability to read and write simple sentences and serves as a fundamental requirement for active participation in society (Kementerian PPN/Bappenas, 2024).

Libraries and SDG 4

Libraries play a strategic role in supporting the achievement of the Sustainable Development Goals (SDGs), particularly SDG 4, by providing access to information, knowledge resources, and literacy programs that strengthen the literacy skills of communities (Omona, 2020). Their contribution includes the promotion of universal literacy, encompassing digital, media, and information literacy, facilitated by qualified and professional library personnel (IFLA, 2016). Libraries are more than information hubs; they act as agents of community empowerment by offering access to high-quality reading materials and developing individuals' capacity to independently seek, evaluate, and utilize information (Agboke, 2019).

In relation to SDG 4, libraries play a significant role in achieving Targets 4.1 and 4.6, which emphasize the importance of equitable quality education and the improvement of literacy and numeracy skills across all age groups. Libraries serve as alternative learning spaces that promote comprehension, analysis, and critical evaluation of texts in alignment with the standards measured by the National Assessment (Asesmen Nasional). Furthermore, in efforts to increase literacy rates, libraries can implement literacy programs for youth and adults, including training in critical reading skills. This approach fosters a shift from basic reading abilities to reflective thinking, enabling individuals to apply literacy meaningfully in everyday life (Bahrami & Harandi, 2020).

The Urgency of a Reading Culture

Quality education serves as a fundamental pillar in promoting sustainable development by enhancing critical thinking skills and informed decision-making. Literacy, as the cornerstone of education, plays a pivotal role in achieving Sustainable Development Goal (SDG) 4, which aspires to ensure inclusive, equitable education and lifelong learning opportunities for all (Mkumbo, 2016). Consequently, educational development must be accompanied by systematic efforts to foster lifelong learners, where cultivating a reading culture is central to strengthening literacy, critical thinking, and independent learning (Cochrane et al., 2022).

Loan and Nasreen (2021) underscore the importance of reading through the concept of the Five Laws of Reading, asserting that reading constitutes essential intellectual nourishment that shapes perspectives and enriches knowledge. The habit of reading should be instilled from an early age and sustained throughout life by dedicating specific time daily, thus embedding it into routine practice. This activity forms the foundation for academic and professional success while contributing significantly to individual advancement and societal progress. Therefore, reading is a continuous process, essential across all professions, and must be integrated into

lifelong learning practices. Legally, the importance of fostering a reading culture is mandated by Law No. 43 of 2007 concerning Libraries, which instructs the implementation of the National Movement for Reading by the government, educational institutions, libraries, and society. Libraries play an active role in promoting reading interest by providing inclusive access to information and fostering cross-sector collaboration. Public libraries further support lifelong learning by offering reading materials for both formal and informal education, enhancing basic literacy, and establishing networks with schools and other educational institutions (IFLA, 2010).

Reading proficiency is a core indicator in evaluating a nation's educational quality and remains a focal point in both national and international assessments. The Program for International Student Assessment (PISA) defines reading literacy as the ability to understand, use, reflect upon, and engage with written texts, whether print or digital, to achieve personal goals and participate effectively in society (OECD, 2018). The assessment focuses on three key aspects: access to information, integration and interpretation, as well as reflection and evaluation. At the national level, literacy assessment is reflected in Indonesia's Education Report, which draws on data from the National Assessment, with a priority indicator being Students' Literacy Ability. This indicator represents mastery of text comprehension as a foundation for critical thinking, knowledge development, and global competitiveness (Kemendikbudristek, 2024).

Reading Culture Programs

International studies emphasize that effective reading culture programs require a collaborative approach, access to relevant reading materials, and active engagement from both children and adults. The *Qatar Reads* study highlights the necessity of synergy among schools, national libraries, and community organizations in building a literacy ecosystem, despite challenges such as limited time and technological access (Cochrane et al., 2022). Similarly, Ogbonna and Ezhe (2015) demonstrate that school library programs positively influence voluntary reading habits and student development, although hindered by limited librarian competencies. The *Inspiring Readers* initiative underscores the importance of cooperation between schools and libraries, supported by training for teachers and librarians alongside the provision of engaging, child-friendly books (Duncan & Kayoro, 2022). Meanwhile, *Guys Read* focuses on the role of male facilitators, freedom in book selection, and relaxed reading environments to enhance boys' reading interest (Dillon et al., 2017).

These studies reveal critical insights for future reading culture program development. Firstly, non-curricular books, such as popular fiction, comics, and light non-fiction, are proven to

stimulate reading interest and broaden students' horizons. Secondly, facilitators, whether teachers, librarians, or volunteers, play a strategic role in fostering meaningful reading interactions. Thirdly, cross-sector collaboration, including family and community involvement, is essential for program success. However, most existing initiatives remain centred solely on reading activities, without integrating writing components. The #Sepekan1Buku program addresses this gap by innovatively combining reading activities with book review creation in both written and video formats. This approach not only enhances text comprehension but also encourages self-expression, critical thinking, and written communication skills. It represents a strategic step towards establishing a comprehensive, sustainable literacy culture that supports lifelong learning.

METHODOLOGY

This study employed a mixed methods approach, integrating quantitative and qualitative data to achieve a comprehensive understanding of the concept, implementation, evaluation, and impact of The #Sepekan1Buku program on the attainment of Sustainable Development Goal (SDG) 4. This approach involved the systematic collection, integration, and analysis of both data types within a defined philosophical and theoretical framework (Creswell & Plano Clark, 2018). Furthermore, as the researcher also served as the program implementer, a practitioner research approach was adopted to explore insider knowledge through reflective practice (Cochran-Smith & Lytle, 2009).

The research was conducted at the National Library of Indonesia between January and March 2025, following the completion of the #Sepekan1Buku 2024 cycle. The researcher, acting as the program facilitator, served as the primary subject. Participants were grouped into three categories: students from 23 provinces participating in the challenge, students and literacy teams from the 12 most active schools, and 24 winners comprising individual students and school teams.

Data collection employed both quantitative and qualitative methods concurrently. An online Likert-scale survey captured perceptions from students and literacy teams. A total of 741 written and 68 video reviews were assessed using a rubric covering language proficiency, book discussion, and creativity. Focus Group Discussions (FGDs) with winners provided qualitative insights, while document analysis supported conceptual understanding. Triangulation ensured data validity. Quantitative data were analyzed descriptively and through content analysis of review scores. FGD data underwent thematic analysis, and the researcher's reflections were examined within a practitioner research framework to identify implementation dynamics and best practices. Final data integration linked quantitative and qualitative findings, offering a

comprehensive view of the program's impact on literacy development and its alignment with SDG 4.

DATA ANALYSIS AND FINDINGS

The Concept of The #Sepekan1Buku Program

The #Sepekan1Buku program is a literacy campaign designed to cultivate the habit of reading among junior and senior high school students by encouraging them to read one book each week. This activity is followed by a review competition, where students produce written or video reviews that are shared via social media platforms and the official *Gerakan Indonesia Membaca* (Indonesia Reading Movement) website. The program is structured to enhance students' abilities in comprehension, critical evaluation, and creativity in processing information from their reading materials.

The #Sepekan1Buku program aims to raise literacy awareness, foster consistent reading habits, and promote the use of diverse, high-quality reading materials. It encourages students to express their understanding creatively while building a positive knowledge-sharing ecosystem through digital platforms and social media. The program relies on collaboration between two key stakeholders: teachers and school librarians as facilitators, and secondary school students as participants.

Aligned with the ethos of the School Literacy Movement (GLS), the program emphasizes engaging, flexible, and participatory activities, integrating digital tools, social media, and influencer partnerships to stimulate creativity. It addresses multiple literacy dimensions, including comprehension, evaluation, and self-reflection, offering students the choice of written or video reviews. Regular reading routines and fair assessment practices ensure balanced literacy development.

Designed for sustainability within policy and resource constraints, the #Sepekan1Buku cycle guides students through selecting, reading, and reviewing books, with published reviews inspiring peer engagement. This model supports national efforts to advance inclusive, quality education and lifelong learning. The #Sepekan1Buku Challenge operationalizes this literacy cycle into a series of practical steps that students can independently undertake. The program extends beyond encouraging reading habits by simultaneously developing students' digital literacy, critical thinking, and creative skills. Each phase is carefully designed to contribute to

the cultivation of a sustainable literacy culture both within schools and in the broader community context.

The implementation begins with participants registering on the official *Gerakan Indonesia Membaca* website, which serves to document participation and foster a digital literacy community. Students then select books aligned with their personal interests, sourced from libraries or personal collections in either print or digital formats, thereby enhancing their information-seeking competencies and fostering a stronger connection with books and library resources. Throughout a dedicated week, students engage in routine reading while maintaining a reading journal to build consistent reading practices, deepen comprehension, and strengthen interactions with teachers and librarians. The process culminates in the creation of a book review, either in written or video format, which is subsequently uploaded to the designated website and social media platforms. This final stage serves as a platform for students to refine their critical thinking, evaluate literary content, and contribute to the dissemination of inspiring literacy content to a wider audience.

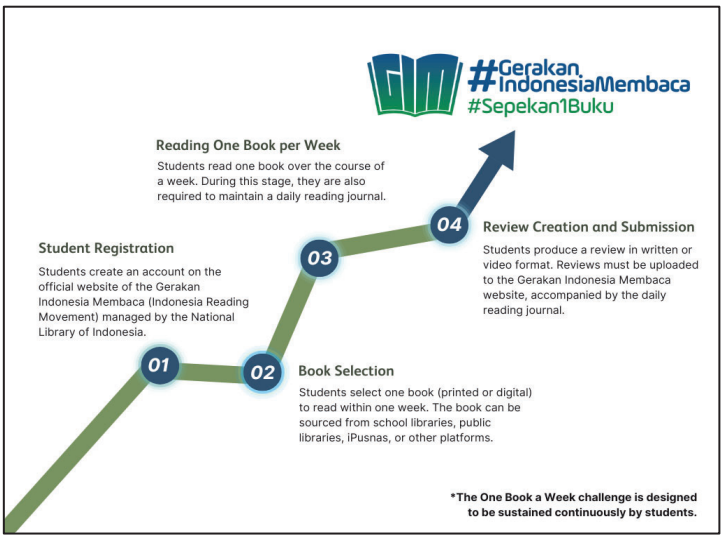


Figure 1: Stages of the One Book a Week Challenge

Program Implementation and Outcomes

The *#Sepekan1Buku* program is a recent initiative launched by the National Library of Indonesia in 2024 as part of the *Gerakan Indonesia Membaca* (Indonesia Reading Movement). This program was designed to contribute to the achievement of Sustainable Development Goal (SDG) 4: Quality Education, by strengthening the culture of literacy among secondary school

students. Its implementation was structured across seven key stages to ensure systematic execution and impact. The following presents a detailed overview of the outcomes from the implementation of the #Sepekan1Buku program in 2024.

Table 1: Outputs of the *#Sepekan1Buku* Programme 2024

Process	Outcome	Total
Program Workshops	Implementation sites	12
	Offline participants	1,800
	Online participants	18,171
Challenge Implementation	Registered accounts	6,295
	Active challenge participants	982
	Province involved	23
	Districts/Cities	95
	Junior high schools	90
	Senior high schools	110
	Written reviews submitted	1,646
	Video reviews submitted	140
Program Outreach	Promotional video views	1,294,727
	Podcast participants	2,486
Program Mentoring	Provinces covered	12
	Junior high schools	5
	Senior high schools	7
	Students mentored	2,400
Review Assessment	Verified written reviews	741
	Verified video reviews	68

Recognition	Best written reviews	8
	Most popular written reviews	2
	Best video reviews	4
	Most popular video reviews	2
	Most active students	4
	Most active schools	4

The initial phase of the #Sepekan1Buku program (February to April 2024) focused on developing materials, promotional content, and a digital platform. The National Library of Indonesia aligned the program with the School Literacy Movement (GLS) through policy reviews and formalized outcomes in technical guidelines, training modules, and mentoring resources. Promotional tools, including videos, theme songs, and the *indonesiamembaca.perpusnas.go.id* platform, were also launched to support registration, submission, and publication processes. On 26 April 2024, librarians from the Centre for Library Analysis and Reading Culture Development received comprehensive training to serve as national facilitators. They were equipped to lead workshops, mentor schools, and verify student book reviews before final assessment.

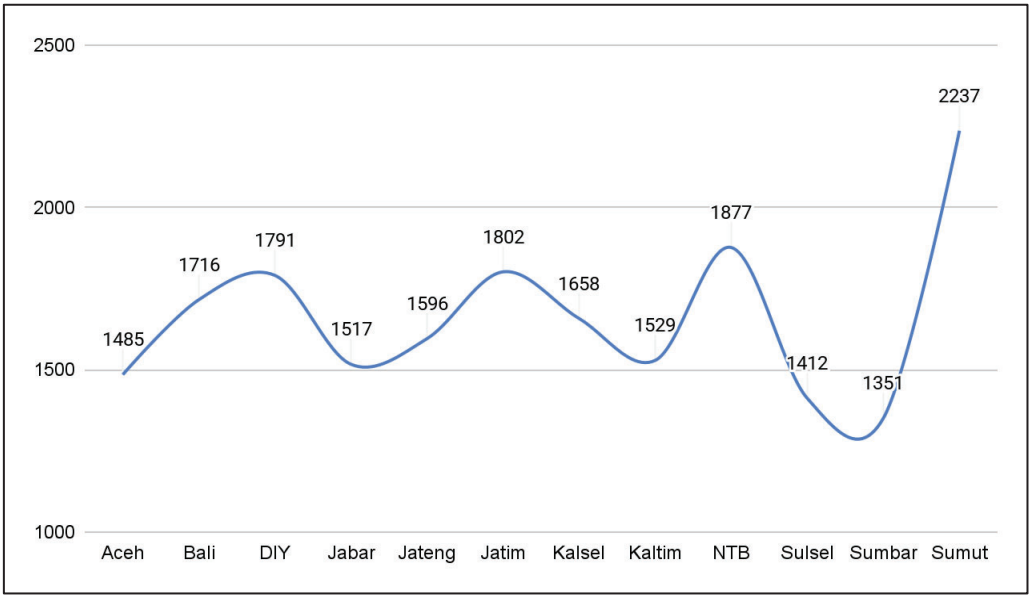


Figure 2: The number of workshop participants

The *#Sepekan1Buku* workshops were held from 2 May to 7 August 2024, adopting a hybrid format across 12 provinces in collaboration with local library and education authorities. These workshops were designed to engage teachers, librarians, and students, introducing them to the conceptual framework and technical implementation of the *#Sepekan1Buku* Challenge and Book Review Competition. To maximize outreach, the workshops were also broadcast via Zoom and YouTube, successfully reaching a combined total of 19,971 participants through both online and offline channels.

The implementation of the *#Sepekan1Buku* Challenge was conducted in two cycles, with the first period spanning from May to July 2024 and the second from August to October 2024. Junior and senior high school students were invited to participate by following four key steps: creating an account, selecting a book, completing the reading of one book within a week, and composing as well as uploading a book review. The challenge was disseminated across 23 provinces and 95 districts or cities, involving a total of 200 schools, comprising 90 junior high schools and 110 senior high schools. Throughout the program, a total of 1,786 book reviews were submitted, demonstrating active student engagement and the program's capacity to foster reading habits on a national scale.

The program reinforcement phase, conducted from May to October 2024, focused on embedding literacy culture among students. During this stage, the National Library of Indonesia proactively utilized social media and digital platforms to promote a reading culture by disseminating promotional videos, hosting literacy podcasts, and collaborating with public figures such as Jerome Polin and renowned author Tere Liye. These efforts culminated in a significant digital presence, with promotional content achieving a total of 1,294,727 views across Instagram and YouTube, and 2,486 participants engaging in online literacy podcasts. This strategic use of digital media not only amplified the program's visibility but also contributed to normalizing reading as a dynamic and culturally relevant activity among Indonesia's youth.

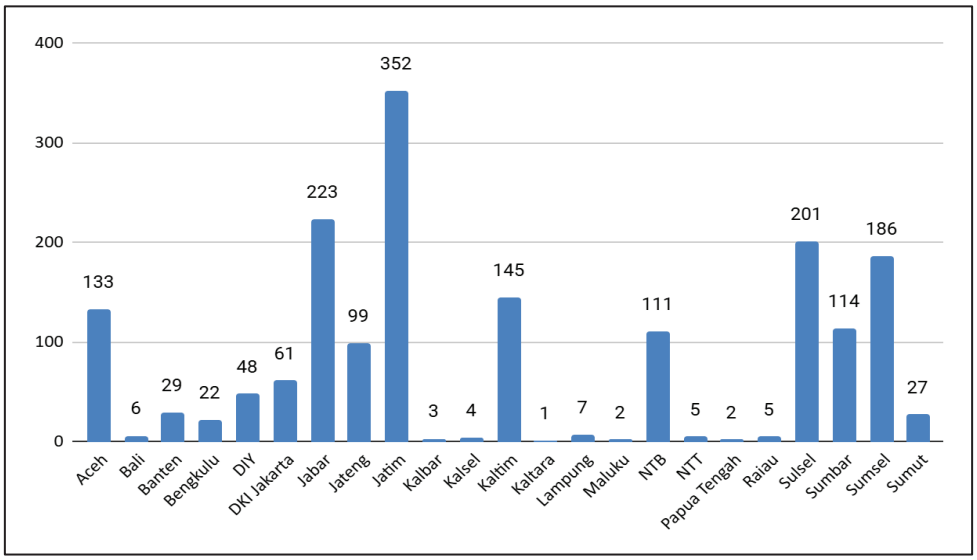


Figure 3: The Distribution of Submitted Book Reviews Across Provinces

To further sustain literacy engagement, a targeted mentoring phase was conducted between 22 August and 5 November 2024, focusing on twelve schools from twelve provinces that demonstrated the highest levels of participation. This mentoring was facilitated by designated librarians, who provided support in enhancing information literacy skills, deepening understanding of the program's content, and advocating to school principals for the development of school library collections. The selection of these schools was based on three key criteria: the highest number of participants, consistent student engagement, and the sustainability of literacy initiatives within the school environment.

The assessment and recognition phase took place from August to November 2024. The evaluation process was structured into two periods, beginning with an initial curation by verifiers to ensure that submissions complied with the established guidelines. Out of the 1,786 total submissions, 809 workscom, prising 741 written reviews and 68 video reviews, qualified for formal assessment by the judging panel. The evaluation employed a three-dimensional rubric, allocating 20 percent to language and expression, 40 percent to the depth of book analysis, and 40 percent to creativity. The culmination of this phase occurred on 12 November 2024 in Jakarta, where a literacy development session, an awards ceremony, and an evaluative focus group discussion (FGD) were held. A total of 24 winners were selected across six categories within each educational level: best written review, most popular written review, best video review, most popular video review, most active student, and most active school. The following section provides an overview of the curated book reviews that advanced to the

final judging stage, reflecting the quality and diversity of student contributions within the programme.

Table 2: General information on curated book reviews by educational level

General Profile	Junior High School	Senior High School	Total/Average
Number of written reviews	361	380	741
Average word count	480	690	587
Average plagiarism percentage	1.6%	1.8%	1.7%
Number of review authors	122	121	143
Number of video reviews	22	46	68
Average video duration	4 minutes 1 second	5 minutes 37 seconds	5 minutes 6 seconds
Number of video creators	12	32	44

Evaluation of the #Sepekan1Buku Program: Challenge Aspects, Review Assessment, And Program Development Issues

Students from the twelve most active schools rated all aspects of the #Sepekan1Buku challenge as excellent (Table 3). However, technical processes, such as account registration, content upload, and clarity of challenge stages, were identified as priority areas for improvement to enhance usability and inclusivity. Despite high ratings, some students faced confusion and technical difficulties, particularly during account creation and content submission.

Table 3: Evaluation of the #Sepekan1Buku challenge aspects

Assessment Aspect	Average Score	Category
Review Submission Guidelines	3.41	Excellent
Overall Website Features	3.37	Excellent
Daily Reading Journal Format	3.35	Excellent
The #Sepekan1Buku Challenge Stages	3.31	Excellent
Review Upload Process on the Platform	3.26	Excellent
Account Registration Process on the Platform	3.19	Excellent

The assessment of junior high school students' book reviews (Table 4) showed strong performance, with the highest score in book discussion (3.13), reflecting a solid grasp of review structure and content. Language use was also rated excellent (3.09), especially in written reviews (3.24), indicating good linguistic proficiency. Creativity, however, remained the weakest area, averaging 2.90, with lower scores in video reviews (2.77). These results suggest a need to further develop creative thinking, self-reflection, and the visual quality of digital submissions.

Table 4: Assessment results of book reviews for junior high school students

Assessment Dimension	Written Reviews	Video Reviews	Average	Category
Language	3.24	2.94	3.09	Excellent
Book Discussion	3.00	3.25	3.13	Excellent
Creativity	3.03	2.77	2.90	Good

The assessment of book review submissions from senior high school students (Table 5) revealed that the book discussion dimension achieved the highest scores in both written (3.52) and video formats (3.11), with an overall average of 3.32. This indicates that students demonstrated a strong understanding of the structure and substance of book reviews. The language dimension was also rated within the 'Excellent' category, with an average score of 3.06, particularly reflected in written reviews (3.34), which suggests well-structured writing and adherence to linguistic conventions. Nevertheless, creativity, especially in video submissions, remained a relatively weaker aspect, scoring 2.93, despite achieving a 'Good' rating in written reviews at 3.18. This shortcoming is likely attributed to limitations in idea development, the use of visual expression, and suboptimal video editing skills.

Table 5: Assessment results of book reviews for senior high school students

Assessment Dimension	Written Reviews	Video Reviews	Average	Category
Language	3.34	2.77	3.06	Excellent
Book Discussion	3.52	3.11	3.32	Excellent
Creativity	3.18	2.93	3.06	Excellent

Findings from the Focus Group Discussion (FGD) with #Sepekan1Buku winners identified several strategic issues for future development. Key suggestions included expanding and sustaining the program through annual implementation, wider regional outreach, new participant categories, and a dedicated mobile app. Access to books emerged as a concern, highlighting the need to enrich library collections, diversify genres, and enhance mobile library services. Participants also called for greater innovation in literacy activities, such as varied competitions (e.g., short stories, poetry, essays), themed challenges, collaborations with authors and influencers, and digital visualization of reviews. Technical support improvements were recommended, focusing on faster communication, website optimisation, better review-writing guidance, and regular mentoring. In terms of recognition, participants suggested more diverse rewards, including review publication and teacher awards. Finally, website-related issues were noted, including slow access, complex login processes, limited email compatibility, and the need for improved social media integration and clearer registration tutorials.

Program Benefits: Student and School Literacy Team Perceptions

Based on a survey conducted with 582 students from the twelve most active schools receiving mentoring (Table 6), the #Sepekan1Buku program demonstrated a significant positive impact. All measured indicators achieved scores above 3.40 on a 4-point scale, indicating that every aspect of the program's benefits was rated within the 'Excellent' category. The most prominent impact was observed in the improvement of literacy skills, which recorded the highest average score of 3.67, followed by enhanced understanding in selecting appropriate reading materials (3.51) and the development of critical thinking skills (3.47). Beyond fostering reading interest, the program also contributed to nurturing students' creativity and cognitive abilities, aligning with the objectives of strengthening literacy and 21st-century competencies. These findings highlight that the approach of reading one book per week has the potential to create a transformative learning experience for students.

Table 6: Perceived benefits of the program (Students' perspectives)

Program Benefit	Score	Category
Improved literacy skills	3.67	Strongly Agree
Motivated me to read books more actively	3.45	Strongly Agree
Enhanced my creativity in repackaging information through review writing	3.41	Strongly Agree
Trained me to think critically	3.47	Strongly Agree
Increased my understanding of selecting appropriate reading materials	3.51	Strongly Agree

According to data gathered from School Literacy Teams, the #Sepekan1Buku program has had a positive impact on enhancing students' literacy. The program successfully increased student engagement with library services, reflected by an average score of 3.72 for library visits and 3.67 for book borrowing. Literacy-related activities within schools also showed improvement, achieving a score of 3.76, while students' reading interest and writing skills were rated at 3.77 each. Overall, these results indicate that the program has been effective in supporting the development of students' literacy skills within the school environment.

Table 7: Perceived impact of the program (School literacy teams' perspectives)

Program Benefit	Score	Category
Increased number of student visits to the school library	3.72	Strongly Agree
Increased number of book borrowings from the school library	3.67	Strongly Agree
Revitalised and enhanced literacy activities or movements within the school	3.76	Strongly Agree
Improved students' reading interest	3.77	Strongly Agree
Trained and improved students' writing skills	3.77	Strongly Agree

DISCUSSION

Analysis of the #Sepekan1buku Program Concept in Supporting SDG 4

The development of literacy programs by libraries and educational institutions represents a fundamental strategy in supporting Sustainable Development Goal (SDG) 4, particularly in achieving inclusive, equitable, and quality education while promoting lifelong learning opportunities (Bahrami & Harandi, 2020; IFLA, 2016). In this context, libraries serve not only as providers of information resources but also as catalysts for social transformation through the empowerment of literate communities (Agboke, 2019). Responding to this mandate, the #Sepekan1Buku program was initiated as a literacy campaign that encourages students to read one book per week and express their understanding through creative reviews published digitally. The program's objectives align closely with SDG 4, as it promotes a culture of reading, enhances critical thinking skills, and leverages technology to facilitate broad-based knowledge sharing.

The core principles of the #Sepekan1Buku program reinforce its alignment with the values of SDG 4. Designed to be engaging and participatory, the program provides students with opportunities to actively engage according to their interests and talents, thereby reflecting inclusivity in education (Mkumbo, 2016). The diversity of expression formats, both written and video, alongside the support of facilitators such as teachers and librarians, ensures equitable

access to literacy activities. The program's emphasis on routine and balance further embodies the principles of lifelong learning, highlighting sustainability and equal learning opportunities (Omona, 2020). Through its varied approach, the program strengthens the literacy ecosystem within schools while utilizing social media as a tool for democratizing information.

The stages and cycles embedded within the #Sepekan1Buku program also reflect the principles of the Five Laws of Reading (Loan & Nasreen, 2021), which view reading as a continuous intellectual activity that should be cultivated from an early age. The process begins with selecting books based on personal interest, representing the identification of information needs, followed by daily reading habits documented in a journal, and culminating in reflective reviews that are publicly shared. This cycle not only fosters basic literacy skills but also develops digital literacy, evaluative thinking, and communication competencies. As such, the program serves as a medium for reflective and creative learning, encouraging students to become active and independent learners in line with the ethos of lifelong education.

With a robust theoretical and operational foundation, the #Sepekan1Buku program stands as a literacy intervention model that not only cultivates reading habits among students but also facilitates equitable access to quality reading materials and digital literacy practices. By integrating principles of inclusion, sustainability, participation, and creativity, the program aligns with the mission of SDG 4 to enhance educational quality and strengthen a culture of literacy as the cornerstone of lifelong learning in Indonesia.

Relevance of the #Sepekan1Buku Program Implementation in Supporting SDG 4

The #Sepekan1Buku program represents a best practice in reading literacy, systematically integrating activity stages and review assessment dimensions with the four literacy indicators outlined in SDG 4.1, SDG 4.6, and the PISA framework (Kementerian PPN/Bappenas, 2024; Kemendikbudristek, 2024; OECD, 2018). The program's four key activities, book selection, routine reading, reading journal documentation, and review creation, are supported by assessment indicators focusing on language proficiency, content analysis, and creativity. This synergy facilitates the continuous strengthening of both basic and functional literacy skills.

In relation to the Access and Understanding of Information indicator, the program encourages students to select reading materials aligned with their interests from diverse sources, both print and digital. This activity fosters information identification skills and strengthens students' engagement with reading resources. The assessment of language and structural aspects of

reviews further supports orderly and rule-based comprehension. The Integration and Interpretation indicator is reflected in the daily journal entries and review composition, which require students to synthesize, interpret, and organize information into coherent narratives. The content analysis dimension guides students to develop synopses, analyses, and evaluations, demanding integrative capabilities in processing reading materials.

Critical Reflection and Evaluation skills are cultivated through book evaluation activities and reflective opinion writing within reviews. The creativity aspect enhances depth of reflection, idea development, and personal perspectives, thereby reinforcing students' critical engagement with texts in relation to personal experiences and social values. The Application in Real-Life Contexts is demonstrated through the practice of publishing reviews on social media and digital platforms. This activity trains students to communicate their reading insights creatively and responsibly, contributing to a productive public literacy ecosystem.

Implementation data from the #Sepekan1Buku Challenge, involving 982 participants from 200 schools across 23 provinces, highlights the program’s strong relevance in supporting SDG 4, particularly target 4.1 on quality education and 4.6 on literacy proficiency. Of the 1,786 submissions, 809 qualified for assessment, with the highest scores recorded in the book discussion dimension (3.13 for Junior High School students and 3.32 for Senior High School students), followed by language proficiency. These achievements reflect students' abilities to comprehend reading structures and content, as well as their writing proficiency, aligning with national literacy indicators and PISA benchmarks (OECD, 2018; Bappenas, 2024; Kemendikbudristek, 2024). Although creativity—particularly in video formats—remains an area for improvement, the program has proven effective in reinforcing high-quality and sustainable literacy practices.

Student and School Literacy Team perceptions regarding the program’s benefits further affirm its positive impact on enhancing reading literacy. Students reported improvements in literacy skills, informed selection of reading materials, and critical thinking abilities. Concurrently, literacy teams observed increased library visits, higher book borrowing rates, and more active literacy initiatives within schools. These outcomes demonstrate that the program contributes to achieving SDG 4 by fostering a literacy culture that supports the development of 21st-century skills. Thus, the #Sepekan1Buku serves not only as a strategy for strengthening reading competencies but also as a practical vehicle for advancing SDG 4 targets through the contextual and applicable development of core 21st-century skills, including reading, writing, and critical thinking.

Sustainable Development of the #Sepekan1Buku Program

The program evaluation revealed several critical issues, including the need for expansion and sustainability, challenges related to access and availability of books, innovation in literacy activities, technical support such as faster communication responses, participant recognition, and technical concerns regarding the review submission website. These inputs highlight the importance of adopting a holistic approach in building a literacy ecosystem that is responsive to participant needs. Addressing these challenges will require a collaborative strategy, particularly involving Regional Library Offices and Regional Education Departments.

These findings align with international literature, which emphasizes that effective reading culture programs require stakeholder collaboration and support for diverse literacy access. The *Qatar Reads* study, for instance, underscores the necessity of synergy between schools, national libraries, and community organization, despite ongoing barriers such as limited time and technological access (Cochrane et al., 2022). Similarly, the *Inspiring Readers* initiative highlights the importance of training for teachers and librarians, alongside the availability of engaging children's reading materials, as prerequisites for creating enjoyable literacy experiences (Duncan & Kayoro, 2022). Participant suggestions from the #Sepekan1Buku program, such as strengthening the role of librarians, expanding book collections, and involving public figures, demonstrate that the program naturally aligns with these internationally recognized principles.

The uniqueness of the #Sepekan1Buku lies in its integration of reading activities with review writing, encompassing both written and video formats. This represents a significant distinction from many global literacy programs, which typically focus solely on reading. For example, the *Guys Read* study emphasizes the importance of allowing freedom in book selection and creating a relaxed reading environment to boost boys' reading interest (Dillon et al., 2017), yet does not extend to fostering self-expression through writing. Likewise, Ogbonna and Ezhe (2015) highlight the benefits of school library programs in encouraging reading habits but do not prioritize engagement in written production. The #Sepekan1Buku addresses this gap by enhancing productive literacy skills, including critical thinking, reflective writing, and the ability to communicate ideas creatively through digital formats.

The implications of these findings suggest that future development of the #Sepekan1Buku should focus on strengthening digital integration through responsive and accessible platforms, while expanding recognition efforts to include not only students but also teachers and

librarians as key literacy facilitators. Cross-sector collaboration, encompassing families, communities, and social media, will be essential to ensuring the program's sustainability. By positioning reading and writing as integrated and enjoyable practices, the program holds significant potential to reinforce a national literacy culture and contribute to achieving SDG 4 targets, particularly in enhancing reading and writing literacy skills as part of quality education and lifelong learning.

CONCLUSION

The #Sepekan1Buku program is an effective literacy intervention supporting SDG 4, particularly targets 4.1 and 4.6, through four key stages: digital registration, selecting reading materials, weekly book reading, and creating written or video reviews. It promotes an inclusive, sustainable reading culture while enhancing critical thinking, digital literacy, and creative expression as part of lifelong learning. The program engaged 200 schools across 23 provinces, generating 1,786 book reviews. Daily journaling and review writing significantly developed students' integration and interpretation skills, reflected in high scores for book discussion. Both students and school literacy teams recognize improvements in literacy, critical thinking, and increased library engagement.

For future development, the study emphasizes cross-sector collaboration, improved access to resources, and digital integration. Six key areas were identified: program expansion, book accessibility, activity innovation, technical responsiveness, diversified recognition, and platform optimisation. The integration of reading and review writing positions #Sepekan1Buku as a productive literacy model with strong potential for wider replication. Future research should explore the program’s effectiveness in enhancing reading, writing, and critical thinking through inferential analysis, alongside longitudinal and comparative studies. Evaluating the digital platform and the roles of teachers and librarians will further support evidence-based development.

ACKNOWLEDGEMENTS

Thank you to all participants of the #Sepekan1Buku challenge, students from junior and senior high schools and the school literacy teams, for your active involvement and enthusiasm. Appreciation is also extended to the regional library offices for their collaboration in workshops and mentoring, and to the facilitators from the National Library of Indonesia for their dedicated support. May this program continue to grow and take root in each school, fostering a lasting culture of reading and reflection.

REFERENCES

Agboke, A.L. (2019). The roles quality library information plays in education, technology and economic development in Nigeria. *International Journal of Educational Policy Research and Review*, *6*(3), 71-76. https://doi.org/10.15739/IJEPRR.19.010

Bahrami, S. & Harandi, R.J. (2020). The relationship between information literacy and knowledge sharing in students of public university. *SAARJ Journal on Banking and Insurance Research, 9*(2), 4-10. https://doi.org/10.5958/2319-1422.2020.00005.3

Centobelli, P., Cerchione, R. & Esposito, E. (2018). Aligning enterprise knowledge and knowledge management systems to improve efficiency and effectiveness performance: a three-dimensional Fuzzy-based decision support system. *Expert Systems with Applications, 91*, 107-126. https://doi.org/10.1016/j.eswa.2017.08.032

Chetty, M. (2018). Sustainable development goals what are we doing? *Medical Chronicle, 2018*(8), 54.

Cochrane, L., Ozturk, O., Khataee, H., Al-Hababi, R., Al-Malki, F., & Nourin, H. (2022). Fostering a reading culture: Evidence from Qatar Reads. *Development Studies Research, 9*(1), 82-94. https://doi.org/10.1080/21665095.2022.2050774

Cochran-Smith, M., & Lytle, S. (2009). *Inquiry as stance: Practitioner research for the next generation*. New York: Teachers College Press.

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). Thousand Oaks, CA: SAGE Publications.

Dei, D.J. (2017). *Assessing knowledge management systems implementation in Ghanaian Universities*. Doctoral dissertation.

Dillon, D. R., O'Brien, D. G., Scharber, C., & Nichols-Besel, K. (2017). Motivating boys to read: Guys Read, a summer library reading program for boys. *Children and Libraries, 15*(2), 3-8. https://doi.org/10.5860/cal.15n2.03

Duncan, R., & Kayoro, C. (2022). The role of African school libraries in supporting quality education. *Publishing Research Quarterly, 38*(1), 71-80. https://doi.org/10.1007/s12109-022-09866-5

IFLA. (2016). *Promoting libraries within the United Nations 2030 agenda for sustainable development*. https://www.ifla.org/node/10091.

IFLA. (2010). *IFLA public library service guidelines* (2nd, completely revised edition). Berlin: De Gruyter Saur. https://repository.ifla.org/handle/20.500.14598/988

Karkouti, I.M., Wolsey, T.D., Bekele, T.A. & Toprak, M. (2021). Empowering teachers during refugee crises. *Social Support They Need to Thrive. Teaching and Teacher Education, 107*(103471). https://doi.org/10.1016/j.tate.2021.103471

Kemendikbud. (2016). *Desain Induk Gerakan Literasi Sekolah* [Master Design of the School Literacy Movement]. Jakarta: Ditjen Dikdasmen, Kementerian Pendidikan dan Kebudayaan.

Kemendikbudristek. (2024). *Rapor Pendidikan Indonesia 2024* [Indonesia Education Report 2024]. Jakarta: Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi.

Kementerian PPN/Bappenas. (2024). *Metadata Pilar Sosial 2024* [Social Pillar Metadata 2024]. Jakarta: Kementerian Perencanaan Pembangunan Nasional/Badan Perencanaan Pembangunan Nasional.

Kumi, E., Yeboah, T. and Kumi, Y.A. (2020). Private sector participation in advancing the sustainable development goals (SDGs) in Ghana: experiences from the mining and telecommunications sectors. *The Extractive Industries and Society, 7*(1), 181-190. https://doi.org/10.1016/j.exis.2019.12.008

Loan, F. A., & Nasreen, N. (2021). The five laws of reading. *Library Philosophy and Practice*, 5280. https://digitalcommons.unl.edu/libphilprac/5280

Mkumbo, W. C. (2016). The role of school libraries in realizing the achievement of inclusive and equitable quality education in Tanzania: SDGs by 2030. *International Research: Journal of Library & Information Science*, *6*(2), 234-241.

OECD (2018). *PISA for Development Assessment and Analytical Framework: Reading, Mathematics and Science*, PISA, OECD Publishing, Paris, https://doi.org/10.1787/9789264305274-en.

OECD. (2023). *PISA 2022 Results (Volume I): The State of Learning and Equity in Education*. OECD Publishing. https://doi.org/10.1787/53f23881-en

OECD. (2023). *PISA 2022 Results (Volume II): Learning During – and From – Disruption*. OECD Publishing. https://doi.org/10.1787/a97db61c-en

Ogbonna, J., and Eze, J. U. (2015). Reviving the reading culture: school library programmes in promoting voluntary reading amongst students: the case of Imo State, Nigeria. *Library Philosophy and Practice (e-journal)*. Paper 1241. http://digitalcommons.unl.edu/libphilprac/1241

Omona, W. (2020). The roles of library and information services in achieving Sustainable Development Goals (SDGs) in Uganda. *Library Philosophy and Practice (e-journal),* 4019, 1-19, available at: https://digitalcommons.unl.edu/libphilprac/4018.

Pemerintah Republik Indonesia. (2007). *Undang-Undang Nomor 43 Tahun 2007 tentang Perpustakaan* [Law No. 43/2007 on Libraries]. Lembaran Negara Republik Indonesia Tahun 2007 Nomor 129. Diakses dari https://jdih.setneg.go.id

United Nations (2019). *Global indicator framework for the sustainable development goals and targets of the 2030 agenda for sustainable development*. Resolution Adopted by the General Assembly on Work of the Statistical Commission pertaining to the, 2030.

World Health Organization (2015). *Health in 2015: from MDGs, Millennium Development Goals to SDGs, Sustainable Development Goals*. WHO Press.

From Gaps to Growth: Advancing SDGs Through Academic Libraries in Brunei Darussalam

Ahmad Safwan Haji Jalil, Dayangku Noraini Pg Haji Idris

Universiti Brunei Darussalam Library, Jalan Tungku Link,

Gadong BE1410, Brunei Darussalam

Corresponding email: Safwan.Jalil@ubd.edu.bn

ABSTRACT

Academic libraries are critical players in bridging divides and advancing the Sustainable Development Goals (SDGs). This paper focuses on the Universiti Brunei Darussalam (UBD) Library and its efforts to align with SDG 4 (Quality Education), SDG 10 (Reduced Inequalities), SDG 3 (Good Health and Well Being), and SDG 17 (Partnerships for the Goals). The objective of this study is to examine how libraries transform global challenges into attainable goals by fostering inclusivity, innovation, and sustainability. The methodology involves analyzing key initiatives such as transliteration projects, mental health awareness programs, and digital inclusion strategies through document analysis and stakeholder consultations. Findings reveal that UBD Library effectively empowers communities, bridges digital divides, and strengthens collaboration with international organizations through culturally contextualized approaches that integrate Islamic principles with SDG frameworks. These efforts highlight the library's role in creating fair access to knowledge and fostering partnerships for sustainable development. Recommendations include expanding digital literacy programs to underserved communities, advocating for increased investment in library infrastructure, and strengthening cross-sector collaborations. By integrating these strategies, academic libraries can serve as catalysts for sustainable development in Brunei and beyond.

Keywords: Academic Libraries; Inclusivity; Partnerships; Sustainable Development Goals; SDGs; Sustainability

INTRODUCTION

When it comes to addressing the world's most pressing issues, libraries are rarely at the top of the list. Nevertheless, here we are, uniquely positioned to effect substantial change. The United Nations 2030 Agenda for Sustainable Development, with its seventeen ambitious Sustainable Development Goals (SDGs), provides academic libraries with an exceptional opportunity to shine. We bring unique strengths to the table, including collections, services, and community connections, which allow us to advance global concerns in ways that few other institutions can (Missingham, 2020).

The pressure, however, is building. As reminded by Oomes' (2020), we can no longer assume that libraries have inherent value. In today's atmosphere of tight resources and scrutiny of priorities, we are increasingly expected to demonstrate our value with persuasive proof. Visitor counts and circulation figures are no longer sufficient; we must now demonstrate meaningful outcomes and long-term benefits.

This examination is not completely unwelcome. In fact, it has pushed libraries to communicate our value more clearly and strategically. McDonald (2023) described 2023 as the "halfway point of the ambitious and transformational 2030 Development Agenda," thus there is an urgent need to highlight the specific ways libraries contribute to sustainable development.

In Brunei Darussalam, our Universiti Brunei Darussalam (UBD) Library has enthusiastically embraced this challenge. We have carved out a unique niche in supporting our country's implementation of the SDGs. Brunei's Vision 2035 (Wawasan 2035) is perfectly aligned with the Sustainable Development Goals, as both stress education, quality of life, and sustainable economic development. What distinguishes our approach is the integration of cultural identity within sustainability frameworks, as emphasized in the "SDG Library Map of Brunei Darussalam" resolution (2023).

When IFLA President Barbara Lison remarked, "Libraries are key players in achieving the UN Sustainable Development Goals" (Hj Idris, 2023), her words resonated strongly. As Gayshun (2016, as cited in Abd Kahar, 2023) eloquently stated, "The new UN 2030 Agenda is an inclusive, integrated framework of 17 Sustainable Development Goals encompassing

economic, environmental, and social development ... Libraries are essential institutions for advancing the SDG Goals."

This preliminary study investigates UBD Library's involvement with the SDGs, examining our current projects, challenges, and strategic shifts that could enhance our impact. By focusing on SDGs 3, 4, 10, and 17, we aim to offer both scholarly insights and practical recommendations to library science professionals and policymakers in Brunei and beyond.

LITERATURE REVIEW

Academic Libraries and Sustainable Development Goals: A Global Perspective

The relationship between libraries and sustainable development is not limited to Brunei; it is global. Academic libraries around the world are increasingly seeing themselves as accelerators for progress toward the SDGs. Sivalingam and Gamage (2023) conducted a thorough investigation into how university libraries incorporate specific goals into their strategic plans, with a particular emphasis on quality education (SDG 4), gender equality (SDG 5), and reduced disparities (SDG 10). The International Federation of Library Associations and Institutions (IFLA) supports this cause, seeing libraries as critical partners in attaining the SDGs through excellence in access, digital inclusion, cultural heritage protection, and literacy promotion (IFLA, 2020).

McDonald (2023) presented a persuasive case for the practical benefits of this alignment, arguing that the SDGs provide librarians with an effective lobbying toolset. They assist us in presenting our existing value in a framework that connects with government officials at all levels. This establishes a common vocabulary, which facilitates communication between libraries and stakeholders—and who among us could not benefit from a stronger "license to operate" in these financially challenging times.

The authors are particularly drawn to Oomes' (2020) pragmatic perspective on the issue. The SDGs define critical policy areas and societal concerns that governments believe are vital, allowing libraries to effectively target their efforts. By including SDGs into our library planning and utilizing them to influence impact evaluation, we can explain our value in ways that decision-makers understand.

Libraries and Impact Assessments

Historically, libraries have demonstrated their effectiveness using traditional metrics such as registered users, visitor counts, event statistics, and circulation data. As Oomes (2020) pointed out, there is a growing realization that these "easy-to-count" markers present an imperfect picture of our true societal importance. The inquiry is evolving from "what have we done?" to the more important "what difference have we made for our clients and society?"

Olatoye et al. (2021) provided a useful paradigm for separating library outputs (countable results), outcomes (positive improvements in people's lives), and impacts (long-term societal influence). Their findings demonstrated the surprising array of strategies that libraries around the world have used to advance the SDGs, such as digital literacy programs, health information services, and cultural preservation projects.

Kumar (2023) beautifully described libraries as "synonymous with education," providing the fundamental resources that propel economic, social, and cultural progress. Libraries, at their best, provide safe havens for all community members, enhance social relationships, support local economies, and protect cultural heritages, all of which match with the SDGs' goals.

Libraries and Quality Education (SDG 4)

Dei and Asante's (2022) analysis of Ghanaian university libraries shed light on our actual contributions to quality education. Their findings highlight our primary responsibilities: providing relevant materials, delivering information literacy education, and engaging patrons in lifetime learning opportunities.

Their research found that, while most library workers were aware of SDG 4, libraries often lacked internally developed policies aimed especially at this goal. They relied on wide United Nations publications and university policies. This suggests that libraries may adopt more concentrated tactics for achieving SDG 4, such as gaining increased support from university leadership and forming strategic alliances.

Islamic Principles and the SDGs

One of the most exciting aspects of our work in Brunei is the natural constructive partnership we have discovered between Maqasid Syariah (Islamic law's objectives) and the SDG framework. Muhammad Irwan Ariffin (2019) completed groundbreaking research that

demonstrated the connections between the five main goals of Maqasid Syariah and specific SDGs. This integration creates a culturally genuine approach for Muslim-majority countries like Brunei to accomplish the SDGs while respecting our beliefs and traditions.

The Maqasid Syariah includes five essential principles that are closely related to sustainable development: Faith (hifdh-ul-iman): protecting religious beliefs and values; Life (hifdh-ul-nafs): protecting human life and dignity; Progeny (hifdh-ul-nasl): protecting family lineage and future generations; Intellect (hifdh-ul-aqal): protecting intellectual development; and Wealth (hifdh-ul-maal): protecting economic resources.

When examined closely, these principles readily match with the SDGs, as demonstrated in Table 1. This alignment establishes what the authors believe is one of the most potential integrations of Islamic beliefs with global sustainability frameworks. It reveals that, rather than being diametrically opposed, our cultural and religious beliefs can support our efforts toward sustainable development.

Table 1: Alignment between Maqasid Syariah and SDGs

Maqasid Syariah Principle	Corresponding SDGs
Faith (hifdh-ul-iman): Protecting religious beliefs and values	• SDG 16: Peace, Justice, and Strong Institutions • SDG 17: Partnerships for the Goals
Life (hifdh-ul-nafs): Protecting human life and dignity	• SDG 3: Good Health and Well-being • SDG 6: Clean Water and Sanitation • SDG 13: Climate Action
Progeny (hifdh-ul-nasl): Protecting family lineage and future generations	• SDG 4: Quality Education • SDG 5: Gender Equality • SDG 11: Sustainable Cities and Communities
Intellect (hifdh-ul-aqal): Protecting intellectual development	• SDG 4: Quality Education • SDG 9: Industry, Innovation, and Infrastructure • SDG 12: Responsible Consumption and Production
Wealth (hifdh-ul-maal): Protecting economic resources	• SDG 1: No Poverty • SDG 2: Zero Hunger • SDG 8: Decent Work and Economic Growth< • SDG 10: Reduced Inequalities

METHODOLOGY

Engaging with the concrete offerings of the UBD Library required a determined methodology. We chose a case study approach, which provided the necessary depth and complexity. Our analysis was prompted by three key questions:

1. How is the UBD Library currently helping with the achievement of specific SDGs 4, 10, 3, and 17?
2. What barriers and challenges do we face in aligning our services with sustainable development goals?
3. What strategic changes could improve our contributions to the SDGs and Brunei's national development objectives?

Document Analysis

Initially, we required an understanding of the current landscape. This involved examining a curated collection of strategic plans, yearly reports, and presentation materials from the UBD Library from 2018-2023. We meticulously examined the university's comprehensive Sustainability Masterplan and pertinent internal project papers. Selection criteria included documents that explicitly mentioned sustainability initiatives or that contained implicit references to SDG-related activities. We employed content analysis methodologies to identify explicit and implicit references to sustainability, Sustainable Development Goals (SDGs), and related concepts.

Initiative Mapping

The subsequent task involved conducting investigative work and establishing linkages. We developed extensive mapping that links the library's current services and initiatives to certain SDG targets. This process involved listing all our core services and activities, meticulously assessing their alignment with specific SDG targets, documenting any available evidence of impact, and pinpointing opportunities for enhancement.

Stakeholder Consultations

Documents merely convey a fragment of the narrative. To gain a clearer understanding, we conducted informal consultations with two significant stakeholder groups: ten library personnel who execute these programs every day and three academic representatives who helped with us on initiatives. These informal interviews yielded insights into perceived effects, challenges, and possibilities that would not have been disclosed through formal

documentation. The consultations were conducted between January and March 2025, with each session lasting below 30 minutes. Discussions were guided by semi-structured questions focused on SDG awareness, implementation challenges, and potential collaboration opportunities.

FINDINGS AND DISCUSSION

Current Status of SDG Integration in UBD Library

Our analysis indicated an optimistic trend: UBD Library has begun incorporating SDG themes into its services, however implementation varies by area. Some objectives have been set, while others are still finding their foothold in our actions. Many initiatives have developed within the framework of the university's Sustainability Masterplan—an ambitious document that categorizes UBD's sustainability efforts into five strategic pillars: Promoting Innovation through Sustainability Research; Fostering Sustainability Advocates through Transformative Education; Advancing Sustainability through Green Campus; Sustainable Stewardship through Visionary Governance; and Empowering Sustainable and Resilient Communities.

The library has identified methods to contribute across this spectrum, including unexpected ones. While some programs, such as our digital repositories and information literacy campaigns, were planned with sustainable goals in mind; others, such as our wellness facilities and foreign relationships, have spontaneously evolved into important instruments for promoting SDGs.

SDG 3: Initiatives for Good Health and Well-being

Although health may not traditionally be seen as a primary focus for a library, our initiatives in this area have had a surprisingly powerful impact. We have developed specialized collections and reference services dedicated to health information, directly supporting Target 3.4's objective of improving health risk management. During the pandemic, these resources became an unexpected lifeline for many community members seeking reliable, accurate information.

Our ongoing exhibitions, workshops, and information sessions also address mental health issues, aiming to reduce stigma in line with Target 3.4’s focus on promoting mental well-being. These activities initially emerged from staff observations of heightened student stress during exam periods and have since grown into some of our most well-attended programs.

One particularly successful effort was the creation of a student lounge, offering tabletop games, ping pong, and, more recently, a pool table. This space has quickly become one of the library's most popular areas, offering students and staff a much-needed outlet for relaxation and social connection. Sometimes, the simplest changes yield the greatest impact. We have designated areas within the library specifically for relaxation and stress relief—quiet corners where visitors can unwind, practice mindfulness, or simply take a break amid the demands of their busy days.

SDG 4: Quality Education Initiatives

Education is central to our goal; therefore, it is no surprise that SDG 4 represents our most significant efforts. The UBD Library has launched several projects targeted at promoting inclusive and equitable quality education. Our comprehensive digital repository not only maintains UBD's research output, but it is freely available to anybody with an internet connection. This perfectly exemplifies Target 4.3's goal of promoting equitable access to quality education. The archive has emerged as a hidden gem for researchers in the region.

Our regular information literacy seminars go beyond basic library skills to improve students' research abilities and digital literacy - both of which are critical competences for Target 4.4's emphasis on enhancing applicable skills for employment. One faculty member stated that these workshops were "addressing gaps previously unrecognized in students' research toolkits." Our most apparent change has been the revamping of library rooms to provide collaborative learning environments that suit a variety of learning styles. This is fully consistent with Target 4.7's focus on inclusive educational settings. The once-quiet reading rooms are now buzzing with activity as students collaborate across disciplines.

Our usage statistics clearly demonstrate the impact of these activities. Following the adoption of advanced information literacy training, we observed a 30% increase in database usage and a 25% improvement in citation quality in student papers. This data reflects tangible improvements in student learning outcomes.

SDG 10: Initiatives for Reduced Inequalities

Libraries have long served as vital equalizers in society, and we have intentionally strengthened this role through targeted initiatives. Assistive technologies such as screen readers and adjustable workstations have been installed across the library, significantly improving

accessibility for users with diverse needs. These simple changes have had a profound impact, directly supporting Target 10.2's goal of fostering social inclusion.

Recognizing Brunei's diverse population, we have expanded our collection to include materials in multiple languages, including Malay, Chinese, and Indigenous languages. This effort aligns with Target 10.3's focus on promoting equal opportunities for all, regardless of background. One of our most culturally significant projects is the transliteration of historical manuscripts from Jawi to Rumi script. This initiative ensures that centuries of cultural heritage remain accessible to future generations, bridging the gap between preservation and accessibility.

A prime example of our approach to cultural contextualization is the "Jawi Heritage Gateway" project. This initiative not only preserves historical manuscripts but also connects them to contemporary SDG themes through digital tagging and thematic categorization. For instance, ancient texts on traditional medicine are linked to SDG 3 resources, while manuscripts on traditional education practices are tied to SDG 4 materials. This strategy creates meaningful links between Brunei's rich cultural history and global sustainability efforts. The response to these initiatives has been overwhelmingly positive. In particular, the Jawi transliteration project has attracted significant interest from researchers across Southeast Asia.

SDG 17: Partnerships for the Goals Initiative

Librarians recognize that collaboration is more effective than individual efforts. We actively participate in resource-sharing networks with other academic libraries in Brunei and across ASEAN. These agreements, together with Target 17.16's goal of improving worldwide alliances, enable us to provide our users with access to collections that are well beyond our own capabilities.

Collaborations with local educational institutions, community organizations, and government agencies have been our most rewarding initiatives. These collaborations broaden our reach beyond university boundaries, emphasizing Target 17.17's emphasis on building effective partnerships.

One exemplary partnership is our collaboration with the Ministry of Education's Special Education Unit. This partnership has resulted in targeted programs for students with learning differences, including specialized information literacy sessions and customized resource access. As one ministry representative noted, "This partnership has transformed how we approach information access for students with special educational needs."

These collaborations bring reciprocal benefits. Our collaboration with local health groups has resulted in specialized health information resources that benefit both the university and the community. Collaborating with educational institutions has given our library environment new vitality and views.

Challenges and Obstacles

Of course, not everything has gone smoothly. Despite hopeful progress in integrating library services with the SDGs, various hurdles continue to evaluate our commitment. Although we have completed a few projects related to the SDGs, our strategic planning and communication documents frequently fail to explicitly recognize these relationships. Work is being done, but we often fail to connect the dots with stakeholders or among ourselves. The librarian's constant complaint is that our objectives outweigh our financial resources. We, like most academic libraries throughout the world, confront resource restrictions that may force us to make tough decisions about which SDG-related projects to prioritize.

The most challenging task we have is methodically measuring our contributions to the SDGs. Traditional library measurements fail to capture the most important aspect of long-term development. We have begun using a framework for evaluating our impact on key SDGs, as shown in Table 2.

We periodically find ourselves caught between the global language of the SDGs and Brunei's cultural surroundings. To reconcile conflicting points of view, continual communication and careful concept translation are required.

Cultural contextualization presents its own unique challenges. For example, when developing mental health resources (SDG 3), we must sensitively integrate Islamic perspectives on wellness with contemporary psychological approaches. This requires careful dialogue with religious scholars, mental health professionals, and community members to ensure resources are both culturally appropriate and scientifically sound. It can be difficult to collaborate across institutional borders. Inadequate coordination across departments and institutions can lead to duplicated efforts and missed possibilities for constructive collaboration.

Table 2: UBD Library SDG impact measurement framework

SDG Goal	Key Performance Indicators
SDG 4: Quality Education	• Information literacy workshop participation • Digital repository usage metrics • Faculty collaboration rates
SDG 10: Reduced Inequalities	• Usage of assistive technologies • Multilingual resource availability • Cultural heritage digitization progress
SDG 3: Good Health & Well-being	• Health information resource usage • Mental health workshop attendance • Student wellness facility usage • Community health outreach participation
SDG 17: Partnerships for Goals	• Number of active partnerships • Resource-sharing agreements • Partnership outcome assessments

A Framework for Advancing SDGs At UBD Library

Informed by our findings and inspired by successful global models, we propose a framework to strengthen UBD Library's commitment to the SDGs. This strategy builds on our existing strengths while tackling the issues we have identified.

Strategic Pillars

Digital Transformation for Equitable Access

In today's interconnected world, digital transformation is critical for libraries looking to fill information shortages. The UBD Library must expedite its digital transformation through ~~of~~ a few critical programs. Improving our digital repositories would help preserve and disseminate local knowledge beyond the university's walls. Furthermore, developing specialized digital literacy programs for under-represented groups would ensure that all people can access and successfully use digital information. We must make considerable investments in assistive technology that improve digital resource accessibility for individuals with impairments, breaking down obstacles that have previously limited access. Furthermore, creating multilingual digital collections that represent Brunei's rich diversity would ensure that our materials are available to all community members, not just those fluent in dominant languages. A portion of this effort is already underway; but a more systematic approach would increase our effect on the SDGs.

Collaborations for Impact

There is no such thing as an isolated library, especially in terms of sustainable development. By enhancing our collaborations, we may increase our effect while optimizing precious resources. Formal relationships with government agencies focused on specific SDGs would help us connect our work with national priorities and gain access to additional resources. Creating corporate partnership programs to improve digital inclusion initiatives could bring private-sector expertise and finance to our sustainability efforts. Working with non-governmental organizations (NGOs) that serve underprivileged communities would broaden our reach to groups who may not have access to library services. Participating more actively in global library networks oriented on sustainability would connect us to leading international practices and novel approaches. Our current partnerships have demonstrated that collaboration frequently yields unforeseen benefits beyond the initial project parameters, resulting in a multiplier impact from small expenditures on time and resources.

Evidence-based Advocacy

Both Oomes (2020) and McDonald (2023) underlined the importance of libraries providing comprehensive measurement tools to demonstrate their impact and gain support. As a result, UBD Library should build comprehensive impact measurement frameworks that correlate to SDG indicators, allowing for effective communication on sustainable development with stakeholders. Systematic data gathering processes are required for tracking outcomes over time, going beyond anecdotal evidence to identify patterns and trends in our influence. Regular SDG impact reports that highlight the library's contributions would increase our visibility among decision-makers and potential partners, while tailored communication strategies for different stakeholder groups would ensure our message resonated with a wide range of audiences, including university administrators and community members. This technique will allow us to go beyond anecdotal evidence and demonstrate our worth in terms that are meaningful to decision-makers who allocate money and determine priorities.

Cultural Contextualization

Our most distinctive contribution may be to adapt global concepts to Brunei's specific cultural setting. This improves relevance and efficacy in several ways. Integrating traditional knowledge systems into sustainability projects recognizes the wisdom buried in Brunei's cultural history while also connecting modern SDGs to long-standing cultural values. Enhancing cultural heritage digitization projects through meaningful community involvement protects priceless knowledge and assures its accessible to future generations. Developing programs that integrate sustainability concepts with local cultural values generate more resonance and commitment than approaches that are regarded as foreign or imposed. Furthermore,

incorporating community members in service design and evaluation ensures that our sustainability programs are based on the true needs and aspirations of the people we serve, rather than our own preconceived conceptions. Our effort to combine Maqasid Syariah principles with SDG frameworks is a promising start in this regard, illustrating how Islamic values may complement rather than contradict global environmental goals.

A Road Map for Implementation

Translating vision into reality necessitates a clear path. We advocated for a phased implementation approach:

Phase 1: Foundations

The first six months are spent cleaning and organizing our residence. This includes conducting a thorough baseline assessment of our current SDG contributions, forming a cross-departmental SDG working group to oversee implementation, developing measurable key performance indicators for priority SDGs that align with university and national goals, and identifying potential partnership opportunities with significant impact potential both within and outside the university. This foundational phase is critical for long-term growth because it creates the knowledge basis, organizational structure, and measurements that will guide all future projects. Without this base, even well-meaning efforts are likely to become isolated or unsustainable.

Phase 2: Initiative Development

With our framework in place, we can start testing concepts by building pilot projects within each strategic pillar, as well as implementing rigorous data gathering methods for effect assessment that consider both quantitative and qualitative dimensions of change. Concurrently, we must launch formal partnership outreach to the targeted organizations identified in Phase 1, setting clear expectations and mutual benefits, and developing compelling communication materials that emphasize our contributions to the SDGs for various stakeholder audiences. This phase focuses on learning and adaptation, evaluating what works and what does not in our individual setting and altering our strategies accordingly. Starting with focused pilots rather than broad institutional adoption helps us to evaluate assumptions, acquire evidence, and gain traction for effective initiatives.

Phase 3: Scaling and Integration

As we gain confidence and data from our pilot initiatives, we can widen our success by growing pilot programs based on evaluation outcomes and tailoring them to new contexts or user demographics. Incorporating SDG objectives directly into the library's strategic strategy would strengthen these commitments beyond specific champions or departments. Publishing our first annual SDG impact report would demonstrate transparency and responsibility while also increasing awareness about our contributions. Furthermore, creating thorough training modules for all library staff on SDG integration would boost organizational capacity and ensure that sustainability knowledge is broadly disseminated rather than limited to a select few. This phase combines separate programs into a single strategy, incorporating sustainable development into our operations rather than viewing it as an add-on to traditional library services.

Phase 4: Sustainable Implementation

We achieve long-term sustainability by integrating SDG-aligned practices into all library operations, such as acquisitions, programming, and facilities management. Implementing constant monitoring and assessment processes would allow for continuous progress rather than stagnation and developing knowledge-sharing frameworks with other regional libraries would broaden our reach beyond our institution. Advocating for policy support at both the institutional and national levels will create an enabling environment necessary for long-term success by eliminating structural hurdles that might otherwise limit our effectiveness. At this point, SDG alignment should be integrated into our operations rather than treated as distinct activities, embodying "how we work" rather than specific projects that need additional effort or resources.

RECOMMENDATIONS

Based on our findings and proposed methodology, we provide specific recommendations to improve the UBD Library's role in sustainable development.

Priority Actions

The first goal is to build a resolute SDG team within the library organization. Libraries might suffer from initiative fatigue when multiple great ideas compete for limited attention. A cross-functional team with clearly defined roles and implementation authority would offer the focus required to promote SDG activities. This team should include representatives from all library divisions to ensure diverse perspectives and broad support, encouraging a coherent approach

rather than fragmented initiatives. The team will function as both advocates and organizers, ensuring that sustainable development remains a top priority despite competing demands.

Equally important is the implementation of a thorough impact measurement system that accurately reflects our true contribution to the SDGs. Improvement is impossible without measurement, but our current approaches frequently fail to capture the full scope of our influence. An effective method that combines quantitative measures with qualitative outcomes will improve our understanding of our genuine impact and allow for clear communication with stakeholders. The system should be consistent with recognized SDG indicators while also reflecting local aims and values, striking a balance between global comparability and local relevance. This may include standard library measures like collection consumption, as well as outcomes like improved information literacy, community participation, and contributions to sustainable research.

The third immediate priority is to strengthen our digital inclusion programs to overcome the ongoing digital divide that jeopardizes equitable development. We may broaden our audience beyond regular users by focusing on outreach to underprivileged communities via mobile library services that transport materials straight to their homes and workplaces. Workshops on digital literacy adapted to individual community needs, ranging from fundamental skills for seniors to sophisticated research approaches for students, would improve digital participation. Integrating accessible technological solutions into both our physical and digital surroundings will enable people with disabilities to fully participate in knowledge acquisition and production. These projects should be developed in close partnership with the communities they aim to serve, rather than imposed based on our preconceptions about their needs.

Library Leadership for Long-Term Transformation

Achieving lasting transformation requires leadership that prioritizes sustained progress over immediate results. The upcoming strategic planning cycle presents a valuable opportunity to formally integrate Sustainable Development Goals (SDGs) into the library's mission, complete with clear targets and timelines. This approach signals to both internal and external stakeholders that sustainability is not an optional initiative but a core part of the library's identity. Strategic integration means embedding sustainable development principles into collections, services, and partnerships, rather than treating them as separate activities. This could involve revisiting collection development policies to align with sustainability research, incorporating sustainability criteria into vendor evaluations, and creating programs that enhance sustainability knowledge and skills.

In an environment with limited resources, making intentional choices is crucial. Dedicating specific resources to SDG initiative, especially those centered on digital inclusion and community engagement—demonstrates a tangible commitment beyond aspirational statements. Resource prioritization may involve setting aside staff time, defining clear budget lines, or reallocating existing resources to better align with sustainability goals. Although new funding would certainly enhance efforts, considerable progress can still be made through thoughtful reallocation. This will inevitably require making complex decisions between competing priorities, but a strong commitment to sustainable development can guide those choices effectively.

However, even the best-designed strategies are only as effective as their execution. Comprehensive staff training on the SDGs and their relevance to library services is essential to build shared understanding and commitment across the organization. Training should be offered to all levels of staff—from senior management to student workers—to ensure a unified approach. Initiatives may include workshops centered on SDGs, case studies of successful library practices, and opportunities for each department to create SDG-related projects. The goal is to raise awareness while equipping staff with the practical skills needed for real-world applications.

Recognizing and celebrating achievements is equally important. A strategic communication plan can raise visibility for the library's contributions to the SDGs among university leadership, students, faculty, and the broader public. This plan should identify key audiences, tailor messages to their interests, and utilize appropriate channels for effective outreach. Communications should highlight both milestones achieved, and challenges faced, providing a balanced narrative. Impact stories, particularly those featuring community engagement, can powerfully illustrate the library's role in advancing sustainable development. Effective communication can also attract added resources and partnerships, creating a positive feedback loop that amplifies the library's impact. Each of these solutions builds on existing strengths while addressing areas for improvement. Together, they form a practical and culturally sensitive strategy to enhance UBD Library's contribution to sustainable development, supporting both Brunei's unique context and broader global sustainability goals.

CONCLUSION

Brunei Darussalam's university libraries have evolved from traditional book repositories to initiative-taking facilitators of sustainable development, marking one of the most amazing shifts in our field. Our research has discovered viable activities at UBD Library that are consistent with certain SDGs while also honoring Brunei's cultural heritage.

Olatoye et al. (2021) correctly stated that "libraries are indispensable, vital inclusive in any society that perform significant roles towards the actualization of SDGs." However, fulfilling this potential is not automatic. It necessitates purposeful alignment of strategies with global frameworks and local settings, strategic collaborations to increase effect, and advocacy for assessment systems that appropriately reflect our efforts.

What distinguishes Brunei's approach is the intentional merging of cultural identity with environmental guidelines. This demonstrates a genuine rather than imposed paradigm, reconciling global goals with local ideals in ways that other countries could learn from. Our attempts to link Maqasid Syariah principles with SDG frameworks serve as a model for other Muslim-majority countries seeking culturally appropriate pathways to sustainability.

Libraries like ours can become active agents of long-term change by implementing the recommendations presented in this report. This transition allows us to make a meaningful contribution to global goals and Brunei's Vision 2035.

LIMITATIONS

This study faced several limitations worth acknowledging. First, our case study approach, while providing depth limits generalizability to other library contexts with diverse cultural and institutional environments. Second, our stakeholder consultations, though insightful, represented a small sample size that may not capture the full spectrum of perspectives. Additionally, measuring the long-term impact of library initiatives on sustainable development outcomes remains challenging, as many effects may only become apparent over extended periods beyond the scope of this study. Finally, our focus on four specific SDGs, while allowing for detailed analysis, means that potential contributions to other goals received less attention.

McDonald's (2023) suggestion to "all Nepalese library workers to consider submitting a story to the Library Map of the World" is equally applicable to Bruneian libraries seeking increased awareness on the worldwide platform. Oomes' (2020) claimed that library impact research should prioritize boosting effect over just demonstrating it serves as a guiding premise for our evaluation efforts.

Significant topics for future research include: What is the long-term impact of library-led SDG activities on user communities? Which indicators are most successful at capturing libraries' unique contributions to sustainability? How can ASEAN university libraries work together more effectively to achieve common sustainability goals?

ACKNOWLEDGEMENTS

We would like to thank the Universiti Brunei Darussalam, Universiti Teknologi Brunei as well as Sultan Sharif Ali Islamic University for its support of this research, as well as our colleagues at the UBD Library for their significant insights and perspectives. We also applaud the Brunei Darussalam Library Association for encouraging and supporting SDG-related efforts in libraries around the country.

REFERENCES

Abd Kahar, D. A. S. H. (2023). Bringing inclusivity into our library with SDG & Maqasid Syariah [PowerPoint presentation]. *Symposium SDG in Libraries*, Maktabah UNISSA.

Dei, D.-G. J., & Asante, F. Y. (2022). Role of academic libraries in the achievement of quality education as a sustainable development goal. *Library Management, 43*(6/7), 456-469.

Hj Idris, D. N. P. H. (2023). *University Brunei Darussalam Library and the SDGs* [PowerPoint presentation]. Brunei Darussalam Library Association.

International Federation of Library Associations and Institutions (IFLA). (2020). *Libraries and the sustainable development goals: A storytelling manual*. The Hague: IFLA.

Kumar, T. (2023). The multifaceted impact of libraries on sustainable development in contemporary society. *International Journal of Science and Research, 12*(7), 1991-1992.

McDonald, V. (2023). Libraries and the SDGs - a powerful advocacy opportunity. *ACCESS: An International Journal of Nepal Library Association, 2,* 166-169.

Missingham, R. (2020). Sustainable development goals: Insights from research libraries. *International Journal of Librarianship, 5*(2), 13-25.

Olatoye, O. I., Bokwe, P., & Muchaonyerwa, N. (2021). An evaluation of the impact of libraries towards the realization of sustainable development goals (SDGs). *Journal of Human Ecology, 74*(1-3), 61-67.

Oomes, M. (2020). Sustainable development goals as guidelines for library impact assessment. KB, National Library of the Netherlands.

SDG Brunei Darussalam. (2023). *Resolusi: SDG Library Map of Brunei Darussalam*. Brunei Darussalam Library Association.

Sivalingam, K., & Gamage, R. C. G. (2023). *University libraries and sustainable development goals (SDGs): A global perspective on practices and contributions*. University of Colombo, 479. https://www.researchgate.net/publication/375672025

Beyond the Screen: Academic Libraries in the Philippines Navigating the Digital SDG Landscape

Miriam Charmigrace Q. Salcedo

University of the Philippines,
Quezon City, Philippines

Corresponding email: mqsalcedo@up.edu.ph

ABSTRACT

This study investigates how Philippine academic libraries harness technology to advance the United Nations Sustainable Development Goals (SDGs). The research analyses academic libraries from 56 Philippine higher education institutions recognised for successful SDG integration, representing a purposive sample of universities and colleges across Luzon, Visayas, and Mindanao. Through content analysis of library social media and websites, institutional repositories, and annual reports from 2022 to 2024, we examined their technological initiatives and SDG alignment. Data coding followed a systematic framework focusing on digital services, infrastructure, and user engagement. Findings highlight that academic libraries prioritise educational technology initiatives (SDG 4), such as e-learning platforms and digital literacy programs, and digital inclusion efforts (SDG 10), which provide equitable access to resources in underserved communities. The analysis also revealed variations in technological adoption influenced by institutional size and location. Larger universities were at the forefront of developing digital repositories and open access resources, while smaller colleges excelled in implementing targeted mobile solutions and localised technology-driven outreach programs. This investigation provides empirical evidence of how leading Philippine academic libraries strategically deploy technology to support sustainable development. It offers valuable insights for academic libraries in similar developing regions to enhance their role in advancing the SDGs.

Keywords: Academic Libraries; Sustainable Development Goals (SDGs); Content Analysis; Educational Echnology; Best Practice

Library Websites as Catalysts for Open Science Exploring SDG Connections in Selected Academic Libraries in the Philippines

Marie Chezka G. Tamayo, Marvin A. Factor,
Simon V. De Leon, Yugosto A. Balbas

The Libraries, Henry Sy Sr. Hall, De La Salle University,

Metro Manila, Philippines

Corresponding email: marie.tamayo@dlsu.edu.ph

ABSTRACT

This study investigates the role of academic library websites in advancing open science to support UN Sustainable Development Goals (SDGs) 9 (Industry, Innovation, and Infrastructure) and 17 (Partnerships for the Goals). Open science promotes transparency, inclusivity, and democratic access to knowledge (UNESCO, 2021). Through web content analysis of diverse academic library websites, this research assesses their effectiveness in providing access to open-access journals, promoting open educational resources (OER), and enabling cross-disciplinary research collaborations. Key indicators evaluated include the availability of open-access repositories, the presence of OER guides, and initiatives showcasing research partnerships. Findings highlight varying levels of commitment to open science, with exemplary practices in libraries emphasizing user-centered design and SDG alignment. However, gaps in resource discoverability, visibility, and integration of global and local SDG objectives persist. The study emphasizes the potential of academic library websites as vital platforms for advancing open science, fostering innovation, and breaking down institutional barriers. Recommendations focus on enhancing digital infrastructure to strengthen inclusivity, interoperability, and interdisciplinary collaboration within the academic ecosystem.

Keywords: Sustainable Development Goals (SDGs); Library Website; Open Science; Open Access; Academic Libraries

INTRODUCTION

Global academic communities are starting to recognize open science (OS) as an essential component in addressing societal challenges, especially in marginalized regions as outlined in the United Nations Sustainable Development Goals (UN SDGs) (UNESCO, 2021). OS makes facilitation to global information and research networks accessible by democratizing knowledge, with focus on transparency and inclusivity to enhance societal impact of scientific inquiry (Camkin et al., 2022). Two (2) SDGs: 9 - Industry, Innovation, and Infrastructure, and 17 - Partnership for the Goals, emphasize the need for innovative, inclusive, and collaborative networks, and the academic libraries, which is uniquely positioned to advance OS principles, can serve as the catalysts for resources in pushing for sustainable developments in these two (2) areas.

However, despite their potential for further promotion in contributing to the SDGs, the usage of academic library websites are underutilized. These websites are the first stops on information in providing content via open-access (OA) journals, open educational resources (OER) and repositories yet their effectiveness varies greatly across institutions (Hatzipanagos & Gregson, 2015). Challenges such as inconsistent accessibility standards, weak discoverability and visibility of resources, and insufficient integration of content with regards to global and local SDG priorities can hinder their impact (Nilashi et al., 2023). Furthermore, a key component of SDG 17: fostering cross-disciplinary collaborations in research requires websites to have intentional design and alignment with OS principles, which brings the question on how academic libraries should approach this.

This study aims to evaluate the effectiveness of academic library websites in promoting OS as a bridge to achieving SDGs 9 and 17. By analyzing a diverse sample of library websites of various academic institutions, we assess their role in facilitating access to OA journals, promoting OER, and fostering research partnerships.

RESEARCH QUESTIONS

The study seeks to assess how academic libraries adopt and promote OS practices, evaluate the contribution of OS practices to achieving SDGs 9 and 17, and carefully examine the accessibility and discoverability of academic library websites.

By utilizing a custom content analysis checklist, the research will explore the following aspects:

1. How do academic libraries manage the visibility of their OS features as displayed on their library websites?
2. Is there any evidence of contents in the library website relating to SDGs 9 and 17, and how are they communicated?

Using a mixed-methods approach, this study seeks to provide actionable recommendations and insights for enhancing the digital infrastructure and design of academic library websites, positioning them as vital platforms for innovation, inclusivity, and global collaboration.

REVIEW OF RELATED STUDIES

As OS has been receiving emphasis as a mechanism for advancing global sustainability, significant research has been conducted into the role of academic institutions in promoting knowledge transparently and inclusively. Academic library websites are essential in supporting SDG 9 and 17, as they primarily serve as the gateway to scholarly resources. This section reviews existing literature on OS, the functionality of different academic library websites, and their contributions to sustainable development, identifying key themes and gaps that make up the present study.

Open Science and Its Role in Sustainable Development

UNESCO (2021) defined OS as the practice of making research processes and outputs accessible, transparent, and collaborative. It has emerged as a critical framework for addressing global challenges in terms of scholarly and research resources. Several studies highlighted its potential to democratize knowledge, foster innovation, and strengthen partnerships, aligning directly with SDGs 9 and 17 (Jones & Campbell, 2021; Camkin et al., 2022). For example, OA journals and repositories enhance the availability of scientific findings to a broader audience, enabling higher societal engagement and innovation (D'Este & Robinson-García, 2023). Similarly, OER promotes inclusive and accessible education, supporting SDG 9's focus on sustainable infrastructure (Iniesto et al., 2021). However, the adoption of OS practices varies across institutions, often hindered by resource constraints and lack of standardized policies and operations (Armeni et al., 2021).

Academic Library Websites as Platforms for Open Science

Academic library websites often serve as one of the critical interfaces for delivering OS resources to the users, including OA journals, OER, and research repositories. A study by Hatzipanagos & Gregson (2015) summarizes that, libraries with well-designed websites, featuring user centric design, intuitive navigation and prominent OA repositories, significantly increase resource discoverability and user engagement. However, accessibility issues, such as non-compliance with Web Content Accessibility Guidelines (WCAG), remain a barrier for diverse user groups (Nilashi et al., 2023). Additionally, studies suggest that many library websites fail to integrate OER guides or highlight cross-disciplinary research initiatives in their content, limiting their role in fostering SDG 17's emphasis on partnerships (Ahmed & Othman, 2021).

User-centered design is a recurring theme in the literature, with studies emphasizing its importance in enhancing the usability and appeal of library websites (Gorantla & Devineni, 2023). In another study, it was found that libraries that prioritize clear labeling, multilingual support, and mobile responsiveness and adaptability report higher user satisfaction and page utilization (Sandnes, 2015). Yet, there is limited research on how these design principles can be aligned with OS goals to contribute to sustainable development outcomes.

Alignment with SDGs 9 and 17

The intersection of academic library websites, OS, and SDGs is an emerging and interesting area for new research. Recent studies suggest that academic libraries can act as catalysts for SDG 9 by providing digital infrastructure that promotes and utilizes innovation, such as OA repositories and data-sharing platforms (Chowdhury et al., 2021). Similarly, for SDG 17, libraries facilitate partnerships by being an interdisciplinary research portal such as hosting research papers and faculty works and promoting collaborative tools (Haddow & Mamtora, 2023). However, gaps still persist in integrating global and local SDG priorities into library website strategies, with many institutions focusing on general resource provision rather than contents that targets SDG alignment (Sweileh, 2020). Furthermore, as there is a lack of comprehensive studies evaluating the effectiveness of library websites in simultaneously advancing OS and SDG outcomes, this study seeks to address this gap.

RESEARCH METHODOLOGY

The study used a descriptive approach through web content analysis of selected Philippine academic library websites. According to Nassaji (2015), descriptive research focuses on

identifying *what* has occurred rather than explaining *how* or *why* it happened. Observation and survey tools are commonly employed to collect data (Gall et al., 2007, as cited in Nassaji, 2015, p.1).

The authors formulated a custom content analysis checklist, drawing from various instruments observed in related studies, to systematically evaluate the selected academic library websites. The study applied purposive sampling, selecting academic libraries based on their rankings in Times Higher Education (THE). Six prominent academic libraries were chosen as samples, representing different areas of the Philippines:

1. Library A, B, and F - Quezon City
2. Library C and D - City of Manila
3. Library E – Mindanao

The custom content analysis checklist consists of two key indicators: OS features and SDG alignment.

RESULTS AND DISCUSSIONS

The results of the data gathered, and the discussions of its interpretation are presented in Table 1.

Visibility of Open Science Features as Displayed on the Academic Libraries Websites

Table 1 illustrates that all six (6) academic libraries manage the visibility of their OS features with varying degrees of prominence and completeness, focusing on OA repositories, OA journals/publications, OER guides, and tools for data sharing/open research.

Table 1: Open science features

Indicators	Description	Evidences	Library					
			A	B	C	D	E	F
1.1 Presence of *OA* repositories	Does the website host or link to an institutional OA repository?	Check for repository link or search OA repository	✓	✓	✓	✓	✗	✓
1.2 Visibility of OA journals/ publications	Are OA journals/ publications linked prominently?	Note navigation depth required to find OA content	✗	✓	✓	✓	✗	✓
1.3 Availability of open educational resource (OER) guides	Does the website provide guides or resources for OERs?	Look for dedicated OER pages or tutorials	✓	✓	✓	✓	✓	✓
1.4 Tools for data sharing/ open research	Are there available tools for data sharing /open research?	Check for data management or open science tools	✓	✓	✓	✓	✓	✓

1. Presence of OA repositories (Indicator 1.1)

The findings reveal varying levels of OS feature implementation across the six academic libraries, with five of the six websites (Library A, B, C, D, and F) providing access to OA and institutional repositories, indicating a strong commitment to OS practices. Specifically, Library A includes a dedicated tab for the university archives online database under the Research menu, requiring users to navigate through an additional click compared to libraries with more prominent placement. Library B offers dedicated tabs for both the

institutional and open access (OA) repositories, easily accessible within 1-2 clicks under the Search menu and *Local Databases* subpage, making the repositories highly user-friendly. Library C provides a dedicated tab for the institutional repository, along with a separate webpage for accessing thesis and dissertation collections, which, while clearly distinguishing the different repositories, may complicate the user experience if not explained properly. Library D places OA links under the *Resources* section, making them visible but somewhat harder to locate within a broader category of resources. Library F offers a dedicated tab for the library's *Heritage Collection*, which is part of the OA offerings, ensuring easy access to cultural and historical materials. On the other hand, the absence of this feature on Library E's website may suggest a lower level of engagement with OA infrastructure or an alternative method for hosting repositories. These findings not only highlight the varying levels of implementation but also underscore the usability of OA and institutional repositories, showing how factors such as accessibility and ease of navigation can significantly impact user engagement with OS resources.

2. Visibility of OA journals/publications (Indicator 1.2): The data show that only four library websites (Library B, C, D, and F) prominently display OA publications, while Library A and Library E do not. Libraries B, C, D, and F feature a wide range of OA content, including journals, theses, and research publications such as the *Open Research Library*, *Cambridge Open Access*, *Guide to Open Access Journals*, *Directory of Open Access Journals* (DOAJ), and the likes, are all accessible through their OA repositories. These resources are prominently displayed on the library websites' homepages, making them easy for users to find. In contrast, Library A demonstrates inconsistency in promoting OA content. While it provides access to OA repositories, it does not highlight OA publications in a visible way, making it more difficult for users to discover open-access materials. Library E, on the other hand, lacks OA publication links altogether, indicating a more limited engagement with OS practices.

3. Availability of OER guides (Indicator 1.3): All six academic libraries provide access to a variety of OER guides, making this the most consistently implemented feature across the websites. This highlights a strong commitment to supporting the learning and research needs of their communities. The OER guides available on the websites cover a range of topics, including OER searching and discovery tools, video tutorials on how to use library resources, podcasts, and other multimedia materials. Additionally, the guides direct users to subject-specific OER repositories, helping the academic community locate open-access textbooks and various learning materials. Furthermore, the libraries' websites highlight initiatives such as talks, forums, seminars, webinars, and research training sessions designed to equip users with the knowledge and skills needed to engage with open education. The consistent presence of these OER resources across all six libraries

demonstrates a coordinated effort to advance open educational practices and promote wider access to educational content.

4. Tools for data sharing/open research (Indicator 1.4): The institutional repositories of the four academic libraries (A, B, C, and F) are generally accessible within 1-4 clicks, either under the *Research, About, Search*, or *Resources* menus, often nested under specific subpages like the *University Archives Online Database, Main Library*, or *web OPAC*. The homepage of each repository typically displays only the metadata of resources, with the list of collections being publicly available. However, access to the full-text content is restricted and requires users to log in with valid credentials. Notably, Libraries D and E do not feature discoverable institutional repositories on their websites.

Most libraries (B, C, D, F) manage OS features effectively by ensuring high visibility of OA repositories, journals, OER guides, and data-sharing tools, with Libraries B and C being the most comprehensive. Library A shows moderate visibility, lacking prominent OA journal links, while Library E is the least visible, missing both OA repositories and prominent journal links. The universal provision of OER guides and data-sharing tools suggests these are prioritized for visibility across all libraries, likely due to their broad applicability to academic communities.

Libraries could improve visibility by ensuring all OS features, especially OA journals, are easily accessible with minimal navigation depth, as seen in Libraries B and C.

Table 2: SDG alignment

Indicators	Description	Evidences	Library					
			A	B	C	D	E	F
2.1 References to SDG 9 (*Industry, Innovation & Infrastructure*)	Does the website mention SDG 9 in mission statements, research pages, or initiatives?	Search “SDG,” “sustainable development,” or “innovation”	✗	✓	✓	✓	✓	✓

2.2 References to SDG 17 (*Partnerships for the Goals*)	Does the website mention SDG 17 in similar contexts?	Look for partnership-related terms	✓	✓	✓	✗	✓	✓
2.3 Cross -disciplinary research initiatives	Are initiatives promoting cross-disciplinary research highlighted?	Check research centers or collaborative projects	✓	✓	✓	✗	✓	✗
2.4 External partnerships	Does the website highlight partnerships with external organizations?	Look partnership pages or news sections	✓	✓	✓	✓	✓	✓

Table 2 assesses the six academic libraries (A to F) on four indicators related to SDGs and research initiatives, revealing varied alignment with SDG 9 and 17, cross-disciplinary research, and external partnerships. Libraries B, C, and E excel across all indicators, demonstrating strong references to SDG 9 and SDG 17, active cross-disciplinary research, and external partnerships. Library A lacks SDG 9 references, while Library D misses SDG 17 and cross-disciplinary research, and Library F does not highlight cross-disciplinary initiatives. All libraries consistently showcase external partnerships, indicating a universal strength. These findings suggest that while most libraries align well with SDG goals and collaboration, Libraries A, D, and F could enhance their focus on specific SDGs or interdisciplinary research to match the comprehensive performance of Libraries B, C, and E.

Evidence of Contents in the Library Website Relating to SDGs 9 And 17, And How Are They Communicated

Table 2 provides evidence that most library websites contain content related to SDGs 9 and 17, communicated through mission statements, research pages, initiatives, and partnership highlights.

1. References to SDG 9 (2.1): Five libraries (B, C, D, E, F) mention SDG 9, explicitly

   referencing terms like "SDG," "sustainable development," or "innovation" in mission statements, research pages, or initiatives. This suggests that these libraries actively align their activities with goals related to industry, innovation, and infrastructure. Library A is the exception, lacking SDG 9 references, indicating no explicit communication of this goal on its website.

2. References to SDG 17 (2.2): Five libraries (A, B, C, E, F) mention SDG 17 or partnership-related terms in similar contexts, highlighting their focus on partnerships for global goals. Library D does not reference SDG 17, suggesting a gap in communicating partnership-oriented goals. The presence of SDG 17 content in most libraries indicates a strong emphasis on collaborative frameworks, likely communicated through partnership pages or initiative descriptions.

3. Communication Channels: The references to SDGs 9 and 17 are likely integrated into prominent sections of the library websites, such as mission statements, research pages, or dedicated initiative pages, as indicated by the evidence criteria (e.g., searching for "SDG" or partnership terms). The consistent mention of these SDGs across most libraries suggests they are communicated strategically to align with global sustainability priorities, possibly through highlighted projects, news sections, or strategic plans.

4. Related Indicators (2.3 and 2.4): The presence of cross-disciplinary research initiatives (Libraries A, B, C, E) and external partnerships (all libraries) further supports SDG 9 and 17 alignments. Cross-disciplinary research, relevant to SDG 9's focus on innovation, is highlighted by four libraries, likely through research centers or collaborative projects. External partnerships, relevant to SDG 17, are universally showcased, often in partnership pages or news sections, reinforcing the communication of collaborative efforts. Libraries D and F, which lack cross-disciplinary research initiatives, may communicate SDG 9 less comprehensively.

There is strong evidence of SDG 9 and 17 content on most library websites, communicated through explicit references in mission statements, research pages, or initiatives, with Libraries B, C, and E showing the most consistent alignment with both SDGs. Library A misses SDG 9, and Library D misses SDG 17, indicating gaps in their communication strategies. The universal emphasis on external partnerships and widespread OER guides and open research tools suggests that libraries leverage these features to communicate their commitment to SDGs, particularly SDG 17's partnership focus. Libraries could enhance SDG communication by ensuring consistent references across all relevant goals and integrating them into visible website sections, as exemplified by Libraries B and C.

RECOMMENDATION

To enhance the visibility of OS features and to assist in aligning SDG communication on library websites, the following summarized recommendations are proposed based on the analysis of the six academic libraries (A to F):

1. Increase OS Visibility:

   a. For Library E: Establish an OA repository and link it prominently on the website, with accompanying promotions for usage.

   b. For Libraries A and E: Feature OA journals/publications on the homepage or within one click to reduce navigation fatigue.

   c. For All Libraries: Maintain and enhance OER guides with updated, user-friendly resources and promote data-sharing tools through dedicated branding and "OS" pages with guides and success stories.

2. Improve SDG 9 and 17 Communication:

   a. For Library A: Add SDG 9 references and wordings such as "innovation" to mission statements or research pages.

   b. For Library D: Incorporate SDG 17 mentions (e.g., partnerships, collaborations) in partnership pages or initiatives.

   c. For Libraries D and F: Promote cross-disciplinary research initiatives on the website to support SDG 9.

   d. For All Libraries: Link external partnerships to SDGs 9 and 17 in news or partnership sections to highlight sustainability efforts.

3. General Enhancements:

   a. Create a unified "OS and Sustainability" website section to consolidate OA, OER, data-sharing, and SDG content for easy access.

   b. Conduct regular website audits with website designers and professionals to ensure OS and SDG content is visible, updated, and user-friendly.

Strive for a comprehensive OS visibility and SDG communication by ensuring all features are prominently displayed and contents are consistently communicated.

Libraries should also address specific gaps (e.g., Library E's missing OA repository, Library A's lack of SDG 9 references) by enhancing OA and SDG visibility, leveraging universal strengths

like OER guides and partnerships, and adopting a unified, audited website structure modeled after top performers

CONCLUSION

Academic libraries manage OS feature visibility with varying success. Libraries B and C lead by prominently displaying OA repositories, journals, OER guides, and data-sharing tools, while Libraries A and E need improvement in OA journal visibility and establishment of their repository, respectively. Most libraries (except A for SDG 9 and D for SDG 17) show evidence of SDG 9 and 17 content, as communicated through mission statements, research pages, and partnership highlights, with external partnerships and cross-disciplinary research reinforcing these goals. To strengthen both OS visibility and SDG communication, libraries should ensure all features and SDG references are easily accessible and consistently integrated across their websites, following the model of top performers like Libraries B and C.

REFERENCES

Ahmed, M., & Othman, R. (2021). Readiness towards the implementation of open science initiatives in the Malaysian Comprehensive Public Universities. *The Journal of Academic Librarianship, 47*(5), 102368. https://doi.org/10.1016/J.ACALIB.2021.102368

Armeni, K., Brinkman, L., Carlsson, R., Eerland, A., Fijten, R., Fondberg, R., Heininga, V. E., Heininga, V. E., Heunis, S., Koh, W. Q., Masselink, M., Moran, N., Ó Baoill, A., Sarafoglou, A., Schettino, A., Schwamm, H., Sjoerds, Z., Teperek, M., van den Akker, O., … Zurita-Milla, R. (2021). Towards wide-scale adoption of open science practices: The role of open science communities. *Science and Public Policy, 48*(5), 605-611. https://doi.org/10.1093/SCIPOL/SCAB039

Camkin, J., Neto, S., Bhattarai, B., Ojha, H., Khan, S., Sugiura, A., Lin, J., Nurritasari, F. A., & Karanja, J. M. (2022). *Open Science for Accelerating the Sustainable Development Goals: Status and Prospects in Asia and the Pacific*. https://www.frontiersin.org/journals/political-science/articles/10.3389/fpos.2022.878761/full

D'Este, P., & Robinson-García, N. (2023). Interdisciplinary research and the societal visibility of science: The advantages of spanning multiple and distant scientific fields. *Research Policy, 52*(2), 104609. https://doi.org/10.1016/j.respol.2022.104609

Gall, M.D., Gall, J.P., & Borg, W.R. (2007). *Educational research: An introduction* (8th ed.). Boston: Pearson.

Gorantla, B., & Devineni, S. (2023). Evaluation of User Experience (UX) Design for Emerging Technologies. *Computer Science, Engineering and Technology, 1*(3), 39-47. https://doi.org/10.46632/cset/1/3/6

Hatzipanagos, S., & Gregson, J. (2015). The Role of Open Access and Open Educational Resources: A Distance Learning Perspective. *Electronic Journal of E-Learning, 13*(2), 97-105. https://files.eric.ed.gov/fulltext/EJ1060161.pdf

Iniesto, F., Tabuenca, B., Rodrigo, C., & Tovar, E. (2021). *Challenges to Achieving a More Inclusive and Sustainable Open Education*. https://jime.open.ac.uk/articles/10.5334/jime.679

Jones, N., & Campbell, N. (August 27, 2021). How can open science help achieve sustainability? *Research Information*.

https://www.researchinformation.info/analysis-opinion/how-can-open-science-help-achieve-sustainability/

Nassaji, H. (2015). Qualitative and descriptive research: Data type versus data analysis. *Language Teaching Research, 19*(2), 129-132. https://doi.org/10.1177/1362168815572747

Nilashi, M., Boon, O. K., Tan, G., Lin, B., & Abumalloh, R. (2023). Critical Data Challenges in Measuring the Performance of Sustainable Development Goals: Solutions and the Role of Big-Data Analytics. https://hdsr.mitpress.mit.edu/pub/9n4uzkg3/release/2

Sandes, S.T. (2015). *Responsive Web Design for Digital Libraries Accessing information anywhere, anytime*. Norwegian University of Science and Technology. https://www.ntnu.no/documents/10401/1264433962/SigridArtikkel.pdf/84f3c5aa-a5e1-4587- 94b4-4eab457e2f07

UNESCO. (2021). *UNESCO recommendation on open science*. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000378841

Divides in Malaysian Academic Libraries: Integrating Waqf, Green Management, and SDGs Awareness for Inclusive Sustainability

Mohd Dasuki Sahak[1], Haziah Sa'ari[2], Haslina Abu Seman@Talib[1], Zuhaini Abdul Samad[1], Noor Syafini Zamani[1], Azizan Arshad[1]

[1]Perpustakaan Sultan Abdul Samad, Universiti Putra Malaysia, Malaysia

[2]School of Information Science, Universiti Teknologi MARA

Cawangan Negeri Sembilan, Malaysia

Corresponding email: dasuki@upm.my

ABSTRACT

Academic libraries play a pivotal role in bridging knowledge gaps and promoting environmental stewardship, aligning closely with SDG 4 (Quality Education), SDG 10 (Reduced Inequalities), and SDG 13 (Climate Action). This study examines case data from Malaysian academic libraries to explore how Waqf funding has been utilised to enhance library collections, infrastructure, facilities, digital access, and disability services while fostering community engagement. These efforts establish a sustainable funding model rooted in ethical and cultural principles. Simultaneously, green management practices -evaluated through the UI GreenMetric World University Ranking criteria, such as budget allocation, electricity and water conservation, paper reduction, and renewable energy innovation - have amplified the environmental impact of library operations and reinforced alignment with Malaysia's sustainability agenda. The study further explores initiatives to enhance SDGs awareness within the university community, including seminars, conferences, exhibitions, competitions, resource guides, community service, and collaboration with faculty to integrate SDG concepts into academic curricula. Despite these advancements, challenges such as governance inefficiencies, scalability constraints, and technological adoption gaps persist, limiting broader implementation. To address these barriers, this paper proposes a Waqf-Green Management Hybrid Framework, integrating the community-centric ethos of Waqf with innovation-driven green management strategies. The framework leverages blockchain technology for transparency in fund management, artificial intelligence for resource optimisation, and interdisciplinary approaches

to enhance alignment with Malaysia's national development objectives. The findings illustrate the evolving role of academic libraries as dynamic hubs for sustainability, education, and social equity, offering a scalable and culturally adaptable model for other Muslim-majority nations and beyond. By addressing divides in resource access and environmental responsibility, this study contributes to the global discourse on sustainable library management and provides actionable insights for policymakers, library professionals, and academic leaders navigating the intersection of funding innovation and environmental sustainability.

Keywords: Sustainable Development Goals (SDGs); Waqf, Green Management, Academic Libraries; Sustainability; Inclusive Knowledge; Greenmetric

INTRODUCTION

The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015 were identified 17 Sustainable Development Goals (SDGs) as a plan of action for people, planet and prosperity (United Nations, 2015). Since then, libraries and library associations around the world have recognised their roles in SDGs (Al Hijji & Al Hinaai, 2023). As the world's leading library association, The International Federation of Library Associations and Institutions (IFLA) has been actively promoting the SDGs among library associations globally (Shesha & Singh, 2024). The Librarians Association of Malaysia also acknowledged the importance of SDGs and actively participated in global efforts (Nasir, 2022).

An informetric study on Library and Information Science (LIS) research related to the SDGs from 2012 to 2021 by Onyancha (2024) shows that LIS research has steadily increased over time and has contributed to research and impact across all SDGs. More specifically, the contribution includes disseminating knowledge and enriching communities (Shesha & Singh, 2024). However, further studies are needed to clearly understand the library-specific roles in supporting and achieving SDGs agenda, particularly within Malaysian academic libraries.

This case study aims to assist academic libraries in identifying gaps in their critical roles in bridging knowledge disparities and promoting environmental stewardship. By focusing on the university library at Universiti Putra Malaysia, this study explores three key SDGs, which are SDG 4 (Quality Education), SDG 10 (Reduced Inequalities), and SDG 13 (Climate Action). Through addressing these gaps, this study seeks to provide actionable insight for policymakers, library professionals, and academic leaders in addressing SDGs agenda.

UPM Library Background

Universiti Putra Malaysia (UPM) is an internationally renowned institution with 93 years of excellence in higher education, strategically located near Malaysia's administrative capital, Putrajaya. As an international university, UPM has a diverse student population of approximately 30 thousand from over 75 countries with 1,753 academic staff (Universiti Putra, 2024). UPM, a leading higher learning institution committed to sustainability and environmental well-being, successfully achieved the 24th position globally in the UI GreenMetric World University Rankings 2024 and maintained the most sustainable campus in Malaysia (Faculty of Agriculture, 2024). As part of the UPM, the university library plays a crucial role in supporting the Sustainable Development Goals (SDGs) within the university community towards Waqf, UI GreenMetric University Rankings and SDGs awareness initiatives.

The library's history dates to the establishment of the Malayan Agricultural College on May 21, 1931, aimed at supporting learning, teaching, research, and consultation activities (Sultan Abdul Samad Library, 2024). On May 23, 2002, UPM Library was renamed Perpustakaan Sultan Abdul Samad (PSAS), in honour of Sultan Abdul Samad, the great-great-grandfather of the current Sultan of Selangor, Sultan Sharafuddin Idris Shah Ibni Almarhum Sultan Salahuddin Abdul Aziz Shah Alhaj (Sultan Abdul Samad Library, 2024).

In addition to the Main Library, UPM Library operates four branch libraries located at the Faculty of Medicine and Health Sciences, Faculty of Veterinary Medicine, Faculty of Engineering and Architecture, and the Bintulu Campus Library in Sarawak. The Main Library is strategically located at the heart of the campus and consists of two blocks, covering a total floor area of approximately 19,007 square metres and can accommodate up to 2,000 users at any given time (Sultan Abdul Samad Library, 2024).

Research Questions

This study explores the roles of UPM Library in bridging knowledge disparities and promoting environmental stewardship within SDG 4 (Quality Education), SDG 10 (Reduced Inequalities), and SDG 13 (Climate Action), ~~a~~ including these research questions as below:

a. How does the UPM Library play a role in supporting Sustainable Green Goals (SGGs) within the university community?

b. What challenges are faced when implementing SDG initiatives at the library?

c. How can the library's role in advancing the SDGs be strengthened?

LITERATURE REVIEW

Previous studies related to the pivotal role of academic libraries in bridging knowledge gaps and promoting environmental stewardship, aligning closely with SDG 4 (Quality Education), SDG 10 (Reduced Inequalities), and SDG 13 (Climate Action), are briefly discussed as part of the study overview. Specifically, the literature is divided into three main topics: the benefits of waqf in libraries, green initiatives, and the critical role libraries play in raising SDG awareness.

The Benefits of Waqf in the Libraries

The Malaysia Education Blueprint 2015–2025 (Higher Education) aims to encourage public universities and institutes of higher education to diversify their funding sources to reduce dependence on public funds and to promote entrepreneurship (Kementerian Pendidikan Malaysia, 2015). *Waqf* is one of the best alternative funding sources for Malaysian universities (Mahamood & Ab Rahman, 2015; Usman & Ab Rahman, 2022). For instance, in understanding the definition of waqf, the word "waqf" (plural: awqaf) or "hubs" (plural: ahbas) is an Arabic term that is usually translated as “to detain,” “to prevent,” and “to restrain.” (Usman & Ab Rahman, 2022).

Waqf in education is not new and has been practised and established in Muslim countries and in Western countries, with history showing that waqf has benefited various educational institutions, including libraries (Mahamood & Ab Rahman, 2015). The implementation of waqf in Malaysian higher education began in 1999 with the establishment of the Islamic Endowment Fund (IEF) by the International Islamic University Malaysia (IIUM), making it the first university in the country to introduce an educational endowment fund (Mustaffa & Muda, 2014). Over the years, other universities, including UPM, Universiti Kebangsaan Malaysia, Universiti Sains Islam Malaysia, and Universiti Teknologi Malaysia, have followed suit, further expanding the role of waqf in financing higher education (Mustaffa & Muda, 2014).

Building on this development, previous studies have examined the increasing commitment of Malaysian universities to waqf-based funding. Research by Ahmad et al. (2016); (Mahamood & Ab Rahman, 2015; Mustaffa & Muda, 2014) highlights the growing recognition of waqf as a sustainable financial mechanism. These studies emphasise how universities integrate waqf within their financial structures to support academic and institutional development. In addition to establishing, the income generation from waqf universities may be strategically utilised to support the library and other university expenses such as acquisition of books and scholarly resources, teaching equipment and facilities, as well as enhancement of university infrastructure (Mahamood & Ab Rahman, 2015).

The Green Initiative in the Academic Libraries

A Green Library (GL), also known as a sustainable library, is defined as “a library designed to minimise the negative impact on the natural environment and maximize indoor environmental quality using careful site selection, use of natural construction materials and biodegradable products, conservation of resources (water, energy, paper), and responsible waste disposal” (Reitz, 2004). GL and a sustainable library also defined as a “library which takes into account environmental, economic, and social sustainability” (IFLA, 2022).

This means that GL focuses on the environment, sustainable development, and environments vulnerable to climate change or social inequalities (Laybats, 2024). Then, a review of previous literature indicates that research on GL has been increasing and attracting growing attention from researchers worldwide (Ajani et al., 2024; Rifqi & Puspita, 2025; Tariq et al., 2025). Aulisio (2013) argue that a green library is not limited to expensive architecture and building, instead can be simple and cost-effective measures such as replacing light bulbs, installing motion sensors, conducting regular maintenance on HVAC systems, weighing the cost of upgrading to high-efficiency systems or simply studying building temperature.

Recent systematic literature reviews by Ajani et al. (2024) have identified that libraries in developing countries have achieved significant success through initiatives such as green building projects, community engagement programs, collaborative partnerships, the expansion of digital resources, innovative climate literacy initiatives and a strong commitment to ethical stewardship. While, systematic literature review by Tariq et al. (2025) identified key factors influencing the adoption of green libraries for environmental sustainability, such as external and internal institutional goals, technological advancements, and GL initiatives.

More specifically in Malaysia, several universities adhere to the UI GreenMetric World University Ranking to demonstrate their commitment to sustainability and gain recognition for their efforts on sustainability and environmental management (Muhamad Noh, 2017). This metric was launched in 2010 by Universitas Indonesia as a self-evaluative, cross-institutional sustainability assessment tool for a green campus, aligning with Education for Sustainable Development (ESD) to measure sustainability efforts (Safarkhani & Örnek, 2022). A university library, as one part of the university's divisions, also plays a significant role in supporting university commitment towards this metric (Kassim et al., 2019).

However, a recent study on bibliometrics by Rifqi and Puspita (2025) indicates that publications on green technology in libraries remain limited, with 57 articles published between 2015 and 2024, with the highest frequency in 2019 (12 articles). It can be concluded that further study in GL is needed to explore more library initiatives and identify the related best practices.

The Vital Role of Libraries in Raising SDGs Awareness

As reliable information centres in information dissemination, the significant roles of libraries in SDGs have been recognised worldwide (Lahyani et al., 2024). As a type of library, academic libraries serve as a university information hub and attract worldwide researchers' attention to explore the roles of academic libraries in promoting SDGs among university communities (Dei & Asante, 2022; Lahyani et al., 2024; Ma & Ko, 2022; Shesha & Singh, 2024).

Ma and Ko (2022) reported that the Chinese University of Hong Kong promotes a broad understanding of the SDGs within the university community while enhancing graduate global competitiveness. A study conducted at the Mohamed Sekkat University Library by Lahyani et al. (2024) highlights the core activities of academic libraries within the framework of the SDGs methodology and their significant contribution to sustainability through various avenues, including digital initiatives, resource management, and technological innovations.

A study by Dei and Asante (2022) found that libraries do not have their own internally developed policies on the SDGs and rely on the official United Nations (UN) document as a guideline for raising awareness among library users. Alternatively, some libraries have developed assessment tools as benchmarks and to set ambitious targets aligned with the United Nations' 2030 Agenda (Missingham, 2021; Thorpe & Gunton, 2022).

Despite playing vital roles, academic libraries face some challenges in increasing SDGs awareness. For example, a study by Shesha and Singh (2024) reported that a lack of understanding of what the libraries can and should do concerning the promotion of the SDGs limits the potential. More studies are needed to explore the roles of academic libraries in increasing SDGs awareness, particularly in understanding the effectiveness of initiatives, technological support, challenges, and problem-solving strategies.

METHODOLOGY

This study aims to explore the critical role of libraries in bridging knowledge disparities and promoting environmental stewardship within SDG 4 (Quality Education), SDG 10 (Reduced Inequalities), and SDG 13 (Climate Action), particularly within Malaysian academic libraries. Data collection was conducted using two main methods: library research and institutional documentation. Previous literature on waqf, green library practices, and sustainability efforts was reviewed for library research as a key reference and guiding framework. For institutional documentation, relevant documents, and librarians' experiences in managing the waqf, GL initiative, and SDGs from 2018 until 2024 were compiled and examined.

FINDINGS

Information Sources of Library Research

In conducting library research, authors employed library-subscribed databases and a variety of information sources to identify related articles, as shown in Table 1 below.

Table 1: Information sources of library research

Type of Document	Number of Sources	Type of Document	Number of Sources
Journal Articles	16	Reports/ Policy Documents	1
News/ Website Articles	6	Dictionary Entries	1
Conference Papers	4		

A total of 28 sources were used for this study, with journal articles (16 articles) as the most relevant information sources, followed by news/website articles (6 articles) and conference papers (4 articles). This information sources served as key references to help authors build a comprehensive understanding of knowledge regarding the topics and guide for data analysis.

Sources of Research Data and Information

Table 2 below presents sources of information that focus on waqf initiatives, green library practices, and SDG awareness programmes, which were analysed and categorised according to the themes.

In the Waqf theme, the information was gathered from project reports and news that were available in the project documents and organisation websites. For the GL theme, UI GreenMetric reports and sustainability reports were gathered by the authors from project documents. Then, reports on SDG-related events and SDG activities published on library websites were used for the SDGs awareness theme.

Table 2: Sources of information

Theme	Sources	Types of Documents
Waqf	Waqf reports	Project documents
	News on waqf projects	Website
Green Library (GL)	UI GreenMetric Reports	Project documents
	Sustainability reports	
SDGs Awareness	SDGs reports	Event reports
	News	Library website

Waqf Initiatives in the UPM Library

Waqf funding in UPM Library encompasses library collections, infrastructure, facilities, digital access, and disability services as illustrated in Table 3 below. From these findings, WAZAN (Centre for Management of Waqf, Zakat and Infaq) is shown to be the most significant, which supports a wide range of library initiatives, followed by individual contribution and Yayasan Bank Rakyat. WAZAN play most significant role as the mission to assists all UPM members and the community with full integrity and high professionalism through Waqf, Zakat, and Infaq. Moreover, as a services centre that benefits the university community, the library aligns closely with WAZAN's goals, which are “nurturing the culture of '*Give*' and '*Contribute*' for public interests”.

Table 3: Waqf initiatives in the UPM Library

Waqf Initiatives	Project/ Funding Sources	Description
Library Collections and Digital Access	Printed and E-Books WAZAN	Since 2018, WAZAN has partially covered the cost of printed and e-books particularly in critical subject areas such as medical, engineering, and food security.
	Sir Corner (Serambi Ilmu Rakyat (SIR) Corner)) Yayasan Bank Rakyat (YBR)	In 2022, UPM Library received a community service project from YBR that namely SIR Corner. More than 100 thousand digital collections can be accessed through seven sponsored databases. Two units of computers with furniture sets were also received from this project.
Library Facilities	Anjung Ilmu WAZAN	This is a project of refurbishment reading area between UPM Library and WAZAN that namely "Anjung Ilmu" were carried out from year 2018 to 2000. This project transforms the library reading area on Level 1, Blok B and various facilities were provided, such as a reading room, discussion room, meeting room and a stage.
	Gazebo Person	PSAS received a donation from UPM alumni Dr. Muzafar Shah Habibullah in 2022 to build a Gazebo, besides the library building. This gazebo serves as a place for student recreation and prayer for male students.
Library Facilities	Water Dispenser Individual Contribution	In 2018, one water dispenser was received from individual contributions and allocated in the Anjung Ilmu.
	Water Dispenser Machine WAZAN	In 2024, four water dispenser machines from WAZAN were received to serve library users at the main and branch libraries.
Disability Services	Braille Machine WAZAN	In 2021, UPM Library received a Braille Machine from WAZAN to support the teaching and learning of students with vision impairment.

The Green Library Initiative of UPM Library

The UPM Library's GL initiative is aligned with the UI GreenMetric World University Ranking, which encompasses budget, utilities, paper, and green sustainability activities among staff and students, as presented in Table 4 below.

Table 4: Initiative of green sustainability in the UPM Library

Elements	Initiative of Green Sustainability
Budget	Budget allocated for green sustainability initiatives
Utilities saving (electricity and water)	Reduced electricity and water consumption
Paper Saving	Reduced paper usage
Initiative/Innovation	Encouragement Green Sustainability activities

The first element is the allocation of a budget for green sustainability activities, which reflects the organisation's commitment to green sustainability initiatives. Next, in terms of electricity and water saving, the library is expected to enhance the efforts in energy efficiency and raise more awareness on nature and energy resources. Since 2018, several continuous initiatives have been maintained, including replacing the conventional light sources with LED (Light Emitting Diode), repairing leaking pipes, and an energy and water awareness campaign. For paper saving, more online form was introduced by using various applications to minimise paper usage, and printed meeting minutes and workshop notes are no longer used. Finally, sustainability activities have been organised as indicators of how active the library is in green sustainability efforts. These activities include solar installations, the Go Green Program, the water recycling project, and a self-service photostat machine as presented in Table 5 below.

Table 5: Initiative/innovation in Green Library

Initiative	Description	Impact
Solar Installation	Installation of solar panels at the Library of Engineering and Architecture in April 2023 by GSPARX (TNB).	Provides alternative energy and supports UPM's sustainability agenda.
Go Green Program	Placement of recycling bins in six library zones. Includes digital tracking via Google Drive and Green Competition.	Promote recycling behaviour and staff engagement in green practices.
Water Recycle Project	Recycling of excess air-conditioning water for irrigation at the Herbal Garden. Includes 2 catchment tanks.	Saves 6,400 litres/ month, supports water conservation efforts.
Self-Service Photostat Machine	Introduce self-service photocopy machines to replace conventional photostat service.	Reduces paper usage and income generation.

The Library of Engineering and Architecture was equipped with solar panels in April 2023 by Tenaga Nasional Berhad (TNB), through its wholly-owned subsidiary GSPARX Sdn Bhd (GSPARX) to further expand the sustainability features at UPM. The solar installation can help the university use solar roofs as one of the main alternative energy sources to cover daily electricity consumption on the UPM campus.



Figure 1: Solar panel in the library of engineering and architecture

For the Go Green Program, six library areas were equipped with recycling bins to support the collection of recyclable items. This is an ongoing initiative that aims to promote behavioural change, raise awareness, and educate among library staff and users. The digital log was introduced by using the Google Drive platform to systematically record recyclable items and demonstrate each library zone commitment towards this initiative.

Additionally, the GL initiative also contributes to the EKSA Program (Conducive Ecosystem of the Public Sector) in the UPM Library. Through EKSA, various related activities with GL were actively organised, such as the “Best Go Green Award” competition, as an appreciation for the library staff for their contributions to ideas and energy in involving GL activities.

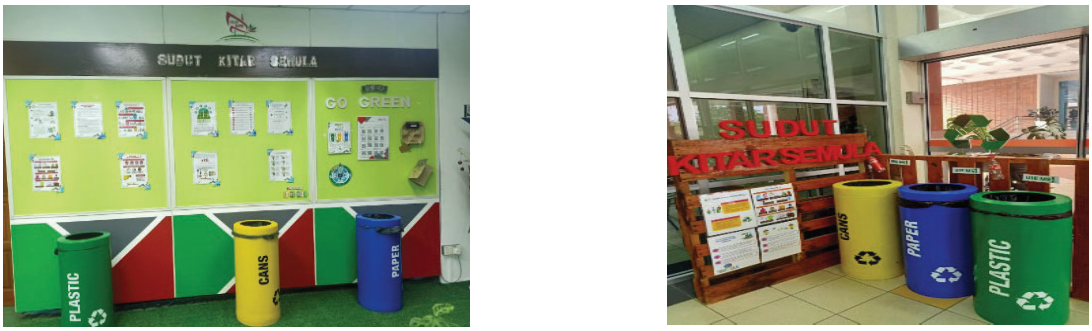


Figure 2: Recycle Corner



Figure 3: Water Recycling Project

The next initiative is a water recycling project by the EKSA Green Sustainability Committee. These activities aimed to recycle excess air conditioning water and use it as an irrigation source in the Herbal Garden. Two catchment tanks were used for this project, which was estimated to save approximately 6,400 litres of water per month.

Self-Service Photostat Machine

In 2023, UPM Library collaborated with a printing company to introduce self-service photocopy machines, replacing the traditional photocopying service. As part of this collaboration, the company provided all the paper, thereby reducing the library's paper consumption. This initiative also generated income through a profit-sharing arrangement.

UPM Library's Role in Raising SDGs Awareness

Based on document analysis, UPM Library demonstrates active involvement in raising awareness of the SDGs among the university community through various initiatives such as the SDGs Corner Competition, quiz, virtual exhibitions, social media promotions, participation in national conferences, and sustainability-related events, as illustrated in Table 6 below:

Table 6: UPM Library's Role in Raising SDGs Awareness

SDGs Initiative	Description
SDG Corner Competition	UPM Library participated in the SDG Corner Competition in 2024.
SDG Quiz	An interactive quiz to help users deepen their understanding of SDGs in 2024.
Virtual Exhibition and social media	Digital platforms were used to host virtual exhibitions on SDGs and promote activities through social media since 2018.
Participants in Conferences	UPM Librarian presenting the paper entitled 'Supporting Agricultural Networks and Communities Through Agri@UPM" in the Malaysian Library Annual Conference (PTPM) 2024.
Sustainability Events	EKSA and GL awareness pogram and Jiwa Putra.

The first SDGs initiative is UPM Library participated in the SDGs Corner Competition organised by the Standing Committee on Academic Libraries, The Librarians Association of Malaysia in August 2024 and successfully won the second-place competition. SDGs Corner includes an interactive corner that displays SDGs information such as goals definition, SDGs significance and global issues as displayed in Figure 4 below. Along with the exhibition, SDGs Quiz also launched to gain engagement with library users as a second SDGs initiative.



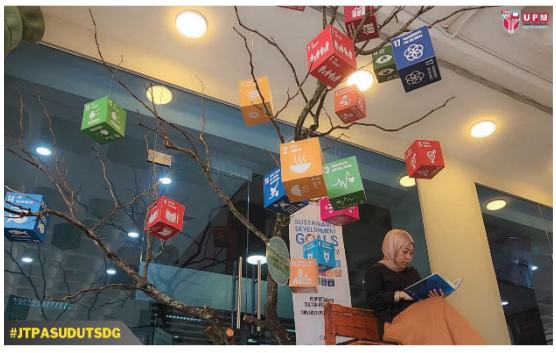


Figure 4: SDG Corner in UPM Library

The third initiative is UPM Library utilizes the website and social media to host virtual exhibitions and promote SDGs activities since 2018. This is an effort to extend the dissemination among library users by sharing related news, photo, and video without having to be physically present. Another initiative include the participation of a UPM Librarian in the Malaysian Library Annual Conference in 2024 as a poster presenter titled "Supporting Agricultural Networks and Communities Through Agri@UPM". This poster presentation emphasised the role of UPM Library in supporting agricultural networks and communities through digital platforms and resources.

Finally, UPM Library is organising various activities related to SDGs awareness, such as "Kick-off@PSAS Program", benchmark visit, friendly reminder, sharing session and "*gotong-royong*" among library staff. UPM Library also collaborated with UPM's Co-Curriculum and Student Development Centre, to organize Program Jiwa Putra in 2024 that aimed fostering community spirit and social responsibility among students and library staff. Activities that carried out include cleaning, painting, litter collection and other teamwork activities.



Figure 5: Sustainability events in the UPM Library

CHALLENGES

Despite SDGs advancements in UPM Library, several challenges were identified by the authors as categorised by common criteria such as sustainability, engagement, and resource allocation, as presented in Table 7, across Waqf Initiatives, Green Library Practices, and SDG Awareness Programmes faced by UPM Library.

The main sustainability challenges identified are the uncertainty of long-term funding for waqf initiatives, the need for continuous financing and maintenance of green library practices, and the difficulty in sustaining consistent engagement and support for SDGs awareness programs. The engagement challenges it involves raising awareness and involving the university community in waqf as a funding source, encouraging active participation in sustainability practices, and maintaining the interest and involvement of the university community over time. Finally, the challenges in resource allocation are a crucial part. It includes limited resources to support library projects and services, constraints in acquiring sustainability technologies, and insufficient funding for SDGs-related events.

Table 7: Primary Challenges in the Implementation SDGs at UPM Library

Challenges Criteria	Waqf Initiatives	Green Library Practices	SDG Awareness Programmes
Sustainability	Concerns about the long-term sustainability of funding from external sources.	Ensuring continuous funding and maintenance of green initiatives.	Maintaining long-term engagement and consistent support for SDG activities.
Engagement	Raising awareness and engaging the university community with waqf as a funding source.	Encouraging active participation in sustainability practices.	Keeping students, staff, and faculty engaged in SDG-related activities over time.
Resource Allocation	Limited resources for multiple library projects and services.	Limited resources to acquire new sustainability technologies	Limited financial resources to funding SDG-related events.

DISCUSSION

This study aims to explore the critical role of libraries in bridging knowledge disparities and promote environmental stewardship within SDG 4 (Quality Education), SDG 10 (Reduced Inequalities), and SDG 13 (Climate Action). This discussion section will answer the following research questions that are related to waqf initiatives, green library practices, and SDGs awareness programmes.

The first research question for this study is "*How does the UPM Library play a role in supporting Sustainable Development Goals within the university community*? Based on the findings, it was revealed that UPM Library truly plays a significant role in supporting SDGs through various waqf initiatives such as funding library collections, infrastructure, facilities, digital access, and disability services. For GL initiatives, UPM Library allocates a specific budget to support GL initiatives such as conserving electricity and water, minimising paper usage, and implementing renewable energy innovations. For SDGs awareness, UPM Library participates in the SDGs Corner Competition, organizes SDGs quizzes, develops virtual exhibitions, promotes SDGs activities through social media, participates in national conferences, and organizes sustainability-related events.

The second research question is "*What challenges are faced when implementing SDGs initiatives at the UPM Library?*" The authors identified three challenge criteria, such as sustainability, engagement, and resource allocation. This includes the implementation of SDGs sustainability, participation of internal and external stakeholders, and resource allocation to fund the initiatives.

The third research question is "*How can the UPM Library's role in advancing the SDGs be strengthened?"* Based on the challenges, the library role can be strengthened through maintaining and monitoring SDGs initiatives regularly, actively collaborating with internal and external stakeholders, and allocating yearly funding for the SDGs.

RECOMMENDATIONS

To overcome challenges in funding, sustainability, and community engagement, this study proposes a Waqf-Green Management Hybrid Framework (Figure 6) for academic libraries. The framework combines Waqf-based funding with green management practices and modern technologies to support the United Nations Sustainable Development Goals (SDG 4, 10, and 13). Key features include using blockchain for transparent Waqf fund management, AI tools for optimizing resource use, and stronger SDG awareness initiatives through exhibitions, digital content, and university-wide collaboration. The model promotes a sustainable, inclusive, and scalable approach that aligns with Malaysia's national development goals and offers potential for replication in other academic settings.

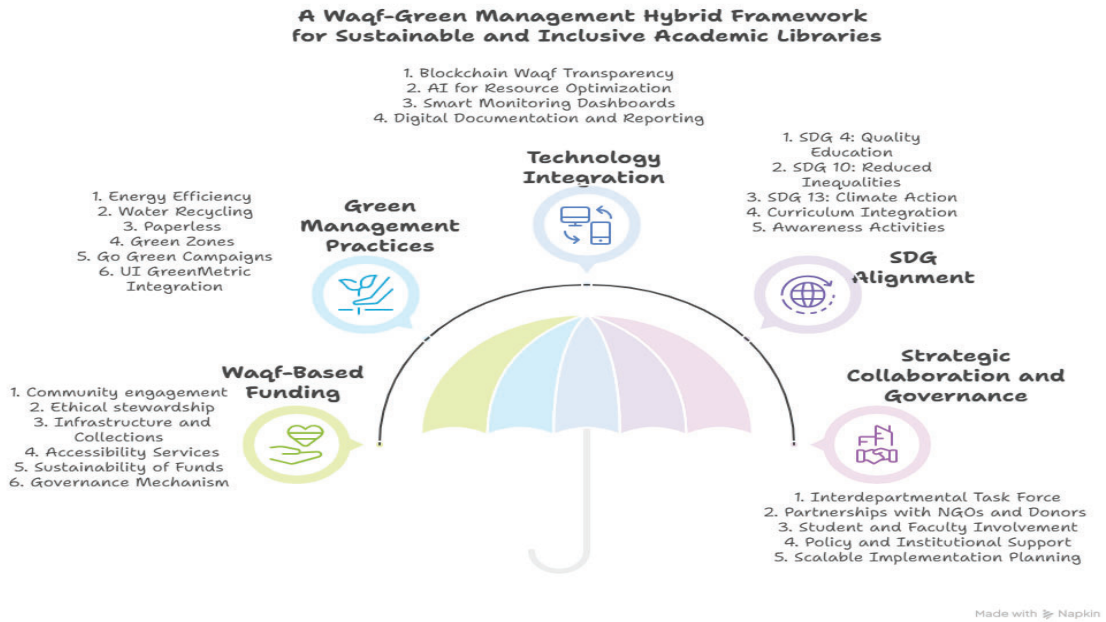


Figure 6: The Waqf-Green Management Hybrid Framework

CONCLUSION AND FUTURE DIRECTIONS

This study establishes academic libraries as active agents of transformation that drive sustainable development rather than simple knowledge storage facilities. The research on UPM shows how Waqf funding combined with green management practices and SDG advocacy can transform library functions to tackle modern-day challenges. The Waqf–Green Management Hybrid Framework presents itself as a practical framework that combines Islamic philanthropic principles with universal sustainability principles through a framework that works at various scales and adapts to different cultural contexts. The library possesses distinct strengths: The library serves as a key driver for inclusive education under SDG 4 and works to reduce systemic inequalities according to SDG 10, and catalyses climate resilience as defined by SDG 13.

Academic libraries possess untapped potential to function as cross-cutting enablers within the higher education system despite facing challenges with infrastructure, finance, and engagement. Their function is to connect people through digital platforms and promote environmental ethics and community empowerment, positioning them as leaders in institutional innovation. Academic libraries need transformation into strategic platforms that execute policies and create sustainable futures while advancing social equity during Malaysia's SDG agenda development and similar national initiatives. The moment has arrived to invest in

libraries because they function as impact multipliers through traditional foundations and innovative approaches.

The research presents academic libraries as modern centres of sustainability education and social equity through a model that maintains local relevance while being suitable for global implementation, especially in Muslim-majority countries. The Waqf–Green Management Hybrid Framework addresses resource access divides and environmental responsibility issues while contributing to sustainable library management discussions worldwide and providing specific recommendations for policymakers and library professionals, and academic leaders working at funding innovation and environmental stewardship intersections. To accelerate the transformation of academic libraries into engines of sustainable development, the following future strategic actions are proposed.

1. Operationalise a waqf-green synergy model
   Academic libraries must institutionalise a hybrid financial model that integrates waqf-based endowments with green innovation. This approach offers a culturally grounded, ethically driven, and financially sustainable pathway for strengthening library services, infrastructure, and outreach, particularly in Muslim majority contexts and settings.
2. Embed emerging technologies in sustainability governance
   The deployment of blockchain for fund traceability and AI for predictive resource management should be prioritized. These technologies will not only boost operational efficiency and effectiveness, but also increase transparency and trust among stakeholders, including donors, university top management, and the wider community.
3. Mainstream SDG literacy across the academic ecosystem
   SDG awareness must evolve beyond events and exhibitions into an institutional culture. Libraries should closely collaborate with academic affairs departments to embed SDG-aligned content into curricula, design sustainable literacy programs, and co-create open educational resources that reflect global development priorities.
4. Forge cross-sector alliances for collective impact
   Academic libraries should act as conveners of multi-stakeholders' partnerships, uniting government agencies, NGOs, the private sector, a civil society to co-develop programs that address educational inequality, digital access, and environmental responsibility at scale.
5. Implement data-driven decision making and realistic impact measurement/parameter

A robust monitoring and evaluation framework must be established to track the effectiveness, equity, and ecological footprint of all library-led SDG initiatives. This inclined setting KPIs, user engagement metrics, and sustainability benchmarks aligned with national policy frameworks and global standards.

ACKNOWLEDGEMENTS

The authors would like to express their sincere gratitude to all parties who have contributed to the success of the SDGs initiatives in UPM Library. Special thanks to WAZAN, the largest donor, for their generous contributions to various projects that have significantly enhanced UPM Library's resources and facilities. We also appreciate the unwavering support from the management and staff of UPM Library, whose dedication and collaboration have been key in promoting SDG-related initiatives.

REFERENCES

Ahmad, A. R., Baharudin, A., Yusoff, W. Z. W., Abdullah, S. M. D. S., & Soon, N. K. (2016). Transformation of Waqf implementation at Malaysian public universities. *Advanced Science Letters*, *22*(9), 2184-2186. https://doi.org/10.1166/asl.2016.7560

Ajani, Y. A., Tella, A., & Enakrire, R. T. (2024). The green library revolution: a catalyst for climate change action. *Collection and Curation*, *43*(2), 60-67. https://doi.org/10.1108/CC-10-2023-0032

Al Hijji, A. K. Z., & Al Hinaai, B. S. (2023). The role of libraries in achieving the United Nations goals of Sustainable Development 2030. *48th KUALA LUMPUR International Conference on Social Sciences, Humanities & Management (KSSHM-23)*, Kuala Lumpur.

Aulisio, G. J. (2013). Green libraries are more than just buildings. *Electronic Green Journal*, *1*(35). https://doi.org/10.5070/G313514058

Dei, D.-G. J., & Asante, F. Y. (2022). Role of academic libraries in the achievement of quality education as a sustainable development goal. *Library Management*, *43*(6/7), 439-459. https://doi.org/10.1108/lm-02-2022-0013

Faculty of Agriculture, U. P. M. (2024, 2024). *UI GreenMetric World University Rankings 2024*. https://agri.upm.edu.my/article/ui_green_metric_world_university_rankings_2024-83811

IFLA. (2022). *What is a Green Library? – IFLA*. https://www.ifla.org/g/environment-sustainability-and-libraries/ifla-green-library-definition/

Kassim, M. S., Abidin, A. Z., Ab Rahman, A., Sahak, M. D., & Mud, T. N. F. E. (2019). The Green Library Initiative at Universiti Putra Malaysia. *7th International Conference on Libraries, Information and Society 2019 (ICoLIS 2019),*

Kementerian Pendidikan Malaysia. (2015). *Pelan Pembangunan Pendidikan Malaysia 2015-2025 (Pendidikan Tinggi)* Kementerian Pendidikan Malaysia., Issue.

Lahyani, K., Diab, G., & Moukhliss, G. (2024). Role of Academic Libraries in the Achievement of Sustainable Development Goals Case Study: The Mohamed Sekkat University Library. *Procedia Computer Science*, *236*, 566-573. https://doi.org/https://doi.org/10.1016/j.procs.2024.05.067

Laybats, C. (2024). The importance of the green library in today's environment [Editorial]. *Business Information Review*, *41*(4), 154-155. https://doi.org/10.1177/02663821241301609

Ma, L. F. H., & Ko, L. Y. (2022). Supporting the sustainable development goals: The role of the Chinese University of Hong Kong Library [Article]. *Journal of Academic Librarianship*, *48*(4), Article 102562. https://doi.org/10.1016/j.acalib.2022.102562

Mahamood, S. M., & Ab Rahman, A. (2015). Financing universities through waqf, pious endowment: is it possible? *Humanomics*, *31*(4), 430-453. https://doi.org/10.1108/H-02-2015-0010

Missingham, R. (2021). A New Lens for Evaluation - Assessing Academic Libraries Using the UN Sustainable Development Goals [Article]. *Journal of Library Administration*, *61*(3), 386-401. https://doi.org/10.1080/01930826.2021.1883376

Muhamad Noh, K. A. (2017, 2017/12//). *UPM is Ranked World's Top 27 and Asia's Top 3 according to the UI-Greenmetric World University Ranking*. https://upm.edu.my/news/upm_is_ranked_worlds_top_27_and_asias_top_3_according_to_the_ui_greenmetric_world_university_ranking-37075

Mustaffa, N., & Muda, M. Z. (2014). Pengurusan wakaf pendidikan di institusi pengajian tinggi Malaysia: Satu sorotan literatur. *International Journal of Management Studies*, *21*(2), 63-81.

Nasir, N. E. C. (2022, 2022/3//). *Librarians Association of Malaysia Role in Supporting the UN SDGs – IFLA*. https://www.ifla.org/news/ppms-role-in-supporting-the-sdgs/

Onyancha, O. B. (2024). Library and information science (LIS) in the Sustainable Development Goals (SDGs) research from 2012–2021: An informetric perspective. In *Synthesis Lectures on Information Concepts, Retrieval, and Services* (Vol. Part F2940, pp. 65-83). https://doi.org/10.1007/978-3-031-59053-5_4

Reitz, J. M. (2004). *Online Dictionary for Library and Information Science*. Libraries Unlimited. https://odlis.abc-clio.com/odlis_s.html#sustainablelib

Rifqi, A. N., & Puspita, A. G. (2025). Systematic Mapping of Green Technology Research Trends in Libraries. *IOP Conference Series: Earth and Environmental Science* 14th International Conference on Green Technology (ICGT 2024),

Safarkhani, M., & Örnek, M. A. (2022). The meaning of green campus in UI GreenMetric World University Rankings perspective. *A/Z ITU Journal of the Faculty of Architecture*, *19*(2), 315-334. https://doi.org/10.5505/itujfa.2022.22566

Shesha, A., & Singh, R. (2024). The role of indian academic libraries in advancing and achieving Sustainable Development Goals. *LIS Today*, *10*(1), 29-35. https://doi.org/10.48165/lt.2024.10.5

Sultan Abdul Samad Library. (2024). *History of Sultan Abdul Samad Library*. https://lib.upm.edu.my/mengenai/maklumat_korporat/sejarah_perpustakaan_sultan_abdul_samad-83600?L=en

Tariq, M., Shahzad, K., & Sulehri, I. G. (2025). Factors Influencing the Adoption of Green Libraries for Environmental Sustainability: A Systematic Literature Review. *Libri*. https://doi.org/10.1515/libri-2024-0089

Thorpe, C., & Gunton, L. (2022). Assessing the United Nation's sustainable development goals in academic libraries. *Journal of Librarianship and Information Science*, *54*(2), 208-215.

Universiti Putra Malaysia. (2024). *Fakta & Angka UPM 2024*. www.upm.edu.my

Usman, M., & Ab Rahman, A. (2022). Funding higher education through waqf: a lesson from Malaysia. *International Journal of Ethics and Systems*, *39*(1), 107-125. https://doi.org/10.1108/ijoes-12-2021-0217

Some Solutions for Implementing an Open Educational Resources Model in Vietnamese Academic Libraries

Thi Thuy Kieu Tran[1], Chi Thanh Dương[1], Thu Hang Bui[2], Ngoc Nguyen Thi Bich[3]

[1]University of Library, Nguyen Tat Thanh University, Ho Chi Minh City, Vietnam

[2]University of Library, The University of Social Sciences and Humanitives,

Ho Chi Minh City, Vietnam

[3]University of Library, School of Hospitality and Tourism - Hue University,

Hue City, Vietnam

Corresponding email: tttkieu@ntt.edu.vn

ABSTRACT

This study aims to propose solutions for implementing a sustainable Open Educational Resources (OER) model for university libraries in Vietnam. This study was conducted entirely as desk research. All data and evidence were drawn from secondary sources: (i) 191 scholarly articles retrieved from the Scopus database for the period 2015 to 2025 (171 on sustainable OER and 20 on sustainable OER models) following the PRISMA process, and (ii) current Vietnamese policy documents, reports and survey results on OER. The study did not collect any primary data (e.g. surveys, interviews or experiments). The analytical procedure comprised three steps: (1) visualising keyword and thematic networks with VOSviewer; (2) applying Structural Variation Analysis (SVA) in CiteSpace to identify breakthrough publications; and (3) triangulating these findings with the Vietnamese policy and practice context to construct a sustainable OER model and a set of implementation solutions. The study contributes theoretically by constructing a holistic model for sustainable OER implementation in academic libraries, while also bridging international experiences with the Vietnamese context. Five groups of solutions – policy, infrastructure, capacity, quality and cooperation – are proposed as a feasible roadmap to help university and library leadership implement OER effectively and sustainably. The study unifies the scope of domestic and international literature

to comprehensively outline the landscape of sustainable OER in academic libraries. The application of Structural Variation Analysis (SVA) in CiteSpace systematically identifies research gaps and future themes, thereby reaffirming OER as an essential component of educational innovation, national policy, and global knowledge equity.

Keywords: Open Educational Resources; OER; Sustainable OER Models; Sustainable Development Goals; SDGs; Academic Libraries

INTRODUCTION

Open educational resources (OER) were first introduced at UNESCO's Open Courseware Forum in 2002. The 2012 Paris Declaration defined OER as "teaching, learning and research materials in any medium, digital or otherwise, that reside in the public domain or have been released under an open licence that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions" (UNESCO, 2019, p. 6). In 2019, UNESCO issued the Recommendation on OER "is the first international normative instrument to embrace the field of openly licensed educational materials and technologies in education" (UNESCO, 2019, p. 6). The core of OER is open academic resources (textbooks, lectures, exercises, videos, data) available for free along with The five "5R" permissions of OER include Retain, Reuse, Revise, Remix, and Redistribute (Wiley, 2014). According to Wiley (2014), a resource is considered an OER only when it is distributed with an explicit open licence, most commonly a Creative Commons licence, that grants users the legal right to adapt, reuse, and redistribute the material; this requirement goes beyond the free-to-read status of conventional open-access publications. Education systems worldwide are facing the challenge of expanding inclusion, improving quality, and increasing social responsibility. The SDG 4 action framework sets the goal to "ensure inclusive, equitable, quality education for all and promote lifelong learning" (UNESCO, 2019). Through OER, academic libraries can directly contribute to several indicators: reducing education costs (SDG 4.3), expanding access to quality learning materials for all students regardless of circumstances (SDG 4.5), and supporting lifelong learning by providing open resources to the community (SDG 4.7). Additionally, OER relate to SDG 10 (reducing inequalities in access to education) and SDG 17 (strengthening international knowledge and resource-sharing partnerships).

In Vietnam, only 19 percent of respondents report that their library "almost fully" meets their document needs (Đỗ et al., 2019). Meanwhile, textbook prices continue to rise and traditional collections have not kept pace with curriculum reforms. Although Decision No. 1117/QĐ-TTg (2023) has opened a "policy window" for OER, implementation remains at an early stage:

development and rollout are still limited, uncoordinated, and largely passive (Đỗ et al., 2019); the technological infrastructure and equipment available at many universities are inadequate; and survey participants generally lack confidence in their own technological skills for creating, locating, and sharing learning materials (Đỗ et al., 2019).

To identify solutions for implementing a sustainable OER model for Vietnamese academic libraries, the study will focus on exploring the following contents:

1. Use bibliometric analysis to overview the core components and development trends of sustainable OER models globally.
2. Survey the current state of OER implementation in Vietnamese academic libraries.
3. Propose a model and feasible, measurable solution groups tailored to the Vietnamese context.

Overview of Sustainable OER Models Worldwide

The research team employed bibliometric analysis to sketch the global sustainable OER model. From 450 articles retrieved from Scopus (2015 to 2025), a strict PRISMA process (Page et al., 2021) filtered down to 191 articles meeting the criteria. Of these, 20 articles were analyzed with VOSviewer to identify the core components of the OER model in academic libraries, and 171 articles were processed with CiteSpace to explore development trends. These results provide a scientific foundation for proposing a sustainable OER model for Vietnamese higher education.

Components of the sustainable OER model

VOSviewer analysis (Figure 1) revealed clusters of themes and frequencies of key components in the sustainable OER model, including: “OER models in academic libraries,” “Accessibility & Cost Reduction,” “Collaboration & Partnerships,” “Institutional Support & Policy,” “Technical Infrastructure,” “Quality & Reuse,” “Awareness & Training,” and “Communication,” each emerging with varying importance. Among these, the factors of collaboration, institutional support, infrastructure, and communication showed the highest inter-topic linkages. This suggests that for OER to be sustainable, libraries must simultaneously focus on building partnerships, establishing supportive policies, investing in infrastructure, and strengthening communication and training on OER.

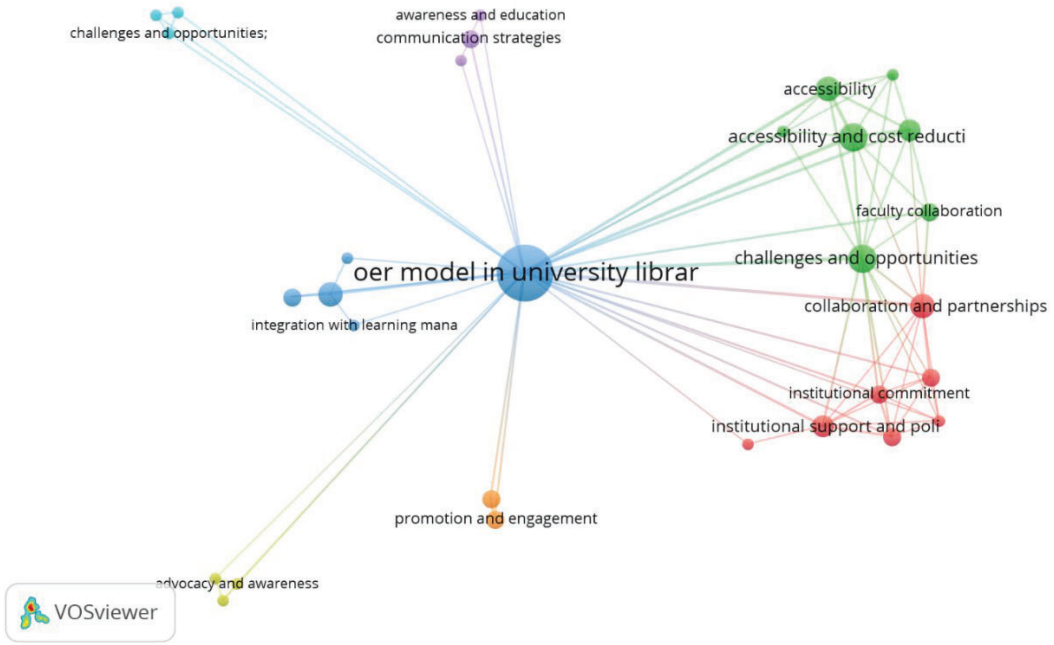


Figure 1: Clusters of themes and frequencies of key components in the sustainable OER model

Future Development Trends of Sustainable OER

This part applied Structural Variation Analysis (SVA) via CiteSpace to identify the 5 most highly disruptive papers in the field of OER in academic libraries related to sustainable development. The harmonic mean (H) was constructed based on three SVA metrics: Modularity Change (M), Cluster Linkage (C-L), and Centrality Divergence (C-D). A higher H indicates a paper is more likely to exert far-reaching influence in the research network.

Table 1: Top 5 breakthrough publications in OER (academic library context) related to sustainable development criteria (SVA analysis)

Titles	Modularity change (M)	Cluster linkage (C-L)	Centrality divergence (C-D)	The Harmonic (H)
A case study investigation of academic library support for open educational resources in Scottish universities (Thompson & Muir, 2020)	0.7982	0	100	0.7982
A collaborative approach to OER policy and guidelines development in the commonwealth: The case of Botswana, Cameroon, and Sri Lanka. International (Abeywardena et al, 2018)	0.5778	0	100	0.5778
A cross-cultural approach to the adoption of open educational resources in higher education (Jung & Lee, 2020)	0.7802	0	100	0.7802
Academic libraries and technology (Uzwyshyn, 2018)	0.7802	0	100	0.7802
Adoption and impact of OER in the global south Hodgkinson-Williams & Arinto (2017)	0.5744	0	100	0.5744
Adoption of open educational resources in the global south (de Oliveira Neto et al., 2024)	0.5744	0	100	0.5744

Note: H = The harmonic mean calculated from Modularity Change, Cluster Linkage, Centrality Divergence via SVA); higher H indicates a publication with broad, breakthrough influence on the knowledge network.

OER Model in Higher Education in Vietnam

In Vietnam, the OER movement emerged later than it did globally, but that delay has allowed Vietnamese stakeholders to review and learn from international development trajectories (Trương & Tô, 2019). Higher-education institutions have only recently shifted from a passive stance to a more proactive one: several universities now encourage faculty and students to use open learning materials and are drafting their own institutional OER policies

(Lê, 2023, June 30), 2023). Nevertheless, relative to UNESCO's five priority areas for advancing OER, actual uptake within universities remains limited. Most institutions merely tap freely available online resources; only a handful have launched internal OER initiatives, and most lecturers stop at pointing students to free materials rather than creating and sharing OER themselves (Đỗ et al., 2019). Dedicated national-level policy has appeared only very recently; investment resources are still modest, technical capacity is weak, and inter-institutional networking is ineffective. Compared with early-adopter countries, Vietnam lags by almost a decade in building both the infrastructure and the culture of sharing open learning materials.

Being a "late mover" offers the advantage of learning from international successful models, but readiness varies among domestic stakeholders. Faculty have higher OER awareness than students, yet students show stronger demand and support. Most faculty currently use OER as reference materials, whereas students wish to access more open resources for self-study. This suggests that the impetus for OER could originate from learners: when students demand open materials, faculty and institutions will gradually respond by creating and providing them.

At present, the linkage among the three parties – institutions, faculty, and students – is loose; there is a lack of platforms for connecting and sharing OER. In summary, the state of OER in Vietnam can be described as "awareness present, action slow": all sides acknowledge the benefits for educational quality and efficiency, but there is a lack of coordination mechanisms to turn good intentions into concrete actions.

In this context, on September 25, 2023 the Prime Minister issued Decision 1117/QĐ-TTg approving the Program to implement an OER model in higher education for 2023–2030 (Chính phủ, 2023, September 25). The program sets specific targets for the periods 2023–2026 and 2027–2030 (see Table 2), and identifies four tasks and eight key solutions to implement the national OER model. This is an important policy basis for developing OER in Vietnamese universities.

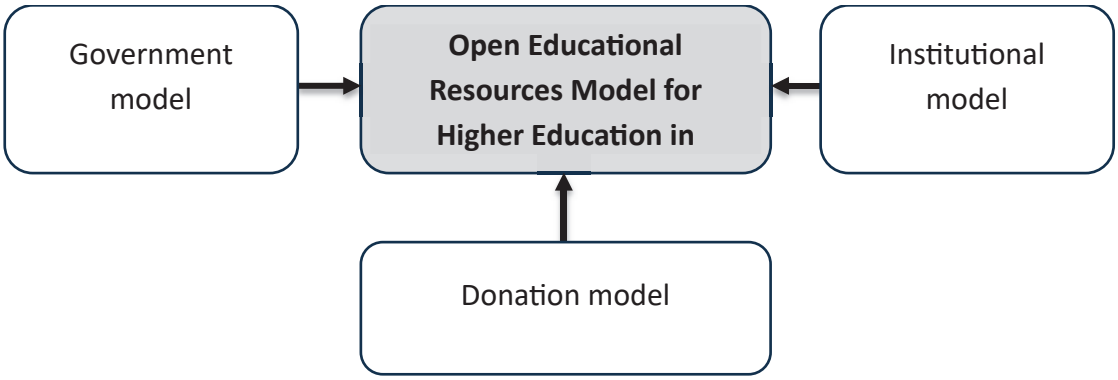


Figure 2: Open educational resources (OER) model for higher education

(Source: Chính phủ, 2023, September 25)

The document clearly stipulates that funding for building an open educational-resources (OER) model in Vietnamese higher education shall be drawn from:

- the State budget;
- the lawful revenues of higher-education institutions; and
- funds mobilised from donors.

The overall objective of the national programme on developing an OER model for higher education in Vietnam is to establish a framework for the creation, sharing, exploitation and use of open educational resources so as to enhance the quality and effectiveness of research, teaching and learning, thereby meeting both degree-oriented study and lifelong-learning needs. The corresponding specific objectives are presented in the table below.

Table 2: Detailed objectives of the OER model in Vietnamese higher education (2023 to 2026 and 2027 to 2030)

Detailed objective	2023 – 2026	2027 – 2030
1. Establish an OER access portal		
OER portal for higher education	Build and operate	Upgrade and meet technical requirements
2. Develop and expand OER in higher education		
– % of higher-education institutions that develop and expand OER	40 %	60 %
– % of disciplines with textbooks / teaching & learning materials uploaded to the OER portal	20 %	40 %
– Number of textbooks / teaching & learning materials uploaded to the OER portal	300	600
3. Exploit and use OER in higher education		
– % of higher-education institutions that exploit and use textbook / educational content from OER sources	50 %	75 %
– % of training and professional-development courses using textbook / educational materials from OER sources	50 %	75 %
– % of academic programmes that use OER to confer degrees at higher-education levels	20 %	40 %

Note: HEI = higher education institution.

To implement the stated tasks and solutions, in 2024 the Vietnamese Ministry of Education and Training issued an action plan designed to bring about a marked shift in awareness and practice among administrators, lecturers, and learners at higher-education institutions with respect to creating, sharing, accessing, and using open educational resources in higher education (Bộ Giáo dục & Đào tạo, 2024, December 27).

Proposed Sustainable OER Model for Higher Education in Vietnam

Combining the literature review and practical analysis, the study proposes a sustainable OER model for Vietnamese higher education (Figure 3) using a systems approach. The model comprises 6 main input factors (supporting elements) that impact OER implementation and use, which in turn yield four output results aligned with the United Nations Sustainable Development Goals (SDGs) (citation). The six input factors include: (1) Quality Assurance & Reuse; (2) Collaboration & Partnerships; (3) Awareness Raising & Training; (4) Technical

Infrastructure; (5) Institutional Support & Policy; (6) Communication Strategy. These factors interact and support each other throughout the OER creation–sharing–reuse cycle, to ensure OER produced are high-quality, widely disseminated, and effectively used in teaching and learning.

Explanation of Model Components

1. Quality assurance and reusability constitute the core foundation of sustainable OER practice, since openly licensed resources retain their value only when they undergo systematic peer review and are deliberately designed for easy modification and reuse (Goodsett et al., 2016; Thompson & Muir, 2020). Emphasizing quality criteria and reusability will help open resources stay continuously updated and used long-term.

2. Collaboration and partnerships among stakeholders (faculty, students, libraries, enterprises, governing agencies, etc.) is viewed as a driver to promote system-wide sharing and co-creation of OER. Universities need to build inter-library alliances or consortia to form a network for sharing OER resources and infrastructure. Collaboration should also be expanded internationally: Vietnamese academic libraries can join global OER forums and projects to exchange materials and learn from experience, thereby enhancing their standing and expertise in open education.

3. Awareness raising and training on OER is the key to implementation: lack of understanding of OER is considered the greatest barrier to OER creation and use in many countries. Developing appropriate OER competency frameworks for different target groups is necessary to guide training programs. In addition to capacity building, outreach and communication play a pivotal role in changing community perceptions. Libraries should run OER campaigns: create OER information portals or newsletters, organize workshops, OER weeks, OER contests, etc. The actors implementing this solution are diverse: university leadership (overall direction), academic departments (encourage faculty and integrate OER into teaching), libraries (main hub for training and guidance on OER access), and student unions (support communications and mobilize student participation). The effectiveness of this group of solutions will be evaluated by indicators such as improved awareness (e.g., increased percentage of faculty who understand open licenses, increased percentage of students who know how to find OER), the number of training workshops held, and especially the increase in the number of faculty and students using and developing OER after training.

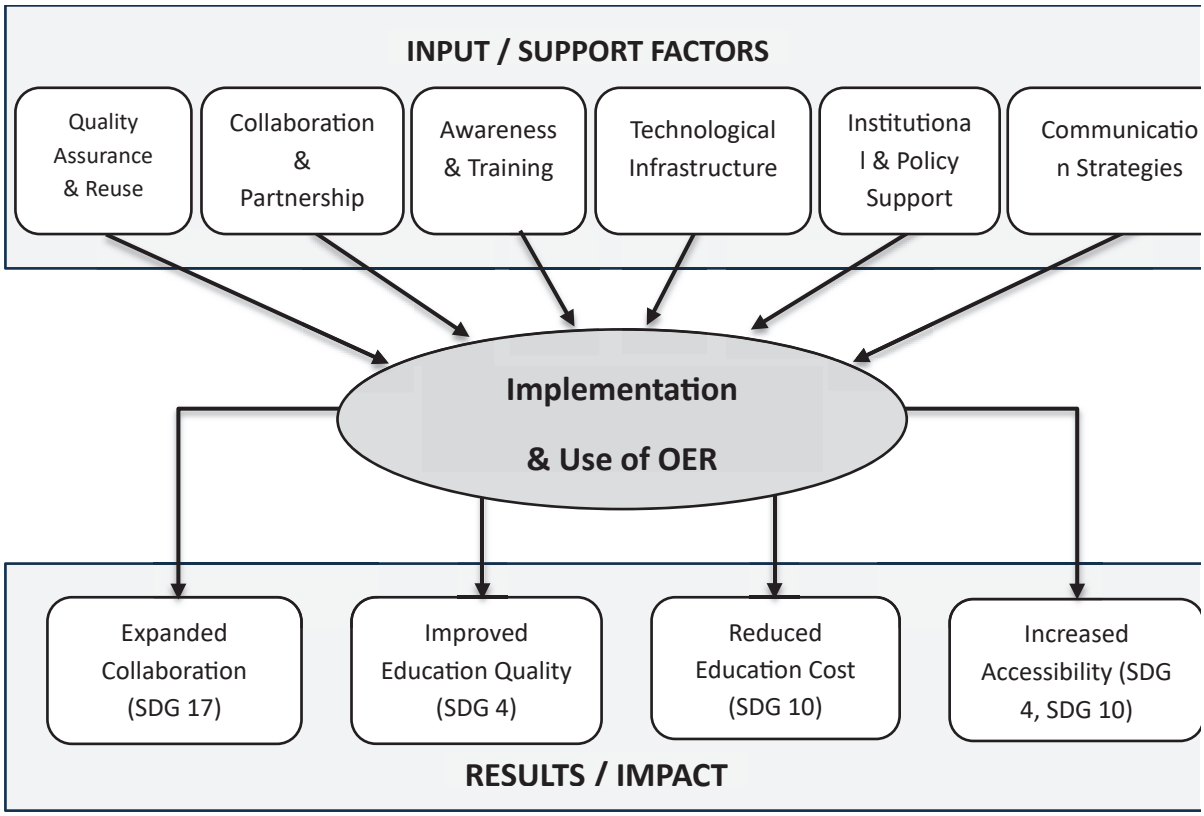


Figure 3: Proposed sustainable OER Model for higher education in Vietnam

4. Technical infrastructure determines the capacity for long-term OER access and storage: universities should develop shared open resource repositories and integrate them with the Learning Management System (LMS) so that faculty and students can easily contribute and retrieve OER. The technical infrastructure must adhere to open standards for metadata and formats to enable easy sharing and reuse, while complying with open license requirements. In addition, Institutions should actively explore emerging technologies, such as artificial intelligence, to strengthen the creation, discovery, and uptake of OER (Ossiannilsson et al., 2024, p. 240). At the same time, effective OER policies must include clear copyright and intellectual-property guidelines to ensure that all adaptations and redistributions remain legally compliant (Ossiannilsson et al., 2024, p. 243). Evaluation metrics include platform performance and usage statistics.

5. Institutional support and policy provides both strategic direction and impetus. Leadership at every level is critical for articulating a coherent vision, defining communication policies, and steering implementation consistently across universities. Senior management plays a pivotal role in formulating guidelines that incentivise the practical adoption of open-science policies within higher-education institutions (Ngô, 2019). At the national level, government functions as facilitator and advocate for the open-science movement—once again

highlighting a top-down decision-making approach (Ngô, 2019). Many Vietnamese universities already acknowledge the importance of OER, and nearly two-thirds of higher-education institutions/educational organisations report a clear awareness of its significance (Lê, 2023). Consequently, this awareness must now be translated into concrete incentive mechanisms that actively engage both faculty and students.

6. Communication strategy and community engagement is the final factor but no less important. A well-designed communication strategy is needed for OER to be widely known and accepted in the education community. Effective communication helps bridge the "information gap" – Moore et al. (2023) report that more than half of the faculty surveyed "knew little or nothing about OER", indicating that lack of awareness, rather than negative attitudes, is a primary barrier to adoption and must be addressed through targeted outreach and training. Thus, institutions should leverage multiple channels (websites, social media, internal bulletins, conferences, etc.) to publicize the benefits of OER (Goodsett et al., 2016).

The six factors above have dynamic, complementary relationships: good policies encourage infrastructure investment and cooperation; strong infrastructure enables reuse and broad access; effective training empowers faculty to confidently contribute content; good communication changes community perceptions, attracting additional resources and leadership commitment. The expected outcomes of the model are four main benefits aligned with the SDGs: expanded collaboration between institutions and partners (contributing to SDG 17); improved educational quality (SDG 4) as faculty and students gain access to abundant, up-to-date resources; reduced educational costs (helping reduce inequality – SDG 10) as students save on textbook expenses; and increased access to education (SDG 4 and SDG 10) as all students, even those in remote or disadvantaged areas, can use open resources for free or at low cost (Moore et al., 2023). In summary, the sustainable OER model with six tightly interlinked input factors will help form an open education ecosystem, thereby enabling Vietnamese universities to achieve the goals of improved quality, equity, and collaboration in education in the modern era.

Solution Groups for Implementing the OER Model in Vietnamese Academic Libraries

To effectively implement the sustainable OER model in Vietnamese academic libraries, a coordinated system of solutions across four main aspects is required.

1. Policy and governance: The goal is to create a legal environment and mechanisms conducive to OER development and sharing. Solutions include improving the policy framework from

national to institutional levels: the Ministry of Education and Training should issue OER implementation guidelines; each university should develop its own OER policy and integrate OER into its development strategy and internal regulations. Policies need to clearly stipulate the rights and responsibilities of faculty and students in using and contributing OER, and establish incentives and rewards for OER contributions (Lê, 2023).

2. Infrastructure and technology: The aim is to build a robust technical platform that enables wide collection, storage, discovery, and sharing of OER. Key actions include developing online open resource repositories at each academic library, or interconnecting libraries to form a network of shared OER repositories (Rampelt et al., 2025). The technical infrastructure must comply with open standards for metadata and formats to allow easy sharing and reuse, as well as adhere to open license requirements. Additionally, applying emerging technologies like AI can enhance OER effectiveness: AI can suggest relevant open materials to educators and learners, assist with translation, and help monitor copyright compliance (Ossiannilsson et al., 2024). Evaluation indicators for this solution group include improvements in platform performance, number of OER items collected, and usage statistics.

3. Capacity building and awareness (with communication): This group of solutions focuses on the human factor – equipping stakeholders with knowledge and skills and encouraging active participation of faculty, students, and librarians in creating, developing, and utilizing OER. The objective is to help the university community fully understand OER's benefits and remove psychological and knowledge barriers so that they proactively use and contribute OER. In terms of content, first it is necessary to develop an appropriate OER competency framework to implement training for each target group. Besides capacity training, communication activities are pivotal in changing community awareness. Libraries should carry out OER campaigns: create an OER portal or newsletter to introduce new OER, organize workshops, OER weeks, OER contests, etc. A wide range of actors implement this solution group: university leadership (overall direction), academic departments (encourage faculty and integrate OER into teaching activities), the library (as the focal point for organizing training and guiding OER access), and student organizations (support communication and mobilize student participation). The effectiveness of this solution group will be assessed by indicators such as improved awareness (e.g., increase in the percentage of faculty who clearly understand open licenses, increase in the percentage of students who know how to search for OER), the number of training workshops held, and especially the rise in the number of faculty and students participating in using and developing OER after training.

4. Quality assurance: OER quality assurance needs to be emphasized to maintain long-term credibility and effectiveness. Libraries and universities should develop a set of criteria for evaluating the quality of open learning materials, based on pedagogical standards

(accuracy, currency, curriculum alignment) and technical standards (format, compatibility, accessibility). Every resource added to an OER repository should undergo a review process: subject faculty should vet content, and library staff should check metadata and licensing. Moreover, a community evaluation mechanism (user comments, star ratings, feedback) can be applied to continuously improve resources and remove low-quality materials. The library should play a coordinating role in quality assurance, both supporting contributors in meeting standards and providing feedback to content developers on areas for improvement.

5. Quality assurance solutions require the participation of multiple stakeholders: the university's executive board and quality-assurance office (to promulgate processes and policies); the library and a core group of lecturers (to operate the system and vet content); and external organisations (national or international OER networks that supply standards and technical advice). Effectiveness indicators might include the number of universities participating in a shared OER network, the volume of resources exchanged across institutions, the percentage of open resources meeting predefined quality benchmarks, and end-user satisfaction and trust—as measured through faculty and student surveys on OER quality and usefulness.
6. Cooperation. This solution set aims to build a sustainable OER ecosystem through inter-unit collaboration, resource-sharing, and content-quality oversight, thereby optimising common resources and creating confidence in OER quality to attract more users. Collaboration should be fostered at multiple levels. Within each university: strengthen links between the library and academic departments—the library serves as the hub for collecting and disseminating OER, while faculties and lecturers supply content and articulate learning-resource needs. Among universities: expand co-operation via library consortia or university associations to form networks that share OER collections and technical infrastructure. Internationally: Vietnamese academic libraries should join global OER forums and projects to exchange materials and learn best practices, thereby enhancing their expertise and profile in open education.

Implementing these solution groups in a coherent, integrated manner will establish a solid foundation for sustainable OER development, thereby increasing the effectiveness of open education across the entire system of Vietnamese academic libraries.

CONCLUSION

Theoretical Contributions

This study develops a holistic model for sustainable OER implementation in academic libraries, connecting international experiences with the Vietnamese context. The model was developed by systematically synthesizing prior studies (VOSviewer and CiteSpace analysis) and practical data, thereby filling the gap in understanding how technological, policy, human, and other factors collectively ensure sustainable OER.

Practical Contributions

The study proposes five feasible solution groups – policy, infrastructure, capacity, quality, cooperation – providing a clear roadmap for university leaders and libraries. Applying these solutions will enable effective, sustainable OER implementation, directly contributing to educational innovation and equity goals in higher education.

Aside from contributions, the study has some limitations. First, the global data were retrieved from the Scopus database and limited to English-language publications. Including additional databases like Web of Science and other languages would ensure greater comprehensiveness. Second, the Vietnam data primarily rely on secondary sources (available articles, survey results, reports, and conference materials). However, these data are reliable and accurate for analysis in this study. Additionally, the proposed model and solutions remain at the level of recommendations and have not been empirically validated in actual implementation.
In the future, research can be expanded in several directions:

1. Empirical validation of the proposed OER model: Conduct case studies at selected pilot universities to evaluate the model's effectiveness and refine it to better fit practical conditions.
2. Longitudinal surveys of OER awareness and behavior: Carry out new periodic surveys (post-2023) on faculty and student awareness and practices regarding OER to monitor changes over time, especially after solutions have been implemented.
3. In-depth study of libraries' role in resource-sharing networks: Investigate the role of libraries in national-level OER alliances and how inter-library collaboration can optimize resource usage.
4. Consideration of additional factors affecting OER sustainability: Examine other factors (e.g., organizational culture, individual faculty motivations) that could impact OER sustainability, which were not analyzed in detail in this study.

These future research directions will further supplement and enhance the theoretical and practical foundations for sustainable OER implementation in the future.

FUNDING AND TRANSPARENCY STATEMENT

This study received no external funding. The authors declare no conflicts of interest. No human participants were involved; therefore, institutional review board (IRB) approval was not required.

REFERENCES

Abeywardena, I. S., Karunanayaka, S. P., Nkwenti, M. N., & Tladi, L. (2018). A collaborative approach to OER policy and guidelines development in the commonwealth.pdf. *International Review of Research in Open and Distributed Learning*, *19*(2).

Bộ Giáo dục và Đào tạo. (2024, December 27). *Kế hoạch số 1919/KH-BGDĐT: Triển khai Quyết định số 1117/QĐ-TTg về xây dựng mô hình nguồn tài nguyên giáo dục mở trong giáo dục đại học giai đoạn 2025–2030* [Implementation plan of Decision No. 1117/QĐ-TTg on developing a model of open educational resources in higher education, 2025–2030]. Bộ Giáo dục và Đào tạo. (In Vietnamese)

Chính phủ. (2023, September 25). *Quyết định số 1117/QĐ-TTg: Phê duyệt Chương trình xây dựng mô hình nguồn tài nguyên giáo dục mở trong giáo dục đại học giai đoạn 2025–2030 [Decision No. 1117/QĐ-TT*g] Approval of the program to develop a model of open educational resources in higher education, 2025–2030]. Cổng thông tin điện tử Chính phủ. (In Vietnamese)

Đỗ, V. H., Nghiêm, X. H., Trần, Đ. H., Phạm, T. T., Nguyễn, K. D., Nguyễn, K. L., & Bùi, T. T. (2019). Báo cáo khảo sát tài nguyên giáo dục mở trong giáo dục đại học Việt Nam [Survey report on open educational resources in Vietnamese higher education]. In T. V. Nguyen (Ed.), *Xây dựng và khai thác tài nguyên giáo dục mở* [Building and exploiting open educational resources] (pp. 470–501). Vietnam: Hội thảo Khoa học OER 2019. (In Vietnamese)

Goodsett, M., Loomis, B., & Miles, M. (2016). Leading campus OER initiatives through library–faculty collaboration. *College & Undergraduate Libraries, 23*(3), 335-342. https://doi.org/10.1080/10691316.2016.1206328

Hodgkinson-Williams, C., & Arinto, P. B. (2017). Adoption and impact of OER in the global south. In *Adoption and Impact of OER in the Global South* (pp. 1-592). https://doi.org/10.5281/zenodo.1005330

Jung, I., & Lee, J. (2020). A cross-cultural approach to the adoption of open educational resources in higher education. *British Journal of Educational Technology* , *51*(1), 263-280. https://doi.org/10.1111/bjet.12820

Lê, T. N. (2023, June 30). *Báo cáo kết quả khảo sát về tài nguyên giáo dục mở trong giáo dục đại học* [Survey report on open educational resources in higher education]. Báo cáo trình bày tại hội thảo "Nghiên cứu đề xuất khung pháp lý xây dựng nền tảng tài nguyên giáo dục mở dùng cho các cơ sở giáo dục đại học của Việt Nam," Hà Nội, Việt Nam. (In Vietnamese)

Moore, H., Curtis, D., Hazelaar, A., Mawson, M., & Robinson, S. (2023). Collaborating to support the use and development of open educational resources: A White Rose Libraries research project. *Insights The UKSG Journal, 36*(1). https://doi.org/10.1629/uksg.622

Ngô, T. H. (2019). *Nhân tố tác động đến việc triển khai thực tiễn khoa học mở tại các trường đại học* [Factors influencing the implementation of open science practices at universities]. In T. V. Nguyen (Ed.), *Xây dựng và khai thác tài nguyên giáo dục mở* [Building and exploiting open educational resources] (pp. 120-128). Vietnam: Hội thảo Khoa học OER 2019. (In Vietnamese)

de Oliveira Neto, J. D., Law, V., & Kang, S. "Pil." (2024). Adoption of open educational resources in the global south. In *Journal of Computing in Higher Education*, *36*(1),116-140). https://doi.org/10.1007/s12528-023-09351-8

Ossiannilsson, E., Cazarez, R. L. U., Goode, C., Mansour, C., & Gusmao, C. M. G. D. (2024). Artificial intelligence use to empower the implementation of OER and the UNESCO OER recommendation. *Open Praxis, 16*(2), 137-157. https://doi.org/10.55982/openpraxis.16.2.650

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., & Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ, 372*, n71. https://doi.org/10.1136/bmj.n71

Rampelt, F., Ruppert, R., Schleiss, J., Mah, D. K., Bata, K., & Egloffstein, M. (2025). How do AI educators use open educational resources?: A cross-sectoral case study on OER for AI education. *Open Praxis, 17*(1), 46-63. https://doi.org/10.55982/openpraxis.17.1.766

Thompson, S. D., & Muir, A. (2020). A case study investigation of academic library support for open educational resources in Scottish universities. *Journal of Librarianship and Information Science, 52*(3), 685-693. https://doi.org/10.1177/0961000619871604

Trương, T. N. M., & Tô, S. M. K. (2019). *Năng lực đóng góp của thư viện đại học trong việc phát triển tài nguyên giáo dục mở cấp quốc gia* [The capacity of university libraries to contribute to national-level open educational resources development]. In T. V. Nguyen (Ed.), Xây dựng và khai thác tài nguyên giáo dục mở [Building and exploiting open educational resources] (pp. 129-135). Vietnam: Hội thảo Khoa học OER 2019. (In Vietnamese)

UNESCO, I. (2019). Recommendation on open educational resources (OER). *Legal Instruments*.

Uzwyshyn, R. J. (2018). Academic libraries and technology: An environmental scan towards future possibilities. In *Academic and Digital Libraries: Emerging Directions and Trends* (pp. 63-86).

Wiley, D. (2014, March). *The Access Compromise and the 5th R*.

AI for SDGs: Enhancing Decision-Making for Sustainable Development in Academic Libraries

Simon V. De Leon, Marie Chezka G. Tamayo, Marvin A. Factor

The Libraries, Henry Sy Sr. Hall, De La SalleUniversity,

Metro Manila, Philippines

Corresponding email: simon.deleon@dlsu.edu.ph

ABSTRACT

The United Nations (UN) Sustainable Development Goalspresent a global framework for addressing critical challenges such as poverty, education, and climate action. Academic Libraries, as pivotal knowledge institutions, are uniquely positioned to support these goals through data-driven approaches. This study employs a systematic review method to explore the studies about the integration of artificial intelligence-driven data analytics tools in academic libraries to enhance decision-making for sustainable development. Data were collected through document analysis of scholarly studies on academic libraries utilizing AI tools. The findings reveal that AI tools significantly improve operational efficiency, enhance data processing accuracy, and strengthen the alignment of library services with specific SDG indicators. However, barriers such as limited technical expertise, budget constraints, and resistance to technology adoption were identified as significant challenges. The outcomes of this study include actionable recommendations for overcoming these barriers and optimizing AI tools integration in library systems. By highlighting best practices and proposing a framework for aligning AI integration strategies with SDG targets, this research underscores the transformative potential of libraries as strategic partners in achieving sustainable development objectives.

Keywords: Sustainable Development Goals (SDGs); Artificial Intelligence Tools; Artificial Intelligence Adoption; Library Systems; Academic Libraries

INTRODUCTION

In recent years, artificial intelligence (AI) has gained considerable momentum across various sectors, with education and academic libraries being no exception. Academic libraries worldwide have increasingly embraced rapid technological advancements to remain relevant and offer innovative, cutting-edge services to their users. Okunlaya (2022), underscored that "AI is one of the latest digital transformation (DT) technological trends the university library can use to provide users with alternative educational services.

Despite the growing interest in adopting and integrating AI tools into academic libraries' services, there is limited research on how libraries within higher education can effectively use AI to contribute to the achievement of the UN SDGs. While AI is a major concern, particularly in academic libraries, it also holds a crucial link to the attainment of SDGs. Odularu (2025) noted that the "libraries' roles in sustaining information technology (IT) services and implementing futuristic strategies highlight their evolving importance in contemporary society.

This study seeks to explore the use of AI tools and AI-driven data analytics techniques in academic libraries, focusing on how these technologies enhance efficiency, data accuracy, and the alignment of library services with the SDGs. This study will also look into the challenges faced by academic libraries in adopting AI as well as the issues that surfaced with regards to its use. Finally, this study will attempt to summarize the best practices from the studies reviewed in improving and enhancing AI in academic libraries and how these can be aligned to contribute to specific SDGs.

Libraries have the potential to serve as hubs for sustainable development, integrating green initiatives such as energy efficient buildings, digital resources to reduce paper waste, and community engagement in environmental education (Bernier & Lee, 2024, as cited in Odularu, 2025, p.110). Ali et al. (2022) stated that "given that AI-based tools are already being used in libraries to some degree regardless of location, now is an opportune time to develop strategies for implementing AI technologies more widely."

In response to the growing demand for innovative and technology-driven services, academic libraries are actively seeking ways in developing and implementing initiatives and programs that not only support their organizational strategies but also align with and contribute to the broader global objectives of the SDGs.

The study is structured as follows: First, it presents a systematic review of the impact and use of AI tools and AI-driven data analytics in enhancing academic library services. This is followed by an exploration of the roles that AI technologies and academic libraries play in supporting the SDGs. Next, the paper outlines the descriptive mixed-methods research approach used for data collection and analysis. The results and discussion are then presented, highlighting key findings. Finally, the paper concludes with recommendations and a summary of insights, along with suggestions for future research.

Research Questions:

1. What AI tools and data analytics techniques are currently used by academic libraries?
2. How are AI tools utilized for efficiency, data accuracy, and the alignment of library services with SDG indicators?
3. What are the challenges in integrating AI into academic libraries?
4. What are the best practices that can be recommended to improve AI adoption in libraries for sustainable development?

RESEARCH METHODOLOGY

This study employs a systematic review process to comprehensively analyze existing research on the integration of AI tools and data analytics in academic libraries in relation to the SDGs over a five-year period from January 2021 to April 2025.

Systematic review is a widely accepted research methodology used to summarize and evaluate existing evidence related to a specific research question. It involves a rigorous and transparent process of identifying, selecting, appraising, and synthesizing relevant studies to produce a comprehensive and unbiased overview of the available evidence (Mohamed & Sheikh Ali, 2021, as cited in Odularu, 2025, p.114). The systematic review method ensures a transparent, and replicable review process that minimizes bias and provides a strong evidence basis for answering the research questions. The systematic review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework to ensure a rigorous and transparent process (Figure 1).

Document analysis was utilized to systematically examine the content of the selected articles, involving a detailed review and coding of each article to identify key themes, trends, methodologies, and findings related to AI in academic libraries. Articles adhering to the keywords and concepts were included for the study, specifically those published from 2021 to 2025, and written in English. Only full-text, peer reviewed articles, from scholarly journals and conference proceedings were considered. Papers that lack descriptors, abstract and references were excluded. The final selection of the extracted papers was then assessed based on whether the study was empirical in nature, and their relevance to the academic or university libraries, artificial intelligence tools and usage, and relatability to sustainability or sustainable development goals. The literature protocol is displayed in Table 1 and the PRISMA flow was visualized using the tool from Haddaway, et al. (2022) in Figure 1.

Table 1: Literature review protocol

Particulars	Use of AI in Academic libraries and relation to SDGs
Keywords	((“Academic Librar*" OR “University Librar**”)** AND "Artificial Intelligence" AND “Sustainab*”) OR ((“Academic Librar*" OR “University Librar**”)** AND "Artificial Intelligence”)
Search fields	Titles, Abstracts, Keywords, Subjects
Exclusion criteria	Non-empirical studies, and not related to academic or university libraries, artificial intelligence usage and tools, and sustainability or sustainable development goals
Time window	2021-2025
Language	English
Publication type	Journal articles, Conference proceedings
Document type	Articles, Conference papers
Databases	Scopus, ProQuest, EBSCOhost
Source of full texts	Available full-text contents from the institution’s online subscriptions

The PRISMA flow diagram web app by Haddaway et al. (2022), was also employed to illustrate the selection process, which included the phases of identification, screening, eligibility, and inclusion, ensuring clarity and transparency in the methodology and selection of studies. The literature search was performed across three (3) major databases: EBSCOHost, ProQuest, and Scopus. The search terms used were designed to capture relevant literature comprehensively.

The search terms used were designed to capture relevant literature comprehensively, including: ((“Academic Librar*" OR “University Librar”) AND "Artificial Intelligence" AND "Sustainable development goal*”).

The initial search retrieved a combined 1,255 articles, which underwent a thorough screening process. The search was limited on articles published over the period from 2021-2025. To ensure the inclusion of relevant and high-quality studies, the following criteria were applied: only articles published in English were included, articles had to include pertinent information within their abstract, title, or keywords, and only scholarly journal articles and conference proceedings were considered to ensure academic rigor. After removing duplicates and applying the inclusion criteria, the results were restricted to 306 records for screening. Out of the records that are eligible for screening, only 236 had full texts readily available for download. These texts were then assessed according to 2 level categories: first, they should be empirical in nature and second, the topic is mostly about AI or utilization of AI in academic libraries. SciSpace AI was employed to assist in streamlining the screening, extraction, and analysis process of relevant peer-reviewed articles on the application of artificial intelligence for sustainable development in academic libraries. This process resulted in the final 98 articles to be included in the study.

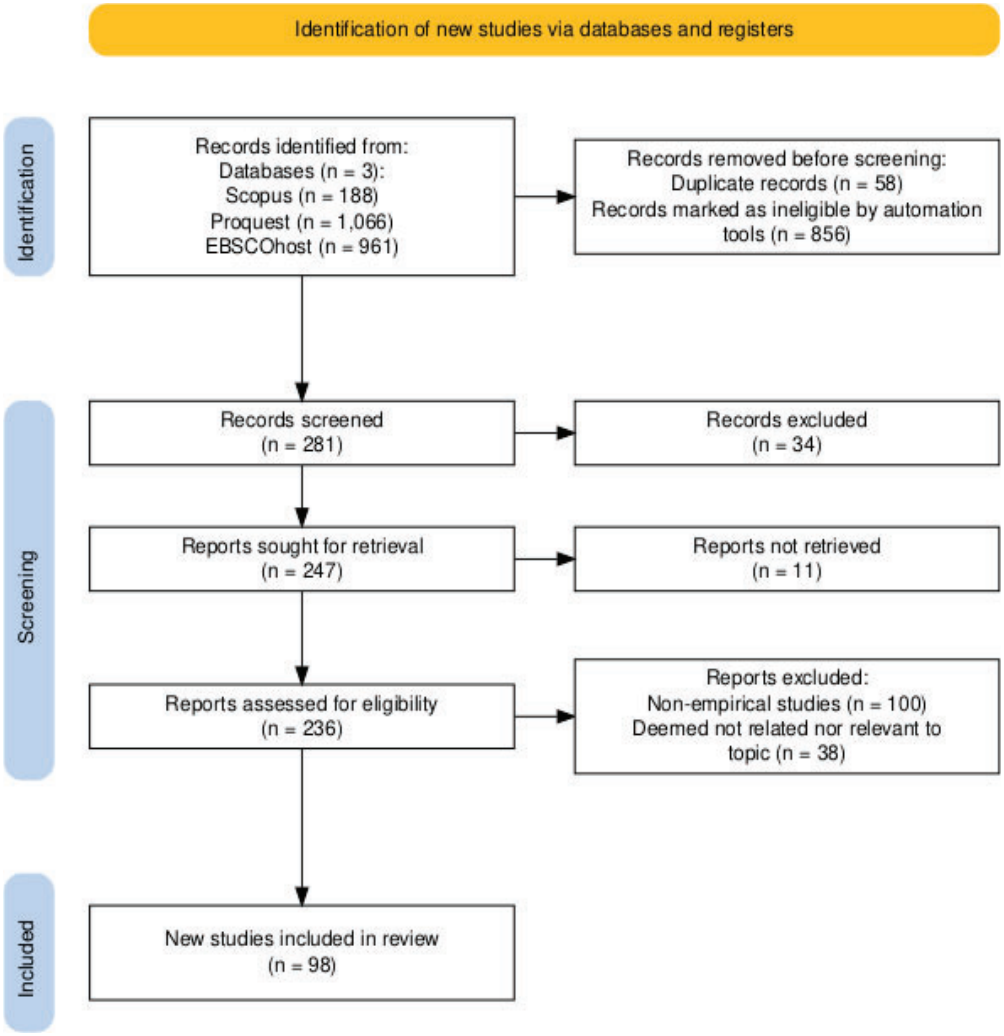


Figure 1: PRISMA framework

The distribution of articles as shown in Figure 2, indicates a clear dominance of Scopus, which contributed 71 titles (72.4%) to the final dataset. This finding suggests that most of the scholarly output on the intersection of AI and sustainable development in academic libraries is being published in Scopus-indexed journals. This may be attributed to Scopus's broad international scope and its inclusion of high-impact, peer-reviewed publications across various disciplines. 18 articles were sourced from ProQuest provided (18.4%), reflecting a moderate level of relevant content with regards to the topic. This database often includes conference proceedings, dissertations, and publications from a variety of disciplines, making it more of a supplementary source in this context. EBSCOHost, although a widely used academic database especially in the field of library and information science, accounted for only 9 unique articles (9.2%). The lower number may be due to limited coverage of technology-intensive or

multidisciplinary studies in its indexed journals, or a preference of researchers in this domain to target Scopus-indexed platforms for wider visibility and impact.

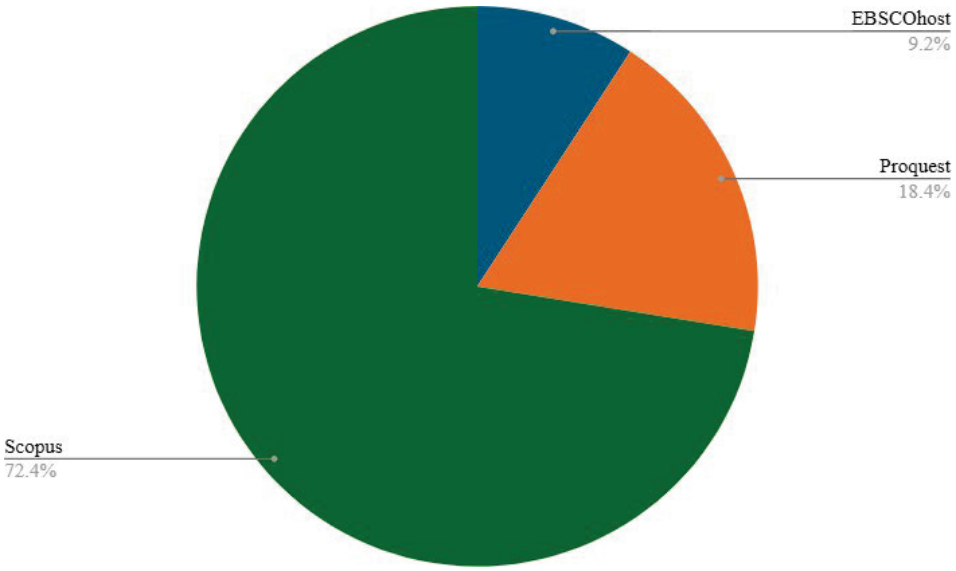


Figure 2: Databases with the total average of published articles

A quick look at the distribution by publication year (Figure 3) reveals a rapidly growing interest in the application of artificial intelligence to support the Sustainable Development Goals (SDGs) in academic libraries. As shown in the figure, research in this area began gaining traction in 2021, with 11 articles (11.2%), followed by a steady increase in 2022 with 15 articles (15.3%). While 2023 showed a slight dip with 7 articles (7.1%), the field experienced a dramatic surge in 2024, which saw the highest number of publications, 46 articles (46.9%), nearly half of all included studies. In early 2025, the publication momentum has continued, already producing 20 articles (20.4%), indicating sustained momentum of academic interest and ongoing exploration in this domain. This sharp upward trajectory highlights the emergent nature of the research topic. The accelerated growth in recent years may be attributed to increased development and acceptance of AI technologies in higher education, and the expanding role of academic libraries in data-driven decision-making and sustainability initiatives.

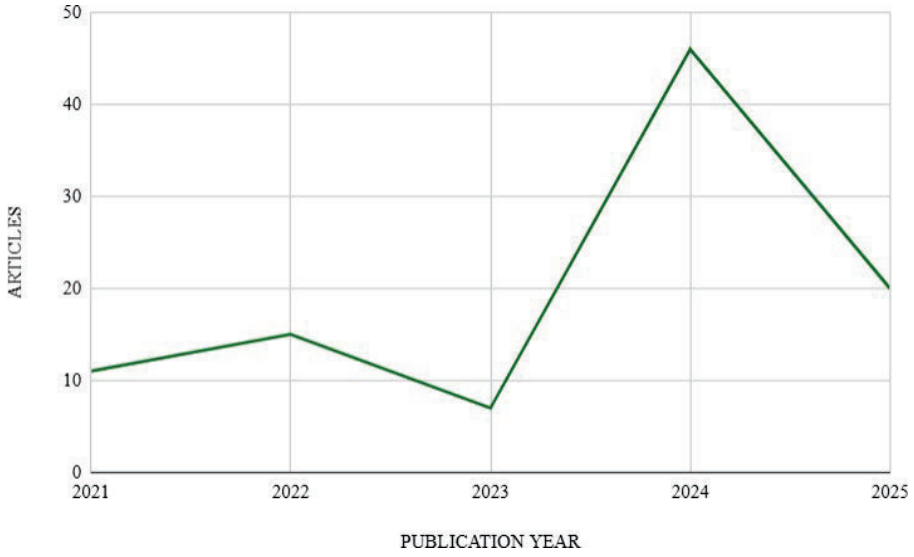


Figure 3: Number of articles published

RESULTS AND DISCUSSIONS

AI Tools and Data Analytics

The utilization of AI tools and AI data analytics techniques in academic libraries from the reviewed articles are presented in Table 2. These tools were used in enhancing work process efficiency and accuracy, and aid in improving strategic decision making. The ten AI tools that were most mentioned in the studies were ranked. The most common of these tools are the chatbots (n=38), followed by natural language processing (NLP) (n=20) and generative AIs (n=19). Chatbots were utilized to handle common reference inquiries and frequently asked questions, thus reducing staff workload and enhancing user satisfaction (Molaudzi & Ngulube, 2025; Ali et al., 2020). Chatbots were also mainly seen as a potential substitute for library staff during off-hours or to offer services 24/7 (Ankamah et al., (2024). NLP was employed for improving accessibility by using voice in searching (Ali et al., 2024). While they can be used and are usually being developed independently, with the addition of generative AIs, collectively these three tools can be utilized to create a system of an AI chatbot: the chatbot itself providing the interface, the NLP as the bridge to the communication, and the generative AI to be the training system. Together, this AI chatbot provides real-time assistance, answering user queries and guiding them through library resources, thereby improving user experience and efficiency. This chatbot also provides a semblance of persona akin to providing a somewhat concrete aspect to AI.

Other tools that were frequently mentioned are expert systems (n=10), machine learning (n=10), and robotics (n=9). These are mainly used to automate routine library processes such as cataloging, user services, and circulation tasks, resulting in a more streamlined and cost-effective library operations. Robotics also plays a part in handling physical aspects of library tasks, such as shelving and retrieving materials. (Ali et al., 2024). AI driven text mining (n=7) and data extraction were used to determine patterns, and extract insights in evaluating research topics by analyzing citation counts, altmetrics, and library trends (Ali et al., 2020).

Table 2: AI tools and data analytics techniques in academic libraries

AI application and tools	Category	Number of occurrences in studies (N=98)
1. Chatbots	AI Tool	38
2. Natural language processing (NLP)	Data Analytics Techniques	20
3. Generative AIs	AI Tool	19
4. Expert systems	AI Tool	10
5. Machine learning	Data Analytics Techniques	10
6. Robotics	AI Tool	9
7. Data mining	Data Analytics Techniques	7
8. Neural networks	Data Analytics Techniques	7
9. Virtual assistants	AI Tool	7
10. Image processing	Data Analytics Techniques	5

Overall, AI integration in academic libraries is slowly being explored with good results in terms of improving operational efficiency and strategic costing as a lot of studies have shown that they are concurrently implementing AI in multiple sections of their libraries. This creates an integrated micro (for now) ecosystem where some parts of the operations can instantaneously communicate with the others, thus helping immensely the leadership in decision making.

AI tools and Sustainable Development Goals

One of the main reasons for taking advantage of the AI tools is its appeal for sustainability, in terms of service delivery. Table 3 is a listing of the number of studies in which these AI tools were utilized for enhancing efficiency and data accuracy, in alignment with the SDGs. The content of the studies was summarized and categorized to check which SDG the topic can fall under. From the data, it was determined that six SDGs can be directly affected by the utilization of AI: SDG 4: Quality Education, SDG8: Decent Work and Economic Growth, SDG 9: Industry, Innovation, and Infrastructure, SDG 10: Reduced Inequalities, SDG 16 Peace, Justice, and Strong Institutions and SDG 17: Partnership for the Goals.

Table 3: Utilization of AI tools in academic libraries for efficiency and alignment with SDG indicators

Sustainable Development Goals Indicators	Number of studies (N=98)
SDG 4: Quality Education	58
SDG 8: Decent Work and Economic Growth	35
SDG 9: Industry, Innovation, and Infrastructure	62
SDG 10: Reduced Inequalities	20
SDG 16: Peace, Justice, and Strong Institutions	16
SDG 17: Partnerships for the Goals	25

The SDG with the highest number of studies is SDG 9: Industry, innovation and Infrastructure (n=62). The examples mainly dealt with innovating and strengthening library infrastructure, operations, and equipment with AI technologies. For SDG 4: Quality Education (n=58), AI tools were mainly used to enhance AI literacy, as well as providing personalized and individualized training and learning. Studies under SDG 8: Decent work and Economic Growth was mainly concerned with the support of AI to staff development, and also tackling the issues of job displacement (n=35). SDG 17: Partnerships for the Goals (n=25) covers the studies which are about stakeholder engagement and driving collaboration between institutions through AI. A subset of studies that use AI to promote inclusivity and accessibility through various forms of chatbots and NLPs are categorized under SDG 10: Reduced inequalities (n=20). Lastly, the papers that were mainly about ethical and privacy concerns and were pushing for transparency use were under SDG 16: Peace, Justice, and Strong Institutions (n=16).

SDG 9: Industry, Innovation and Infrastructure

AI tools that fall under this category were mainly used for infrastructure projects. A study by Liu, & Qu (2024) is about developing a facial recognition model for smart libraries, increasing security and user recognition which assisted in increased personalized service. Other studies provided a framework to work around accommodating AI: Jadha & Shenoy (2020) proposed a fuzzy-based model to assess library "smartness" serving as a benchmark for future innovations and Okunlaya et al. (2022) conceptualized the Artificial Intelligence Library Services Innovative Conceptual Framework (AI-LSICF) which aimed to guide librarians in adopting AI technologies to meet user needs efficiently and effectively.

SDG 4: Quality Education

A four-tier model for AI literacy focusing on AI engagement was proposed by Laflamme (2025) which focused on foundational awareness, applied problem solving, critical evaluation, and ethical advocacy. AI in the classroom was also widely explored. A study by Madunić & Sovulj (2024) directly integrated ChatGPT4 in creating the final outputs according to predefined standards and to support creating lesson plans and instructional materials and Wetzel et al., (2023) used perplexity AI in evaluating sources to ironically learn about iterative steps in finding sources.

SDG 8: Decent Work and Economic Growth

The use of AI can be used in specifically enhancing librarian's competence and employability through AI development by emphasizing training and management support to address skill gaps (Kautonen & Gasparini, 2024) AI also however posed an social and economic issue: job anxiety due to labor displacement. Proper AI adoption was also recommended to address job replacement anxiety and support workforce development instead (Gültekin & Kavak, 2025).

SDG 17: Partnership for the Goals

AI opened doors for partnership and collaborations. Technology adoption highlighted the partnerships between academic librarians, IT professionals and the public through engagement, collaborative learning, and community building (Gupta, 2025; Yousuf et al., 2024.) Meanwhile, AI integration has expanded research support networks to address AI implementation needs through different academic libraries, and advocacy groups pushed for collaborative AI policies and best practices (Buitrago-Ciro et al., 2025, Grote et al., 2024; Harisanty et al. 2022).

SDG 10: Reduced Inequalities

AI addressed numerous accessibility issues especially for the disabled and the marginalized by simplifying access issues via chatbots and natural language usage, not to mention multi language and around the clock support. AI tools were also made available on various platforms to reach a broader audience, and user centric design were taken from insights from patron interactions with AI (Mosha, 2025).

SDG 16: Peace, Justice, and Strong Institutions

One of the prominent issues about AI is its ethical use and privacy concerns. According to the data, it can be mitigated by exploring ethical risks and impact of improper AI use (Liu, et al., 2024), emphasizing transparency among research institutions and promoting reproducibility for AI systems (Bubinger & Dinneen, 2024). Research institutions also need to balance innovation while also safeguarding privacy of data. Finally, evaluation of AI tools must be undertaken to monitor fairness and ensure accountability (Cleverley, 2024).

Challenges in AI Adoption and Implementation

Several challenges discovered from the reviewed studies are outlined below (Table 4). Financial constraints (n=29) proved to be the primary barrier to widespread adoption and effective and sustained implementation of AI tools for institutions from developing regions (Hamad et al, 2023). With the high costs for acquiring, maintaining and updating infrastructures for new technologies (n=17), AI implementation is difficult (Albande et al., 2024; Asim et al., 2023). Alongside new technologies, a new set of skills must also be acquired. However, the financial constraints proved to be a snowball as the lack of financial resources means that there are little or no tools that the staff can train on (Mosha, N. F., 2025), hence the lack of real world skills (n=26). Furthermore, with a large occurrence for resistance to change or fear of AI, this proves that there is a significant number of libraries who are hesitant to change their current workflow to accommodate new AI applications (Masinde et al., 2024). This is also related to their anxiety for job displacement: worrying about AI replacing their job positions eventually or may lead to organization restructuring which may severely affect their positions(n=12). (Mosha, N. F., 2025). For those libraries who have managed to or started to adopt AI, their main concern is about governance of ethical and usage issues, data privacy and security of the system (n=23) (Emiri, 2023; Kalbande et al., 2024). Their secondary concern is about the individual AI's bias which can also result in misinformation and hallucinations (n=7).

Table 4: Challenges in Integrating AI into Academic Libraries

Rank	Challenges	Occurrences (N=98)
1	Financial difficulties / High costs / Budget limitations	29
2	Lack of training / Insufficient skills / Skills gap	26
3	Ethical and usage concerns	23
4	Resistance to change / Fear of AI	18
5	Inadequate and insufficient infrastructure	17
6	Data privacy and security concerns	16
7	Job displacement / Fear of job loss	12
8	Lack of awareness of AI applications	10
9	Limited and restricted integration with existing systems/workflows	7
10	Misinformation and bias in AI use	7

RECOMMENDATIONS FOR BEST PRACTICES

Several studies have suggested the best practices that ensure successful AI adoption and alignment with SDGs (Table 5). Investing in AI education and training in phases is one of the strategies to equip staff with the necessary skills to manage AI tools effectively and efficiently. Building an internal AI team would definitely help in promotion and establishing work protocols, as well as champion its use and further development. Continuous collaboration with AI developers and stakeholders is another practice that would enable AI solutions that are tailored to the specific needs of the academic library to be developed. Likewise, a strong AI governance and policy would serve as the foundation of all AI implementation: promoting transparency, accountability, and privacy, and addressing ethical concerns.

With the use of AI, a more robust strategic planning and teamwork is recommended to make sure that AI usage is still aligned with institutional goals, and implementing continuous monitoring and assessment to identify evolving user needs is needed. Collaboration with vendors, other libraries, and regulatory bodies, is also critically important in navigating implementation standards and to ensure compliance. Another practice is to promote AI literacy to equip users with the necessary critical thinking skills in this data driven environment.

Table 5: Best Practices for Improving AI Adoption in Libraries for Sustainable Development

Studies	Best Practices
Fang et al., 2025	Introduction to AI tools is best implemented gradually in phases, making sure that each component, users, and staff, are acclimated before rolling out the next phase In between phases, it is imperative to gather feedback and refine necessary procedures for expansions Create dedicated internal teams and hubs to test and explore AI tools, and to promote a culture of innovation Involve librarians in decision makings with regards to AI to ensure top-down alignment Invest in infrastructure and staff trainings and developments to support effective AI use Partner with external providers and institutions to manage AI implementation and compliance with existing regulations
Chan & Meunier, 2025	Address ethical and usage concerns. Ensuring accountability and transparency by consolidating AI policies to regulate its use Promote AI literacy to empower users in identifying and using AI generated information, and to develop critical analysis skills in this AI driven era.
Sang, 2024	Engage in research and consultations with like minded institutions to better understand the cultural and organizational impact of AI and how these factors can affect decision making and leadership directions

CONCLUSION

In the past five years, libraries were surrounded by opportunities as well as challenges brought about by AI. Several studies have explored or started to implement AI whether in their tools, practices, systems, and cultures. Consequently, this has affected the way in which academic libraries approach their services, and librarians in enhancing their skill sets and setting their mindsets. Through AI tools and data analytics techniques, like chatbots, expert systems, NLP, robotics, and data mining, libraries have started to lay the groundwork in making a cohesive ecosystem to help decision making. These changes also brought about opportunities in exploring new ways to align with SDG goals, specifically to SDG 4, 8, 9, 10, 16, and 17. However, challenges are expected and they surfaced. Financial constraints which led to difficulties in

infrastructure acquisitions, and apparent skill set gaps, not to mention social issues such as job displacement, are some of the lagging factors in AI adoption. Nevertheless, the studies also suggested best practices, starting with accepting and living with AI, and instead of fearing it, libraries must instead regulate and govern their use through formal policy making and to go out of their silos and start to collaborate with other professionals and institutions in other fields.

DISCLOSURE STATEMENT

In conducting this systematic review, SciSpace AI was utilized to assist in reading and analyzing scholarly articles, particularly in identifying key themes and summarizing relevant literature. All critical analysis, synthesis of findings, and final interpretations were conducted by the authors.

REFERENCES

University librarians: An overview. Business Information Review, 37(3), 116–124. https://doi.org/10.1177/0266382120952016

Ali, M. Y., Naeem, S. B., & Bhatti, R. (2024). Artificial Intelligence (AI) applications and usage among the LIS professionals of Pakistan. Journal of Librarianship and Information Science, 09610006241241306. https://doi.org/10.1177/09610006241241306

Ali, M. Y., Naeem, S. B., Bhatti, R., & Richardson, J. (2024). Artificial intelligence application in university libraries of Pakistan: SWOT analysis and implications. Global Knowledge, Memory and Communication, 73(1/2), 219–234. https://doi.org/10.1108/GKMC-12-2021-0203

Ankamah, S., Gyesi, K., & Amponsah, V. (2024). Awareness, knowledge, and attitude towards artificial intelligence: Perspective of medical students in Ghana. Information Development, 0266669241283790. https://doi.org/10.1177/02666669241283790

Asim, M., Arif, M., Rafiq, M., & Ahmad, R. (2023). Investigating applications of Artificial Intelligence in university libraries of Pakistan: An empirical study. The Journal of Academic Librarianship, 49(6), 102803. https://doi.org/10.1016/j.acalib.2023.102803

Bubinger, H., & Dinneen, J. D. (2024). “What could go wrong?”: An evaluation of ethical foresight analysis as a tool to identify problems of AI in libraries. The Journal of Academic Librarianship, 50(5), 102943. https://doi.org/10.1016/j.acalib.2024.102943

Buitrago-Ciro, J., Samokishyn, M., Moylan, R., Hernández Pérez, J., Bakare-Fatungase, O., & Firdawsi, C. (2025). Bridging the AI gap: Comparative analysis of AI integration, education, and outreach in academic libraries. IFLA Journal,

03400352251325274. https://doi.org/10.1177/03400352251325274

Chan, C., & Meunier, B. (2025). Navigating the AI Revolution: Librarian Perspectives in China's Greater Bay Area. *New Review of Academic Librarianship*, 1–21. https://doi.org/10.1080/13614533.2025.2466513

Emiri, D. O. T. (2023). Adoption and Utilisation of Artificial Intelligence by Librarians in University Libraries in Southern Nigeria.

Fang, W., Na, M., & Alam, S. S. (2025). Usage Intention of AI Among Academic Librarians in China: Extension of UTAUT Model. *Sustainability, 17*(7), 2833. https://doi.org/10.3390/su17072833

Grote, M., Lysholm Faber, H. C., & Gasparini, A. (2024). Artificial Intelligence in PhD education: New perspectives for research libraries. LIBER *Quarterly: The Journal of the Association of European Research Libraries, 34*(1), 1-29. https://doi.org/10.53377/lq.18137

Gültekin, V., & Kavak, A. (2025). An assessment of artificial intelligence anxieties of academic librarians in Türkiye. The Journal of Academic Librarianship, 51(3), 103058. https://doi.org/10.1016/j.acalib.2025.103058

Gupta, V. (2025). Innovating Library Services: Co-Creation, Experimentation, and Enhanced Business Value Tool for Technological Advancements. *Public Library Quarterly, 44*(1), 74–90. https://doi.org/10.1080/01616846.2024.2364522

Haddaway, N. R., Page, M. J., Pritchard, C. C., & McGuinness, L. A. (2022). PRISMA2020: An R package and Shiny app for producing PRISMA 2020-compliant flow diagrams, with interactivity for optimised digital transparency and Open Synthesis Campbell Systematic Reviews, 18, e1230. https://doi.org/10.1002/cl2.1230

Harisanty, D., Variant, N. E., Putri, T. E., Firdaus, A. A., & Azizi, A. N. N. (2022). *Leaders, practitioners and scientists' awareness of artificial intelligence in libraries: a pilot study*. https://doi.org/10.1108/LHT-10-2021-0356

Jadhav, D., & Shenoy, D. (2020). Measuring the smartness of a library. *Library & Information Science Research, 42*(3), 101036. https://doi.org/10.1016/j.lisr.2020.101036

Kalbande, D., Suradkar, P., Chavan, S., Verma, M. K., & Yuvaraj, M. (2024). Artificial Intelligence Integration in Academic Libraries: Perspectives of LIS Professionals in India. *The Serials Librarian, 85*(5–6), 132143. https://doi.org/10.1080/0361526X.2024.2433262

Kautonen, H., & Gasparini, A. A. (2024). B-Wheel – Building AI competences in academic libraries. *The Journal of Academic Librarianship, 50*(4), 102886. https://doi.org/10.1016/j.acalib.2024.102886

LaFlamme, K. A. (2025). Scaffolding AI literacy: An instructional model for academic librarianship. *The Journal of Academic Librarianship, 51*(3), 103041. https://doi.org/10.1016/j.acalib.2025.103041

Liu, Y., & Qu, Y. (2024). Construction of a smart face recognition model for university libraries based on FaceNet-MMAR algorithm. *PLOS ONE 19*(1), e029665. https://doi.org/10.1371/journal.pone.0296656

Liu, Y., Sullivan, P., & Sinnamon, L. (2024). AI Transparency in Academic Search Systems: An Initial Exploration. Proceedings of the Association for Information Science and Technology, 61(1), 1002-1004. https://doi.org/10.1002/pra2.1167

Madunić, J., & Sovulj, M. (2024). Application of ChatGPT in Information Literacy Instructional Design. *Publications, 12(*2), 11. https://doi.org/10.3390/publications12020011

Masinde, J. M., Mugambi, F., & Wambiri, D. M. (2024). Exploring the Current Landscape of Artificial Intelligence Adoption in Kenyan Academic Libraries. *Proceedings of the 17th International Conference on Theory and Practice of Electronic Governance*, 403–408. https://doi.org/10.1145/3680127.3680156

Molaudzi, A. I., & Ngulube, P. (2025). Use of artificial intelligence innovations in public academic libraries. *IFLA Journal*, 03400352241301780. https://doi.org/10.1177/03400352241301780

Mosha, N. F. (2025). The role of artificial intelligence tools in enhancing accessibility and usability of electronic resources in academic libraries. *Library Management, 46*(1/2), 132-157. https://doi.org/10.1108/LM-08-2024-0088

Okunlaya, R. O., Syed Abdullah, N., & Alias, R. A. (2022). Artificial intelligence (AI) library services innovative conceptual framework for the digital transformation of university education. *Library Hi Tech, 40*(6), 1869-1892. https://doi.org/10.1108/LHT-07-2021-0242

Sang, L. J. (2025). Adopting artificial intelligence in Kenyan academic libraries: Analyzing through the technology-organization-environment framework. *Library Management, 46*(1/2), 29-40. https://doi.org/10.1108/LM-03-2024-0029

SciSpac (2025). *SciSpace AI Literature Review Tool*. https://scispace.com/search/ai-for-sdgs-enhancing-decision-making-for-sustainable-gv4wsankm3

Wetzel, D. A., Kani, J., Chatbot, A. I., Deepmind, G., Srinivas, A., Yarats, D., Ho, J., & Konwinski, A. (2023). Enhancing information literacy through generative AI in the library classroom. https://doi.org/10.5195/palrap.2024.302

Yousuf, M., Naeem, S. B., & Bhatti, R. (2024). Artificial Intelligence (AI) applications and usage among the LIS professionals of Pakistan. https://doi.org/10.1177/09610006241241306

Malaysian Reading Profile: A Comprehensive Study

Nor Azlina Ab. Ghani, Norsharyna Shafawi,
Noor Syahierah Mohd. Rohana, Nurfarhana Mohamad Roslan

Research Division, National Library of Malaysia

Corresponding email: norazlina.abghani@pnm.gov.my

ABSTRACT

The National Library of Malaysia plays a crucial role in promoting reading culture in Malaysia. Over the years, the library has developed and executed various reading promotion programs to cultivate a knowledge-based society and uphold the pursuit of knowledge. In 2005, the NLM collaborated with the Department of Statistics Malaysia to conduct large-scale research on the Malaysian Reading Profile. The study revealed that Malaysians' reading habits were inadequate, with literacy rates decreasing slightly from 93% in 1996 to 92%. Subsequently, in 2014, the NLM conducted an interim study, which found that the percentage of reading skill had increased to 95% and the total number of books read annually had risen from two to fifteen. However, the absence of a current empirical and comprehensive study prompted the NLM to undertake another large-scale research project on the Malaysian reading profile in 2022. This study employed a quantitative approach and involved 100,000 respondents of Malaysians aged 5 years old and above, representing various demographic backgrounds. The study showed that the rate of Malaysians' interest in reading for the 2022-2023 year was 88.6%. While the number of books read annually was 24 copies, including 16 physical and 8 digital. The quantity of reading materials bought annually ranged from 1-5 copies, with 58.1% of Malaysians favouring printed religious books, 47.3% opting for printed magazines, and 41.2% choosing printed newspapers. Additionally, the primary reason or the main factor for reading as stated by 69.9% of Malaysians is the belief that it increases one's knowledge, while 54.6% stated that reading has already become normalized and a habit. Most Malaysians i.e. 57.8%, prefer to read in bookstores, while 30.2% choose the libraries and 24.5% opt for restaurants/cyber cafes. The study also identified the factors of Malaysians not interested in reading, as they are more interested in other activities (6.3%), less free time (2.9%), and less

interest in reading (2.8%). The result of one sample t-test for measuring the impact of reading programs, found that all items have shown statistically significant with a $p<0.05$ value, as people are more interested to read, aware of the importance of reading, read books as an entertainment, make reading a hobby and many others. Several short and long-term plans of actions were discovered from the research. The National Reading Index (NRI) must be established to assess the national reading initiative and to formulate more effective policies and strategies aimed at enhancing literacy rates and strengthening reading culture among Malaysians. Moreover, this research is anticipated to have a critical role in supporting the local book industry towards producing top-notch literary work that meet the changing demands of the Malaysian readers. The findings are significant in supporting the vision of the National Reading Decade, aimed at establishing a reading society by 2030.

Keywords: Reading Interest; Reading Profile; National Reading Program; Literacy; Malaysians

INTRODUCTION

The National Library of Malaysia (PNM) had been conducting research on the reading profiles of Malaysians since 1996, with subsequent studies in 2005, amendments in 2010, and an interim review in 2014. This ongoing research aims to provide a comprehensive understanding of reading habits in Malaysia. However, there has been a significant gap on the reading habits of Malaysians since the last major study conducted in 2014. This absence of recent data has led to reliance on outdated information, which may not accurately reflect current reading behaviours and preferences of Malaysian. This lack of recent data makes it challenging to understand the evolving reading culture in Malaysia. This paper aims to fill that gap by providing a current empirical study that can serve as a reference for future literacy programs and initiatives aligned with the National Reading Decade 2021-2030. The study aims to fulfil the following objectives:

(i) To develop a current reading profile of Malaysians;
(ii) To identify reading habits of Malaysian based on location, type, language, age group, gender, and frequency of reading;
(iii) To identify changes and trends in reading interests of Malaysian to different reading resources and library services provided;
(iv) To examine the impact of Reading Promotion Programs on Malaysians' reading interests; and
(v) To identify issues, problems, and correlations between the book industry and Malaysians' reading interests.

METHODOLOGY

The study employs a quantitative approach using survey research, which is suitable for gathering data from a large population. A stratified random sampling methodology was employed for in-person respondents, while convenience sampling was utilized for e-Probaca. This method is essential for ensuring a representative sample that accurately encapsulates the diverse reading behaviours and preferences of the target population. The study incorporates a considerable sample size of 100,848 respondents with significant demographic distribution. It explores multiple dimensions of reading habits, encompassing the duration of reading time, frequency of device usage for reading, favoured languages, and genres of reading materials. It further investigates library usage and the effects of reading promotion programs, in addition examine the correlation between book industry and reading interest which are crucial for understanding in depth about reading culture in Malaysia.

LITERATURE REVIEW

The act of reading constitutes a fundamental component of the ongoing learning processes which is vital for lifelong education, as outlined in the Sustainable Development Goals 2023 agenda, which particularly highlights the significance of this endeavour for both youth and adult populations. As suggested by Fulks (2010), the practice of reading serves as a crucial determinant in the attainment of essential life skills by individuals, thereby facilitating their overall success.

Additionally, it was found that lack of consensus on definition of reading habits pertaining to effective indicator to assess the previously mentioned behaviour. For instance, Chen (2006) employed measures such as reading frequency, total quantity of material read, and the nature of the content engaged with. Nevertheless, Schmidt & Retelsdorf (2016) noted that most of the research predominantly focused on quantifying behavioural frequency or merely the occurrence of the behaviour. Consequently, to encapsulate a more comprehensive concept of behaviour, the ‘Self-Report Habit Index’ (SRHI) proposed by Verplanken and Orbell (2003) was modified. Schmidt and Retelsdorf (2016) endorsed the application of the ‘Self-Report Habit Index for Reading’ (SRHI-R). The SRHI-R, when assessed through economic measures, appraises its psychometric characteristics and evaluates ‘incremental validity’ to a greater extent than merely quantifying reading frequency.

(i) Malaysian Reading Profile

Prior study by Leo and Krysinska (2017) found that there is a correlation between demographic factors such as gender, age, race, and ethnic and reading habits. Additionally, Mileti and Barnett (1972) elaborated on factors such as age, family income, occupation of the head of the household, ethnic, part of the country, gender, size of the city/town, education, and religion as demographic factors. Therefore, these factors are often studied to determine whether these have any influence on the reading habits of the Malaysian society.

Prior studies on reading habit have predominantly concentrated on students in educational institutions, specifically schools and universities, as compared to the research undertaken by NLM. Malaysian Reading Profile in year 2005 found that Malaysian only read two copies of books annually, while in 2014, the number of books read was increased to 15 copies annually. The study indicated 95% of participants agreed the primary motivation for their reading engagement is for the enhancement of knowledge. Table 1 summarize the findings of reading profile of Malaysian conducted by National Library of Malaysia.

Table 1: Summary of findings according to the year

Main Findings	Malaysian Reading Profile 1996	Malaysian Reading Profile 2005	Malaysian Reading Profile 2014	Malaysian Reading Profile 2022/2023
Interest in Reading (%)	87	90.0	96.5	88.6
Books Read per Year	11 copies	2 copies	15 copies	24 (16 print, 8 digital)
Reading Materials per Year	-	-	1-5	1-5
Respondent Age	>5 years	>5 years	>15 years	>5 years
Number of Respondents	19,760	28,000	52,631	100,648
Urban/Rural (%)	-	-	Urban 67%	Urban 67%

Main Findings	Malaysian Reading Profile 1996	Malaysian Reading Profile 2005	Malaysian Reading Profile 2014	Malaysian Reading Profile 2022/2023
Reading as Hobby (%)	56.0	62.8	51.2	57.1
Popular Reading Materials (%)				
• Magazines	56.0	-	-	47.3 (print), 36.7 (digital)
• Newspapers	48.0	-	-	26.9 (print), 27.6 (digital)
• Books	28.6	-	-	78.3 (print), 80.5 (digital)
• Journals	-	-	-	20.5 (print), 19.5 (digital)
• Religious Books	-	-	-	18.5 (print), 20.5 (digital)
Main Factors for Reading Habit (%)				
• Increase Knowledge	47.0	41.6	46.7	47.6
• Easy Access to Materials	24.0	15.6	14.0	14.6
• Encouragement from Others	15.0	10.3	5.4	6.4
• Can Afford to Buy	3.0	5.9	3.1	3.1
Preferred Reading Locations (%)				
• Library	-	30.2	25.9	31.7

Main Findings	Malaysian Reading Profile 1996	Malaysian Reading Profile 2005	Malaysian Reading Profile 2014	Malaysian Reading Profile 2022/2023
• Bookstore	-	57.8	54.4	57.5
• Restaurant/Cafe	-	24.5	23.1	24.7
Source of Reading Materials (%)				
• Buy	40.5	21.5	15.2	65.9
• Borrow from Library	14.0	25.1	22.6	22.6
• Internet	-	12.9	60.7	62.6
• Others	1.7	1.7	1.5	1.5

(ii) Reading Habit and Attitudes

Effective reading habits are characterized by the simultaneous engagement in reading and the dissemination of acquired knowledge to others. This practice not only contributes to the enhancement of individual well-being but also fosters the development of an informed society, which in turn can elevate the cultural and civilizational standards of a nation. Consequently, numerous empirical studies pertaining to reading habits have been conducted by scholars across various contexts, both domestically and internationally. Notable among these investigations are those undertaken by Mohd Zainuddin Hashim (1982), Atan et al. (1984), Frank Small and Associates (1996), Pandian (1997), Nazri (2003), Siti Aishah (2003), Tiew (2010), Anamalai & Muniandy (2013), Rahyu Imrani (2020), as well as Jamiah Baba and Faiza Rostam Affendi (2020).

Furthermore, Samsuddin and Yanti (2021) found that students with favourable reading attitudes often participate in reading promotion activities such as discussing books or participating in reading clubs. They further found that non-printed materials, such as journal articles, are particularly favoured for academic purposes, reflecting a trend towards digital resources. The findings also indicate changes in the reading habits of students owing to the growing use of digital media as students more likely seek information from the internet and

other wireless media, which may adversely affect their reading habits and attitudes towards print materials. This corroborate with the work by Baharuddin et al., (2013) which found that a growing number of students are now using the internet and wireless services for accessing information, which could be detrimental to their reading habits and of traditional print media use. On a similar note, a study by Azmin et.al (2017) found that many students utilize smartphones and computers for reading, indicating a shift towards digital reading materials. E-books are particularly popular due to their accessibility and cost-effectiveness. The finding also highlights the diverse reading habits among students and the factors influencing their preferences, as well as the importance of reading in academic success.

Correspondingly, Baharuddin et al., (2013), identified the preference of reading materials among students including both printed and non-printed formats. For academic use, non-printed materials like journal articles are popular, indicative of a shift to digital resources. The study also examines students' favourite ways to spend their free time, which can shape their reading preferences. It was discovered that students who possessed favourable reading attitudes took part in discussions about books and club activities related to reading. The findings suggest students hold a high level of reading attitudes which is strongly associated with educational attainment and leisure spending. This underscores the premise that positive attitudes towards reading might enhance academic performance.

FINDINGS AND DISCUSSIONS

(i) Malaysian Reading Profiles

A recent Malaysian Reading Profile conducted indicates positive reading habits among Malaysians. With 88.6% of the population engaging in reading, it suggests a strong foundation for literacy and potential for intellectual growth. The higher percentage of female readers (65.8%) compared to male readers (34.2%) may warrant further investigation into the factors influencing reading habits between genders to promote more balanced engagement. The result of the study indicates that on average, Malaysians read 24 books annually, with a preference for 16 copies of print books and 8 copies of digital books. While the weekly reading time of Malaysians is about 9 h and 22 min (approximately 1 h 19 min daily) which encompasses reading printed materials for about 50 min to 1 h 21 min whereas digital materials are between 43 min – 1 h 16 min. As for age group preferences, the results show that the most active readers were from 35-44 years old (27.5%), followed by 15-24 (23.8%) and 25-34 (16.9%). As for the older groups (55 years and above) and young children (5-9) read the least, possibly due to lifestyle or accessibility factors. In summary, the data highlights the need for targeted initiatives to encourage reading among males, rural populations, and older

and younger demographics. As for gender disparity, the finding shows that the female group (65.8%) read significantly more than males (34.2%), indicating a notable gender gap in reading practice. The study also indicates the urban residents (69.2%) read more than rural areas (30.8%), highlighting a discrepancy is likely influenced by access to resources, such as libraries and bookstores.

The findings also revealed that 88.6% of Malaysians engage in regular reading practices, with 69.2% participation from urban areas and 30.8% from rural areas, while males reading more than females (65.8% vs. 34.2%). Reading is primarily motivated by gaining knowledge (69.9%) and filling free time (58.7%), with religious materials were identified to be the most popular genre. Additionally, Malaysians read an average of 24 books per year, combining 16 printed and 8 digital copies, and spend around 50 minutes daily reading. Mobile phones are the most prevalent reading device, and libraries play a significant role, with 83.9% having visited libraries and 71.6% agreeing that library services boost reading interest. While 72% of respondents purchase reading materials, majority agreed that free online access and prioritizing basic needs as reasons for not buying books.

(ii) Trends of Library Usage

The results showed that 83.9% (n=84.361) of the respondents had visited the library while 16.1% (n=16,217) of respondents had not. The study also illustrated the purposes of visiting the library as stated in Chart 1.

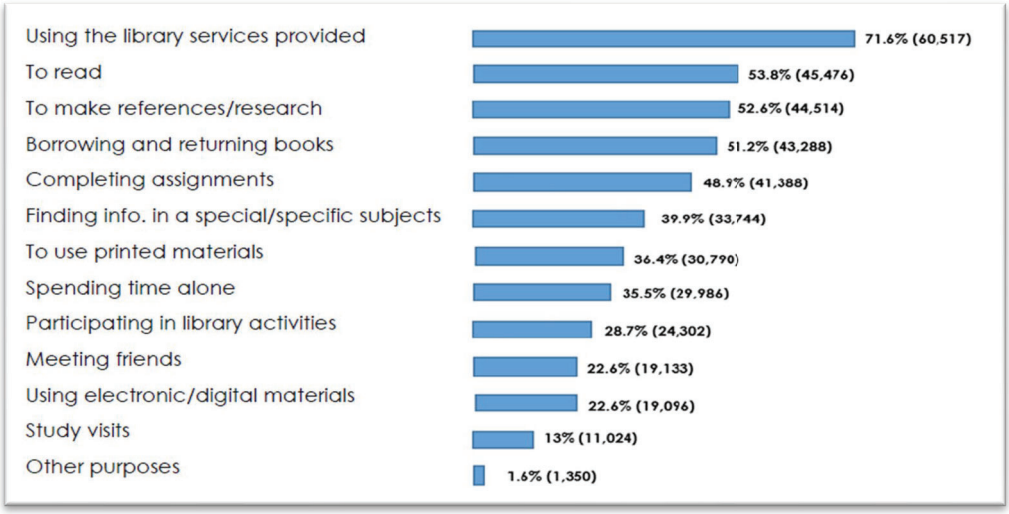


Figure 1: Purposes of visiting library

From the results we can conclude that, the library is evidently relevant to the society to be visited, and play a vital role as the hub of knowledge and centre of public interest for information needs and acquisition. However, a small percentage of respondents were found not to have ever visited the library due to several reasons as mentioned in chart 2 below:

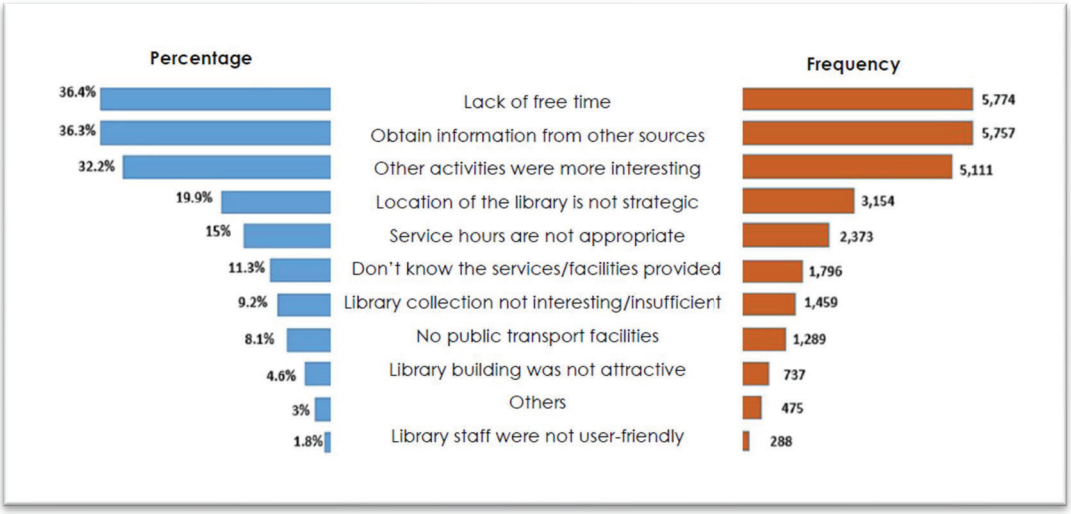


Figure 2: Reasons for not visiting

In addition, the study indicated the frequency of library visits as tabulated in Table 2.

Table 2: Frequency of visit according to library category

Library Type	Most Frequent Use (%)	Most Common Usage Frequency	Never Used (%)
National Library	7.8	Never	62.3
Public Library	6.9	Few times a year	21.0
Academic Library	14.1	Never	40.8
Special Library	8.4	Never	63.2
Rural Library	13.9	Never	59.1

Digital Library	13.6	Never	43.3
School Resource Centre	15.4	Never	34.1
Community Library	7.7	Never	63.3
Mobile Library	8.0	Never	64.6
Reading Room/Corner	14.5	Few times a year	30.9

Table 2 visualizes frequency of the respondents' use of different types of libraries and reading spaces which include the National Library, Public Library, Academic Library, Special Library, Rural Library, Digital Library, School Resource Centre, Community Library, Mobile Library, and Reading Room/Corner. The usage frequency ranges from "More than once a week", "Once a week", "Once every two weeks", "Once a month", "Few times a year" to "Never." From the results, it can be analysed that School Resource Centres and Reading Rooms/Corners have the highest proportions of users visiting "More than once a week" (15.4% and 14.5%, respectively). Meanwhile Academic Libraries and Rural Libraries also show a relatively high frequency of use (14.1% and 13.9%, respectively). As for Digital Libraries, the usage is more evenly distributed, but 43.3% never use, and only 13.6% use Digital Libraries "More than once a week." Therefore, it can be concluded that most library types, except for reading rooms/corners and school resource centres, have a high proportion of people who never use them; and Public Libraries are used infrequently by most people, with half visiting only a few times a year. Thus, proper targeted outreach and service improvements need to be conducted, especially for libraries with high "Never" usage rates.

(iii) Impacts of Reading Awareness Program

The study showed the impact of reading awareness program. It was found that 51% of people have participated in the reading awareness program, while 49% were not. From that figure, 62.8% of people in urban areas have participated, compared to 75.9% of people in rural areas. The highest participation in the programs were among government employees (45%) and IPT (*Institusi Pengajian Tinggi*) students (20.4%). The findings indicated that the reading awareness programs had statistically significant positive impact on all measured aspects of participants' reading behaviour and attitudes. Using a sample t-test, the finding shows a significant ($p<0.05$) for all items questioned. Participants reported being more interested in reading (M: 4.179), aware of the importance of reading (M: 4.209), reading book for entertainment and leisure (4.139), making reading a hobby (4.136), and reading anywhere and

at any time (4.109). Additionally, the program led to increased time allocated for reading, greater enjoyment in visiting bookstores or libraries, more frequent borrowing of books, and a higher willingness to spend money on reading materials. These outcomes were supported by significant mean differences in response to each item, demonstrating the program's effectiveness in fostering positive reading habits.

(iv) Relationship of Book Industry and Reading Interest of Malaysian

The study also proved the relationship between the book industry and reading habit of Malaysians. The finding indicates 72% of people purchase reading materials, while 28% do not. Additionally, 46.9% of people spend between RM100-RM500 on reading materials annually. In terms of number of books purchased, 48.7% buy 1 to 5 printed books, while 44.2% buy 1 to 5 digital books. 17.2% purchase novels/fiction in printed form, and 16.9% in digital form. Reasons for not buying books ~~as~~ by 17.5% who believe the internet provides more up-to-date information. In addition, most people prefer bookstores (38.4%), followed by book festivals (26.2%) and online shops (25.6%) for buying books. 25.6% of respondents were found buying books from online local platforms and 8.8% from international platforms. Additionally, Malaysians prefer to read at home (77.9%), followed by the office/workplace (33.4%) and libraries (30.2%). Peoples also prefer books with captivate front covers and simple writing styles compared with others. 63.7% Malaysians agree that reading materials published in Malaysia meet the needs of society.

This study also identified issues and problems related to the main reasons why Malaysians are not interested in reading, with the top factors being greater interest in other activities (6.3%), lack of free time (2.9%), lack of interest in reading (2.8%), and heavy workload or schoolwork (2.0%), while other reasons include health problems, dull reading materials, and the cost of materials are much less significant as mentioned in detail in the Table 3.

Table 3: Reasons for not reading

Reasons for not reading	Number (n)	Percentage (%)
More interested in other activities	6,304	6.3
Lack of free time	2,927	2.9

Lack of interest in reading	2,792	2.8
Work load/school work	2,048	2.0
Reading is not my lifestyle	1,413	1.4
Features of reading materials not interesting	819	0.8
Health problems	776	0.9
Vision problems	776	0.8
Unable to read well	733	0.7
No comfortable place to read	669	0.7
Lack of encouragement to read	629	0.6
Limited access to reading materials	580	0.6
Cost of reading materials is expensive	501	0.5
Reading materials do not match the needs	414	0.4
Others	411	0.4
It feels like a waste of time	290	0.3

RECOMMENDATIONS

The research has outlined several recommendations and plan of actions to enhance reading culture in Malaysia as stated in the following:

(i) Development of National Reading Index (NRI)

The research outlines plan for both short-term and long-term action plans, specifically the development of a National Reading Index. This index will serve as a primary measure to monitor the reading culture among Malaysians systematically and scientifically. This initiative reflects a commitment to understanding and improving reading habits across the nation. NRI creation cannot be achieved without synergy and collaboration from many parties including

National Library of Malaysia (NLM), Ministry of Education (MOE), public libraries, academics, and industry players.

(ii) Accelerate Internet Access for Digital Reading

Accelerating internet access for digital reading is a must as we are living in digital environment which aims to prevent the public from being digitally excluded due to poor internet connectivity and to support digital reading adoption, especially in rural areas plus to align with global trends where e-books and online resources are increasingly popular.

(iii) Leverage Social Media for Reading Promotion

Unlock the potential of new trends and leverage social media platforms like TikTok, Youtube, Instagram and other trending ways to highlight library and reading awareness program which can reach and engage larger audiences especially Gen Z and Millennials.

(iv) Develop a monitoring and evaluation system for the Reading Promotion Program

This effort of monitoring and evaluation is essential for assessing whether the initiatives have been executed are effective and really have significant impact to the targeted groups.

CONCLUSION

The reading habits of Malaysians have undergone several shifts between 1996 and 2023. While the interest in reading remains relatively high, there is a notable increase in the number of books read in 2022/2023 compared to earlier years, with a significant interest in digital books. A growing number of Malaysians now consider reading as a hobby and the primary motivation for reading is to increase knowledge. Bookstores remain a popular location for obtaining reading materials. However, challenges persist in ensuring equitable access, sustaining interests, and translating reading into a lifelong habit. The study's recommendations include the development of the National Reading Index as a primary measure for monitoring the reading habit and trend of reading behaviour of Malaysian. Additionally, targeted interventions are crucial steps to achieve Malaysia's aspiration as a reading nation by 2030. To sum up, the study concludes that despite challenges in the reading habit of Malaysians, significant opportunities for improvement were found through targeted reading promotion initiatives, book industry transformation and reading intervention with involvement of many parties. The

ultimate outcome is to accelerate and shape future policies and programs aimed at enhancing literacy and fostering a vibrant reading culture in Malaysia.

REFERENCES

Azmin Nur, Rosli, Fadhilah Nurul, Zurin Razali, Ahmad Umaira, Siti Zamil, Farhanah Mohd Nur, & Mohammad Fazli Noor Baharuddin. (2017). The determinations of reading habits among students: A concept. I*nternational Journal of Academic Research in Business and Social Sciences*, *7*(12).

Annamalai, S., & Muniandy, B. (2013). Reading habit and attitude among Malaysian polytechnic students. *International Online Journal of Educational Sciences*, *5*(1).

Atan Long, et. al. (1984). *A Survey on the Reading Habits and Interests of Malaysian People*, Kuala Lumpur: Dewan Bahasa dan Pustaka.

Baharuddin, M. F., Wan Hasnol, W. M. H., Mohd Ramsi, M. F. & Abdul Kadir, M. R. (2015). Understanding of reading habits among students in Malaysia: a review. *Proceedings of the 25th International Business Information Management Association Conference (IBIMA 25th)*. Amsterdam, Netherland.

Balan, S., Katenga, J. E., & Simon, A. (2019). Reading habits and their influence on academic achievement among students at Asia Pacific International University. *Abstract Proceedings International Scholars Conference*, *7*(1), 1490-1516.

Fong. I. (2002). A study of the reading habits and interests of urban working professionals, executives and managers. *Malaysian Management Review*, *37* (1).

Jamiah Baba, & Faiza Rostam Affendi (2020). Reading habit and students' attitudes towards reading: A study of students in the Faculty of Education UiTM Puncak Alam. *Asian Journal of University Education*, *16*, 109-122. https://doi.org/ 10.24191/ajue. v16i1.8988

Perpustakaan Negara Malaysia (1998). *Profil membaca rakyat Malaysia*: . *Laporan kajian yang dijalankan bagi pihak Perpustakaan Negara Malaysia oleh Frank Small & Associates (S.E. Asia) Sdn. Bhd*. Kuala Lumpur: Perpustakaan Negara Malaysia.

Perpustakaan Negara Malaysia (2006). *Profil Membaca Rakyat Malaysia*, Kuala Lumpur: Perpustakaan Negara Malaysia.

Perpustakaan Negara Malaysia (2023). *Profil Membaca Rakyat Malaysia*, Kuala Lumpur: Perpustakaan Negara Malaysia.

Samsuddin, S. F., & Yanti Idaya Aspura, M. K. (2021). Understandings the reading habit and reading attitudes among students in research university library in Malaysia. *Journal of*

Academic Library Management (*AcLiM), 1*(1), 12–23. https://doi.org/10.24191/aclim.v1i1.2

Re-Energizing School Libraries to Make the Impossible, Possible: The Experience of Myanmar

Myat Sann Nyein, Sandra Chit Hpo, Mi Mi, Su Su

Myanmar Library Association

Corresponding email: myatsann.nyein@gmail.com

ABSTRACT

School libraries are vital in fostering literacy, critical thinking, and lifelong learning among students, laying the foundation for a productive society and sustainable development. However, school libraries face severe challenges in Myanmar, including limited funding, outdated collections, and a shortage of trained librarians. To address these issues, the Myanmar Library Association (MLA) launched the Re-energizing School Libraries initiative in 2015, employing a strategic 3C approach—Communication, Coordination, and Collaboration. By 2025, the initiative had revitalized 756 school libraries, improving infrastructure, promoting a reading culture, and increasing government investment in school library development. In the 2024–2025 academic year, MLA, in collaboration with the Basic Education Department, implemented a large-scale School Library Development Project in 100 schools across Myanmar. This paper presents an overview of the project's implementation, key challenges, collaborative strategies, and sustainability efforts. It highlights the critical role of partnerships among education officers, parents, teachers, and librarians in transforming school libraries into inclusive, resourceful learning spaces. By aligning with the UN Sustainable Development Goals (SDGs), MLA envisions institutionalizing a library culture that fosters lifelong learning and bridges educational divides, replicating resource-constrained settings.

Keywords: Schooll Libraries; Myanmar Library Association (MLA); Sustainable Development; Community Engagement; Equitable Education

INTRODUCTION

Developing school libraries is essential for an effective education system, yet many schools in Myanmar lack adequate books, infrastructure, funding, and trained personnel.

To address these issues, the Myanmar Library Association (MLA) launched the Re-energizing School Libraries initiative in 2015, employing a strategic 3C approach, Communication, Coordination, and Collaboration. This approach, which emphasizes the importance of clear communication, effective coordination, and strong collaboration, has been instrumental in the initiative's success. MLA, in collaboration with the Basic Education Department, implemented a large-scale School Library Development Project in schools across Myanmar. By 2025, the initiative had revitalized 756 school libraries, improving infrastructure, promoting a reading culture, and increasing government investment in school library development.

This project aimed to enhance library resources and training for librarians, ensuring that students have access to diverse reading materials and support. The initiative not only fostered a love for reading among students but also empowered educators to integrate library services into their teaching practices effectively. Recognizing the project’s successes and challenges, the Ministry of Education approved MLA’s School Library Development Project (2024-2025) to revitalize 100 school libraries by improving infrastructure, providing books, and offering training for teachers and librarians.

OBJECTIVES OF THE PROJECT

The project's primary aim was to develop reading habits and enhance literacy skills among students. This was pursued by rebuilding a sustainable school library education system and nurturing a strong reading culture, ensuring students' access to quality educational materials. The project also sought to transform school libraries into dynamic learning centers that go beyond traditional, curriculum-based education. Furthermore, it aimed to establish an efficient and long-term school library system supported by trained personnel and digital resources.

METHODOLOGY AND IMPLEMENTATION

Stakeholder Engagement and Collaborative Meetings

To ensure effective implementation, the Myanmar Library Association (MLA) actively engaged with key stakeholders throughout the project. Regular consultation sessions were held with

the Director of the Department of Basic Education (DBE) and Township Education Officers (TEOs) through online meetings. In addition, strategic workshops were held with TEOs, teacher-librarians, and school principals to plan and coordinate the development of school libraries. Community involvement was emphasized through partnerships with Parent-Teacher Associations (PTAs), local organizations, the Alumni Students Association, and donors. MLA also collaborated with university and public/community librarians to enhance training and capacity-building for library personnel.

Project Execution and Training Programs

Library Development Initiatives

In 2025, more than 650 books and various library equipment were distributed to 100 schools as part of the library development initiative. A traditional-format, three-day training program was conducted in two sessions for a total of 400 TEOs, school principals, and teachers in December 2024. University librarians from Upper and Lower Myanmar carried out on-site evaluations to assess library improvements. As part of the initiative, school library management systems were also implemented, which included cataloging methods, circulation processes, and book maintenance systems.

Capacity-Building and Training

A total of 400 librarians and educators participated in intensive training sessions focused on building sustainable, child-friendly library environments. The training covered a range of essential topics, such as creating libraries that are welcoming to children and understanding the core responsibilities of a school librarian. Participants learned key aspects of library operations, including cataloging, classification, and book circulation. They also explored methods for promoting literacy through reading exercises and interactive student activities. Strategies for managing overdue books, sustaining library systems, and implementing community-based library management models were discussed in detail. Furthermore, trainees learned how to schedule library periods effectively and conduct four types of reading activities. They were also trained in monitoring and evaluation techniques using appropriate statistical methods to assess library performance.

Several workshops were conducted to support these initiatives. A Project Introduction Meeting was held on November 5, 2024, bringing together key officials from the Department of Basic Education and other stakeholders. This was followed by two regional training workshops with TEOs, principals, teacher librarians from ten regions and states held in the

Yangon Educational Training Center. Group 1 workshops took place from November 20 to 22, 2024, from Mandalay, Bago (East and West), Mon, Yangon, and Southern Shan State. Group 2 workshops were conducted from November 26 to 28, 2024, from Kayin, Magway, Ayeyarwaddy, and Naypyidaw.

By the end of these workshops, participants were expected to demonstrate a solid understanding of reading habits and implement activities that foster such habits among students. They could clearly explain the concept and benefits of child-friendly libraries, including identifying essential features that ensure their effectiveness and efficiency. Trainees gained the skills to arrange furniture, apply appropriate wall colors, level books, organize displays, and install basic library management systems and tools. They also understood the importance of community engagement in library development and could outline relevant activities to enhance such engagement. Participants were able to identify the roles of teachers and librarians in developing child-friendly libraries and were equipped to carry out school-based tasks aligned with the project's goals.

Impact on Circulation Statistics

Circulation data was collected through multiple methods, including questionnaires, interviews conducted by university librarians, and consultations with MLA EC members.

A key indicator of the project's success, which we all can take pride in, has been the significant increase in book circulation across participating schools. This collective success is demonstrated by the data collected from 50 of the 70 schools involved in the 2023-2024 project.

Table 1: Circulation statistics

Name of the School	2022-2023	2023-2024	%
BEHS 2 Thaketa, Yangon	1259	33995	2600
BEHS Waingmaw, Kachin	116	3469	2891
BEHS Monywa, Sagaing	117	2966	2435
BEMS Sagaing	4200	7000	67
BEHS 3 Sagaing	2970	4950	67
BEHS3Dagon (East Yangon)	1750	18900	980
BEHS Naypyidaw Tatkone	730	1100	51

The average monthly book circulation, a key measure of the project's impact, surged by a remarkable 50% within six months of implementation. This significant increase not only indicates the project's success but also underscores the growing interest and engagement of students in reading and utilizing library resources**,** a promising sign for the future of education.

As more students become involved, there will likely be a positive shift in academic performance and a deeper appreciation for literature and research. This trend can inspire educators and DBE officials to develop innovative programs that further enhance student learning and foster a lifelong love of reading. The number of books borrowed by students per semester saw a substantial increase, rising from an average of 4 to 10 after the introduction of new library services. This significant jump is a clear sign of the project's success and the positive impact on students' reading habits.

Teacher engagement with library resources doubled, with 64% of teachers integrating library books into classroom activities, compared to just 20% before the project. The DBE guided all participating schools to implement 45-minute Library Periods for every class. Consequently, schools reported increased student engagement and improved academic performance, clearly demonstrating the profound impact of well-supported library services. As a result, DBE officials began to advocate for similar initiatives in neighboring regions, recognizing the value of accessible information and learning resources. This movement sparked a broader conversation about the critical role of libraries in shaping educational outcomes and empowering future generations.

Regional Breakdown of Circulation Growth

1. Kachin State: Over 100% increase, with students actively borrowing books despite geographical challenges.
2. Yangon and Mandalay Region: 80% increase since integrating digital cataloging and SLiM software.
3. Sagaing Division: 60% increase, despite operational disruptions, with students accessing temporary community-based library services.

On-The-Job Training and Peer Learning

Hands-on training was provided to volunteer teacher-librarians, focusing on practical library operations and peer learning practices. Peer Learning Meetings (PLMs) proved to be

particularly effective, as participants shared their experiences and learned collaboratively from one another. As part of this process, over 650 books were cataloged and distributed to 100 schools, supporting the improvement of school library collections. A hybrid training approach was adopted, combining online sessions conducted via Zoom and Viber with in-person mentorship to ensure flexibility and accessibility. To further enhance operational efficiency, participating schools began adopting the Myanmar Library Association's digital catalog software, SLiMS (Senayan Library Management System), enabling more structured and streamlined library management practices.

CASE STUDY COLLECTION

1. Case Study 1: Cooperation and Collaboration Among Librarians from Different Sectors

   School: Middle School (Pauk Myaing), Lewey, Pyinmana Township (2024-25)

   Challenge: Lack of collaboration, limited library knowledge

   Solution & Impact: University librarians partnered with the school to improve libraryoperations and encourage student engagement with books. As a result, students developed regular reading habits and were asked to present book summaries during school assemblies twice a week. This initiative enhanced their public speaking skills, critical thinking, and love for literature.

   Testimony: "Thanks to the support of university librarians, our students have developed a strong reading habit. They now present book summaries in assemblies, which has improved their public speaking and critical thinking skills. I sincerely thank the Myanmar Library Association (MLA) and DBE for making this possible and for giving our children the joy of reading." – Daw Than Than Htay, Principal, Middle School (Pauk Myaing), Lewey, Pyinmana Township

2. Case Study 2: Overcoming Geographical Barriers in Chin State

   School: Htantalan Township High School, Chin State (2020-2021)

   Challenge: Remote location, limited book access, lack of trained librarians

   Solution & Impact: MLA collaborated with local educators and librarian volunteers to transport books via motorbikes and trekking routes, as impassable roads made traditional transportation methods impossible. A retired teacher, trained as a librarian, involved students in cataloging books. After six months, student reading rates increased by 45%, and a daily library period was introduced.

Testimony: “Previously, we had a library room, but it was locked most of the time. Teachers are weak in guiding and supervising students to use the school library, linking teaching with lessons, and providing activities. Now, students check out books daily, and teachers integrate library resources into their lessons effectively.” – U Harry Lane, Principal, Basic High School, Htantalan Township

3. Case Study 3: Integrating Digital Tools in an Urban School Library

   School: No. 20 Basic Education High School, Mandalay (2020-21)

   Challenge: Outdated cataloging methods, limited library automation

   Solution & Impact: The school implemented the School Library Management (SLiM) software with support from MLA and Mandalay University's library department. Teacher-librarians and student volunteers were trained in digital cataloging and online circulation. Within four months, the lending process became more efficient, and student engagement with the library increased by 60%.

   Testimony: “With the new digital system, students can now easily find and borrow books. The library has become a dynamic learning space rather than just a book storage room.” – Daw Kyi Kyi, Teacher-Librarian, No. 20 Basic Education High School, Mandalay

4. Case Study 4: Transforming School Libraries in Diverse Contexts

   School: Basic High School (Sub-branch) No.1, PaukKhaung Township,

   Magway Division (2024-25)

   Challenge: Lack of library education, Outdated book collection

   Solution & Impact: Pyay University librarians provided hands-on library education to teachers and students, combining theory and practice. MLA provided the school with a new and updated collection of books with a cataloging system. As a result, the library became an essential resource for students, and teachers integrated it into their lesson plans.

   Testimony: “We are truly grateful to the librarians from Pyay University for training us in school library management. Our school library has become more diverse than before. Since it includes many scientific and literary books, the number of students reading has increased, and book circulation has increased. Because of MLA’s guidance, we have successfully implemented a cataloging system. We hope for continued support to sustain our library services.” – Daw Ei Ei Aung, Principal, BEHS Pauk Khaung

5. Case Study 5: Reviving a Conflict-Affected School Library in Sagaing Division

   School: Basic Education Middle School, Sagaing Division (2023-24)

   Challenge: Political instability disrupted book delivery and school operations

   Solution & Impact: Due to logistical constraints, MLA conducted virtual training for teachers, and local volunteers set up a temporary library in a seminary hall. By collaborating with community leaders, books were discreetly distributed to students. After four months, the school library resumed full operations, restoring access to books for over 300 students.

   Testimony: “Even in difficult times, reading gives our students hope and exposure. The support from MLA has kept our library alive and functioning.” – Daw Haymon, Teacher Librarian, Basic Education Middle School, Sagaing Division

6. Case Study 6: Building a Culture of Reading and Learning

   School: BEHS Yenangyaung (2024-25)

   Challenge: Limited student engagement with the library

   Solution & Impact: The school library was revitalized through MLA's support, increasing student interest in reading and research. Students learned to organize books properly, exchange knowledge, and explore literature beyond textbooks. In schools with a large student population, the time students spend in the library may be limited, and in schools where a separate room for the school library is not available, the development of reading habits by students may be limited.

   Testimonies: “I am happy and proud to see our school library thrive. Students now actively seek knowledge, explore the world through books, and develop a love for reading.” U Ye Win Khaing, Principal, Yenangyaung Township

“Students have learned how to manage the library space efficiently, exchange knowledge, and improve their reading skills. More books are needed to continue changing children’s lives.”— Daw Wai Wai Aung, Teacher

“Having a school library helps me and my classmates write poems, essays, and articles. It also supports our studies and broadens our general knowledge. I hope to see even more books available for students in the future.”— Ma Yun Shwe Yi Htun, Grade 11 Student

CHALLENGES AND SOLUTIONS

1. Logistical and geographical barriers
   - Some schools are located in remote areas, requiring long-distance travel by bicycle, boat, or foot.
   - Limited internet connectivity affected online training accessibility.

   Solution

2. Hybrid training combining digital resources with in-person visits.

   Out of the 70 schools included in the 2023-2024 School Library Development Project, some of them are located in remote areas. Due to the current political and social unrest in the country, and the resulting inability to communicate, the bookshelves, books, and library stationery boxes to be delivered have been temporarily taken care of at the Diamond Jubilee Hall, where the Myanmar Library Association office is located. The MLA and DBE are working diligently to ensure that these resources reach the schools as soon as it is safe to do so. The books and bookshelves have been put into a pending list and replaced with other accessible schools. Despite various efforts, other suitable schools have had to be rearranged and sent instead due to the safety conditions of the delivery route.

3. Resource constraints

   Schools lacked funds for updated books, furniture, and technology.

   Solution: Partnerships with INGOs, such as The Asia Foundation, and the publishers' association to supply books, such as nonfiction, graphic novels, young adult books, and children's literature, offer engaging ways to learn and explore different topics. Nonfiction books can introduce factual information about a variety of subjects, while children's literature can spark imagination and empathy.

4. Flooded school libraries

   For the School Library Project (2023-2024), the Myanmar Library Association delivered books and library supplies to the four school libraries in Tatkone and Pyinmana Township, but heavy flooding, exacerbated by persistent rainfall since September 10th, has affected the school libraries 2 days after the arrival of books and supplies. Starting from September 12, 2024, the water level rose. The Principal and the school janitor had to move the documents. The water level had slightly subsided, and the principal checked the books in the library donated by the MLA the day before the flood and found out that

they had been soaked overnight and could not be retrieved. The principal was very upset. Over 1500 books and the library supplies were damaged. This unforeseen natural disaster has not only damaged the newly delivered resources but also hindered access to the libraries for students and teaching staff.

The MLA organized the Disaster Response Group with EC members, the publishers' association, and donors to donate the books and the library supplies to restore the libraries. The flooding caused significant damage to the books and supplies, rendering many of them unusable. In response, the MLA is collaborating with the Principals and TEOs to evaluate the extent of the damage and devise restoration efforts to ensure that students can access the resources they need for their education as soon as possible.

ROLE OF UNIVERSITY AND PUBLIC LIBRARIANS

University and public librarians play distinct but complementary roles in supporting a school library development project, leveraging their expertise to enhance its success. They provided remote support through Viber groups and pre-recorded training videos, ensuring continuous guidance despite geographical barriers. Additionally, they offered on-site mentoring in key areas such as cataloging, classification, and book shelving, helping to build the capacity of school librarians. Their contributions also included sharing student engagement strategies aimed at encouraging youth participation in library activities and community engagement strategies, thereby fostering a more vibrant and inclusive learning environment.

Despite the logistical difficulties, our librarians have shown remarkable dedication. They have traveled extensively, sometimes navigating rivers and paddy fields to reach schools. Their commitment ensures continuous support for teachers managing libraries, even in the most challenging conditions.

They play a vital role in mentoring, on-site evaluations, and capacity-building workshops. Case studies from remote, urban, and conflict-affected areas showcased creative solutions like virtual trainings, community partnerships, and student-led reading initiatives. The project fostered a strong reading culture, strengthened cooperation and collaboration across library sectors, and offered a replicable model for sustainable school library development in challenging contexts.

SUSTAINABILITY AND FUTURE DIRECTION

Strengthening Institutional Cooperation (Aligned with SDG 4: Quality Education).

To promote long-term sustainability, the project emphasizes the strengthening of institutional cooperation across various sectors. One of the primary goals is to expand knowledge-sharing networks among universities, public and community libraries, and school libraries. This collaboration aims to create a more robust lifelong learning ecosystem. The project also seeks to work closely with local governments to advocate for increased funding and the development of supportive policies that encourage sustainable school library development.

In addition, the development of public-private partnerships (PPPs) is seen as a key strategy for mobilizing financial and technological resources, thereby ensuring inclusive and effective library services. University and public librarians will be empowered to take on mentoring roles for teacher-librarians and community librarians. This approach ensures continuity and helps foster sustained growth in the school library sector.

Academic institutions will continue to provide technical support and training, which is essential for maintaining the professional development of school librarians. Furthermore, a school-to-school training model will be initiated, involving both school principals and teacher-librarians. This decentralized capacity-building approach encourages peer-to-peer learning and helps distribute knowledge and skills across a broader network of educators.

Digital Transformation and Community Engagement (Aligned with SDG 17: Partnerships for the Goals).

As part of the project's digital transformation strategy, the Senayan Library Management System (SLiMS) has been implemented and localized for the partner schools to improve library management and enhance service delivery. To ensure consistency and efficiency in library operations, the Myanmar Library Association (MLA) will publish a standardized School Library Management Manual, which will serve as a practical guide for school librarians nationwide.

Community engagement will also be a central focus moving forward. This includes promoting active participation from Parent-Teacher Associations (PTAs), local donors, student alumni associations, and volunteer networks. By involving community stakeholders, the project aims to strengthen local ownership and broaden support for library initiatives. Moreover, efforts will be made to foster closer collaboration between public libraries and schools. This partnership is intended to extend the reading culture beyond school boundaries and promote

community-based library services. Finally, MLA will continue to engage with township, state, and regional libraries to further expand the national school library network. These efforts are crucial in ensuring equitable access to quality learning resources for all students across the country.

RECOMMENDATIONS

To strengthen basic education, every high and middle school should be supported in opening and using school libraries. The distribution of small library boxes of books(Book Locker) helps address challenges in schools without libraries. The annual construction of libraries should be planned based on funding by the government, and schools without libraries must be prioritized based on their performance. Effective library use requires promoting reading habits, maintaining usage data, and organizing engaging activities. A School Library Management Manual should be developed by relevant departments and organizations, approved, and distributed nationwide. Sustained collaboration among principals, teachers, parents, communities, donors, and development partners is essential to ensure the long-term success and growth of school libraries.

To enhance school libraries in basic education, each class should use the library weekly, making it an active space for students, teachers, and the community. Schools should host age-appropriate literary talks by authors and poets, and organize student-led activities under the principal's guidance. Where full-time librarians aren't available, a rotating system or support from retired teachers should be used. Libraries should stock quality children's and educational books, and promote the value of reading to parents and the community. Principals must lead efforts to keep libraries running with the help of dedicated volunteers.

CONCLUSION

The School Library Development Project (2024–2025) has significantly contributed to re-energizing Myanmar's school libraries. Despite challenges, such as limited resources, geographical constraints, and security issues, the initiative has successfully fostered a reading culture and promoted information literacy, critical thinking, and learning through strategic partnerships, collaboration, cooperation, and innovative solutions. The project has also successfully redefined the role of libraries in education, transforming them into inclusive, resource-rich learning environments that empower students, teachers, and engage communities. This transformation should make us all proud of our collective efforts and connected to the communities we serve. Moving forward, continued investment in library

development, digital tools, and capacity-building will be essential to sustaining Myanmar's school library system. MLA's experience offers a scalable, replicable model for enhancing school libraries in resource-limited contexts, contributing to equitable and sustainable education in alignment with global development goals.

The MLA's school library project has shown how coordinated efforts, community engagement, and digital transformation can rejuvenate school libraries in resource-constrained settings. The model offers strong potential for replication across similar contexts, aligning with the UN SDGs, especially Quality Education (SDG 4) and Reduced Inequalities (SDG 10). This initiative demonstrates that well-equipped, inclusive libraries are essential for nurturing informed and empowered learners. By maintaining momentum through sustained efforts, ongoing support, and innovation, schools can ensure that their libraries remain dynamic spaces for discovery, creativity, and empowerment for future generations.

ACKNOWLEDGMENTS

This paper would not have been possible without the invaluable support and collaboration of many individuals and organizations.

We would like to express our sincere gratitude to the Myanmar Library Association (MLA) for their guidance and continued commitment to the development of school libraries in Myanmar. Special thanks go to the DBE Director General, Director, and team, the school principals, teacher-librarians, and community librarians who participated in the project and shared their insights and experiences so generously.

I am deeply thankful to the university librarians, public and community librarians, and academic mentors who offered technical support and served as champions of knowledge-sharing throughout the process.

My appreciation also goes to the Township Education Officers and partner organizations, whose cooperation and advocacy have been instrumental in shaping a more sustainable future for school library development. Finally, I extend heartfelt thanks to all the students, parents, alumni, and community members whose active engagement has made this initiative truly inclusive and impactful.

REFERENCES

Asia Foundation. (2024). *Supporting school libraries in Myanmar: A collaborative approach to literacy developmen*t. The Asia Foundation. https://asiafoundation.org

International Federation of Library Associations and Institutions (IFLA). (2015). *The role of school libraries in literacy and lifelong learnin*g. IFLA. https://www.ifla.org/

Myanmar Library Association. (2024). *School Library Development Project (2024–2025): Progress report*. Myanmar Library Association.

Myanmar Ministry of Education. (2023). *Basic education reform and the role of school libraries in curriculum development*. Ministry of Education, Myanmar.

Ohnmar Than, Dr., Director, Department of Basic Education. (2024). *Reading can help young students develop a high level of intelligence and a strong sense of patriotism, and strengthen the school library sector*. (June 2024)

UNESCO. (2021). *Global education monitoring report: The importance of libraries in equitable education*. United Nations Educational, Scientific, and Cultural Organization. https://unesdoc.unesco.org/

United Nations. (2015). *Transforming our world: The 2030 agenda for sustainable development*. United Nations. https://sdgs.un.org

Resilience in Action: The Evolution and Struggles of Summer Shelter Library in Fostering Community and Educational Reform

Thida Htway

Summer Shelter Community Library, Myanmar

Corresponding email: tartartone508@gmail.com

ABSTRACT

This paper presents the evolution and impact of the *Summer Shelter Library,* a grassroots educational initiative established in 2011 in the eastern part of Myanmar. Framed through personal narrative and experience-based reflection, the study explores how a small, volunteer-led library became a catalyst for educational reform, civic learning, and youth empowerment in an underserved community. Using a qualitative, practice-oriented approach, the paper traces the library's key programs, including youth-led reading clubs, environmental action through the Green Library project, vocational and literacy training, and community discussions on social awareness. These initiatives emerged despite major challenges such as displacement, flooding, lack of financial support, and limited access to formal institutional backing. The findings demonstrate how community collaboration, cultural integration, and adaptable strategies allowed the library to remain a trusted educational hub. Stories of transformation, such as children gaining confidence through creative activities and local youth stepping into leadership roles, highlight the long-term social impact of community libraries in Southeast Asia. The paper concludes that sustainable educational reform in fragile contexts can begin at the community level. It recommends stronger collaboration among libraries, increased support for youth leadership, inclusive language policies in international learning programs, and donor alignment with local values and needs. The experience of Summer Shelter Library provides insight into how small-scale, locally led libraries can foster resilience, inspire innovation, and promote inclusive development.

Keywords: Community Libraries; Educational Reform; Youth Leadership; Resilience; Civic Education

INTRODUCTION – CONTEXTUALIZING EDUCATION REFORM IN LOCAL COMMUNITIES

In many parts of Myanmar and similar regions across Southeast Asia, access to quality, inclusive education remains a persistent challenge. Formal education systems struggle to respond to the diverse needs of children and youth. Particularly in rural communities, children are frequently left behind, lacking not only literacy and numeracy skills but also the critical thinking, creativity, and community awareness necessary for navigating an increasingly complex world.

Within this educational landscape, the role of community-led institutions has become increasingly important. Among these, community libraries stand out as grassroots responses to systemic educational gaps. More than spaces for books, they become community anchors, places where learning is reimagined, social bonds are strengthened, and resilience is quietly cultivated. Community libraries often rise from the will of the people themselves, powered by volunteers, fueled by necessity, and adapted over time to meet evolving local realities. They provide safe, inclusive, and low-cost learning environments that foster not only knowledge but empowerment, healing, and reform.

The Summer Shelter Library was born from exactly such a necessity. Founded on October 9, 2011, what began as a modest reading space quickly became a living symbol of resistance and hope. Created during a time when opportunities for alternative education were limited, especially for marginalized children, the library offered more than books, it offered a new way of thinking. Through the years, its mission evolved in tandem with the community's needs. It introduced critical reading clubs, youth-led film discussions, parent education meetings, environmental awareness programs, and vocational training sessions. It embraced partnerships with progressive educational and Library networks like TTEN (Taunggyi Teacher Education Network), MBAPF (Myanmar Book Aid and Preservation Foundation), MLA (Myanmar Library Association), Save the Library, and NNER (National Network for Education Reform) to deepen its impact. Even as the library faced severe challenges, relocation due to some difficulties, flooding from its new location near a stream, and a lack of consistent financial support, it stood as proof of community resilience. The story of Summer Shelter Library is not just about one place. It echoes the struggles and triumphs of many community libraries across the region. These libraries demonstrate that reform does not always start with

policy; sometimes it begins with people, with paperbacks on old shelves, and with the quiet determination to do better for the next generation.

This paper explores the evolution of Summer Shelter Library to illustrate how grassroots libraries play a pivotal role in fostering community resilience and educational reform. It aims to show how such spaces can act as catalysts for civic engagement, environmental consciousness, critical thinking, and inclusive development. In doing so, it contributes to the broader discourse on how local, community-rooted efforts can help reimagine education from the ground up.

THE BIRTH OF SUMMER SHELTER LIBRARY – INCEPTION, VISION, AND MISSION

The Summer Shelter Library was not founded with a grand budget or institutional backing—it was born out of deep conviction, necessity, and love. In 2011, in a small neighborhood where access to alternative learning spaces was nonexistent, a community teacher saw the limitations of rote learning, the lack of critical thinking in classrooms, and the growing gap between what children were taught and what they truly needed to thrive. With little more than a handful of donated books, a wooden shelf, and a belief that education should be transformative rather than transactional, the Summer Shelter Library opened its doors, not as a building, but as a movement.

The library's earliest days were humble. It began in a corner of a house, open to all who wished to learn. Children wandered in shyly at first, then returned again and again, not only to read but to talk, question, and imagine. The space gradually evolved into a haven for young minds seeking refuge from rigid systems and from the noise of a world that did not always make room for them. The name "Summer Shelter" reflected more than the season, it symbolized a safe space, a reprieve from the oppressive heat of inequality, and a sanctuary from the pressure of conformity. From the very beginning, the **vision** of the Summer Shelter Library was shaped by the belief that education must be people-centered, inclusive, and rooted in community. The library did not aim to replace formal education but to complement it, to fill in the critical gaps left by traditional schools. This included nurturing values such as empathy, creativity, collaboration, and civic responsibility. Over time, this vision was expanded into a mission with three core pillars:

1. **Access and inclusion:** To provide free or low-cost access to learning materials, reading opportunities, and safe community space, especially for children, seniors, and marginalized groups.
2. **Empowerment through learning:** To cultivate critical thinking, creativity, and leadership skills through reading clubs, debates, film discussions, and interactive workshops.
3. **Community resilience and reform:** To engage families and community members in the educational process and promote local solutions to broader challenges, from environmental issues to mental well-being.

The library's development reflected its grassroots spirit. It relied on donations, used books, and a few trusted volunteers. Every book was a gift from someone, every table was moved with care, and every banner was painted with love and purpose. Even with minimal funding, the library offered services most conventional systems could not such as personalized attention, space for open discussion, and a platform for youth to speak and be heard. Over time, this drew the attention of like-minded educational reformers, including networks like TTEN (Taunggyi Teacher Education Network), MBAPF (Myanmar Book Aid and Preservation Foundation), MLA (Myanmar Library Association), and NNER (National Network for Education Reform). These collaborations enriched the library's mission, helping it align more intentionally with the broader movement for education reform in Myanmar.

As the library grew, so did its reach. It introduced basic grammar classes, reading hours, film screenings, followed by discussions, and vocational programs like quilling art and eco-crafts. The "Green Library" initiative emerged from a growing awareness of the environmental crisis in the neighborhood. Children were encouraged to bring plastic waste and learn how to turn it into eco-bricks or reusable items, connecting literacy with environmental responsibility. These activities were not just practical, they were symbolic of the library's approach: learning by doing, thinking by questioning, and growing by sharing.

The mission of Summer Shelter Library was constantly redefined by its community. When children asked for movie screenings, the library turned its corner into a mini cinema. When young people wished to speak out, the library created debate and speech corners. When parents showed concern for their children's future, the library invited them in for collective discussions. In doing so, the space became not just a library, but a microcosm, bringing people together through shared experiences and mutual support, of what education could look like if shaped by care, inclusion, and community wisdom.

In a landscape where educational reform often feels abstract or slow-moving, the Summer Shelter Library demonstrated that change can begin with a shelf of books, a group of determined youth, and a refusal to give up, no matter how difficult the path. Its birth and evolution embody the idea that resilience is not something granted, it is something built, day by day, with people who dare to hope, share, and rebuild together.

CHALLENGES IN FOSTERING RESILIENCE – STRUCTURAL, SOCIAL, AND ECONOMIC BARRIERS

Building a community library is often idealized as a hopeful attempt, but the day-to-day reality is more complex, especially in under-resourced contexts like Myanmar. While the Summer Shelter Library has stood as a beacon of community-driven learning, its journey has been deeply shaped by difficulty. The library's persistence is not only a story of inspiration but also one of quiet resistance against structural, social, and economic forces that often work against grassroots efforts. These challenges, some visible, others more insidious, have tested the library's resilience at every stage of its growth.

Structural Barriers: The Limits of Space and Infrastructure

One of the most immediate and pressing challenges has been the physical structure and location of the library. In its early years, the library was housed in a modest rented home, where the space and rental costs were shared with family. However, challenges in balancing family needs and the library's activities eventually led to the decision to relocate to a more suitable, dedicated space. Still, it served its purpose. The new location, though more flexible, brought a fresh set of problems. Situated near a stream and on a lower lane than its surroundings, the library became highly vulnerable to seasonal flooding. During the rainy season, water often swept through the area, damaging books, equipment, and supplies. These environmental vulnerabilities have made long-term planning incredibly difficult. Attempts to raise the floor or build flood protection barriers have been constrained by budget limitations and the need to prioritize basic services first.

Economic Challenges: Funding Gaps and Volunteer Strain

Like many community initiatives, the Summer Shelter Library has never had stable financial support. The bulk of its operations have relied on small donations, minimal library card fees, and the personal income of the founder, who also works as a teacher to support the library's running costs. While this model has sustained the project for over a decade, it has also placed a huge strain on sustainability. Efforts to open a food lounge to generate income for the library were made but have yet to succeed, due to limited startup funds and logistical constraints. Even when meaningful collaborations arose, such as offering quilling art training with Coca-

Cola's support for flood-affected areas, they remained time-bound, one-off engagements. What the library has always needed is long-term investment, yet many donors overlook small community libraries, considering them too informal or lacking measurable "impact metrics". The lack of financial resources also limits the ability to reimburse volunteers. However, not being able to offer even a stipend means many volunteers cannot stay long-term. This results in a constant cycle of onboarding new helpers, losing momentum, and trying to build capacity again.

Emotional Labor and Invisible Struggles

Running a library under these conditions is not just physically and financially demanding—it is emotionally exhausting. The founder has often had to juggle multiple roles: educator, manager, cleaner, counselor, fundraiser, and sometimes even crisis responder. The emotional labor of keeping self-esteem high in the face of setbacks, be it damaged books, disheartened volunteers, or houseowner complaints, is rarely acknowledged. During the flooding incidents, for example, the mental toll was immense. Watching carefully curated resources get destroyed while still trying to encourage children to come read again the next day required not only effort but deep emotional strength. This invisible burden is one of the least discussed but most significant challenges for community organizers. Despite all these barriers, the Summer Shelter Library has not only survived but adapted. The founder turns her own teaching income into lifeblood for the project. The library embraced digital transformation during the pandemic, offering training programs even with unstable electricity. They built partnerships with grassroots networks and hosted awareness events on environmentalism and mental health. And most importantly, they continued to listen to their community and design programs that reflect real needs—from youth debates on sustainable futures to eco-friendly livelihood training.

COMMUNITY ENGAGEMENT AND IMPACT – COLLABORATIVE EFFORTS FOR COLLECTIVE GROWTH; STORIES OF EMPOWERMENT AND PROGRESS

From its earliest days, Summer Shelter Library has been rooted in the belief that meaningful change must begin within the community. Over the years, the library has grown not just as a space for reading, but as a center for mutual support, creativity, and collective growth. Its survival and evolution have been shaped by the people who walked through its doors, young learners, volunteers, interns, parents, and neighbors, each contributing in their own way to the development of an inclusive and resilient educational space.

Creating A Space Where Everyone Belongs

The primary strength of the library lies in its open-door philosophy. Anyone could enter without fear of judgment, whether a child struggling in school, a young person looking for direction, or an elder simply curious about the activities inside. Reading inside the library has always been free for all, and even though a small fee is charged for borrowing books, senior citizens are offered full access without payment. This simple gesture fosters a sense of respect and inclusion, encouraging elders to feel part of the learning community while promoting intergenerational connection. The book collection itself is diverse, spanning educational materials, novels, children's stories, journals, political writings, and magazines.

Empowering Through Education and Creative Expression

Many of the library's most impactful initiatives stemmed from listening closely to the needs of its users. As children and youth voiced their challenges, whether falling behind in school, struggling with confidence, or lacking access to resources, the library responded with low-cost, inclusive training programs tailored to their level and background. Among these were English grammar and spoken English classes, basic computer skills, video editing, Canva design, and paper quilling. Each training was designed to help learners grow not just academically or technically, but emotionally and socially as well. One standout program has been the integrated multi-skills class, which serves children who cannot afford expensive private elsewhere. This class emphasizes a balance between education and emotional care, creating a nurturing environment where even the most shy or struggling child can find their voice. The quilling program**,** in particular, has brought unexpected rewards. What began as a creative activity became a livelihood opportunity, first introduced through half-day sessions and gradually expanded through advanced training for youth and parents. During difficult times, such as the post-flood recovery period, these creative activities offered both emotional healing and economic possibility, empowering participants to imagine futures where their hands could shape both beauty and income.

Green Library: A Community Pathway to Environmental Awareness

Summer Shelter Library's engagement goes beyond literacy and creative learning, it extends to sustainability and environmental consciousness**.** The "Green Library" initiative is a growing movement to reduce plastic use through eco-bricks, recycling workshops, and awareness sessions**.** Children and youth learn to reuse plastic by making eco-bricks, weaving plastic strips into crochet bags and clothing, and turning waste into useful materials. Sessions on making fertilizer from kitchen waste will have sparked local curiosity and led to small-scale planting in neighborhood homes. It will be accomplished during 2025. The library also predicts building

with eco-bricks, aiming to construct eco-friendly structures like walls, benches, or even a park beside the canteen. These activities are not just symbolic, they are practical exercises in how communities can lead sustainable change with limited resources. The plan to eventually buy eco-bricks made by the community also reflects a broader model of mutual benefit, where environmental care becomes a shared responsibility and source of livelihood. The vision is clear: education does not stop at books. It lives in the way people treat their environment and each other.

Engaging Youth in Leadership and Advocacy

Youth engagement has been a central pillar of the library's work. Activities are designed not only to educate but to inspire agency. Debate sessions, reading clubs, and public speaking events encourage young people to think critically and express themselves. Even during difficult periods, such as relocation or floods, the library prioritized maintaining programs like Youth Day celebrations, which became platforms for showcasing youth-led innovation, civic awareness, and sustainable futures. For example, the Youth Day celebration organized around the theme "Digital Pathways to a Sustainable Future" featured handmade booths, horoscopes, games, debates, musical performances, and speeches. Youth were not just participants, they were organizers, speakers, and performers. The debate topic, focused on youth-driven digital solutions for sustainable development, allowed young people to engage with national and global issues from their own perspectives. In these events, the library served not as a host, but as a stage for youth empowerment, helping young people see themselves not only as students but as problem-solvers, community builders, and leaders.

Building Trust Through Parental and Community Engagement

The library's growth has also been made possible through relationship-building with parents and residents. Regular parents' meetings serve as platforms to discuss the children's learning, future planning, and the importance of emotional support and critical thinking. These meetings have helped bridge the gap between formal schooling and community learning, especially for children who are often overlooked or pressured to succeed in rigid academic systems. Through these conversations, parents have come to see the library not as a replacement for school but as a partner in their children's growth, offering what traditional education often cannot—care, creativity, and confidence-building.

From Recipients to Contributors: Shifting Roles Within the Community

Over time, many former users of the library have become contributors themselves. Interns who once came to learn now return to help new learners. Some local youths have joined as

trainers or event organizers, and families that once received support now offer donations, whether in the form of books, volunteer hours, or simply by encouraging others to visit.

One deeply moving moment came when young pupils donated birthday money to support the library—not because they were asked, but because they wanted to give back to a place that had nurtured them. These gestures reflect a transformation in how the library is perceived, not just as a service provider, but as a shared community space, collectively held and cared for.

Collaboration and Collective Identity

The power of Summer Shelter Library lies in its ability to bring people together around shared values. Through its affiliation with broader networks like TTEN (Taunggyi Teacher Education Network) and NNER (National Network for Education Reform), the library has remained connected to national movements for educational reform while staying deeply embedded in local realities. It also collaborated on regional initiatives, such as those supported by Coca-Cola to assist flood-affected communities near Inlay Lake, showing how grassroots institutions can connect with larger actors to meet both educational and livelihood needs. Through collaboration with the Myanmar Library Association (MLA), Summer Shelter Library has been able to engage in professional development for librarians and expand its network both nationally and internationally. This partnership provided an opportunity to contribute to the 19th CONSAL Conference by writing and presenting a paper. Every activity, whether big or small, contributes to a collective identity: that of a community that learns together, heals together, and builds its future from within.

EVOLUTION OF THE SUMMER SHELTER LIBRARY – ADAPTING TO CHANGING NEEDS AND CIRCUMSTANCES

The journey of Summer Shelter Library has been one of constant learning, reflection, and adaptation. Over more than a decade, the library has evolved in response to changes within the community, the broader social context, and the challenges that came unexpectedly. Its ability to keep moving forward, despite limited resources and shifting environments, reflects the resilience of both the library and the people who support it.

From Humble Beginnings to A Community Anchor

The library began as a personal response to educational gaps in the local community. What started with just a few books and children under a house gradually became a trusted space for learning and community building. As more youth, families, and volunteers joined, the library

expanded its programs, from basic reading support to training sessions and environmental activities. Through these years, the library remained responsive to what people needed most. When exam support became important, the focus shifted to grammar and study skills. When creativity was lacking, arts and crafts like paper quilling, drawing, and drama were introduced. And when community members wanted to act against pollution, the Green Library initiative emerged.

Adjusting to New Locations and Environmental Conditions

One of the major turning points came when the library had to relocate. While the original location held deep meaning and memories, changes in space and environment meant it was no longer practical to continue there. The move was not due to conflict, but rather a necessary response to structural and practical challenges such as space constraints, and the safety of users. The new location also posed difficulties. Situated lower than the surrounding area and near a stream, the library faced serious flooding during the rainy season. Books were damaged, furniture had to be replaced, and extra effort was required to maintain cleanliness. During this period, two interns worked with outstanding dedication, helping with mud, cleaning, and salvaging materials. Their commitment helped keep the library going during one of its hardest times. Despite the physical setbacks, the relocation also brought new opportunities. The larger space allowed for better organization, dedicated areas for reading and training, and even the chance to plan new initiatives like a food lounge. Although this food lounge is still in its early stages, it reflects the ongoing effort to create not just a library, but a sustainable social hub.

Digital Adaptation and Training Models

During the COVID-19 pandemic, the library, like many institutions, had to shift how it operated. With in-person activities restricted, digital methods were introduced. While internet and electricity access remained unreliable, efforts were made to create printable and offline worksheets for children and explore simple online tools when possible. From this period came a stronger understanding of the need for blended learning, combining traditional and digital methods in a way that suits local realities. This kind of adjustment showed the importance of meeting learners where they are, rather than pushing one fixed model.

Sustaining Without Big Donors

Unlike many larger organizations, Summer Shelter Library has continued without major donor support. Funding comes mainly from small training fees, book rentals, and occasional donations from supportive individuals. Volunteers and interns have played a central role, but often, the founder has worked alone, handling teaching, management, maintenance, and

planning. The commitment to keep the library running, especially when income was low or help was scarce, is what has allowed it to survive through difficult times. Renting a separate house for the library, while continuing to teach at the old house, was a major personal effort to protect and rebuild the library's potential. Even with very limited funds, the library continues to offer free or low-cost services because its foundation is not profit, but community commitment.

Looking Ahead While Staying Rooted

Today, the library continues to evolve through steady, people-centered growth. Plans are underway to expand training programs, strengthen the ecobrick initiative, and screen more documentaries, not only in Taunggyi but also in surrounding areas. There is also a growing interest in building local ecotourism experiences, where villagers offer homestays and cultural sharing to domestic visitors, another example of how the library inspires people to create solutions from within their own community. Every new idea is grounded in the same values that built the library in the first place: inclusion, empathy, education, and local ownership. As the world changes, the Summer Shelter Library will continue to adapt, not to chase trends, but to meet real needs in meaningful ways.

CATALYST FOR EDUCATION REFORM – INSPIRING POLICY CHANGES AND GRASSROOTS MOVEMENTS

Summer Shelter Library has never been just a place to borrow books. From the beginning, it has acted as a quiet yet determined force for educational reform, both in mindset and in practice. By offering what traditional education often lacks, critical thinking, creativity, inclusion, and environmental awareness, the library has demonstrated how grassroots initiatives can push for deeper, people-driven changes in how learning happens.

Filling the Gaps Left by Formal Education

In Myanmar, as in many parts of the region, education has long emphasized rote memorization and exam performance. Students often pass through years of schooling without being encouraged to ask questions, think critically, or express their ideas. The Summer Shelter Library responded to this gap by creating informal learning spaces where children could read freely, engage in discussions, and explore learning through games, storytelling, and arts. Grammar classes were not limited to textbook drills, they encouraged understanding and use. Quilling and craft sessions weren't just for decoration, they helped children feel the joy of creating something themselves. Through Friday Reading Clubs and Sunday film discussions, youth began to see books and media not just as information, but as tools to question and

reflect on society. Over time, this approach led parents, teachers, and community members to view the library as a model for the kind of learning they wished their children had in school.

Creating A Culture of Thoughtful Engagement

One of the most significant shifts the library fostered was the development of a culture of discussion. Whether it was a debate during Youth Day or reflections after a documentary screening, the library taught young people how to listen, analyze, and speak up respectfully. Events around elections, revolutions in other countries, or social justice films were never about pushing an agenda, they were about creating awareness. The aim was to connect global events to local realities and help the youth understand their role as active members of a community and a country. The “human library” concept, where people share personal experiences instead of reading books, helped break barriers between age groups and social backgrounds.

Strengthening Lifelong Learning and Local Knowledge

Another form of reform promoted by the Summer Shelter Library is the recognition of learning beyond school walls. In rural or underserved areas, many young people drop out early or never access formal higher education. The library became their second chance, not through degrees, but through skills, self-worth, and community engagement. Programs such as basic computer skills, Canva design, video editing, spoken English, and even environmental literacy (e.g., how to reduce plastic waste or use kitchen waste as fertilizer) were designed not just to teach content but to empower. This is especially important in communities where unemployment and economic vulnerability make people feel stuck. By giving people practical, low-cost, and inclusive education, the library has contributed to a local form of educational justice: learning that’s relevant, reachable, and respectful of the learner’s life.

Modeling Grassroots-Led Development

Through initiatives like the Green Library project and eco-brick building, the Summer Shelter Library also showed that education doesn’t stop with books, it extends into action. These efforts made learning active and collective. Children, youth, and adults worked together to collect plastics, create eco-bricks, and discuss environmental solutions. Some even began selling eco-crafts or thinking of community-based tourism as an income source. These activities connected education with economic alternatives, environmental consciousness, and community pride, all of which form the heart of long-term sustainable development. The library’s way of doing this became an example of how change can grow from within. It doesn’t require waiting for large-scale reforms; it begins with local initiative, trust, and creativity.

Inspiring Others Through Action and Advocacy

Over time, the story of the Summer Shelter Library has reached beyond its immediate community. Small partnerships, like with TTEN or NNER, brought recognition to the grassroots model of educational reform. Trainings, youth forums, and documentary events have helped connect the library with other educators, reformers, and youth workers across regions. Though not built as an advocacy center, the library has become a voice that says: education must serve people. It must fit their context. And it must allow space for children to dream and act. Policy changes take time and often move slowly. But when community libraries like Summer Shelter prove that local innovation works.

Youth as Drivers of Reform

Perhaps one of the most powerful legacies of the Summer Shelter Library is how it helped develop youth leadership. Many young people who started as readers or workshop participants later became volunteers, trainers, or organizers. Some led sessions, shared knowledge, or helped plan events like the Youth Day celebration, themed “Digital Pathways to a Sustainable Future.” Through meaningful participation, youth began to see themselves not just as students, but as contributors to change. The digital era, despite its challenges, became an opportunity, especially when guided by local ethics and purpose. These young changemakers may not be featured in newspapers or policy documents, but in their action, teaching, reducing waste, guiding younger kids, they embody the kind of reform that matters most: lived, shared, and sustainable.

VOICES FROM THE COMMUNITY – TESTIMONIALS AND REFLECTIONS

Over the years, the Summer Shelter Library has been more than a collection of books, it has become a sanctuary of learning, a space for critical thinking, emotional healing, and community building. Below are some reflections from our dedicated users, who have experienced the transformation that comes with having access to a space like Summer Shelter Library:

- **"A library is like Aladdin,"** said Ko Tun, a long-time user. "Whatever we needed, we simply asked, and it appeared, just like magic. Summer Shelter Library is like an oasis in the desert. In a time when phones and distractions are everywhere, this space offers youth a way to get addicted to reading instead."
- **Hsu Myat Hein,** who has been with the library for more than three years, shared: "Books have replaced my screen time and strengthened my passion for writing. The

library not only provides knowledge but also friendships and a warm sense of belonging."

- **Hsu Myat Soe,** a founding member since 2011, reflected: "Summer Shelter Library is like a comforting shade, always welcoming. It sparked my love for reading and collecting books. Every return visit brings back memories of summer classes, book borrowing, and youth-driven learning."
- **Hein Naing Soe**, a partner since 2011, stated: "Sustaining a self-reliant library is no small task. I have seen it help countless individuals, young and old alike, find a sense of purpose and direction."
- **Thein Aung,** a member since 2015, said: "Nearly half my life has been tied to the library. It's where my reading journey began and where I carry unforgettable memories."
- **Min Khant Naing,** a student since 2016, shared: "Summer Shelter Library treated me equally, supported me through hard times, and encouraged me to read political and non-fiction books. It's more than a library, it's a home."
- **Sai Ye Oo**, reflecting on his academic journey, noted: "Reading circles at the library trained me to think critically and grasp complex global issues. Today, with AI and tech rising, libraries must pave new paths in education, offering topics like networking and AI with Python."
- **Pone Nyat Hein,** a member for over two years, explained: "Online reading can't compare to the feel of a real book. Summer Shelter Library brought that joy back into my life, offering both comfort and knowledge, just like its name suggests."
- Kyawt Kyawt Soe, Assistant Librarian (2013–2022) / Freelance Trainer (2025) said: "I joined SSL after meeting the librarian at a YMCA course and was inspired as a mother and learner. SSL empowered me to participate in education conferences, learn digital tools and quilling art, and later train others, including people with disabilities. It became a meaningful place in my life and an essential part of our community."
- Kyaw Soe Linn, 1st Student (2012) / Assistant Librarian (2015–2016) / Saplings Youth (2025), mentioned: "Whenever I meet people who only work for money, I remember Summer Shelter. We survived through commitment and purpose—not funds, but passion kept us going."
- Htoo Ye Win, 1st Student (2012) / Hope Youth Center (2025) said: "You made me care about education. Your push, especially scolding me to read, was my turning point. Now, as a teacher, I carry your legacy."

These voices serve as living proof of the library's significance, its power to inspire, guide, and support individuals of all ages and backgrounds.

RECOMMENDATIONS

Drawing from the experience of Summer Shelter Library, several recommendations are offered to strengthen community libraries, especially in challenging political, economic, and educational contexts.

First, it is crucial to align projects with local realities. Donors and partners should co-design initiatives with local librarians to ensure relevance and sustainability, as top-down approaches often fail without genuine community input. Librarians must feel empowered to accept or decline support based on shared values.

Second, supporting youth leadership is essential for long-term success. Sustainable libraries require new leadership, and when young people return to serve their communities, we must create space for them to lead with integrity and creativity. True success lies in passing the torch and nurturing the next generation of changemakers.

Third, encouraging exposure and learning exchange can inspire innovation. Well-planned learning trips, both local and international, should have clear objectives, mentorship, and post-trip follow-up to move beyond mere sightseeing and cultivate practical solutions.

Finally, it is important to overcome language barriers. Access to international learning should not be limited by language; programs should offer translation or native-language facilitation, enabling deeper participation, critical reflection, and natural motivation to learn new languages through meaningful exposure rather than pressure.

CONCLUSION

The journey of Summer Shelter Library has been one of both hardship and hope, marked by floods, political uncertainty, and limited resources. Yet, it has endured as a space of learning, resilience, and quiet transformation. Summer Shelter had to carry its future alone, but came to see that true strength lies in shared purpose. Former members returned, youth took initiative, and collective creativity emerged, not from authority, but from care and commitment. Real success is not about holding on but about trusting others to lead. When young leaders can carry this vision with heart and innovation, the mission will be completed.

Libraries are not just buildings, they are catalysts for change. Rooted in people and culture, they hold the power to reshape communities through inclusive and courageous education. As library workers and community builders, we must trust local voices, nurture youth leadership, and believe in transformation, even in the darkest times. For when everything else fades, libraries can still be the light.

ACKNOWLEDGEMENTS

My heartfelt thanks to Teacher Myat Sann Nyein (President, Myanmar Library Association) for encouraging me to write this paper, your support made this possible. I am also grateful to the organizers of CONSAL XIX 2025 for the opportunity to share the journey of Summer Shelter Library on this platform. I would like to express my deep appreciation to our volunteers, whose dedication and resilience have been the foundation of our library's progress. My sincere thanks also go to our library users, who continuously inspire our efforts with their trust and engagement. Finally, I am indebted to the network groups, educational partners, and all supporters whose generous contributions and encouragement have sustained our mission. Your belief in our vision has been a source of strength throughout this journey.

Libraries Empowering SDG Through Citizen Science: Insights from the Borneo Adventures Program

Nurfarawahidah, B.[1,2*], Mohd Faizal Hamzah[3], Cik Ramlah Che Jaafar[4,6], Muniratul Husna Mohamad Zaki[1], Zawawi Tiyunin[5]

[1]Al-Bukhari Library, Universiti Teknologi MARA Pahang, Jengka Campus, Pahang

[2]Department of Library and Information Science, Faculty of Arts and Social Science, Universiti Malaya

[3]Digital Scholarship & Information Commons, Universiti Malaya

[4]College of Computing, Informatics & Mathematics, Universiti Teknologi MARA (UiTM)

[5]Library Universiti Malaysia Sabah (UMS)

[6]Hamzah Sendut Library, Universiti Sains Malaysia

Corresponding email: farawahidah@uitm.edu.my

ABSTRACT

The Borneo Adventures: Citizen Science (CS) in Action initiative demonstrates how library-led citizen science can advance the United Nations Sustainable Development Goals (SDGs) while strengthening community engagement. Coordinated by the Librarians Association of Malaysia with partners, Sekitar Kita and the Embassy of the United States of America, had mobilized 300 participants in Sarawak and Sabah to document biodiversity and assess water quality using iNaturalist and low-cost field kits. Sixteen semi-structured interviews and four winner reflections were analysed. Four themes emerged: (1) Citizen-science empowerment; participants realized “anyone can be a scientist” and gained confidence to lead future activities; (2) Environmental awareness and biodiversity appreciation; direct observations deepened understanding of SDG 15 (Life on Land) and SDG 6 (Clean Water); (3) Educational impact and knowledge transfer; skills diffused to classrooms, families and library outreach; and (4) Tools, technology and research support; digital apps and simple test kits provided engaging, reliable means to generate local data. Participants recommended longer and more advanced modules, gamified tools to attract youths, and closer collaboration with researchers and NGOs.

The study affirms that libraries are hubs linking scientific expertise and grassroots stewardship, producing actionable evidence for sustainable development."

Keywords: Citizen Science; Libraries; Community Development; Sustainable Development Goals; SDG; Biodiversity

INTRODUCTION

Libraries are increasingly recognized as inclusive and dynamic spaces that promote lifelong learning, information equity, and community resilience; roles that align closely with the United Nations 2030 Agenda for Sustainable Development (SDGs). Recent studies have emphasized the function of libraries as critical facilitators of public access to digital tools and participatory sciences, particularly for marginalized groups such as refugees and underserved populations (Serra & Revez, 2024; Williams-Cockfield et al., 2024). This accessibility not only promotes individual empowerment but also strengthens collective agency, advancing social justice and equity in information dissemination (Bangani & Dube, 2023).

Beyond their traditional roles, public and academic libraries are increasingly regarded as local change agents, supporting community development through engagement in areas such as education, health, and sustainability (McDevitt, 2021; Serra & Revez, 2024). Librarians are adopting more proactive strategies, forming partnerships that extend the reach of library services and reinforcing their relevance in local development agendas. This evolving role situates libraries as key actors in advancing the SDGs, particularly in environmentally vulnerable and underserved areas.

One emerging strategy through which libraries enact this transformative potential is citizen science (CS), defined as the active involvement of non-professionals in scientific research. When supported by libraries, CS fosters environmental literacy and civic engagement, especially when activities emphasize experiential learning and emotional connection to nature (Dean et al., 2018; Smith et al., 2024). Libraries are well-positioned to host such initiatives due to their trusted role in communities and their infrastructure for outreach and learning (Ayris & Ignat, 2018). Integrated with SDG-related goals, CS can support targets such as SDG 6 (Clean Water and Sanitation) and SDG 15 (Life on Land) through local data collection and public mobilization (Marques et al., 2024).

However, the application of library-led CS remains underexplored in the Global South, particularly in Southeast Asia. While CS is gaining momentum globally, recent reviews show that its adaptation in these regions often prioritizes local empowerment due to barriers like limited infrastructure, funding, and policy alignment (de Agustin Camacho et al., 2023; Fraisl et al., 2017) These challenges highlight the need for context-sensitive models that reflect regional needs rather than replicating Global North frameworks.

Addressing this gap, this study examines the Borneo Adventures: Citizen Science in Action programme, a multi-site initiative conducted across five districts in Sarawak and Sabah, Malaysia. The programme aimed to position libraries as community anchors for biodiversity documentation and water quality monitoring, using tools like the iNaturalist mobile application and the ECO Heart Index water-testing kit. This paper analyses participants' experiences, the personal impacts of their involvement, and their recommendations for scaling library-led CS initiatives in Malaysia. In doing so, the study contributes context-specific insights on how libraries can localise the SDGs through participatory science, particularly in biodiversity-rich but under-researched regions.

LITERATURE REVIEW

Global Emergence of Library-Led CS (2019–2024)

In the evolving landscape of public engagement with science, libraries have undergone a strategic transformation from passive knowledge repositories to active enablers of participatory research. Between 2019 and 2024, libraries globally have emerged as key facilitators of CS, aligning public participation in research with their missions of lifelong learning and civic engagement. Notable initiatives include the National Library of Medicine United States' collaboration with SciStarter to host CS Day and Spain's "CS in Action" program, which mobilized 225 libraries in Barcelona. These programs trained librarians, engaged communities, and supported co-designed scientific activities. Research highlights that library-led CS can enhance civic scientific literacy and position libraries as collaborative knowledge hubs. However, challenges such as limited resources and training gaps persist, underscoring the need for sustained support. Literature affirms a growing global momentum toward institutionalizing CS within libraries.

Engaging Communities Through Technology and Workshops

A key theme in recent literature is the variety of engagement strategies libraries used to involve

he public in CS. Many projects leverage digital tools and hands-on learning to lower barriers to

participation. Libraries have employed strategies such as:

- Hosting workshops and public events: Libraries organize interactive training sessions, "Citizen Science days," and community meetups where participants learn how to contribute to ongoing projects. For example, public libraries invite scientists or experts to lead sessions, educating citizens on data collection methods (e.g. how to observe wildlife or test water quality) and the scientific goals of the project. These workshops not only build skills but also create enthusiasm and a sense of community among participants.
- Utilizing mobile apps and online platforms: Many library-led initiatives incorporate user-friendly apps to enable crowd-sourced data collection. A prominent example is the use of iNaturalist which is a smartphone app for recording biodiversity observations in library programs. Through such apps, patrons can submit observations of local flora and fauna or monitor environmental indicators, with data automatically shared to global databases (di Cecco et al., 2021). Other popular CS platforms promoted in libraries include Globe at Night (night sky brightness observations) and Debris Tracker (logging plastic pollution). By training users on these tools, libraries help the public contribute meaningfully to scientific research with minimal specialized equipment.
- Lending Citizen Science kits and tools: An emerging practice is for libraries to loan out science kits just as they loan books. The American Libraries as Community Hubs for CS project exemplified this approach, providing public libraries with ready-to-use kits on topics like local ecology, astronomy, and environmental monitoring. Patrons could check out toolkits containing items such as smartphone microscopes, air quality sensors, or water testing supplies, along with instructions to participate in corresponding CS projects. These kits effectively extend the library's educational resources into hands-on scientific exploration that patrons can undertake at home or in their neighbourhood.
- Facilitating community data collection drives: Libraries coordinate events such as BioBlitzes and City Nature Challenge campaigns to mobilize group data collection efforts. These initiatives blend education with community participation, enhancing public engagement in science.

Each of these engagement methods underscores libraries' evolving role from information providers to active facilitators of science. The literature highlights that by providing training, tools, and meeting space, libraries make it easier for non-scientists to contribute data and insights to research. In turn, participants gain STEM skills and confidence, illustrating two-way benefits: 1. communities become more scientifically literate, and 2. researchers obtain valuable local data. This dynamic approach combining technology, in-person interaction, and

library infrastructure has been key to the success of CS initiatives in library settings around the world (Bridgeman, 2023).

Supporting Environmental Monitoring and Sustainability Goals

Library-led CS projects increasingly align with the UN focusing on issues like biodiversity, water quality, pollution, and climate change. These initiatives educate the public while contributing valuable environmental data. In the United States (U.S), CS kits address local concerns such as biodiversity and water health. The Network of the National Library of Medicine - SciStarter (NNLM) partnership focused on environmental health, including air quality and disease spread aligning directly with SDG indicators (Roman et al., 2021).

Libraries' CS initiatives often explicitly frame themselves in the context of the SDGs. A clear example is Malaysia's Borneo Adventures: Citizen Science in Action program, which was designed to address biodiversity (SDG 15) and water quality (SDG 6) challenges through public education. In this program, libraries acted as community science centers where participants documented local wildlife and tested water samples, directly contributing to conservation awareness. The program equipped volunteers with mobile apps (like iNaturalist for species identification) and simple water testing kits, enabling them to gather data on flora, fauna, and freshwater conditions in their surroundings. By aligning activities with SDG themes, the Borneo project, and others like it have helped demonstrate the practical role CS can play in advancing sustainability goals at the community level. Participants not only learned about environmental science but also became more conscious of local conservation issues, bridging knowledge to action (Jaafar & Nurfarawahidah, 2024). Furthermore, regional events like the 2022 ASEAN workshop highlighted CS in tackling sustainability issues such as plastic waste and coral reef health (Roman et al., 2021). Libraries, with their broad outreach, are well-positioned to promote SDG-related engagement, strengthening both scientific literacy and environmental action.

Malaysian and Southeast Asian Perspectives

Library-led CS is growing in Southeast Asia, particularly in Malaysia, where efforts are focusing on environmental and social issues. However, librarian awareness and capacity remain developing, making training essential.

One notable effort was the Bridging Worlds: Libraries as Connectors in Citizen Science initiative in Malaysia. Launched in early 2024 and spearheaded by the Librarians Association of Malaysia

(LAM) with support from the U.S. Embassy and local universities, this program exemplified a nationwide push to build librarian capacity in CS. Over the course of a multi-day program, librarians, researchers, and students from across different states came together for workshops and collaboration sessions. The objectives were clear: to increase awareness of CS within the library community, explore how libraries can support research efforts, and equip librarians with the skills and confidence to lead CS project. By fostering such cross-disciplinary collaboration and training, the Bridging Worlds program essentially laid the groundwork for a network of CS practitioners in Malaysian libraries. It treated libraries as hubs for innovation, emphasizing that with the right knowledge and partnerships, librarians can actively contribute to scientific research and community development rather than remain on the sidelines (Jaafar, 2024).

Building on this momentum, the Borneo Adventures: Citizen Science in Action project (2023–2025) has been a flagship example of library-led CS in the Malaysian context. Coordinated by PPM in partnership with a local environmental group (*Sekitar Kita*) and American Corner libraries, the Borneo Adventures program explicitly aimed to *"*bridge the gap between science and communities*"* by involving librarians, academics, and ordinary citizens in addressing environmental conservation issues. The project centred on community data collection in the Bornean states of Sabah and Sarawak regions rich in biodiversity yet facing sustainability challenges. Through a series of hands-on workshops and field activities, participants (including secondary school students and citizen scientists learned to identify plants and animals, use CS tools like iNaturalist, and perform water quality tests in local rivers. Librarians facilitated training and data collection using tools like iNaturalist (Jaafar, 2024). Despite progress, many Southeast Asian librarians remain only "somewhat aware" of CS, citing the need for more training and institutional support (Nurfarawahidah et al., 2023). Events like the 2023 International Symposium on CS are addressing these gaps.

In summary, the Southeast Asian experience illustrated by pioneering programs in Malaysia echoes the global narrative: libraries can significantly contribute to CS, particularly in areas like environmental monitoring and SDG-related education, when equipped with the right partnerships and tools. Early outcomes from regional projects show improved public engagement in science and stronger community networks around environmental stewardship (Roman et al., 2021). As awareness spreads and more librarians acquire experience, we can expect library-led CS in this region to expand further, adapting global best practices to local contexts and needs. This literature review underscores that libraries, whether in Western nations or Southeast Asia, are evolving into dynamic collaborators in CS; bridging knowledge

divides, empowering citizens as contributors to science, and advancing shared goals of sustainable development through education and participation.

METHODOLOGY

Programme Design

The Borneo Adventures: Citizen Science in Action program was executed in two Malaysian Borneo states; Sarawak and Sabah during January and February 2025, respectively. In Sarawak, the program was conducted across three districts, Kuching, Sibu, and Miri, with each location hosting a two-day event. In February, the initiative proceeded in Sabah, encompassing two additional districts, Kota Kinabalu and Keningau, also conducted over two-day sessions at each site. These five locations were strategically chosen for their rich biodiversity and proximity to communities situated within urban and semi-urban environments susceptible to ecological degradation. Each event featured a structured series of community engagement activities designed to introduce participants to CS and promote experiential learning. The program comprised three core components: (i) an introductory workshop on CS principles, ecological monitoring methods, and ethical data collection practices; (ii) a guided biodiversity observation session utilizing the mobile application iNaturalist, enabling participants to identify and document local species in real time; and (iii) a practical water-quality testing session using the ECO Heart Index toolkit, which measures basic indicators such as pH, turbidity, temperature, and dissolved oxygen levels. To maintain ongoing participation beyond the in-person events, a month-long CS contest called “Spot, Snap, Submit” was initiated at all venues. Participants were invited to submit biodiversity observations using iNaturalist, fostering ongoing participation, independent learning, and community-based environmental monitoring throughout the program period.

Data Collection

A total of 300 individuals participated across the five event locations, encompassing a diverse demographic range with ages spanning from 14 to 63 years. The cohort comprised secondary and university students, librarians, local community members, and researchers. Among these participants, 20 individuals voluntarily engaged in semi-structured follow-up interviews, offering deeper insights into their experiences, reflections, and recommendations. To maintain confidentiality, the informants were anonymized and assigned codes ranging from R1 to R20. The qualitative data obtained from these interviews form the basis of the findings presented in this paper.

Qualitative data were collected through semi-structured interviews with 20 participants. The interviews were conducted individually in face-to-face sessions, each lasting approximately 20–30 minutes. The interviews were conducted in either *Bahasa Melayu* or English depending on the participants' comfort and preferences. The interview protocol was designed to investigate the informants' motivations for participating in the program; the personal impacts they experienced, including changes in knowledge, confidence, and environmental awareness; and their responses and suggestions for enhancing future CS initiatives. All interviews were video recorded with informed consent from each informant, fully transcribed verbatim, and translated into English as necessary.

Data Analysis

Thematic analysis was utilized to examine the qualitative data, following Braun and Clarke's (2006) six-phase framework. All interview transcripts were uploaded and analysed using Atlas.ti (version 23). The analytical process commenced with familiarization through repeated readings of the transcripts, followed by systematic coding to identify meaningful segments pertinent to the study's objectives. These initial codes were subsequently grouped into subthemes reflecting recurring patterns and shared meanings across the data. Thereafter, broader themes were generated to encapsulate the overarching narratives emerging from participants' experiences. To enhance clarity and establish a transparent connection between raw data and higher-level interpretation, the findings were presented in a structured format comprising verbatim quotes, codes, subthemes, and themes. This method resembles the Thematic Analysis Matrix (TAM) approach modified by Mohd Zairul (2021) to match participants' voices with thematic categories. This structure ensured that the analysis process remained rooted in the participants' own language, while preserving a clear hierarchy of meaning. The themes were continually refined through repeated reviews to guarantee internal consistency and alignment with the goals of the study.

FINDINGS

This research identified four central themes from participant interviews about their experiences in the Borneo Adventures: Citizen Science in Action Program. The themes were CS Empowerment, Environmental Awareness and Biodiversity Appreciation, Educational Impact and Knowledge Transfer, and Tools and Research Support. Each theme was thoroughly explored through relevant subthemes, codes, and direct participant quotes.

Theme 1: Citizen Science Empowerment

This theme illustrates how the program empowered participants to perceive themselves as active contributors to the scientific community, irrespective of their academic background or age. Many participants reported a burgeoning sense of identity as citizen scientists, accompanied by enhanced confidence and motivation to engage in environmental activities. Additionally, some expressed a desire to share their experiences with peers and to initiate similar projects within their communities. These findings indicate that the program not only facilitated knowledge transfer but also fostered a sense of agency and ownership among participants. The subthemes and verbatim evidence are presented in Table 1.

Table 2: Subthemes and verbatim evidence

Theme	Sub-theme	Code	Verbatim
1.0 Citizen Science Empowerment	1.1 Recognition of Citizen Scientist Identity	1.1.1 Realization of citizen science roles	*This was my first time joining as a citizen scientist, and the first time I heard about the citizen scientist's role. (R17)* *I learned how to become a citizen scientist and its benefits for the community. (R4)* *For me, not all scientists wear lab coats — we too, including school students, can become citizen scientists. (R10)*
	1.2 Personal Development and Motivation	1.2.1 Increased confidence and motivation	*It was an eye-opener that I could do my part as a Citizen Scientist. (R18)* *I learned how to become a citizen scientist, its benefits for society, where the community can contribute to scientists and become more confident in this field. (R4)* *I feel very happy to join this program and have learned so much, especially about understanding nature. (R9)*

		1.2.2 Community leadership and sharing	*"This experience has helped me teach my children to be more aware of our surroundings, encouraging them to be observant and learn the names of the creatures we encounter." (R20)* *"I also brought these experiences into my classroom, showing students how science is not just about reading books but about exploring the world around us." (R19)*

Theme 2: Environmental Awareness and Biodiversity Appreciation

This theme captures how participation in the program deepened participants' understanding of environmental issues and fostered a stronger appreciation for biodiversity. Many informants shared that their experience increased their awareness of local conservation needs, inspired them to protect nature, and helped them emotionally connect with the natural world around them. Observing rare species, conducting water assessments, and spending time in natural spaces has led to newfound curiosity and care for Malaysia's ecosystems. Table 2 presents the subthemes and illustrative participant quotes.

Table 3: Subthemes and Illustrative Participant Quotes

Theme	Sub-theme	Code	Verbatim
Environmental Awareness and Biodiversity Appreciation	2.1 Understanding Environmental Importance	2.1.1 Enhanced awareness of conservation issues	*This program successfully opened my eyes to the importance of preserving our surrounding environment, especially in Sarawak. (R8)* *I hope this program can effectively guide them to conserve our natural ecosystems because it's helped me like that. (R1)* *I joined this program to learn more about our environmental conditions. (R2)*
		2.1.2 Contribution to biodiversity conservation efforts	*By documenting the plants and wildlife around me, I can contribute valuable data to platforms like iNaturalist, helping*

			researchers and conservationists understand local biodiversity. (R18) These findings became valuable data for scientists studying Borneo's rich ecosystem. Plus, they helped raise awareness about the importance of biodiversity and conservation*. (R19)* Most importantly, we are contributing to research on urban nature in Borneo*. (R20)*
	2.2 Local Biodiversity Discovery	2.2.1 Exploration of local biodiversity	*I was able to explore the outside world, like Bukit Lima Nature Park and discover various rare flora and fauna. (R6)* *We also learned how to take water readings, determine water quality, and whether it has enough oxygen for aquatic life. (R13)* *I would take my children to the backyard gardens, nearby parks, and even the roadsides to search for, observe, and photograph different plants, insects, and birds. (R20)*
		2.2.2 Exposure to local biodiversity uniqueness	*Because Sibu has unique biodiversity and we are learning about that. (R5)* *This program exposed me to the variety of natural life in Malaysia, and I appreciate the opportunity to join this program. (R7)* Borneo is home to an incredible array of flora and fauna, from endemic orchids and towering dipterocarp trees to rare birds

			and elusive mammals like the Sunda clouded leopard*. (R18)*
	2.3 Connection to Nature	2.3.1 Emotional engagement with nature	*We found mental calm listening to the sounds of nature here. (R3)* One of the most fascinating ways to observe nature is simply by sitting quietly… a hidden world begins to reveal itself*. (R18)* This program brings me back to nature. It has instilled a love for nature in their hearts*. (*R20)
		2.3.2 Developing a deeper appreciation for nature	I've become more attuned about the diversity around me *since I attended the program… Every contribution, no matter how small, adds to the bigger picture of conservation efforts. (R18)* Winning this competition was an unforgettable moment, but the real victory was seeing how small efforts can make a big difference. It reminded me of why I love science and teaching*. (R19)* *Through this program, I gained knowledge about the environment and learned about types of flora and fauna. (R12)*

Theme 3: Educational Impact and Knowledge Transfer

Participants reported substantial educational benefits from their engagement in the program, including the acquisition of practical scientific skills and enhanced exposure to digital tools, such as iNaturalist and the ECO Heart Index. Several informants described how they disseminated their acquired knowledge to family members, students, or peers, indicating that the program had effects extending beyond individual learning. This theme also encompasses expressions of heightened enthusiasm for science and a desire to continue participating in similar initiatives. Table 3 presents the key subthemes and codes that emerged under this theme.

Table 4: Key Subthemes and Codes

Theme	Sub-theme	Code	Verbatim
Educational Impact and Knowledge Transfer	3.1 Practical Scientific Skills	3.1.1 Development of environmental fieldwork and monitoring skills	*I learned how to conduct experiments on water pollution. (R6)* *We also learned how to take water readings, determine whether the water quality is good or not, and assess whether it has enough oxygen to support aquatic life. (R13)* *We were introduced to ECO Heart Index, a unique water quality indicator… checking parameters such as temperature, pH, turbidity, dissolved oxygen and phosphorus. (R18)*
		3.1.2 Digital Engagement through Citizen Science Apps	*In this program, I just learned about the iNaturalist app, where we can help scientists by uploading photos of flora and fauna around us. (R17)* I was immediately drawn to the iNaturalist app's feature that suggests scientific names based on the photos we uploaded*. (R20)* *I understand nature easily using the iNaturalist app.(R9)*
	3.2 Community Knowledge Transfer	3.2.1 Promoting scientific awareness within the community	This experience has helped me teach my children to be more aware of our surroundings*. (R20)* I also brought these experiences into my classroom, showing students how science is not just about reading books but about exploring the world around us*. (R19)* *Citizen science shouldn't just be a one-time event but an ongoing effort to monitor and protect biodiversity. (R19)*

			We, as school students, can also help contribute to science. (R10) *For me, this is a good opportunity for all of us. (R14)*
	3.3 Inspiration and Enthusiasm for Science	3.3.1 Increased enthusiasm and curiosity toward science	*This was the first program I joined as a citizen scientist, and it was also my first time hearing about the role of citizen scientists... I gained new knowledge. (R17)* *I felt very excited about today's activities because I learned that scientists are not only those who work in laboratories, but they can also conduct research in our surrounding environment. (R11)* *I feel very happy to have joined this program, and I learned so much from it. (R9)*
		3.3.2 Motivation for continued learning and participation	*I hope there will be more in-depth programs in the future. (R14)* Winning this competition reminded me why I love science and teaching, and I hope to continue inspiring others to explore, observe, and protect our planet. *(R19)* *Because I am interested in nature and want to see how they educate the younger generation, especially the local community, in gaining deeper knowledge. (R1)*

Theme 4: Tools and Research Support

This theme centres on participants' engagement with the scientific tools and technology provided by the program. Many participants emphasized how applications such as iNaturalist and the ECO Heart Index enhanced the accessibility and practical engagement with science, particularly for non-experts. Additionally, some participants valued the support provided by facilitators and acknowledged the benefits of collaborative work using locally available materials. Collectively, these insights illustrate how the program effectively demystified science and facilitated opportunities for public involvement in research. The detailed subthemes and supporting quotations are summarized in Table 4.

Table 5: Subthemes and supporting quotations

Theme	Sub-theme	Code	Verbatim
Tools and Research Support	4.1 Utilisation of Digital Technology	4.1.1 Effective application of citizen science apps	*In this program, I just learned about the iNaturalist app, where we can help scientists by simply uploading photos of flora and fauna around us. A great app to increase knowledge about flora and fauna, very easy and simple to use. (R17)* *I was immediately drawn to iNaturalist's feature that suggests scientific names based on the photos we uploaded. It was fascinating to discover the real names of the plants and animals I encounter every day. (R20)* *Using the iNaturalist app made it easier for me to understand nature. (R9)*
	4.2 Practical Application of Scientific Tools	4.2.1 Hands-on experience with environmental assessment tools	*During the program, we were introduced to ECO Heart Index, a unique water quality indicator... by checking parameters such as temperature, pH, turbidity, dissolved oxygen and phosphorus, we can determine the condition of rivers and streams. (R18)* *We also learned how to take water readings, assess whether the water quality is good or not, and how to determine if it has enough oxygen for aquatic life. (R13)* *I learned many things through this program, such as understanding the use of nitrous gas, pH, and how scientists collect materials and data to study chemical compositions more deeply. (R15)*
	4.3 Research Collaboration and Resource Support	4.3.1 Leveraging local resources and collaboration for research	*To get this data, I don't need to exert a lot of effort because I can use the materials around me to gather data for my science projects or research. (R16)*

			More collaboration between participants and researchers could help verify data accuracy, and involving local communities who have deep knowledge of the environment could make the findings even more meaningful. (R19) *I hope we can collaborate in the future together with NGOs and the library (R9)*

DISSCUSSION

CS in Action program reinforces the vital role libraries play in catalysing grassroots participation in science and advancing the SDGs. Participants across Sarawak and Sabah reported profound personal transformation, gaining confidence, digital fluency, and scientific literacy, underscoring the empowering nature of library-facilitated citizen science. These outcomes align with broader literature affirming that well-designed CS initiatives can enable public ownership of research and foster inclusive participation across age groups and backgrounds (Bonney et al., 2015; Kelly et al., 2019; Hu et al., 2024). The integration of mobile tools such as iNaturalist and the ECO Heart Index toolkit effectively demystified ecological monitoring, allowing community members to contribute valuable biodiversity records and water quality data. Community-based monitoring methods like these have been shown to raise awareness and engagement around water issues (Sakai et al., 2018), while CS platforms like iNaturalist are increasingly recognised for enhancing biodiversity documentation and complementing traditional datasets (Molyneaux, 2023). This form of hands-on, place-based participation not only supports SDG 15 (Life on Land) and SDG 6 (Clean Water and Sanitation) but also fosters emotional connections to local ecosystems, an outcome supported by (Queiruga-Dios et al., 2020), who observed links between participatory science and pro-environmental behaviour.

Beyond environmental awareness, the initiative served as an informal learning platform, where participants emerged as active knowledge sharers within classrooms, families, and local communities; illustrating the educational ripple effect anticipated under SDG 4 (Quality Education). Libraries were instrumental in this dynamic, offering safe and trusted spaces, mentorship, and access to digital tools. These findings echo research highlighting the role of libraries as enablers of equitable science learning and civic empowerment (Andersen et al., 2022). Importantly, several participants expressed interest in sustaining their involvement or initiating their own projects signalling not just knowledge acquisition, but lasting civic transformation. This evolution from passive consumers of information to empowered "scientific citizens" aligns with global frameworks and reflects the library's growing role as an anchor institution that bridges grassroots communities, NGOs, and academic researchers, thus

fulfilling the intent of SDG 17 (Partnerships for the Goals). Building on these findings, several actionable recommendations were derived from participant feedback to strengthen future library-based CS initiatives:

- Extend workshop durations to allow deeper engagement with scientific tools and ecological concepts.
- Develop modular and advanced content for returning participants and multiple age groups.
- Incorporate gamified features and digital storytelling elements to maintain youth interest.
- Facilitate structured partnerships between libraries, researchers, and environmental NGOs to enhance data reliability and project continuity.
- Translate and localise content to reflect regional biodiversity and linguistic diversity for broader community inclusion.

These recommendations complement the study's findings and suggest practical enhancements for scaling CS in other Malaysian regions and beyond. In summary, library-led CS projects meaningfully enhance participants' scientific literacy, confidence, and civic engagement. This multidimensional approach ensures that diverse audiences can meaningfully engage in science, thereby enriching both personal development and collective efforts toward sustainable, inclusive knowledge creation.

CONCLUSION

This qualitative study underscores the evolving role of libraries as catalysts for CS and sustainable development in the Malaysian context. By documenting the Borneo Adventures: CS in Action programme, the research has shown how libraries can function beyond traditional boundaries as community science hubs that foster environmental literacy, personal empowerment, and collaborative knowledge sharing. Thematic analysis revealed that participants gained not only scientific knowledge and practical skills but also a sense of ownership and connection to their local environments. These impacts align directly with SDG 4 (Quality Education), SDG 6 (Clean Water and Sanitation), SDG 15 (Life on Land), and SDG 17 (Partnerships for the Goals), demonstrating how CS embedded within library services can translate global goals into meaningful local actions. By equipping diverse participants with simple yet effective scientific tools and creating inclusive learning environments, the programme helped bridge the gap between scientific research and community engagement. Participants did not merely consume information, they became contributors to biodiversity

records, water quality data, and environmental stewardship efforts. The study affirms that library-led CS programmes can play a transformative role in fostering ecological consciousness and civic agency, especially in biodiversity-rich but underrepresented regions like Sabah and Sarawak. Moving forward, integrating such initiatives into library practice while strengthening partnerships and tailoring content to local contexts can amplify their impact and sustainability. Ultimately, this research positions libraries as not only access points for information but as enablers of collective action for the planet, offering a replicable model for other regions aiming to localise the SDGs through CS.

REFERENCES

Ayris, P., & Ignat, T. (2018). Defining the role of libraries in the open science landscape: a reflection on current European practice. *Open Information Science*, *2*(1), 1-22. https://doi.org/10.1515/opis-2018-0001

Bangani, S., & Dube, L. (2023). South African academic libraries as contributors to social justice and ubuntu through community engagement. *IFLA Journal*, *49*(3), 541-553. https://doi.org/10.1177/03400352231166751

Bonney, R., Phillips, T., Ballard, H. L., & Enck, J. W. (2015). Can citizen science enhance public understanding of science? *Public Understanding of Science*, 25(1), 2-16. https://doi.org/10.1177/0963662515607406

Bridgeman, M. (2023). Public libraries can be open science laboratories for citizen science projects. *Evidence Based Library and Information Practice*, *18*(3), 84-86. https://doi.org/10.18438/eblip30385

de Agustin Camacho, A., Van Petegem, W., De Droog, M., & Jacobs, L. (2023). Context - Goal - Method - Outcome: alignment in citizen science project design and its relation to supporting the United Nations Sustainable Development Goals. *Citizen Science: Theory and Practice*, *8*(1), 43. https://doi.org/10.5334/cstp.570

Dean, A., Church, E., Loder, J., Fielding, K., & Wilson, K. (2018). How do marine and coastal citizen science experiences foster environmental engagement? *Journal of environmental management*, 213, 409-416. https://doi.org/10.1016/j.jenvman.2018.02.080

di Cecco, G. J., Barve, V., Belitz, M. W., Stucky, B. J., Guralnick, R. P., & Hurlbert, A. H. (2021). Observing the observers: how participants contribute data to iNaturalist and implications for biodiversity science. *BioScience*, *71*(11), 1179-1188. https://doi.org/10.1093/biosci/biab093

Fraisl, D., Fritz, S., See, L., Mccallum, I., & Moorthy, I. (2017). *The Sustainable Development Goals Report 2017*.

https://unstats.un.org/sdgs/files/report/2017/TheSustainableDevelopmentGoalsReport2

Hu, R., Pernaa, J., Aksela, M., & Yu, Y. (2024). Learners, not just data contributors: self-regulated learning in citizen science. https://doi.org/10.20944/preprints202404.0926.v1

Jaafar, C. R. C. (2024, December 15). Borneo adventures: Citizen science in action 2025. Berita PPM. https://beritappm.wordpress.com/2024/12/15/borneo-adventures-citizenscience-in-action-2025/

Jaafar, C. R. C. & Nurfarawahidah, B. (2024, March 2). Libraries and citizen science: A new chapter in collaboration. *Berita PPM*. https://beritappm.wordpress.com/category/citizen-science/

Jaafar, C. R. C. (2024, February 15). Driving citizen science in Malaysia: Collaborative endeavours between academic libraries and the Librarians Association of Malaysia. *Berita PPM*. https://beritappm.wordpress.com/category/citizen-science/

Kelly, R., Fleming, A., Pecl, G., Richter, A., & Bonn, A. (2019). Social license through citizen science: a tool for marine conservation. *Ecology and Society*, *24*(1). https://doi.org/10.5751/es-10704-240116

Marques, D., Silva, J., & Machado, R. (2024). Citizen science: exploring the underlying dimensions of citizen engagement and value co-creation through the lens of marketing. *Biological Conservation*, *296*(June), 110711. https://doi.org/10.1016/j.biocon.2024.110711

McDevitt, J. (2021). Educating and empowering teen activists in public libraries: a case study of the impact of reading on young adult social justice actions. *Proceedings of the Annual Conference of CAIS / Actes Du Congrès Annuel De l'ACSI.* https://doi.org/10.29173/cais1193

Molyneaux, A. (2023). The re-discovery in Sumatra of a rarely seen moth, Heterosphecia tawonoides, and its identification using citizen science platform iNaturalist. *Indonesian Journal of Applied Environmental Studies*, *4*(1), 39–45. https://doi.org/10.33751/injast.v4i1.7280

Nurfarawahidah, B., Aspura, Y. I. B. M. K., Nikman, K. B., & Mohamad Zaki, M. H. B. (2023). Exploring libraries, citizen science, and the Sustainable Development Goals (SDGs): Insights from researchers and project managers. In S. F. Samsul et al. (Eds.), *Proceedings of the International Conference on Libraries and Information Science (*ICoLIS 2023) (pp. 51-59). Putrajaya: Department of Library and Information Science, FASS-UML

Queiruga-Dios, M. Á., López-Iñesta, E., Diez-Ojeda, M., Sáiz-Manzanares, M. C., & Dorrío, J. B. V. (2020). Citizen science for scientific literacy and the attainment of sustainable

development goals in formal education. *Sustainability (Switzerland)*, *12*(10). https://doi.org/10.3390/su12104283

Roman, D., Reeves, N., Gonzalez, E., Celino, I., Abd El Kader, S., Turk, P., Soylu, A., Corcho, O., Cedazo, R., Re Calegari, G., Scandolari, D., & Simperl, E. (2021). An analysis of pollution Citizen Science projects from the perspective of data science and open science. *Data Technologies and Applications*, *55*(5), 622-642. https://doi.org/10.1108/DTA-10-2020-0253

Sakai, N., Mohamad, Z. F., Nasaruddin, A., Kadir, S. N. A., Salleh, M. S. A. M., & Sulaiman, A. H. (2018). Eco-heart index as a tool for community-based water quality monitoring and assessment. *Ecological Indicators,* 91, 38-46. https://doi.org/10.1016/j.ecolind.2018.03.079

Serra, S., & Revez, J. (2024). Social inclusion of refugees and asylum seekers: The role of public libraries in the Lisbon Metropolitan Area. *Journal of Librarianship and Information Science*, *56*(2), 39-414. https://doi.org/10.1177/09610006221146549

Smith, H. E., Cooper, C. B., Busch, K. C., Harper, S., Muslim, A., McKenna, K., & Cavalier, D. (2024). Facilitator organizations enhance learning and action through citizen science: a case study of girl scouts' think Like a citizen scientist journey on SciStarter. *Environmental Education Research*, *30*(2), 190-213. https://doi.org/10.1080/13504622.2023.2237705

Williams-cockfield, K. C., Mehra, B., Connaway, L., & Arpa, C. D. (2024). How public libraries build sustainable communities in the 21 st century. *Proceedings of the ALISE Annual Conference*.

Mohd Zairul. (2021). A thematic review on industrialised building system (IBS) publications from 2015-2019: analysis of patterns and trends for future studies of IBS in Malaysia. *Pertanika Journal of Social Sciences and Humanities*, *29*(1), 635–652. https://doi.org/10.47836/pjssh.29.1.35

Citizen Science and Myanmar Community Libraries: Advancing the Sustainable Development Goals (SDGs)

Ah Win, Myat Sann Nyein

Myanmar Library Association

Corresponding email: ahwin006@gmail.com

ABSTRACT

Citizen science and community libraries are powerful tools for driving local and global efforts toward achieving the Sustainable Development Goals (SDGs). Citizen science empowers individuals and communities to contribute to scientific research and innovation, fostering inclusive participation and scientific literacy. This paper explores the synergies between citizen science and community libraries in addressing critical challenges such as climate change, disasters, biodiversity loss, and public health. Through case studies with six community libraries, we demonstrate how these librarians advance SDG goals, particularly SDG 4 (Quality Education), SDG 11 (Sustainable Cities and Communities), SDG 13(Climate Action), and SDG 17 (Partnerships for the Goals). By leveraging libraries as platforms for citizen science, communities can harness local knowledge, promote digital inclusion, and build resilient networks by conducting cascade training with the younger generations to tackle pressing global issues. The findings emphasize the need for policymakers, researchers, and community leaders/librarians to integrate citizen science into library programs, strengthen community participation, and invest in infrastructure that supports open access to knowledge. This paper explores the integration of citizen science courses into Train-the-Trainers workshops for community librarians, aiming to enhance their capacity to implement citizen science initiatives in their libraries. This collaboration can drive sustainable development by fostering informed, engaged, and empowered communities capable of contributing meaningfully to a sustainable future and enhancing the library programs and developing strong partnerships.

Keywords: Citizen Science; Community Libraries; Sustainable Development Goals (SDGs); Libraries as Partners; Forging New Synergies in Community Development

INTRODUCTION

Community libraries serve as vital centers for lifelong learning, information access, and community engagement. However, in many regions, they face challenges such as limited resources, low digital literacy, and a lack of interactive learning opportunities. Integrating citizen science (CS) into Train-the-Trainers (ToT) workshops provides librarians with innovative tools to address these issues. CS encourages public participation in scientific research, empowering citizens to contribute meaningfully to environmental and social challenges. Equipping librarians with the knowledge and skills to implement CS projects will strengthen their role as CS facilitators for science-based community engagement initiatives.

WHAT IS CITIZEN SCIENCE?

CS is a research approach that involves non-scientists in scientific data collection, analysis, and problem-solving. It bridges the gap between professional scientists and the public by fostering collaboration in research efforts.

CS initiatives can cover various fields, from astronomy, archaeology, biology to social sciences and environmental studies. The main idea behind CS is to increase public participation in scientific research, allowing for more data to be collected and also increasing public knowledge understanding of science and scientific processes. Some examples of CS initiatives include monitoring bird populations, tracking weather patterns, archaeological research, and mapping the distribution of different species. By involving public members in archaeological research, CS initiatives can broaden participation in scientific research, increase public engagement with cultural heritage, and promote the preservation and protection of archaeological sites. Libraries can play an essential role in CS initiatives by providing resources and support to the public. Here are a few ways in which libraries can contribute:

1. Provide access to scientific literature: Libraries can provide access to scientific journals and other literature making it easier for public members to access research and stay up-to-date on scientific advances.

2. Host CS events: Libraries can host CS events such as workshops, lectures, and data collection projects. These events can engage the public and provide opportunities for participation in scientific research.
3. Training and support: Libraries can provide training and support to members of the public who want to participate in CS initiatives. This can include training on data collection and analysis, and providing access to tools and resources.
4. Collaborate with local scientists: Libraries can collaborate with local scientists to develop CS projects that are relevant and meaningful to the community. This can increase participation and ensure that the research is valuable and informative.
5. Promote CS Initiatives: Libraries can promote CS initiatives through their website, social media channels, and other outreach efforts. This can raise awareness and encourage participation in scientific research.

Community libraries are ideal platforms for CS initiatives, and librarians are the actors of CS. Libraries are neutral and provide inclusive spaces that communities already trust. Especially in Myanmar, people feel safe and welcome, making it easier to engage diverse groups in scientific activities. The library is a space for group meetings, data collection, and hands-on learning. Librarians are skilled in information literacy, and many are already involved in community education. Libraries promote lifelong learning, curiosity, and civic engagement and value CS.

Citizen Science and SDGs

CS initiatives can support many SDGs by promoting scientific literacy, engaging communities in environmental monitoring and management, and contributing to data-driven decision-making. By harnessing the power of CS, we can progress towards achieving the following SDGs and building a more sustainable future.

SDG 3: Good Health and Well-being: Community Librarians can facilitate access to reliable health information, such as local campaigns on hygiene, nutrition, early child marriage, and mental health.

SDG 4: Quality Education - CS initiatives can promote lifelong learning and provide opportunities for informal science education.

SDG 6: Clean Water and Sanitation - CS projects can help monitor and protect water resources and improve access to safe drinking water.

SDG 11: Sustainable Cities and Communities - CS initiatives can help monitor air quality, noise pollution, and other environmental factors that impact the quality of life in urban areas.

SDG 13: Climate Action - CS projects can help monitor and understand the impact of climate change and support efforts to mitigate its effects.

SDG 14: Life Below Water - CS initiatives can help monitor and protect marine and freshwater ecosystems and support efforts to restore damaged habitats.

SDG 15: Life on Land - CS projects can help monitor and protect biodiversity and support efforts to restore damaged ecosystems.

Key Benefits of Citizen Science

The democratization of science seeks to engage individuals from diverse backgrounds in the process of scientific inquiry, extending participation beyond traditional academic and research institutions. Leveraging collective intelligence enables communities to address complex scientific challenges through collaborative participation. This approach significantly enhances scientific literacy, deepening public understanding of scientific methods and fostering critical problem-solving skills. Furthermore, it strengthens community engagement by encouraging active citizen involvement in addressing local environmental and social issues.

Citizen Science Initiatives in Myanmar

CS initiatives are gaining momentum in Myanmar, and several projects and initiatives have been launched in recent years. Here are a few examples:

1. Myanmar Biodiversity and Nature Conservation Association (BANCA): BANCA is a non-profit organization that engages local communities in monitoring and protecting biodiversity in Myanmar. The organization conducts training programs for community members on biodiversity conservation and encourages them to participate in monitoring and research activities.
2. River Health Citizen Science Project: This initiative, launched by the Wildlife Conservation Society, involves members of the public in monitoring the health of rivers in Myanmar. Participants are trained to collect water quality data and monitor fish populations, which can help to inform management decisions and protect river ecosystems.
3. Birdwatching in Myanmar: The Myanmar Bird and Nature Society has launched a CS project to monitor bird populations in Myanmar. The project involves members of the public recording their bird sightings and contributing to research on bird behavior and ecology.

4. Wildlife Conservation Society (WCS) Myanmar: WCS Myanmar promotes community-based conservation through research, capacity building, and community engagement. They work closely with local communities to understand their needs and concerns and to develop conservation strategies that are culturally appropriate and sustainable.
5. Community-based Wildlife Monitoring: This initiative, launched by the Wildlife Conservation Society, engages local communities in monitoring wildlife populations in Myanmar. The program provides training on wildlife monitoring techniques and encourages community members to participate in data collection.
6. The Myanmar Citizen Science Network (MCSN) is a community-led initiative that promotes CS and community-based research in Myanmar. The network was established in 2016 and comprises individuals, organizations, and institutions interested in promoting CS and participatory research in Myanmar.

The MCSN aims to bring together researchers, community members, and other stakeholders to collaborate on research projects that address pressing social and environmental issues in Myanmar. The network provides training and resources to community members interested in conducting research and supporting research projects through funding and technical assistance. The MCSN's focus areas include environmental conservation, public health, and disaster risk reduction. It also promotes the participation of women and youth in CS projects. MCSN is a member of the Citizen Science Association, a global network of CS organizations, and is supported by several international organizations, including the Wildlife Conservation Society and Earth Watch Institute.

CS efforts are needed to address the challenges posed by the powerful earthquake that struck Myanmar in 2025. The 7.7-magnitude quake shook the region: Sagaing, Mandalay, Naypyidaw, destroying cultural heritage and some libraries. More than 3,000 people died, millions were displaced, and the ancient temples and pagodas that make up the historic sites were significantly damaged. In 2016, a powerful earthquake struck Bagan, Myanmar, causing significant damage to the ancient temples and pagodas. The quake, which had a magnitude of 6.8, was felt across the region and damaged cultural heritage.

In the aftermath of the earthquake, CS and technology will prove to be a powerful example of how innovation can be harnessed, and community efforts can be integrated in times of crisis. By harnessing the power of CS, these volunteers can make meaningful contributions to recovery efforts, provide critical data, and raise awareness about the situation. This inspiring

technology not only aids in recovery but also has the potential to inspire others to engage in similar efforts.

Looking forward, these initiatives underscore the critical role of CS in disaster response and recovery. By empowering communities to document damage and identify areas of need, CS ensures that recovery efforts are targeted, effective, and responsive to the needs of those affected by natural disasters and other crises. This targeted approach provides a strong sense of confidence in the effectiveness of CS reassuring the audience of its impact.

Empowering Community Librarians Through ToT Workshops

The initiative to empower community librarians through ToT workshops plays a pivotal role in this endeavor. The primary objective of ToT workshops is to facilitate professional development, build institutional capacity, and promote a culture of continuous learning among librarians. These workshops deliver essential training in digital literacy, scientific inquiry, and strategies for community engagement, thereby equipping librarians to serve as catalysts for scientific participation within their communities.

A key enhancement to this model is the integration of CS courses into ToT workshops. Through these courses, librarians acquire a comprehensive understanding of CS principles and practices, develop skills in scientific data collection methods, and gain practical experience in implementing CS initiatives within library settings.

The project's approach and collaboration model involve critical stakeholders, including British Council Active Citizen Master Trainers, the Myanmar Library Association (MLA), community librarians, and local citizens. Collectively, these partners advance the project's aim to integrate CS practices into community libraries, foster a culture of scientific inquiry at the grassroots level, empower librarians to lead CS initiatives, and enable communities to collaboratively address pressing environmental and social challenges.

Subject matter experts and speakers provide specialized training for librarians in CS and community engagement methodologies. After the training, librarians can adopt the role of master trainers, disseminating CS knowledge within their respective communities. Library users actively participate in CS projects, applying newly acquired skills to real-world problem-solving endeavors.

The project is guided by several key motivational questions, such as: “What action words describe what scientists do?” (e.g., observe, experiment, analyze), and “What is CS, and how does it benefit the community libraries?” The initiative’s core activities encompass public engagement in scientific research, the promotion of scientific and technological education, and the facilitation of student and community problem-solving initiatives.

ACTION PLAN

The target participants and locations are in three community libraries in Yangon; one community library in Dawei (Dawei Millennium Center), and two community libraries in Maubin, Maubin Community Development Center and Noble Teacher Library.

Dawei is the capital of the Tanintharyi Region in southeastern Myanmar, located 614.3 km southeast of Yangon. Dawei Millennium Center is the most dynamic center of the region for youth and learners. The motto is “We value diversity and inclusion.” The center raises awareness about reducing plastic and helps people reduce plastic consumption.

Maubin is a town in the Ayeyarwady Region in southwestern Myanmar. The population is predominantly Burmese and Karen. It is only 40 miles(61km) away from Yangon. The Maubin Community Development Center opens up new ways of public knowledge through libraries.

The six community libraries were strategically selected based on their commitment to community engagement, youth empowerment, and local development. Each library has a proven track record of active participation in outreach initiatives and serve as a trusted hub for informal learning and grassroots collaboration. Additionally, their librarians have shown strong leadership potential and willingness to adopt innovative approaches to address community challenges. Equipping these libraries with CS knowledge and facilitation skills, the initiative aimed to amplify their impact and empower them to become catalysts for sustainable development and environmental awareness in their respective regions.

Training Plan and Timeline

A Five-Day Master ToT was organized for librarians, bringing together 12 participants – two representatives from each of six community libraries. The training was delivered face-to-face, featuring expert speakers from the British Council Citizen Trainers team and the Myanmar Library Association Executive Committee (MLA EC) members. Following the ToT, a cascade training model was implemented at the community libraries. Each library hosted two training sessions, engaging 15 library users per session, reaching a total of 150 users across all six libraries. The timeline for the project spanned from February to June 2024, beginning with course preparation during February and March. The ToT workshop was conducted from March 25 to 29, 2024. The first round of cascade training sessions was held from April 29 to May 3, 2024, followed by the second round from May 13 to 17, 2024. A Reflection Workshop was scheduled in June 2024 to consolidate learnings and assess the overall impact.

Impact of Citizen Science Workshops on Librarians

The CS workshops have demonstrated a transformative impact on participating librarians, significantly enhancing their professional capacities and community engagement roles. One of the most notable outcomes was the strengthening of research and information curation skills. Librarians reported an improved ability to select, analyze, and curate scientific content aligned with CS, community concerns, and current social issues. Additionally, they gained greater digital literacy, particularly in accessing open-access research databases, e-books, and online scholarly resources. Another critical area of growth was in facilitation and discussion leadership. The workshops equipped librarians with the confidence and techniques needed to lead reading groups and scientific discussions effectively. They developed skills in framing critical thinking questions and facilitating meaningful dialogue, thereby encouraging deeper intellectual engagement within their communities.

The workshops also contributed to an increased awareness of CS principles and their relevance to the United Nations Sustainable Development Goals (SDGs). Librarians explored how to integrate science-based community projects into their library programming, with a particular focus on SDG 4 (Quality Education), SDG 13 (Climate Action), and SDG 5 (Gender Equality). This alignment with global frameworks enabled them to conceptualize future programs that address local challenges while contributing to broader development objectives. In fostering lifelong learning and community engagement, the initiative inspired librarians to organize regular reading sessions catering to various age groups. Many began developing book clubs and digital reading hubs, establishing their libraries as vibrant centers for continuous education and participatory learning.

The workshops also played a pivotal role in strengthening regional collaboration among librarians. Through facilitated networking, participants began sharing resources, co-hosting reading programs, and exploring inter-library cooperation on CS projects. These collaborative efforts laid the groundwork for a more connected and resourceful regional library network. Importantly, the sessions catalyzed action-based library programming. Participants were motivated to initiate thematic workshops on climate education and sustainability, partner with local schools, and organize essay competitions and hands-on projects, such as tree planting campaigns and plastic reduction initiatives. Some librarians also proposed the establishment of dedicated Resource and Information Centers on Citizen Science within their institutions.

Finally, the initiative emphasized the importance of digital resource development for libraries. Librarians were encouraged to expand their digital collections by incorporating open-access research papers, producing multimedia content such as video explainers, and creating simplified or translated versions of complex scientific materials, making them more accessible to younger and non-specialist audiences.

In summary, the CS workshops enhanced librarians' roles as knowledge facilitators, critical thinkers, and community leaders. The initiative not only enriched their professional capacities but also empowered them to drive citizen-led learning and sustainable development within their respective communities.

Impact Summary: Two Cascade Trainings, Each in Six Community Libraries

This initiative creates a ripple effect, empowering young people and librarians with the knowledge and actionable skills to drive meaningful, community-led change. Following the five-day CS and Community Libraries Workshop, youth and community librarians have begun transforming into active CS actors within their communities. The cascade trainings delivered at the local level highlights the following impactful outcomes:

1. Elementary First Aid Training Expansion

   Participants have gained essential knowledge in basic first aid and are planning to organize workshops for 400 high school students, enhancing community health preparedness. Librarians can partner with health NGOs to deliver the workshop and distribute materials supporting public health infrastructure.

2. Citizen Science Literature Resource Center

   A new resource hub has been established, offering access to e-books and video clips on CS topics, supporting continuous community learning.

3. Personal Hygiene Awareness Campaign

   Participants develop and distribute hygiene pamphlets to promote healthier practices. These pamphlets provide essential information on proper handwashing techniques, sanitization methods, and the importance of regular health check-ups. By educating residents, the initiative aims to foster a culture of wellness and prevent the spread of illness. These pamphlets will provide essential information on proper handwashing techniques, sanitization methods, and the importance of regular health check-ups. By

educating residents, the initiative aims to foster a culture of wellness and prevent the spread of illness.

4. Environmental Action: Tree-Planting Drive

   A commitment has been made to plant 500 trees in villages and around community libraries, fostering a greener, more sustainable environment.

5. Plastic Waste Reduction Initiative

   Hands-on workshops are being held to reduce plastic bag usage and promote sustainable alternatives among residents.

6. "Yes, You Can" – A Youth-Led Climate Action Event

   One master trainer led a two-day event focusing on the 17 Sustainable Development Goals (SDGs), Climate action, CO_2 awareness, the greenhouse effect, community mapping and SDG 4 (Quality Education), and the connection between climate change and increased heat stroke incidents in the region.

7. Tackling Early Childhood Marriage Through Essay Writing

   Youth aged 13–16 write essays exploring the challenges of early childhood marriage, using storytelling as a tool for awareness and education. Facilitated discussions and awareness sessions are debunking common misconceptions by educating students on the long-term impacts of early marriage. Aligned with SDG 3: Good health and Well-being, libraries and community hubs can offer safe spaces for dialogue and healing through storytelling, writing essays, and creative expression, fostering a sense of belonging and mental well-being among youth.

WHAT CAN MLA PROVIDE FOR THE COMMUNITY LIBRARIES?

1. Raising awareness: MLA can raise awareness about the importance of CS and its potential benefits to the community. The community librarians can engage with community leaders, local organizations, and library staff to promote CS and encourage them to get involved.
2. Providing resources: MLA can work to provide community libraries with the necessary resources to support CS initiatives. This may include funding for equipment and materials, training programs for library staff and volunteers, and support for outreach and engagement activities.
3. Encouraging collaboration: MLA can encourage community libraries to collaborate with other organizations and institutions, such as schools, universities, and non-profits, to build a network of CS initiatives in the community. They can also facilitate partnerships

and collaborations between the different groups and provide support and guidance to ensure these efforts succeed.

4. Showcasing success Stories: MLA can showcase success stories and case studies of CS initiatives in other communities to inspire and motivate local library staff and volunteers. By highlighting the impact of CS on the community and the environment, MLA can help to build support for these initiatives and encourage more people to get involved.
5. Creating policies: MLA can work to develop policies and frameworks that support CS initiatives in community libraries. This may include data collection and sharing guidelines, ethical considerations, and best practices for community engagement. By creating a supportive policy environment, MLAs can ensure that CS initiatives in community libraries are sustainable and effective.

By taking these steps, MLAs can effectively advocate community libraries as key players in CS and foster a culture of inquiry and collaboration within communities. Empowering local library staff and volunteers to actively participate in CS initiatives enables collective efforts to tackle pressing environmental and social issues, ultimately contributing to a more sustainable and equitable future. To build on this momentum, it is essential to expand participation by involving more librarians and educators in future sessions, such as those focusing on digital information literacy. Developing practical toolkits for librarians will further support them in running engaging reading programs tailored to local contexts. Additionally, measuring the long-term impact, such as tracking how many libraries implement CS projects as a result of the training, will provide valuable insights into the effectiveness of these efforts.

During the session, librarians from the region engaged in meaningful and active discussions about the key challenges they face in promoting CS, digital literacy, and broader community engagement. These conversations not only highlighted critical barriers but also explored potential strategies and solutions to overcome them, laying the groundwork for future collaboration and innovation.

Below are some of the most significant challenges and how the cascade session helped address them:

1. Limited access to research and digital resources

   Challenge: Many libraries lack access to academic papers, e-books, and reliable online sources, making it difficult to provide up-to-date information to their communities. Addressed by:

- Introducing open-access digital repositories and free research platforms.
- Discussing strategies to curate relevant materials for community learning.

2. Digital literacy gaps among librarians and communities

   Challenge: Some librarians and their communities struggle with digital literacy, making it difficult to navigate online research platforms. Addressed by:

   - Hands-on practice in finding, downloading, and summarizing research papers.
   - Sharing easy-to-use digital literacy toolkits for training local community members.

3. Low engagement in reading and research culture

   Challenge: Many community members, especially youth, lack interest in reading research papers due to complex language or unfamiliar topics. Addressed by:

   - Training librarians in simplifying research content through summaries, storytelling, and visual aids.
   - Encouraging the use of discussion-based learning rather than passive reading.

4. Funding and resource constraints in libraries

   Challenge: Many libraries operate on limited budgets, restricting their ability to acquire new materials or host community programs. Addressed by:

   - Introducing strategies for fundraising, partnership building, and grant writing.
   - Exploring low-cost or open-source solutions for digital resource development.

5. Lack of collaboration among libraries

   Challenge: Librarians in different regions work in isolation, missing opportunities to share knowledge, resources, and best practices. Addressed by:

   - Strengthening regional librarian networks for co-hosting programs and resource-sharing.
   - Encouraging joint initiatives, such as inter-library reading sessions, regional book clubs, and online discussion forums.

6. Need for more community-driven learning approaches challenge

   Traditional library programs often focus on passive book lending, rather than interactive, action-based learning. Addressed by:

   - Training librarians to integrate CS projects, storytelling, and SDG-based discussions into library programs.

- Encouraging the use of hands-on workshops, debates, and creative formats to make learning more engaging.

NEXT STEPS AND RECOMMENDATIONS

To build on the progress achieved, several strategic actions are recommended. First, establishing regional knowledge-sharing platforms will enable librarians to exchange resources and ideas effectively. For example, forming a Viber group of CS actors can foster ongoing communication and collaboration. Additionally, organizing follow-up training sessions is essential, particularly in digital skills, program design, and CS applications. A tailored digital information literacy course, along with an introduction to the Open Access Repository (OAR), will equip participants with the necessary tools to engage meaningfully in this field.

Local advocacy should also be strengthened to secure better funding and policy support for community libraries. One potential initiative is to arrange an advocacy course in collaboration with IFLA, empowering librarians to champion their cause more effectively. Lastly, the Myanmar Library Association (MLA) should take an active role beyond advocacy by creating a roadmap to develop a national CS strategy in partnership with government and NGO stakeholders. This strategic engagement will position community libraries as essential hubs for sustainable development and citizen-driven innovation.

CONCLUSION

By integrating CS into community libraries, we create a dynamic and participatory learning environment where community members can engage with science in meaningful ways. The ToT approach ensures that knowledge is not only shared but also sustained and expanded across different communities. This initiative empowers community librarians to be key facilitators of CS, helping to build scientifically literate, engaged, and solution-oriented communities. The Association reiterates how libraries can serve as CS innovation hubs, potentially leading to national policy changes or curriculum integration. Through collaboration and shared learning, we can harness the power of CS to address real-world challenges and shape a better, more informed future for all.

REFERENCES

Aregbesola, A., Owolabi, S. E., & Adebisi, T. (2023). Going to the cities: The strategic roles of public libraries in promoting Sustainable Development Goals. *Public Library Quarterly*, *43*(3), 367-384. https://doi.org/10.1080/01616846.2023.2253692

Cigarini, Anna, Bonhoure, Isabelle, Vicens, Julián, & Perelló, Josep. (2021). Public libraries embrace citizen science: Strengths and challenges. *Library & Information Science Research*, *43*(2), https://doi.org/10.1016/j.lisr.2021.101090

International Federation of Library Associations and Institutions (IFLA). (2019c). *Libraries Can Drive Progress Across the Entire UN 2030Aagenda*. https://www.ifla.org/wp-content/uploads/2019/05/assets/hq/topics/libraries-development/documents/sdgs-insert.pdf

Kosciejew, M. 2020. Public libraries and the UN 2030 agenda for sustainable development. *IFLA Journal 46*(4), 328-346. https://www.ifla.org/wp-content/uploads/2019/05/assets/hq/publications/ifla-journal/ifla-journal-46-4_2020.pdf.

National Academy of Sciences (2018). *Learning Through Citizen Science: Enhancing Opportunities by Design*. The National Academies Press. DOI: 10.17226/25183

Nikman, Khairunisa, Husna, Muniratul, Mohd Khalid, Yanti Idaya Aspura, Badruesham, & Nurfarawahidah (2023). Exploring libraries, citizen science, and the Sustainable Development Goals (SDGs): Insights from researchers and project managers. *Proceedings of the International 9th Conference on Libraries, Information and Society, ICoLIS 2023At: Putrajaya,Malaysia.* https://www.researchgate.net/publication/376891671_Exploring_Libraries_Citizen_Science_and_the_Sustainable_Development_Goals_SDGs_Insights_from_Researchers_and_Project_Managers

Obi, I., & Anyaogu, U. (2023). Access to information on sustainable development goals by 2030: the role of libraries. *NIALS Journal of Law Librarianship and Information Technology*, *2*(1), 145-170. https://journal.nials.edu.ng/index.php/njollit/article/view/6/6

Panda, S., & Das, S. K. (2022). Role of public libraries in promoting social sustainability for the United Nations Sustainable Development Goals (SDG): an exploratory study. *Library Waves*, *8*(2), 129-138. http://www.librarywaves.com/index.php/lw/article/view/139

Shirk, J. L., et al. (2012). Public participation in scientific research: A framework for deliberate design. *Ecology and Society, 17*(2), 29. DOI: 10.5751/ES-04705-170229

United Nations. (2015). *Transforming our world: the 2030 agenda for sustainable development*. https://sustainabledevelopment.un.org/post2015/transformingourworld

Sub - Theme 3

Building Knowledge Ecosystems for The Disabled and Marginalised

Empowering and Enriching Persons with Disabilities Through Co-Creation and Inclusive Services at the National Library Board, Singapore

Yvonne Ng

Equaliser Office, Programmes & Services, National Library Board of Singapore, Singapore

Corresponding email: yvonne_ng@nlb.gov.sg

ABSTRACT

Making libraries more inclusive for all is a key commitment of the National Library Board (NLB), Singapore. NLB works towards this by empowering and enriching persons with disabilities through co-creation and inclusive library services. NLB collaborates with persons with disabilities, their caregivers, special education schools and disability organisations to co-create initiatives that meet the specific needs of the community. These partnerships have led to programmes that empower persons with disabilities to take centre stage to demonstrate their abilities, as well as opportunities for persons with disabilities to showcase and sell their products through the libraries. By leveraging data analytics and community feedback, NLB anticipates the needs of persons with disabilities and continually enriches the library experiences for them, such as offering sign language interpretation for accessible programmes, as well as providing assistive technology devices, collection of accessible books and designated calm spaces. NLB also seeks to foster interactions between persons with disabilities and the broader public through programmes and library spaces, encouraging greater inclusivity. By continuously refining its approach, NLB strives to empower and enrich persons with disabilities through its libraries.

Keywords: Accessibility; Inclusivity; Persons with Disabilities; Libraries; Singapore

INTRODUCTION

The National Library Board (NLB), Singapore has made significant strides in fostering inclusivity within Singapore's library spaces. As part of its commitment to enhance accessibility in the libraries, NLB has dedicated itself to empowering and enriching persons with disabilities by ensuring that library services, spaces and programmes cater to their diverse needs. This paper explores NLB's ongoing journey towards accessibility, examining the implementation of Singapore's first inclusive library, the Punggol Regional Library, and the continuous engagements with persons with disabilities to co-create accessible programmes and enhance inclusive services, as well as foster meaningful interactions for persons with disabilities with the broader public. Through feedback and data gathered from engaging the disability community, NLB continuously reviews and enhances its accessibility efforts and contributes to Singapore's Enabling Masterplan 2030 (EMP2030) towards building an inclusive society in Singapore (Ministry of Social and Family Development, 2022).

NLB'S ACCESSIBILITY JOURNEY

A phrase commonly used by the disability community is "nothing about us without us". This served as a guiding principle in NLB's accessibility journey by engaging persons with disabilities to assess their needs for library services, as well as partnering them and their caregivers to co-create solutions to enhance their library experiences. This in turn allows NLB to evaluate and review the effectiveness of the accessible offerings in the libraries.

LAB25 (Libraries and Archives Blueprint 2025) and NLB's Commitment Towards Inclusivity

In 2021, NLB introduced LAB25 (Libraries and Archives Blueprint 2025), a comprehensive five-year strategy aimed at transforming libraries and archives. LAB25 outlines four key roles for NLB – becoming a Learning Marketplace, nurturing an Informed Citizenry, inspiring Singapore Storytellers, and being an Equaliser. Under the Equaliser pillar, NLB is committed to bridge gaps and empower all in this digital age. This involves working with the community to co-create programmes and services for persons with disabilities, including those with physical disabilities, autism, intellectual disabilities, visual impairment and hearing loss. NLB also ensures that all public libraries are equipped with wheelchair-friendly routes, and provides social stories on the NLB website, designed to help persons with disabilities understand what to expect and how to navigate the library environment, allowing them to prepare for their visit.

As part of NLB's commitment towards inclusivity, the development of the Punggol Regional Library was initiated as Singapore's first inclusive library. The opening of the Punggol Regional

Library in 2023 marked a significant milestone in NLB's ongoing accessibility efforts. It also signifies a new chapter on accessibility in public libraries in Singapore.

Punggol Regional Library: Singapore's First Inclusive Library

When the planning for the Punggol Regional Library began in 2018, NLB established a "Persons with Disabilities Advisory Committee" to ensure that the library's design would be accessible to persons with disabilities. The committee, comprising eight members from various organisations who have experience working with the disability community, played an instrumental role in providing NLB with insights on the latest trends and developments among the disability community, both in Singapore and internationally. The committee also connected NLB to experts in the respective disability fields to provide feedback on initiatives and spaces for the Punggol Regional Library, as well as supports NLB in building internal capabilities and in establishing external partnerships to deliver inclusive programmes. Additionally, NLB engaged over 500 persons with disabilities and their caregivers through many rounds of focus group discussions during the design process to gather data and insights to improve the library experience for them.

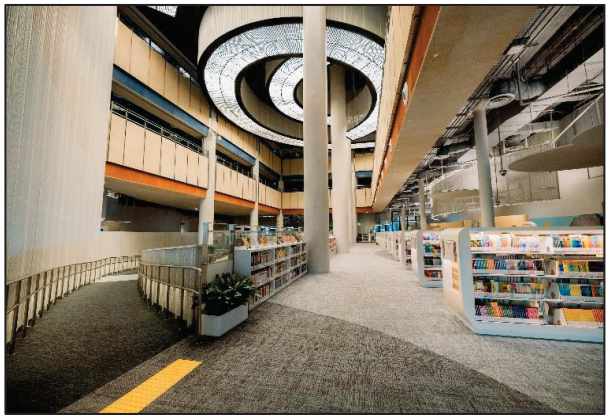


Figure 1: One of NLB's engagement sessions with persons with disabilities in 2022

This led to the development of various accessible features which were introduced in Punggol Regional Library when it officially opened in April 2023, including a dedicated accessible collection of books, inclusive spaces and infrastructure, assistive technology devices, a Borrow-n-Go book borrowing station that is wheelchair-accessible and a toy library (Table 1).

Table 1: Accessible Features at Punggol Regional Library

Accessible Feature	Details
 Accessible Collection	• The accessible collection, conveniently located at the library's entrance, comprise about 3,000 English books for adults, teenagers and children. • The titles selected were based on feedback from users in the community, and include: - Books to learn or share about specific disabilities. - Phonics to supplement learning. - Social stories to teach life skills. • Tactile elements to learn through sense of touch. - This is complemented by the accessible collection of digital books and audiobooks.

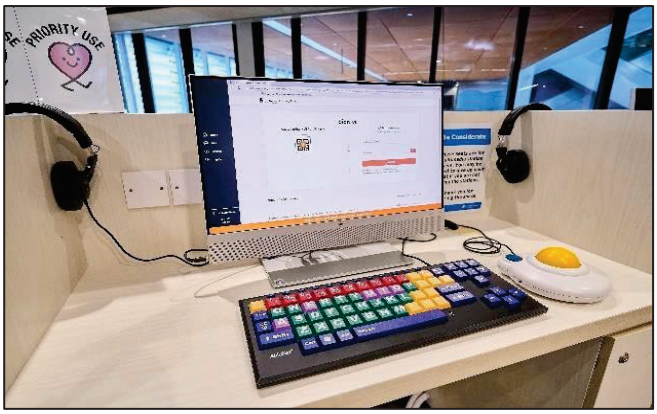




Inclusive spaces and infrastructure

Various features were incorporated into the design of the library spaces and infrastructure to enhance accessibility.

- Walkways are wider, measuring at least 1.5m to allow greater ease of movement for wheelchair users and provide adequate space for hearing impaired patrons to sign to each other.
- Shelves are lower for wheelchair users to reach for books easily.
- Two calm pods in the library which offer a quiet and safe space with wall and floor, padding, as well as sensory aids, weighted blanket and sensory toys. It is designed as a calming environment for persons with disabilities who may experience sensory overload.
- Family lounge which allows persons with disabilities as well as families with young children to relax and have light snacks while they are in the library.

 Assistive Technology Devices	• The library's multimedia stations are equipped with high contrast keyboards with large keys and a screen magnifier for people with visual impairments, as well as joysticks and trackballs for those with mobility challenges. • These assistive technology devices allow persons with disabilities to access the library's multimedia stations with greater ease.
 Borrow-n-Go Book Borrowing Station	• The innovative book borrowing station is a dedicated passageway which utilises radio frequency identification (RFID) technology to enable wheelchair users to easily borrow books by simply passing through with their books, without having to place the books on a table-top, as is the case at traditional borrowing kiosks.

 Toy Library	• The Toy Library located at the Children's Section for young children aged 0 to 6 years old, including those with disabilities, encourages children to learn through play. • Children, parents and caregivers have access to a variety of developmentally appropriate toys, educational aids, puppets and costumes.

Many of NLB's accessible features are being trialed at Punggol Regional Library. These initiatives are continuously reviewed and, where appropriate, will be expanded to other libraries to ensure a more inclusive experience for all. For example, assistive technology devices will be introduced to all public libraries in 2025. Through data analysis of borrowing trends, NLB is also looking into the expansion of the accessible collection to more libraries.

UNDERSTANDING THE EVOLVING NEEDS OF PERSONS WITH DISABILITIES

Beyond the Punggol Regional Library, NLB continues to actively review the needs of persons with disabilities to ensure that the programmes and services offered by NLB serve their evolving needs across libraries. NLB regularly engages with persons with disabilities and their caregivers to gather feedback and enhance accessibility in the libraries.

Feedback and Insights from Engaging the Disability Community

NLB actively seeks feedback from persons with disabilities, their caregivers and disability organisations regarding NLB's accessible programmes and services, as well as their usage of library resources. Accessible programmes include those that are adapted for persons with disabilities, such as sensory story time sessions or programmes designed to be suitable for persons with hearing loss by providing sign language interpretation or for the visually impaired with the use of tactile materials.

Such feedback provides NLB with valuable data and insights into the needs of persons with disabilities, enabling the library to explore various strategies to enhance accessibility as well

as raise awareness of its accessible programmes and services within the disability community. By ensuring that those who would benefit from these offerings are well-informed and engaged, NLB can better align its programmes with the interests of persons with disabilities, thereby increasing their participation in library activities.

Having participated in NLB's focus group discussions regarding the design of the Punggol Regional Library, Shalom Lim, Board Director at K9 Assistance and a committee member of the Disabled People's Association, who has Duchenne muscular dystrophy, strongly supports NLB's efforts to make libraries more inclusive. He said, "As a writer and literary artist, I believe education and literary arts in the form of books, films and podcasts can be a crucial leveler when it comes to equipping persons with disabilities with the skills they need to integrate into the workforce. It has made me more optimistic of the future where persons with disabilities can learn, play and work alongside their non-disabled peers in Singapore."

Ilyana Ali, author of *My Name is Alyssa. I Have Down Syndrome*, regularly visits NLB with her 15- year-old daughter, Nur Alyssa Mohd Azli, who has Down syndrome. Reflecting on the calm pods at the Punggol Regional Library, she said, "It is very useful for kids who have meltdowns, they feel anxious, and they need to feel safe. They need a safe space where they can come into to calm themselves down and away from the crowd. And it's also useful for parents. When our kids get overwhelmed, we too get overwhelmed, so we need a safe space for our kids and for ourselves to calm ourselves down too."

An advocate for the deaf community and artist, Lily Goh led a deaf storytelling session and performance at NLB in 2024. She described the library's accessible collection of books as an invaluable resource for the deaf and disabled communities. She said, "It makes information and literature more accessible to everyone. With our engaging storytelling, our deaf culture and sign language are reflected. The library's efforts serve as a role model for other libraries to follow in terms of inclusivity, representation and accessibility."

Some caregivers have shared their challenges and hesitations in visiting the libraries, citing past negative experiences that made them reluctant to return with their children, fearing they might disturb other patrons. Such feedback underscores the need for NLB to continue to raise awareness of the importance of inclusivity, ensuring that patrons of all abilities feel welcome and comfortable in shared spaces.

Based on the feedback gathered by NLB, there is a clear demand for library services among persons with disabilities, alongside a need for NLB to continually adapt its offerings to meet their evolving needs. Engaging with the disability community and addressing any misconceptions about libraries remains a priority for NLB. Moving forward, NLB will continue to engage with persons with disabilities, their caregivers and the disability community to ensure that its programmes remain relevant and impactful.

EMPOWERING AND ENRICHING PERSONS WITH DISABILITIES THROUGH CO-CREATION AND INCLUSIVE SERVICES

Singapore has made remarkable progress towards becoming a more disability-inclusive society, with public attitudes generally positive towards persons with disabilities (Ministry of Social and Family Development, 2024). However, there is still a need to enhance public awareness of the challenges faced by persons with disabilities and to foster an environment where disability inclusion is the norm. For persons with disabilities to be truly included in society, our physical and social environments must be accessible and inclusive to persons with disabilities (Ministry of Social and Family Development, 2022). Since 2023, NLB has played an active role in contributing to these efforts by empowering and enriching persons with disabilities through co-creation and inclusive services in the libraries.

Empowering Persons with Disabilities Through Co-Creation of Initiatives

NLB recognises the unique talents of persons with disabilities and strives for the library to be a safe and welcoming space for them to demonstrate their abilities. Through engaging with persons with disabilities, NLB co-creates programmes, workshops, storytelling sessions and performances, allowing persons with disabilities to take centre stage. These initiatives not only offer persons with disabilities opportunities to explore their interests in the arts but also provide a platform for their personal expression and to showcase their talents to the wider community.

NLB has built strong partnerships with persons with disabilities and disability organisations to co-design and co-deliver a variety of programmes (Table 2). This collaborative approach has led to a remarkable 109% increase in the number of programmes led by persons with disabilities in the libraries from 2023 to 2024, and a significant 729% increase in the number of participants for these programmes. NLB has received positive responses and will continue to look into providing more opportunities for persons with disabilities to lead programmes in the libraries.

Table 2: Number of programmes led by persons with disabilities in NLB from 2023 to 2024

Year	Number of programmes led by persons with disabilities in NLB	Number of participants who attended programmes led by persons with disabilities in NLB
2024	23 (↑109%)	1,459 (↑729%)
2023	11	176

For Samuel Lee, a dancer with Down syndrome, the library has become a vibrant and supportive space where he can express his passion for dance. He delivered an engaging dance performance at the library in 2025. His father, Vincent, said, “I feel incredibly proud of him, especially when he can captivate the audience and draw them into his performance. People come to watch him, and that makes the performance very meaningful for him.” Vincent added that the library feels uniquely welcoming, offering a special environment where Samuel can relax and explore a variety of engaging activities.

Singer-songwriter Sky Shen with muscular dystrophy, captivated library patrons during his first performance at the Punggol Regional Library in 2025. He said, “I think that spaces and platforms for persons with disabilities to showcase themselves are quite rare and libraries are a great place because they connect not just persons with disabilities but the mainstream population as well, creating a space for us to interact and intersect.”

NLB’s initiatives to empower persons with disabilities have also received strong support from arts groups. Claris Tan, co-founder of non-profit theatre company Zip Zap Zoom Collective Ltd, said, “In a world that is designed for the neurotypical, able-bodied person, it can be alienating for persons with disabilities as they have additional challenges and obstacles to overcome in their daily lives. Specifically in the area of the performing arts, there are significantly less opportunities for persons with disabilities as they may not fit into the stereotypical mold of the performing artist. With NLB's initiative to build platforms and festivals to highlight persons with disabilities, it encourages them to showcase their abilities and place them in the forefront of society. NLB's effort in turn enables theatre companies and arts groups to intentionally design a more inclusive work environment where we are able to co-create and innovate with artists with disabilities.”

In addition to creating library spaces for persons with disabilities to demonstrate their talents, NLB expanded its efforts in 2024 by offering persons with disabilities the opportunities to showcase and sell their products at all four regional libraries, providing them with an avenue for economic empowerment. The libraries are transformed into vibrant spaces displaying handcrafted products created by persons with disabilities, celebrating their creativity and craftsmanship (Figure 2). These displays not only highlight the talents of the disability community but also help raise public awareness about disabilities. Additionally, they encourage the broader community to actively support and contribute to empowering persons with disabilities, fostering a meaningful impact on society.



Figure 2: Product display by disability organisations in the libraries

One partner that participated in this initiative is MINDS, a social service agency serving persons with intellectual disability, caregivers and their families across life stages. Sophia Lim, Director of Strategic Communications and Engagement for MINDS said, “By showcasing our clients' creations in the libraries, we are building a powerful bridge that connects the public to the talents and stories of persons with intellectual disability. This initiative not only highlights their capabilities and contributions but also fosters a more inclusive community grounded in empathy and understanding.”

Another approach that NLB adopted to empower persons with disabilities is by supporting them on work attachment opportunities. For example, students from the MINDS Fernvale Gardens School, a special education school, help to manage the Toy Library at the Punggol Regional Library on a weekly basis, by sanitising the toys and maintaining the cleanliness and tidiness of the space. This allows the students to pick up useful skills and contribute to the community.

Enriching The Library Experience for Persons with Disabilities

NLB is deeply committed to enriching the library experience for persons with disabilities, which includes the development of accessible programmes to make libraries more inclusive for them. For instance, storytelling sessions have been adapted to incorporate sensory elements, making them more accessible for persons with disabilities, particularly those with autism. Additionally, sign language interpretation has been introduced for library programmes to provide better access for individuals with hearing loss.

Besides making the library experiences for persons with disabilities more accessible, NLB is also dedicated to enriching their library experience by transforming libraries into spaces that encourage meaningful interactions between persons with disabilities and the general public. This aims to contribute towards the efforts for persons with disabilities to integrate fully into society.

Statistics have shown that there is a higher proportion of positive public attitudes among those with regular contact with persons with disabilities (Ministry of Social and Family Development, 2024). Interactions between persons with disabilities and the public can promote greater understanding and inclusivity. NLB facilitates these opportunities by designing programmes that bring both persons with disabilities and the public together, creating spaces for shared experiences and mutual learning.

Table 3: Number of accessible programmes in NLB from 2023 to 2024

Year	Number of accessible programmes in NLB	Number of persons with disabilities attending accessible programmes	Number of general participants attending accessible programmes
2024	167 (↑198%)	5,557 (↑4609%)	6,068 (↑134%)

2023	57	118	2,599

In 2023, NLB organised 57 accessible programmes, attended by 118 persons with disabilities, some of whom visited the libraries for the first time (Table 3). Through ongoing collaboration with community partners, NLB expanded its accessible programmes in 2024 by 198%, reaching a total of 167 programmes. The expansion in the number of accessible programmes, as well as a targeted approach to encourage the disability community to engage in these programmes, led to a significant 4609% increase in participation, with 5,557 persons with disabilities, taking part in the programmes. Through the accessible programmes in the libraries, NLB also engaged 2,599 general participants in 2023. In 2024, this increased by 134% to 6,068. Using these programmes as a bridge, NLB continues to promote inclusivity, raise awareness and foster social interactions between persons with disabilities and the non-disabled.

One of ways that NLB found useful in encouraging persons with disabilities to participate in accessible programmes is to reach out to potential partners in the disability community early as they can provide relevant expertise and ideas, as well as offer suggestions for the programmes. Such collaborative efforts have the potential to serve a broader range of persons with disabilities and ensure that the programmes are relevant and engaging for them. This can in turn cultivate their interests in other library resources and build a habit of becoming regular library users. NLB also found that working with the disability community to publicise the accessible programmes helps to reach out to more persons with disabilities.

Enabling Services Hub@Punggol (ESH@PG) partners with NLB in enriching the library experience for persons with disabilities, such as hosting regular board game sessions in the library since 2025. These board game sessions bring together persons with disabilities and the general public for shared enjoyment. Michael Tan, Acting Assistant Manager of Community Inclusion & Engagement at ESH@PG, said, “By positioning itself as a service accessible to all residents, NLB sends a powerful message of inclusion and support. Collaborative partnerships with NLB allow ESH@PG to develop and implement activities that promote meaningful interaction between persons with disabilities and the general public. Increased and consistent library usage by persons with disabilities attending library programmes organised in partnership with NLB helps to normalise their presence and participation within the wider community, fostering a more inclusive society.”

In 2023 and 2024, NLB facilitated learning journeys and library tours for 1,483 persons with disabilities from special needs schools, helping them overcome physical barriers to accessing the libraries. This reflects NLB's continued dedication to creating a safe and inclusive space for persons with disabilities and to encourage them to take the first step to visit the libraries. NLB has also built-up strong partnerships with special needs schools, ensuring that students with disabilities have access to library resources, including tailored programmes and services.

JR Karthikeyan, Chief Executive Officer of social service agency AWWA said, "Building inclusive spaces and settings requires many helping hands, and we are incredibly encouraged by the NLB's suite of accessibility offerings and initiatives, which have benefitted a myriad of our clients from our early intervention centres, our Special Education schools, and our outreach programme for youths with additional needs in mainstream school settings. To date, many of our children, youths and parents have participated in enriching storytelling workshops, enjoyed sensory storytelling activities, and have accessed mobile libraries too. With NLB's inclusive facilities like calm pods, assistive devices and disability-friendly borrowing lanes, the library has transformed from being seen as a place to borrow books, to one that facilitates holistic educational experiences that are enjoyable and conducive for learners of all abilities and ages."

The introduction of the Accessible Membership in January 2023 further enhanced library access for persons with disabilities. This offers extended borrowing and renewal periods of 42 days (compared to 21 days for other patrons), free reservations for eligible items (which typically cost S$1.58 per item), and priority access to features such as the calm pods and other accessible facilities in the Punggol Regional Library. As of March 2025, 576 persons with disabilities have signed up for this membership, benefiting from these enhanced benefits.

In addition to enhancing physical library spaces, NLB has also focused on improving the digital experience for persons with disabilities. This included upgrading the mobile app to better serve persons with visual impairments by introducing the screen reader functionality. NLB actively involved visually impaired testers in this process, ensuring that the app meets their needs and provides an optimal user experience.

SUSTAINING AND EXPANDING NLB's ACCESSIBILITY INITIATIVES

A key factor in making libraries accessible is the advocacy and positive influence of its leadership and management (Winkelstein et al., 2024). To sustain the positive impact from NLB's accessibility initiatives, NLB adopts a whole-of-organisation approach to delivering

inclusive services. NLB remains committed to continually enhance its efforts to raise public awareness and foster a more inclusive environment within the organisation and in the libraries.

Cultivating Accessibility Culture and Advocates Within NLB

NLB is committed to cultivating a culture of accessibility among library staff, encouraging them to prioritise inclusivity in various aspects of their work. This includes creating accessible workspaces and speech-to-text tools for staff with disabilities. In 2023, NLB proudly became the first public sector agency to receive the Enabling Mark (Platinum) Award, a national accreditation by SG Enable, Singapore's focal agency and first stop for disability and inclusion, that recognises best practices in disability-inclusive employment.

To further this commitment, NLB developed a comprehensive disability and workplace accessibility guide that aligns all departments and individuals, ensuring accessibility remains a priority in daily operations. Specialised training is offered to staff, including hands-on learning with library case studies. Staff are also encouraged to undergo disability awareness training, building the necessary competencies to engage with persons with disabilities. This empowerment directly enhances NLB's frontline services, which aims to ensure every person with disability who visits NLB's libraries feels welcomed, inspired and enriched by the experience.

Additionally, NLB has cultivated over 30 accessibility advocates, known as "NLB's Accessible Champions" across various divisions in the organisation to lead inclusivity efforts. These champions spearhead inclusivity initiatives, fostering cross-functional collaboration to improve accessibility in both NLB's services and infrastructure.

In 2025, NLB introduced an organisation-wide accessibility award to recognise staff who demonstrate exceptional dedication to enhancing accessibility in library services and the workplace. This award also acknowledges initiatives that further improve accessibility in library or archives services, underscoring NLB's ongoing commitment to fostering accessibility as a core organisational value.

Efforts to Raise Awareness of NLB's Accessibility Initiatives

When the Punggol Regional Library opened in 2023, NLB introduced a distinctive purple heart icon to represent areas within the library that are prioritised for use by persons with disabilities. In 2025, to further strengthen NLB's commitment to inclusivity, the icon is renamed "**IRIS"**, which stands for "**I**nclusive Lib**R**ar**I**e**S**" (Figure 3) This symbol now represents accessible

programmes and services for persons with disabilities and reflects the inclusive offerings available throughout NLB's libraries. Persons with disabilities, their caregivers and the general public are encouraged to engage with IRIS activities to explore and learn more about the accessible services available in the libraries.

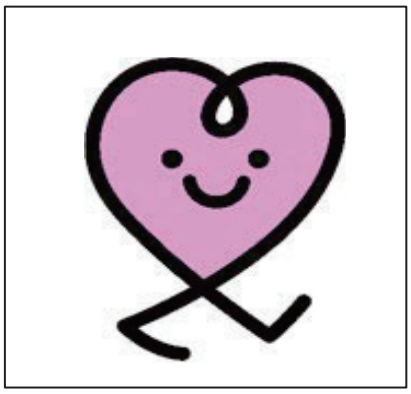


Figure 3: "IRIS" which stands for "Inclusive LibRarIeS"

To increase awareness of NLB's accessible programmes, NLB launched a bimonthly accessibility newsletter in 2024. This newsletter serves as a valuable resource for persons with disabilities and their caregivers, providing updates on upcoming accessible programmes and events, recommended reads from the accessible collection, and features the experiences of the disability community in the libraries. As of March 2025, in the five months since its launch, the newsletter has gained about 400 subscribers, and the number of subscribers continues to grow.

CONCLUSION

In conclusion, NLB's dedication to enhancing accessibility in the libraries has led to initiatives that empower and enrich persons with disabilities. NLB's ongoing efforts to make libraries more inclusive reflect a deep commitment to making the libraries a welcoming space for persons with disabilities and enhance their participation in the community. Through developing inclusive services based on data analytics and review of feedback from the disability community as well as partnerships with persons with disabilities to co-create accessible programmes, NLB has significantly improved accessibility in its libraries. The opening of the Punggol Regional Library as Singapore's first inclusive library in 2023 marked a key milestone in NLB's accessibility journey, demonstrating the commitment to provide inclusive library services for persons with disabilities. Furthermore, NLB's focus on fostering interactions between persons with disabilities and the broader public helps build greater awareness,

understanding and inclusivity. Moving forward, NLB remains dedicated to expanding and enhancing its accessibility initiatives, ensuring that its library services allow every individual, regardless of their abilities, to feel empowered and enriched.

REFERENCES

Ministry of Social and Family Development. (2024). *Disability trends report*. https://www.msf.gov.sg/docs/default-source/research-data/disability-trends-report-2024.pdf?sfvrsn=46eace93_7

Ministry of Social and Family Development. (2022). *Enabling masterplan 2030*. https://www.msf.gov.sg/what-we-do/enabling-masterplans/emp2030

Winkelstein. J. A., Bolt, N., Carlsson Asplund, H., Nomura, M., Rakočević Uvodić, M. (2024). *IFLA Guidelines for Making Libraries Accessible for People with Disabilities*. https://repository.ifla.org/handle/20.500.14598/371

Shelves, Skills, and Inclusion: The Development of a Workplace Immersion and Literacy Project of The Henry Luce III Library for Individuals with Developmental Disabilities

Vince Ervin V. Palcullo[1,3], Merle L. Junsay[2], Ma. Cynthia T. Peleña[1,3], Joan Iven Abello[2]

[1] Henry Luce III Library, Central Philippine University, Philippines

[2] College of Education, Central Philippine University, Philippines

[3] College of Computer Studies, Central Philippine University, Philippines

Corresponding email: vevpalcullo@cpu.edu.ph[1]

ABSTRACT

Libraries have the capacity to be powerful driving forces in leading exemplary programs that will positively affect society. As one of the spaces that foster inclusiveness, the library can be a potent instrument in promoting and supporting the United Nations Agenda for Sustainable Development Goals (SDGs) beyond borders. One of the areas that is less explored, yet very possible, is the partnership between the library and organizations dealing with students with special needs. This paper presents how such a partnership blossomed as it examined the workplace immersion and literacy project conducted by the Henry Luce III Library of Central Philippine University in Iloilo, Philippines, in collaboration with a special education center for individuals with developmental disabilities. This initiative provided valuable workplace exposure and skills development, fostering community integration. The said initiative aligns with and supports the United Nations Sustainable Development Goal specifically SDG 4 (Quality Education), and SDG10 (Reduced Inequalities). Employing key informant interviews and focusing on the role of libraries in promoting inclusivity, the study discussed how the

project was conceptualized, implemented and encountered challenges. The paper also discussed the lessons learned and issues to be addressed in implementing such initiatives to other institutions that are considering conducting or implementing similar projects. Plans for the future were also presented.

Keywords: Inclusivity; Academic Libraries; Developmental Disabilities; Sustainable Development Goals; SDGs; Philippines

INTRODUCTION AND BACKGROUND

Rooted in the goal of creating a better world, 193 member countries of the United Nations adopted a 15-year "blueprint for peace and prosperity for people and the planet" in 2015 and this blueprint is a set of goals, which is formally known as the Sustainable Development Goals or the SDGs (United Nations, n.d.; Dei & Asante, 2022). Consisting of 17 goals with 169 targets, the SDGs are based on political and scientific consensus to achieve ecological, social, and economic sustainable developments which are geared to put an end to poverty, safeguard the earth, and attain prosperity towards a more sustainable world by 2030 (Chigwada & Ngulube, 2024; Krishanthy & Gamage, 2024; Lison, 2024; Mashroofa, 2022; Ntsiful et al., 2023; Olatoye, 2021; Poluru, 2020; Sadare et.al., 2022).

As these goals are intertwined and needs a diverse set of expertise from different sectors and discipline that complement each other's strengths and weaknesses, achieving these goals calls for nations' governments, public and private sectors, civil society, and educational institutions to have a strong cooperation and collaboration (Mashroofa, 2022; Poluru, 2020). Educational sectors such as higher educational institutions (HEIs) such as universities play a vital role, and one of the key supporters in helping to achieve the SDGs of the HEIs are the libraries.

A country's development anchors on its provisions of accessing relevant, quality, timely, and adequate information (Olatoye, 2021). Furthermore, UNESCO (2023) stressed that access to information is a vital element and an "enabling mechanism" in fulfilling the SDGs as it empowers the public, helps in decision making, pushes for governmental accountability, and facilitates public involvement. With this, HEIs like universities serves as information avenue through its libraries (Krishanthy & Gamage, 2024; Lison, 2024; Mashroofa, 2022; Olatoye, 2021; Sadare et al., 2022) in addition to their role as agents of educating future leaders that will later have a huge role in the success of the SDG implementation (Žalėnienė & Pereira, 2021). According to IFLA (2018), libraries play a critical role at the heart of the communities

especially in promoting the achievement of SDGs, from offering access to information to serving as a safe and welcoming space.

In this regard, the library is uniquely positioned as an information and knowledge hub to support all 17 SDGs through its holistic information services (Anam & Borgohain, 2024; Chewe & Imasiku, 2018; IFLA, 2018; Poluru, 2020). Different libraries worldwide supports the SDGs by providing inclusive access to information, ICT education, conducive learning environment, inclusive spaces, establishing strong library programs, and collaboration with other institutions (Anam & Borgohain, 2024; Chewe & Imasiku, 2018; Cortez et al., 2024; Krishanthy & Gamage, 2024; Lison, 2024; Mashroofa, 2022; Ntsiful et al., 2023; Olatoye, 2021; Poluru, 2020).

In the Philippines, similar activities are also being conducted by the libraries in line with achieving the SDGs (Cortez et al., 2024). An example of this is the activity of the National Library of the Philippines, where they provide support and services to vulnerable and marginalized children (IFLA, 2022). This initiative primarily supports SDGs 4 (Quality Education) and 10 (Reduced Inequalities). SDG 4 focuses in ensuring inclusive and equitable quality education and promotes opportunities of lifelong learning for everyone. On the other hand, SDG 10 gears towards reducing inequality within, and among countries. With these goals, libraries have taken actions that contribute to their achievement.

Libraries have undertaken various initiatives to support this goal towards the attainment of SDG 4, highlighting the importance of lifelong learning and the provisions of quality and inclusive education that empowers individuals to participate and contribute meaningfully to society (Anam & Borgohain, 2024; Chigwada & Ngulube, 2024). These include accessibility of resources, open-access initiatives, multilingual and ICT services, and conducting workshops for information literacy. Facilities for individuals with special needs were also provided by the libraries in addition to the promotion of literacy and learning competencies, establishing safe and supportive learning environments, and assisting researchers in accessing information for knowledge advancement (Anam & Borgohain, 2024; Chuenchom et al., 2022; Dei & Asante, 2022; Islam et al., 2022; Krishanthy & Gamage, 2024; Lahyani et al., 2024; Mashroofa, 2022).

Furthermore, to contribute to the achievement of SDG 10, libraries have initiated various activities that promote equality, and the development of inclusive and empowered communities designed to support the marginalized and disadvantaged sectors of the society (Krishanthy & Gamage, 2024; Lison, 2024). These knowledge hubs ensure equitable access to

information, services, and other resources irrespective of race, ethnicity, gender, religion, immigration status, or disability (Krishanthy & Gamage, 2024; Lahyani et al., 2024; Lison, 2024). Facilities for individuals with special needs, including accessible parking spaces and comfort rooms, braille materials, adaptive computer technology, and audiobooks (Lahyani et al., 2024) are also provided by the libraries. In line with their commitment to reducing the digital divide, libraries also organize and promote ICT awareness campaigns and implement specialized programs and services to empower marginalized groups (Chuenchom et al., 2022; Islam et al., 2022; Lison, 2024).

Beyond the endeavor of ensuring access to information and resources in support of inclusiveness and equality, information initiatives and programs that facilitate the development of diverse skills and competencies essential for the emerging workforce were also being actively advocated by the libraries. These efforts aim to enhance the capacity and employability of the new generation in a dynamic job market (Chuenchom et al., 2024; Islam et al., 2022; Ntsiful et al., 2023). In addition, libraries empower individuals to become active contributors to society by fostering environments that promote community engagement and cultivate a strong sense of belongingness. (Lison, 2024). Indeed, libraries are actively integrating the SDGs, specifically SDGs 4 and 10, in their mission and most of their efforts are anchored to the idea of making information available to everyone.

According to Lison (2024), libraries are becoming a catalyst of community empowerment, more than just a repository of books. Seeing this opportunity, and in the pursuit to actively contribute to the achievement of SDGs 4 and 10, the Henry Luce III Library (HLL) of the Central Philippine University in the Philippines collaborated with an external organization to establish a workplace immersion and literacy project for individuals with developmental needs.

According to the World Health Organization (2023), approximately 16% of the global population experience significant forms of disability. For the Philippines, data from 2010 estimated that around 1.44 million Filipinos had some form of disability (Velasco et al., 2021). More recently, the Philippine Statistics Authority reported that the disability prevalence rate among Filipinos aged 15 and older stood at 12% as of 2016 (PSA, 2019). Within society, persons with disabilities (PWDs) are among the most vulnerable population, necessitating focused and sustained government intervention (Mina, 2013).

In order to address the needs of this marginalized sector, the Philippine government has enacted several legislations aimed at promoting their rights, welfare, and empowerment. Key among these is the Magna Carta for Disabled Persons (Republic Act No. 7277, 1992) and Republic Act No. 10524 (2013), which mandate the expansion of positions in government institutions specifically allotted for PWDs.

However, despite the efforts of the government and various sectors, as well as the availability of national data, the country continues to face significant challenges in addressing the specific needs of persons with disabilities. Most existing laws and initiatives are designed with a generalized approach to disability, lacking differentiation based on the type or nature of the disability. For instance, much of the current legislation and available data categorize individuals under the broad umbrella of "disability," without distinguishing between specific types. This generalized approach presents limitations, particularly in addressing the unique needs of individuals with visible disabilities (for example, visual impairments or mobility challenges) and those with non-visible disabilities (for example, individuals with developmental disorders). As noted by Timmons et al. (2023), this may lead to potential biases and unequal support across different disability groups. Another challenge that affects this is the underreporting of cases that can be attributed to a lack of specialists for proper assessment in their areas (Sese & Guillermo, 2023).

Nevertheless, individuals with special needs, particularly those with developmental disabilities, remain integral members of society who are capable of making meaningful contributions. One significant way they can contribute is by participating in the workforce, as employment not only supports economic growth and national development (SERP-P, n.d.) but also enhances personal well-being as employment fosters independence, a sense of self-worth, belongingness, and overall quality of life (Prainsack & Buyx, 2018; Whitney et al., 2021). This is especially true for individuals with developmental disabilities, for whom employment provides income, broader opportunities for interpersonal relationships, independence, and active community involvement (Qian et al., 2018; Whitney et al., 2021).

In support of this, the Philippine government has enacted additional laws to promote the employment and protection of individuals with special needs, including Executive Order No. 261 (1995) and Republic Act No. 1179 (1954). These laws further reinforce the government's commitment to inclusivity and equal opportunity. However, despite these anti-discrimination efforts, the employment of individuals with special needs, particularly those with developmental disabilities, remains an area for improvement (Mina, 2013). This is due to

various factors such as limited employment opportunities, inadequate workplace support, and persistent societal biases (Whitney, 2021).

Recognizing the significant role of the library as a catalyst for inclusiveness, empowerment, and champion of SDGs 4 and 10, the HLL launched a special project for work immersion and literacy for individuals with developmental disabilities. In collaboration with an external transition center, this initiative represents a proactive effort to advocate for individuals with developmental disabilities by equipping them with practical skills and competencies. Through this work immersion program, participants are better prepared for future employment opportunities in line with their skills, thereby enhancing their capacity to contribute meaningfully to society through community integration, and fostering a greater sense of self-worth and independence.

In order to elucidate this project, this study was conducted with the primary aim of examining the workplace immersion and literacy project of the HLL. Specifically, it sought to achieve the following objectives:

a. Describe how the work immersion and literacy project for individuals with developmental disabilities had been conceptualized and prepared for,

b. Examine the implementation activities during the project, and

c. Present the areas of improvement for the project.

The Work Immersion and Literacy Project

The HLL of the Central Philippine University in the Philippines took an active step towards advancing inclusivity and equality by implementing its first work immersion for individuals with developmental disabilities in 2019. This initiative was forged from a partnership with the Transition Center for Adolescents and Adults with Special Needs. The Transition Center was searching for an institution that could provide a supportive and real-world environment to help individuals with special needs engage in skill-building activities and the HLL readily accepted the collaboration, driven by its commitment to supporting SDGs 4 and 10, recognizing that this was a significant opportunity to extend its mission beyond traditional library roles,

While the library has consistently supported the SDGs, particularly SDGs 4 and 10, by providing access to information resources, this project reflects a more proactive move. Rather than limiting its role to the passive availability of information and materials, the library has taken

deliberate actions to promote real-world inclusion and empowerment through direct involvement. The work immersion project allows individuals with developmental disabilities to participate in a structured, simple routine task that matches their capabilities and helps them build confidence and workplace readiness.

Through this initiative, the library reaffirms its position not only as a repository of knowledge but also as a dynamic agent of social transformation, contributing to SDGs 4 and 10. The library serves as a safe and inclusive space where marginalized individuals can develop employable skills and nurture a sense of belonging and purpose.

Due to the COVID-19 pandemic, the project was temporarily stopped from 2020 to 2022. Nevertheless, it was successfully resumed in 2023, adapting to the new normal. In 2024, the HLL enhanced the work immersion project by integrating a literacy component into the program. By doing this, the library broadened the project's scope to include both practical and expressive dimensions of learning, reaffirming its role as an inclusive space that supports holistic development. The program highlighted the importance of community-building, encouraging participants to engage with others, celebrate their progress, and experience a sense of achievement in a supportive environment.

The initiative is now in its fourth cycle in 2025. The project continues to provide a model of inclusive practice that demonstrates how libraries can go beyond providing access to information by actively creating opportunities for empowerment, participation, and inclusion.

METHODOLOGY

The researchers used a qualitative descriptive research design, utilizing key informant interviews and thematic analysis to explore the conceptualization, implementation, challenges, and potential improvements of the project. Individuals eligible for participation are those who were actively involved in the project.

Interviews were conducted by two of the researchers. The interview sessions were conducted either in person or online, depending on the availability and location of the participants. Some key informants were based outside of the Philippines, while others had scheduling conflicts due to work commitments. Interviews were primarily conducted in English, although Hiligaynon, one of the Philippines' local languages, was used occasionally depending on the

preference of the participant. Before the interview commenced, participants were informed of their rights and were encouraged to respond in the language they felt most comfortable with. For face-to-face interviews, a voice recorder was used to capture the responses, while online interviews were recorded using digital conferencing tools. In both cases, verbal consent to participate and to record the conversations was obtained from the interviewees before proceeding.

Each interview lasted between 30 minutes to an hour and focused on open-ended questions related to the project's conceptualization, implementation, challenges encountered, and suggestions for improvement. A non-structured interview format was employed to encourage a natural, free-flowing conversation. At the end of each session, participants were invited to share any additional insights that were not covered. The interviews continued until the researchers determined that data saturation had been reached when no new or relevant insights were emerging from subsequent interviews.

The data collected through the interviews underwent a simple audio analysis to assess and interpret participant responses. All interviews were transcribed verbatim, and the transcripts were compared against the original audio recordings (in MP4 format) to ensure accuracy. For the portions of the interviews that were conducted in Hiligaynon, a qualified translator was engaged to accurately translate the content into English while preserving its intended meaning.

The transcribed data were then imported into NVivo, a qualitative data analysis software, where the researchers conducted coding and categorization. This process involved identifying recurring ideas and concepts aligned with the research objectives. Through this thematic analysis, the data were interpreted and organized to reflect the participants' perspectives. The findings were presented in a descriptive and interpretive narrative, highlighting key themes and insights derived from the interviews.

RESULTS AND DISCUSSION

Conceptualization

Project Concept and Components

Exposure of individuals with special needs is helpful as they can build their skills and self-confidence to be ready for societal integration. These activities are often conducted at transition centers to overcome their difficulties and for them to function. Transition programs

aim to improve the quality of life of individuals with special needs while equipping them to become contributing members of the community (Capinpin & Barbara, 2023).

With this aim, the Transition Center for Adolescents and Adults with Special Needs that offers their services, and the work immersion, or "internship", is a vital part of their existing curriculum. Hence, work immersion already exists at the Transition Center, and they only require partner institutions for this.

The HLL's integration of the program into its activities was initiated through a CPU faculty member from the special education program, whose child is enrolled at the said Transition Center. As a key member of the center, she facilitated the partnership at a time when the center was seeking an institutional collaborator. Through official communication and subsequent approval from the university administration and the Office of the University Libraries, the requests received positive responses, as confirmed by Organizers 1 and 2:

"...I went to [Director of Libraries] to offer the concept to her, and Ma'am was really very open to it..." – Organizer 1

"...we requested them to write a letter to the former CPU President, requesting for the approval for that initiative. Upon the approval, the 2-week internship program was approved and started in 2019." – Organizer 2

This positive reception signifies a strong commitment to collaboration and a shared vision of fostering an inclusive environment. Such partnerships are crucial in advancing SDGs 4 and 10, which emphasize quality education and reduced inequalities (Mashroofa, 2022; Olatoye, 2021; Poluru, 2020).

Identifying partner institutions for this initiative proved challenging due to societal perceptions and stigma, aligning with Khayatzadeh-Mahani et al.'s (2019) findings on external barriers faced by vulnerable groups. As Organizer 3 noted during the interview:

"Some of the establishments have misconceptions, or maybe they have their impressions that maybe they will have tantrums, or maybe they won't be able to handle the equipment or stuff like that."

Administrative and Implementation Challenges

Implementing a complex initiative such as this, inevitably presents several challenges. While it is fortunate that HLL and the Transition Center share a unified vision of promoting inclusivity and equality, even the most well-intentioned efforts encounter obstacles. Among the issues faced by the organizers were prolonged approval timelines for official communications, and the absence of formal agreements or memoranda of understanding. These logistical concerns could be mitigated through early preparation and allocation of sufficient time for processing the necessary documentation. However, a more critical challenge emerged during the conceptualization phase – the librarians' limited experience in working with interns with special needs. As expressed by Librarian 1 and Librarian 2:

"I am really challenged with it because I am not well trained when it comes to the students with special needs." – Librarian 1

"... especially we are not yet trained, ma'am." – Librarian 2

These concerns reflect broader systemic issues, as identified by Farooq and Manzoor (2021), who noted that a lack of trained library staff poses a significant barrier to students with disabilities. Encouragingly, the library's commitment to inclusive programming could serve as a catalyst for empowering staff through targeted training initiatives. This recommendation aligns with the findings of Krishanthy and Gamage (2024) and Olatoye (2021) emphasizing the importance of equipping librarians with the necessary skills to support inclusive services and contribute meaningfully to the achievement of the SDGs.

IMPLEMENTATION

Project Activities

Prior to the project's implementation and the commencement of the internship, pre-deployment measures were undertaken to ensure that interns were adequately prepared for their assigned roles. The Transition Center facilitated preliminary consultations with the students' parents. This was particularly essential given that the participating students were

formally enrolled and work immersion was a curricular requirement. Furthermore, a skills-intern matching process was conducted as part of the Transition Center's curriculum to align students' abilities with appropriate tasks. This approach aligns with the findings of Scheef et al. (2017), who emphasized that identifying and understanding students' skills is essential in supporting their preparation for sustained, long-term, and integrated employment. In addition to the skills-intern matching, task simulations were conducted as part of the pre-deployment preparations to help interns become familiar with their responsibilities. This simulation process was essential in building the interns' confidence and readiness, ensuring a smoother transition into the actual work environment. As Organizer 1 explained:

"Because whatever task that you have for these individuals, you have to simulate first at the [Transition Center] so that when they go to the workplace itself, they will somehow be familiar already and they know the routine..."

Moreover, on the part of the HLL, the librarians were briefed on the students, as well as the goals and objectives of the project. This ensured that they were well-informed and adequately prepared to support the interns and contribute to the overall success of the initiative. On the other hand, one of the HLL's key strengths in implementing the program lies in its commitment to making students feel capable, independent, functional, and included. As Organizer 3 highlighted:

"So they go through the sending of CVs, the resume, the interview, orientation, just like the usual internships of students. Even if you already know the answers, ma'am, you all still go through with that one. You still do the interviews and the orientation for our students. I think that helps. They are treated also as really interns."

While special accommodations were provided to meet their specific needs, the HLL ensured that the students experience the standard internship process. This approach reflects a deep commitment to social inclusion and equality, in line with Article 27 (1.a) of the United Nations Convention on the Rights of Persons with Disabilities (CRPD), which prohibits discrimination based on disability in all aspects of employment (United Nations, n.d.a). By doing so, the HLL affirms that these students with developmental disabilities are treated equally and assessed based on their capabilities.

As part of the project's implementation, the HLL organized an official welcoming and orientation program to facilitate initial interaction between the interns and their supervising librarians. This event provided a structured opportunity for both parties to become acquainted, fostering a sense of familiarity and rapport. It was also during this event that the interns were formally introduced to their designated work areas and immediate supervisors.

The duration of the internship was determined by the schedule stipulated in the curriculum of the students from the Transition Center. Since the program's inception in 2019, internships typically ranged from one to two weeks, with daily duty hours spanning from one and a half to three hours. At the library, interns were generally assigned tasks that are simple, and routine-based, such as shelving books, encoding, cleaning, and assisting with technical processing by cutting and labeling stickers for books.

Throughout the internship period, the quality of the interns' output was consistently commendable. With the guidance of supervising librarians and the support of job coaches, the interns were able to fulfill the tasks expected of them. For individuals with developmental disabilities, structured routines and predictable environments are crucial as they promote a sense of security and minimize anxiety (Open LMS, n.d.). Their strong orientation towards routine makes them highly attentive to the instructions. When directions are delivered clearly and specifically, they can execute tasks effectively, as highlighted by Librarian 2:

"Somehow efficient, ma'am, because once you give instructions to cut something, it will turn out really nice, ma'am. ...they would really follow what you taught them."

Roles And Responsibilities

In preparation for the commencement of the internship, the specific roles and responsibilities of the individuals involved were clearly defined. The librarians, serving as workplace supervisors, were tasked with overseeing task-related activities. Their responsibilities included preparing the work assignments, orienting the interns on the procedures, and outlining the appropriate workplace conduct. Supervisors were assigned according to skills-intern matching pattern. For instance, interns demonstrating proficiency in encoding were placed in the department responsible for that function, and the librarian overseeing that section assumes supervisory responsibility for the intern.

In cases where interns might feel overwhelmed or experience emotional outbursts or meltdowns, it was the job coaches who were designated to intervene. This decision was based on the interns' familiarity with the job coaches and their specialized training in managing such situations. This structured delegation of roles ensured a supportive and responsive environment conducive to the interns' well-being and productivity. As clarified by Organizer 2 during the interview:

"The role of the librarian purely supervises or assists only; she's not involved in the intervention phase if ever the students have tantrums."

Implementation Challenges

During implementation, challenges arose in two domains, task management and intern-specific issues. Task-related problems included insufficient duty hours for comprehensive task engagement, especially in 2025 when interns' roles were expanded, and overly narrow assignments that led to early completion and idle time, which fostered distraction. As Librarian 2 recounted:

"So, because there's no work left for me to give [to the intern], I was surprised that [the intern] immediately stood up and walked upstairs. So, I told my student assistant to follow [the intern], and that's when [the intern] took the tablet. I informed the Job Coach that [the intern] didn't ask for permission... [the intern] was already playing with the tablet."

Communication gaps also emerged, as interns tended to interpret instructions literally, prompting Librarian 2 to observe:

"…because if you wouldn't be specific, they will do their work quickly. That's what we observed. They will say, 'You told us that if we get to finish our work, we can do this or that."

This suggests the need for precise and clearly defined instructions to better manage task execution and expectations. Moreover, intern-specific challenges included health accommodations such as assigning interns with allergies to low-dust areas and providing masks, and logistical support for punctuality and commuting by job coaches. Behavioral issues such as frustration-induced tantrums and aggression were noted:

"…there is this one student who doesn't feel ok, she ran around and showed aggressive behavior because she was late." – Job coach 1

"…there is one intern who had tantrums, he tapped the keyboard." – Librarian 1

Interns frequently exhibited limited attention spans and fixations, which diverted them from their assigned tasks. As Organizer 1 noted,

"When you say fixations, they would rather do the other side's tasks than doing their own tasks."

In cases where such fixations persisted, job coaches, whose assessments guide project participation, occasionally withdrew interns. Organizer 3 recounted one instance:

"So, like case in point, one of the students that we released for deployment this year, we pulled him out because he was not ready yet. He kept on saying that he just wants to surf the internet and use YouTube in your library. So we talked to him about it. If he's not ready, he will just do his work internship here for this year."

Moreover, sudden changes in routine adversely affected performance. Interns accustomed to consistency required additional time to adapt, leading to distraction and reduced work quality. As Organizer 1 observed:

"If we also have transition...there's a change in the routine, so their quality of work is still can be affected because they still need to process, 'We are used to work here, why do they have to transfer us.' Because of those transitions, they get distracted."

These findings underscore the importance of minimizing abrupt transitions and providing clear and structured routine especially for people with autism spectrum disorder (ASD) and ADHD, and anxiety (Open LMS, n.d.; National Autistic Society, n.d.)

In the post-implementation phase, the library hosted a closing ceremony to express gratitude and recognize interns' contributions. In 2024, this ceremony featured a culminating reading-literacy and art activity in collaboration with the special needs education students. Participating interns engaged in storytelling activities and a drawing session, where they were given the opportunity to present and share their creative outputs. This additional component created a meaningful and enriching experience, allowing the interns not only to apply and practice work-related skills, but also to develop their interpersonal communication, self-expression, and confidence.

When asked to reflect on their overall impressions of the internship program, interviewees consistently reported that it fostered both professional growth and independence among participants. Organizer 3 observed that interns not only developed competencies equal with those expected in the workplace but also gained an authentic appreciation for professional environments. As they noted:

"...if these skills that they have matches that one, that's already achieved. Also, an appreciation of the work environment of being in the world of work, that's also achieved because most of their students were happy after this one. And they want another, when the internship season begins, they're always looking forward to it."

Regarding the contribution of the library to the program's success, Organizer 3 highlighted the institution's meticulous planning and supportive staffing, explaining that:

"The CPU library, ma'am, it's well-planned. Usually, the staff is ready. ... Although most of our students are agitated when they're not able to do the task well. But there's also a sense of accomplishment when they're given, when they're able to do it. So, I think that's well done as well."

FUTURE PLANS

Continuity and Improvement of Project

In order to ensure the sustainability and expansion of the program, participants recommended broadening its scope to include other university offices capable of offering routine tasks. Organizer 2 and 3 suggested:

"...other things that the library can improve or another is to increase the scope, that there will be other offices in colleges that can join..." -Organizer 2

"We hope they can go to the kitchen work, gardening work, housekeeping." -Organizer 3

These recommendations aligned with the program's overarching goals of inclusivity and collaboration. Participants also identified several areas for improvement. Considering the implementation challenges, they advocated for extending the duration of work-immersion, diversifying intern responsibilities, and streamlining orientation sessions while involving all stakeholders. Moreover, a suggestion to let the interns have more independence in working their own task is advised. Job coach 2 response said:

"It is [best] for them to at least feel that they really are working, and also for independence as well, that they wouldn't have to depend. Because, in the real world, not all the time they have someone to assist them."

From the library's perspective, an awareness campaign promoting inclusivity and equality was deemed essential. Organizer 1 argued that early exposure is critical:

"The problem with us is that we don't include them to those kids when they were younger. When the kids were still young, they're already included with the regulars, when they're in college, when they work, and we are not used to that, so, we always treat them differently. Because we are not used to them when we were younger, so, the more awareness that we create starts in the library in kindergarten and all the libraries..."

Librarian Development

Interviewees underscored the necessity of specialized training for librarians. Equipping staff with the skills to accommodate and support individuals with developmental disabilities was identified as a pivotal step in enhancing service quality and ensuring the program's long-term success. This aligns with Subramaniam et al. (2012) who indicated that developing librarians in dealing with students with disabilities can empower these students and the institution as a whole as they offer inclusive services.

Overall, the project transformed the library into a vital instrument of inclusivity by generating opportunities and fostering collaboration, thereby advancing SDGs 4 (Quality Education) and 10 (Reduced Inequalities). As the nation's pioneering library-based internship project for individuals with developmental disabilities, the HLL is privileged to support vulnerable populations and aspires to serve as a catalyst for other libraries and other institutions to extend comparable opportunities. Furthermore, librarians reported a mutually beneficial relationship with the program, observing that their own productivity and motivation were enhanced. Librarian 2 and Organizer 1 commented:

"...at the library and the workplace, it's [the work immersion project] a big help also, because, if they are quick in doing the task, then you will also be motivated to work faster." -Librarian 2

"The child also models that if you work hard, then I work hard. If you come on time then, I come on time. So, its impact to me is a symbiotic relationship." -Organizer 1

Shifting to the interns, the program cultivated a profound sense of belonging and facilitated personal development for them. Job coach 1 and Organizer 1 observed:

"...I think on [the interns] part they gained also, and at the same time confidence. Like, they can feel that they can do stuff or they can do it also." -Job Coach 1

"... the impact is very positive, because you've seen the growth, and because they feel that they belong to a community, especially that CPU is a big institution, and it is known." -Organizer 1

Moreover, participation in the program has, in some instances, inspired interns to pursue higher education. Organizer 3 recounted:

"...I think the internship also motivated him [an intern] to go into IT (Information Technology), so, after the [Transition Center], for 1 year or 2 years at the [Transition Center] he took IT at [a certain university],...he's a graduate of Magna Cum Laude. That's it, his mom and I are friends, she's the one who told me that one of the motivations that he has, was, that experience." Organizer 3

Collectively, these underscore the program's multifaceted benefits, for interns, library staff, and the broader educational community. It also highlights its potential as a model for inclusive practice in higher education.

CONCLUSION

In conclusion, the Work Immersion and Literacy Project of the HLL demonstrably advances SDG 4 (Quality Education) by providing individuals with developmental disabilities structured, experiential learning that builds their skills, confidence, and readiness for the workforce. Simultaneously, it promotes SDG 10 (Reduced Inequalities) by forging institutional partnerships, embedding inclusive practices within library operations, and addressing systemic barriers such as stigma that historically marginalized these learners. Through targeted role allocation, clear communication, routine-based tasks, and specialized support from librarians and job coaches, the program not only equips these interns with developmental disabilities with marketable competencies but also fosters their independence and sense of belonging. As a pioneering model in libraries in HEIs, the project underscores the transformative potential of library through inclusive internships to enhance equity, broaden access to quality education, and diminish disability-related disparities in professional and academic settings.

REFERENCES

Anam, A., & Borgohain, T. (2024). University libraries in assam: driving progress on Sustainable Development Goal 4 (Quality Education). INFLIBNET. http://ir.inflibnet.ac.in/handle/1944/2496

Centers for Disease Control and Prevention (CDC). (n.d.). Developmental disability basics. CDC. https://www.cdc.gov/child-development/about/developmental-disability-basics.html

Chewe, P., & Imasiku, I. (2018). Centrality of libraries in the actualization of sustainable development goals in Zambia. European Journal of Social Science Studies, 3(2), 253-265.

Chigwada, J. C., & Ngulube, P. (2024). Bridging the knowledge gap: Countering the digital divide in rural school libraries in Zimbabwe. The International Journal of Information, Diversity, & Inclusion, 8(3/4).

Chuenchom, S., Wimonsittichai, N., Chaimin, C., Ammarukleart, S., Timakum, T., Putthima, S., & Wipawin, N. (2022). Libraries for Sustainable Development Goals (SDGs). TLA Bulletin, 66(2).

Cortez, C. C., Abad, F. B., Barba, J. S., Gualvez, C. R., Lebrilla, E. O. & Vergara, V. A. (2024). The library initiatives of South-Manila Educational Consortium (SMEC) academic libraries in achieving the Sustainable Development Goals. PAARL Research Journal, 10(1), 31-56.

Dei, D. & Asante, F. Y. (2022). Role of academic libraries in the achievement of quality education as a sustainable development goal. Library Management, 43(6/7), 439-459. 10.1108/LM-02-2022-0013

Executive Order No. 261, s. 1995 (1995). https://www.officialgazette.gov.ph/1995/07/17/executive-order-no-261-s-1995/

International Federation of Library Associations and Institutions (IFLA). (2018). Libraries and Sustainable Development Goals: A storytelling manual. IFLA.

International Federation of Library Associations and Institutions (IFLA). (2022). Library map of the world. IFLA. https://librarymap.ifla.org/stories/Philippines/LIBRARY%E2%80%99S-OUTREACH-PROGRAMME-PROVIDES-GROWTH-OPPORTUNITIES-TO-STREET-CHILDREN/177

Islam, M. A., Sultana, R., & Widén, G. (2022). Ascertaining the place of UN sustainable development goals in public libraries: how much progress have public libraries made in Bangladesh? Global Knowledge Memory and Communication, 73(3), 354-374. https://doi.org/10.1108/gkmc-03-2022-0072

Khayatzadeh-Mahani, A., Wittevrongel, K., Nicholas, D. B., & Zwicker, J. D. (2019). Prioritizing barriers and solutions to improve employment for persons with developmental disabilities. Disability and Rehabilitation, 42(19), 2696-2706. https://doi.org/10.1080/09638288.2019.1570356

Krishanthy, S., & Gamage, R. C. G. (2024). Practices pertaining to Sustainable Development Goals in university libraries of Sri Lanka: An exploratory Study. Journal of the University Librarians Association of Sri Lanka, 27(2), 197-226.

Lahyani, K., Diab, G., & Moukhliss, G. (2024). Role of academic libraries in the achievement of Sustainable Development Goals case study: The Mohamed Sekkat University Library. Procedia Computer Science, 236, 566–573. https://doi.org/10.1016/j.procs.2024.05.067

Lison, B. (2024). Libraries, community empowerment, and the United Nations Sustainable Development Goals: A symbiotic transformation. Library Trends, 72(4), 587-600.

Mashroofa, M. M. (2022). Contribution of academic libraries towards Sustainable Development Goals. Annals of Library and Information Studies, 69, 51-58.

Mina, C. D. (2013). Employment of persons with disabilities (PWDs) in the Philippines: The case of Metro Manila and Rosario, Batangas (No. 2013-13). PIDS Discussion Paper Series.

National Autistic Society (n.d.). Dealing with change. National Autistic Society. https://autism.org.uk/advice-and-guidance/topics/behaviour/dealing-with-change/all-audiences

Ntsiful, E. O., Ankrah, E., Gyesi, K., & Bada, N. (2023). Sustainable development goal four (SDG 4) in Ghana: Can second cycle school libraries play a role?. Information Development, 02666669231210259. https://doi.org/10.1177/02666669231210259

Olatoye, O. I. O. (2021). An evaluation of the impact of libraries towards the realisation of the Sustainable Development Goals (SDGs). Journal of Human Ecology, 74,1-3. https://doi.org/10.31901/24566608.2021/74.1-3.3228

Open LMS. (n.d.). 6 ways of using context and consistency to ensure your online learning content is accessible. Open LMS. https://www.openlms.net/blog/education/ensure-accessible-online-learning-content-through-context consistency/#:~:text=Consistency%20is%20very%20important%20for,We%20want%20to%20avoid%20that!

Prainsack, B., & Buyx, A. (2018). The value of work: Addressing the future of work through the lens of solidarity. Bioethics, 32(9), 585-592. https://doi.org/10.1111/bioe.12507

Philippine Statistics Authority (PSA). (2019). National disability prevalence survey. PSA. https://psa.gov.ph/statistics/national-disability-prevalence-survey

Poluru, L. (2020). Sustainable Development Goals (SDG): The role of libraries and access of information for transformation [Conference paper].

Republic Act No. 10524. An Expanding The Positions Reserved for Persons With Disability, Amending For The Purpose Republic Act. No. 7277, As Amended, Otherwise Known As The Magna Carta For Persons With Disability (2013). https://ncda.gov.ph/disability-laws/republic-acts/republic-act-no-10524-an-act-expanding-the-positions-reserved-for-persons-with-disability-amending-for-the-purpose-republic-act-no-7277-as-amended-otherwise-known-as-the-magna-carta-for-persons/

Republic Act No. 1179. Vocational Rehabilitation Act (1954). https://ncda.gov.ph/disability-laws/republic-acts/republic-act-1179/

Republic Act. No. 7277. Magna Carta for Disabled Person (1992). https://www.officialgazette.gov.ph/1992/03/24/republic-act-no-7277/

Sadare, O. O., Moothi, K., & Daramola, M. O. (2022). The role of the Library in actualising United Nation Sustainable Development Goals in South Africa. In UJ Press eBooks (pp. 161–179). https://doi.org/10.36615/9781776402304-09

Scheef, A. R., Walker, Z. M., & Barrio, B. L. (2017). Salient employability skills for youth with intellectual and developmental disabilities in Singapore: the perspectives of job developers. International Journal of Developmental Disabilities, 65(1), 1-9. https://doi.org/10.1080/20473869.2017.1335479

Sese, L. V. C., & Guillermo, M. C. L. (2023). A story of hope: How a community project is transforming the lives of Filipino children with intellectual and developmental disabilities. Global Pediatric Health, 10(1-4). DOI: 10.1177/2333794X231211215

Socioeconomic Research Portal for the Philippines (SERP-P). (n.d.). Employment: Socioeconomic issue on spotlight. SERP-P. https://serp-p.pids.gov.ph/feature/public/index-view?feauredtype_id=1&slug=employment

Subramaniam, M., Oxley, R., & Kodama, C. (2012). School librarians as ambassadors of inclusive information access for student with disabilities. School Library Research, 16.

Timmons, S., McGinnity, F., & Carroll, E. (2023). Ableism differs by disability, gender and social context: Evidence from vignette experiments. British Journal of Social Psychology, 63(2), 637-657. https://doi.org/10.1111/bjso.12696

UNESCO. (2023). 2021 report on public access to information (SDG 16.10.2): Access to information and sustainable goals. UNESCO. https://www.unesco.org/reports/access-to-information/2021/en/access-infromation-sustaiable-development

United Nations. (n.d.) Sustainable Development Goals. United Nations. https://sdgs.un.org/goals

United Nations. (n.d.-a). Article 27: Work and employment. Department of Economic and Social Affairs Disability. UN. https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities/article-27-work-and-employment.html

Velasco, J. V., Obnial, J. C., Pastrana, A., Ang, H. K., Viacrusis, P. M., & Lucero-Prisno, D. E., III. (2021). COVID-19 and persons with disabilities in the Philippines: A policy analysis. Health Promotion Perspectives, 11(3), 299-306. https://doi.org/10.34172/hpp.2021.38

Whitney, D. J., Warren, C. R., Smith, J., Arenales, M., Meyers, S., Devaney, M., & Christian, L. (2021). Work expectations of adults with developmental disabilities. ALTER, European Journal of disability Research, 15, 321-340.

World Health Organization (WHO). (2023). Disability. WHO. https://www.who.int/news-room/fact-sheets/detail/disability-and-health#:~:text=Key%20facts,earlier%20than%20those%20without%20disabilities

Žalėnienė, I., & Pereira, P. (2021). Higher education for sustainability: A global perspective. Geography and Sustainability, 2(2), 99-106. https://doi.org/10.1016/j.geosus.2021.05.001

From Trends to Practice: Exploring the Role of Disabled Librarians in Building Inclusive Knowledge Ecosystems for Persons with Disabilities

Destiya P. Prabowo[1], Suharyanto[2]

[1]Doctoral Candidate of Communication and Media Studies, Faculty of Communication, Padjadjaran University, Indonesia

[2] Head of Center for Library Services and National Manuscript Management, National Library of Indonesia, Indonesia

Corresponding email: destiya22001@mail.unpad.ac.id

ABSTRACT

According to the 2022 National Economic Census (*Sensus Ekonomi Nasional*), Indonesia is home to 28.05 million persons with disabilities. It represents 10.38% of the population while the National Library of Indonesia (Perpusnas) records an average of only 56 users accessing its disability services annually between 2019 and 2024. This highlights the substantial opportunity for disabled librarians to actively participate in the development of a more inclusive and accessible knowledge ecosystem. Their role is significant due to their professional expertise in addressing information needs and unique perspectives as members of the disability community. This role has often been overlooked in academic literature and underutilized in practice, requiring further exploration to understand its contributions. This study will employ a mixed-methods research approach, adopting an explanatory sequential design that combines bibliometric analysis and in-depth interviews. The bibliometric data will be extracted from the Scopus database from 1978 to 2024 and will be filtered using PRISMA. Qualitative data will be collected through in-depth interviews with disabled librarians at Perpusnas. The findings highlight disabled librarians' crucial role in creating inclusive library services. Recommendations include strengthening inclusivity policies, training disabled librarians, and collaboration between libraries, disability communities, and stakeholders for a sustainable knowledge ecosystem.

Keywords: Disabled Librarians; Knowledge Ecosystem; Inclusive; Library Services; National Library of Indonesia

INTRODUCTION

Libraries, as foundational institutions for information access and community engagement, bear a critical responsibility to ensure inclusivity for all members of society, including persons with disabilities (Library, 2017). Disabled librarians offer valuable perspectives shaped by their lived experiences, which are crucial in shaping services and environments that are truly accessible and equitable (Chalfen & Farb, 1996; Wentz et al., 2023). Their dual identity as professionals and as members of the disabililty community enable them to advocate for inclusive tools and foster a culture of empathy in library settings. However, the contributions of disabled librarians remain largely unrecognized, often marginalized within institutional practices (Manwiller et al., 2023). Systemic barriers such as inaccessible environments, discriminatory hiring, and limited awareness about disability issues further hinder their participation (Brown, 2015). This study critically examines how blind librarians at Perpusnas contribute to inclusive library ecosystems, highlighting their practical impact on digital access, user support, and equity-driven service design.

BACKGROUND

In Indonesia, the number of persons with disabilities exceeds 28 million, approximately 10.38% of the total population, according to the 2022 National Economic Census (Mursalim & Haq, 2022). This figure highlights the importance of ensuring their equitable access to all aspects of social life, including education, information, and participation in knowledge production (Kruse & Schur, 2003). However, in practice, their engagement in literacy and knowledge creation remains disproportionately limited due to intersecting structural and cultural barriers. Structurally, challenges include inadequate accessible infrastructure, limited provision of assistive technologies in educational and informational settings, and the absence of inclusive policy frameworks. As Jaeger et al. (2015) emphasized, meaningful access to information goes beyond availability and it requires usability and engagement, particularly for marginalized communities (Jaeger, 2008; Jaeger et al., 2015). Culturally, persistent stigma surrounding the intellectual and productive capacity of persons with disabilities further exacerbates exclusion. As Adam and Kreps (2006) argued, prevailing social narratives often position disabled individuals as passive recipients of services rather than active contributors to knowledge, diminishing their visibility and voice in institutional discourse.

In libraries, this inequality is evident. Perpusnas recorded an average of only 56 users of its disability services per year between 2019 and 2024. This highlights the disconnect between available services and actual user needs. Libraries, while positioned as democratic knowledge hubs (Library, 2017), often fail to meet the standards of inclusive access (Winkelstein et al., 2024). Bridging this gap requires transforming libraries into inclusive knowledge ecosystems, dynamic networks where knowledge is co-created, shared, and applied through equitable participation (Library, 2017). Within this ecosystem, disabled librarians play a pivotal role, not only as service providers, but as mediators of knowledge and institutional reformers (Library, 2017). Their lived experiences allow them to identify gaps, challenge ableist assumptions, and contribute to the design of more responsive services (Hill, 2013). This study seeks to test and reflect upon global literature trends concerning disabled librarians by investigating how these individuals contribute to inclusive library services in practice. Visual impairment, including total blindness or limited vision, poses unique challenges to information access, requiring the use of assistive technologies such as screen readers, braille, and audio formats. Librarians with visual disabilities navigate these challenges not only as users but as professionals actively involved in shaping library services for others with similar needs.

AIMS AND OBJECTIVES

This study investigates how blind librarians at Perpusnas function as key actors in inclusive library transformation. Specifically, the research is situated within the Disability Services Unit of Perpusnas, where the participating librarians work directly with visually impaired users. It explores how their lived experiences enhance accessibility, empower users with disabilities, and shape inclusive services and collections. It also examines how their roles contribute to epistemic justice (Fricker, 1999) and calls for the structural recognition of their expertise in institutional frameworks.

PROBLEM STATEMENTS

The study addresses the critical gap in understanding how the expertise and lived experiences of blind librarians can inform more equitable and effective library systems.

Research Questions:

1. How have global research trends in library and information science addressed the role of disabled librarians, and what conceptual or thematic gaps remain in the literature? (RQ1)

2. How do blind librarians at Perpusnas contribute to inclusive knowledge ecosystems through their lived experiences, practices, and innovations in service delivery? (RQ2)

LITERATURE REVIEW

Understanding Inclusive Knowledge Ecosystems

The notion of an inclusive knowledge ecosystem refers to an interconnected and dynamic system in which knowledge is co-created, shared, and applied through equitable participation by diverse stakeholders, including historically marginalized groups such as persons with disabilities (Bray, 2009; Hassan, 2021; Khademi, 2019). Unlike traditional models that focus narrowly on access to information, an inclusive knowledge ecosystem emphasizes not only the availability but also the agency, representation, and meaningful engagement of all participants in the knowledge processes (Brown & Sheidlower, 2019; Fors et al., 2021; Robertson, 2020).

A key component of such an ecosystem is the understanding that knowledge is influenced by individual experience and social context. In this context, disabled librarians serve as vital actors who contribute both professional expertise and experiential knowledge, challenging dominant assumptions and promoting epistemic justice within the information institutions. Their involvement ensures that the design, delivery, and evaluation of knowledge services reflect the realities of disability, not as a deficit but as a dimension of human diversity (Fricker, 2007; Hill, 2013).

Building inclusive knowledge ecosystems requires frameworks that go beyond legal compliance or technical accessibility. It involves rethinking institutional norms, service models, and participatory mechanisms. The Universal Design for Learning (UDL) offers a foundation for inclusive design, advocating for flexible, user-centered environments that accommodate diverse means of representation and interaction (Copeland et al., 2020; Rogers-Shaw et al., 2017). While UDL emerged in the context of education, its principles are highly relevant for library and knowledge systems, as they promote the design of services and infrastructures that are proactively inclusive of diverse needs, including those of users and professionals with disabilities (Copeland et al., 2020). Inclusive knowledge ecosystems are shaped not merely by policies or infrastructure, but by inclusive practices led by individuals within institutions. Disabled librarians contribute uniquely to these ecosystems by offering both technical expertise and lived insights, helping reshape services to reflect the realities of disability (Fricker, 2007; Hill, 2013).

The presence of disabled librarians not only enhances diversity but also helps ensure that disability-related insights are embedded in policy and service development (Allgood, 2021). It also ensures that the lived experiences of persons with disabilities inform the development of library policies and services (Library, 2017). Research shows that shared identities between service providers and users can foster greater trust and understanding, leading to more responsive and empathetic engagement (Novosel, 2023).

Among various disability groups, the blind or visually impaired librarians offer a particularly compelling case for analysis due to the nature of their interaction with both digital and physical access infrastructures. Studies have emphasized the dual role that these professionals occupy, as both service providers and adaptive technology users, they possess a granular understanding of barriers and enablers in accessing information (Martzoukou & Sayyad Abdi, 2020). Their expertise with screen readers, braille, and audio-based navigation tools positions them as important contributors to the design of accessible library systems (Schmetzke, 2007). Furthermore, their lived experience often translates into situated empathy, the ability to intuitively grasp the challenges faced by visually impaired users and to respond with tailored assistance (Hill, 2021).

Central to this discussion is the concept of epistemic justice which emphasizes the importance of recognizing marginalized groups as legitimate contributors to knowledge. Fricker (1999) argued that epistemic injustice occurs when individuals are excluded from meaningfully participating in knowledge production due to systemic biases. Disabled librarians, through their embodied experience, are uniquely positioned to bridge the gap between normative service models and the actual needs of disabled users (Okoroji et al., 2023; Pionke, 2019). Their insights help to challenge ableist assumptions, correct misinformation, and foster more accurate and inclusive understandings of disability within the library context (Hill, 2021; Rosen, 2021).

Additionally, the experiences of disabled librarians offer a distinctive foundation for what has been termed empathic literacy, the capacity to recognize and respond to users' informational needs with compassion and contextual awareness (Beyene, 2018; Grassi, 2018). Their dual role as both professionals and members of the disability community strengthen their ability to advocate for systemic change, mentor peers, and co-create services that promote dignity, autonomy, and equity. Stregger and McLean (2021) noted that the ability of librarians to understand and remember diverse user personas is instrumental in advancing inclusive and accessible services.

Inclusive Library Services and Accessibility Infrastructure

Inclusive library services require a comprehensive understanding of both physical and digital accessibility to ensure equitable participation for users with disabilities (Pontoriero & Zippo-Mazur, 2019; Stregger & McLean, 2021). Physical accessibility includes architectural elements such as ramps, elevators, guiding blocks, and accessible restrooms, as well as spatial arrangements and signage that support independent navigation. Digital accessibility refers to the usability of online catalogs, e-resources, and reading platforms enhanced by assistive technologies such as screen readers, text-to-speech software, and customizable interfaces (Guder, 2014; Yoon et al., 2016). A screen reader is a software application that converts digital text into synthesized speech or braille output, enabling blind or visually impaired users to navigate digital content using keyboard commands (Morales et al., 2013). Text-to-speech software functions similarly but is often used for broader literacy support, converting written text into spoken language for users with visual or cognitive impairments (Wood et al., 2017). Talking computers typically refer to computer systems configured with built-in screen readers or voice output features that allow non-visual interaction with operating systems, websites, and library catalogs (Wood et al., 2017). These tools collectively support independent access to information in digital environments. The application of universal design principles has become a global standard for anticipating and addressing diverse user needs in both physical and virtual library environments (Alabi & Mutula, 2020; Copeland et al., 2020; Winkelstein et al., 2024).

Global comparisons of disability services in libraries reveal both progress and persistent disparities. In countries such as the United States, Canada, and the United Kingdom, libraries have implemented a range of inclusive practices from sensory rooms and alternative formats (for example, braille, DAISY) to the appointment of dedicated accessibility librarians (Chiricuzio & Enis, 2024). By contrast, library services for persons with disabilities in the global South including Indonesia, remain limited in scope and resources (Anna et al., 2018; Raharja et al., 2021). Although initiatives like those at Perpusnas represent important advances, low usage rates suggest ongoing systemic challenges related to outreach, service relevance, and user empowerment (Valentino et al., 2023; Wahyuni, 2020).

Ensuring that library services are not only accessible but also meaningful requires collaboration with the disability community. Co-designing services with persons with disabilities promotes a participatory model that values experiential knowledge and enhances the relevance of both collections and technologies (Chiscano, 2021; Clark, 2020; Copeland et

al., 2020; Kaeding et al., 2017). As De Los Reyes and Rieger (2010) argued, inclusive development must be grounded in reciprocal relationships, shifting from serving "for" to working "with" disabled users (Chiscano, 2021). This approach builds trust, promotes community engagement, and fosters sustainability and innovation in inclusive library practice.

METHODOLOGY

This study employs a mixed-methods research approach using an explanatory sequential design, which involves a two-phase process, an initial quantitative stage followed by a qualitative phase (Creswell, 2001; Ivankova et al., 2005). This approach allows for the identification of broad publication trends through bibliometric analysis which are then contextualized through in-depth qualitative insights (Vlase & Lähdesmäki, 2023).

Phase 1: Quantitative – Bibliometric Analysis

The first phase involves a bibliometric analysis of scholarly publications on disability, library services, and knowledge ecosystems, using data retrieved from the Scopus database (1978 to 2024).

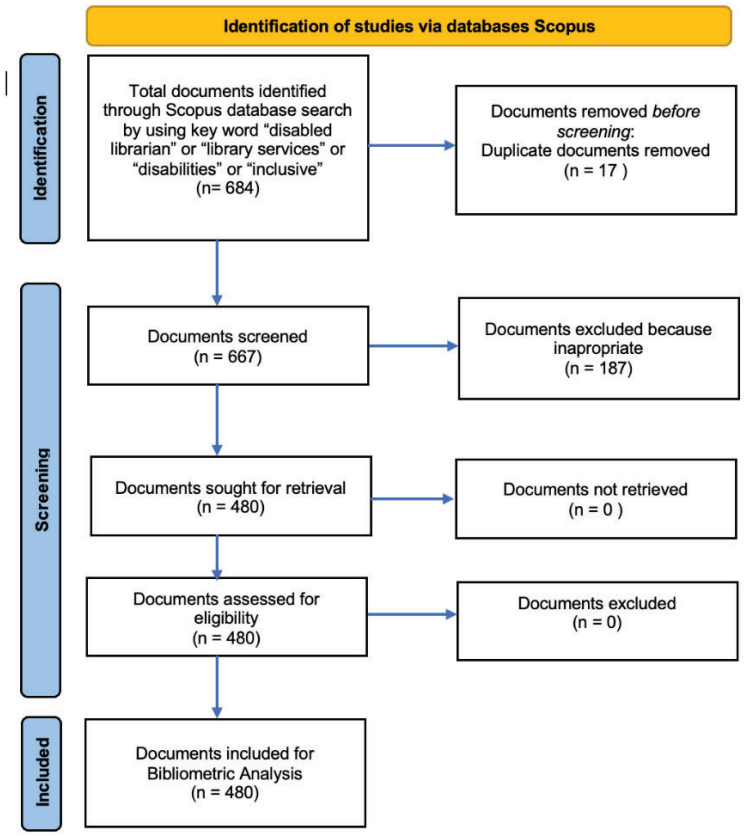


Figure 1: Document identification using the PRISMA Model

Keywords include "disability," "inclusive library services," "disabled librarians," and "knowledge ecosystem". Article selection follows the PRISMA guidelines to ensure transparency and replicability (Page et al., 2021). This analysis provides a macro-level overview of publication volume, authorship patterns, citation networks, and thematic development (Rabin et al., 2022), which will form the design of the qualitative phase.

Phase 2: Qualitative – In-depth Interviews

The second phase consists of semi-structured interviews (Creswell & Poth, 2017) with disabled librarians at Perpusnas, selected purposively based on their lived experience and involvement in inclusive library services. The interview protocol explores their roles, challenges, and strategies in shaping inclusive knowledge ecosystems. Data will be transcribed verbatim and analyzed using thematic analysis to identify key patterns and narratives.

Data Integration

Following the explanatory sequential design, the qualitative findings will be used to interpret and expand on the quantitative results, creating a comprehensive synthesis of macro-level trends and micro-level experiences. This integrated approach enables a nuanced understanding of how disabled librarians contribute to the development of inclusive knowledge ecosystems.

RESULTS AND DISCUSSION

Key Trends and Patterns in Research

Development Of Publication Volume (1979-2024)

To answer RQ1, the characteristics of the identified documents included data based on publication year, document type, and subject area. A total of 480 articles had been published, with the earliest study dating back to 1978. Figure 2 illustrates the growth in the number of scholarly articles published in the Scopus database from 1979 to 2024.

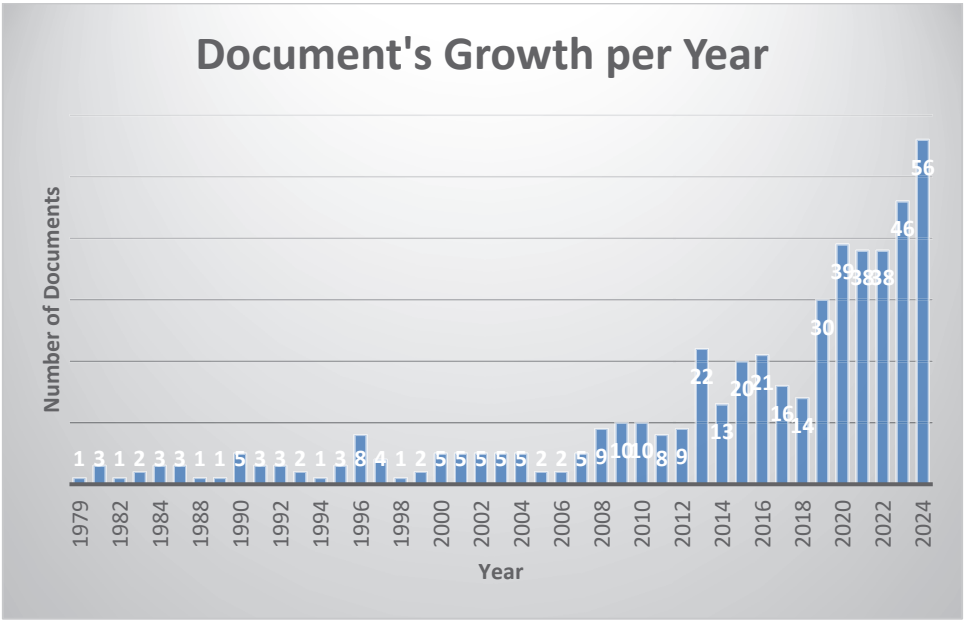


Figure 2: Number of publications per year

The bibliometric trend from 1979 to 2024 reveals a gradual yet compelling increase in scholarly engagement with issues surrounding disabled librarians, library users with disabilities, and inclusive library services. Between 1979 and 2006, the number of published documents remained consistently low, averaging fewer than five publications per year. This prolonged period of minimal scholarly output reflects the marginalization of disability discourses in the field of librarianship and the limited institutional prioritization of accessibility and representation.

A noticeable shift begins in 2007, with incremental increases in publication volume. From 2012 to 2016, the output stabilizes between 13 and 22 documents annually, signaling a growing recognition of disability inclusion in knowledge environments. This growth aligns with global advocacy efforts such as the United Nations Convention on the Rights of Persons with Disabilities (CRPD) and the rising influence of human rights frameworks in library policies and education.

The most pronounced growth occurs in the post-2019 period, where annual output sharply increases from 30 documents (2019) to 39 documents (2020), reaching an unprecedented peak of 56 documents in 2024. This period likely reflects a broader epistemological shift in

which libraries are increasingly viewed not merely as repositories of information, but as dynamic, participatory institutions within an inclusive knowledge ecosystem.

An inclusive knowledge ecosystem is a socio-technical environment where knowledge is equitably produced and accessed, especially by historically marginalized groups such as persons with disabilities (Vodă et al., 2023). It depends on inclusive policies, accessible technologies, and the active involvement of disabled professionals. The recent surge in scholarly publications reflects a growing recognition of this framework and the pivotal role of disabled librarians as agents of epistemic justice (Winkelstein et al., 2024). Overall, the trend signals a shift towards deeper academic and institutional commitment to equity, inclusion, and accessibility in library and information science.

Types of Published Documents

The distribution of document types reveals that articles dominate the scholarly output, accounting for 68% of the total publications. This reflects the central role of peer-reviewed journals in shaping academic discourse on disability, librarianship, and inclusive service delivery. The high proportion of articles suggests a strong and growing empirical foundation, particularly in fields aligned with evidence-based library practice and policy innovation.

Other significant contributions come from books (12%), review articles (9%), and book chapters (8%), which together represent nearly one-third of all publications. These formats typically allow for deeper theoretical exploration, critical reflection, and interdisciplinary dialogue which are essential components in understanding complex issues such as the role of disabled librarians, the needs of users with disabilities, and the cultural transformation of library institutions. The presence of reviews also indicates efforts to consolidate knowledge and assess the current state of research within this evolving domain (Brown & Sheidlower, 2019).

Meanwhile, conference papers (3%) and notes (0%) play a marginal role, suggesting that while the topic is well-represented in formal publications, it may be underrepresented in more informal or exploratory scholarly venues. This could reflect either a lack of visibility in conference circuits or a preference for publishing in structured formats that allow for comprehensive methodological rigor which is especially important when addressing sensitive and rights-based themes (Walsh et al., 2014).

Overall, the distribution of document types supports the conclusion that scholarly engagement with disability and library services is not only growing but also becoming more diversified in form and focus (Patra, 2021). It aligns with the development of an inclusive knowledge ecosystem where diverse formats and voices contribute to a more holistic understanding of inclusion, accessibility, and epistemic justice within the field of librarianship (Hollich, 2019).

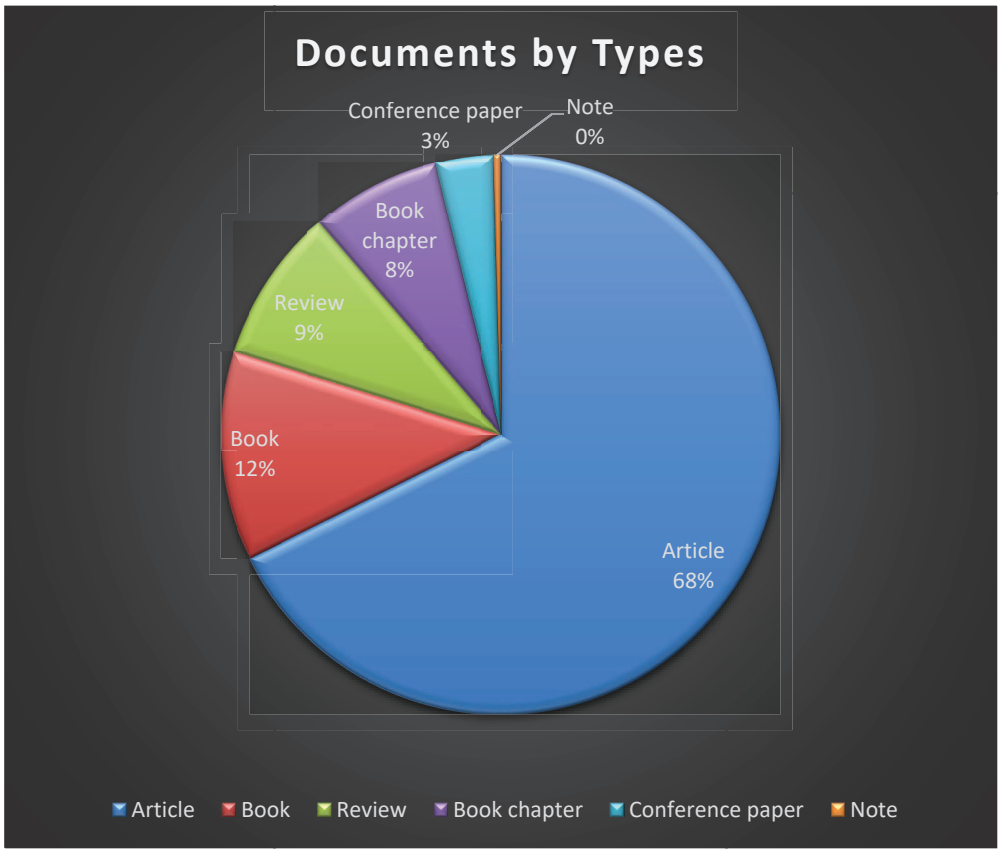


Figure 3: Types of Published Documents

Distribution of Research Subjects

The distribution of documents by subject area reveals that social science leads with 45% of the publications, reflecting the field's strong emphasis on inclusion, equity, community engagement, and institutional transformation, key themes in the discourse on disabled librarians and accessible library services. This dominant share suggests that most scholarly work in this domain is concerned with the social structures, human behaviors, and policy frameworks that shape inclusive knowledge practices (Gibson et al., 2021). Following social science, technology comprises 25% of the documents, underscoring the growing role of digital

innovation and assistive technologies in advancing accessibility for persons with disabilities. The high proportion of technology-related publications highlights the importance of user interface design, screen readers, and other inclusive digital tools in library environments, essential elements of an inclusive knowledge ecosystem (Blechner, 2015).

Arts and humanities (12%) and psychology (10%) contribute meaningfully to the discourse, offering critical and humanistic perspectives on identity, representation, stigma, and cognitive diversity. These disciplines deepen our understanding of lived experiences and the cultural dimensions of disability, which are often central to the advocacy and professional narratives of disabled librarians. Smaller contributions from multidisciplinary research (5%) and other fields (3%) suggest some degree of cross-sectoral collaboration, though these remain relatively limited. The modest presence of interdisciplinary work points to a potential gap in integrated, holistic approaches, which are essential for fully realizing the ideals of inclusive knowledge ecosystems.

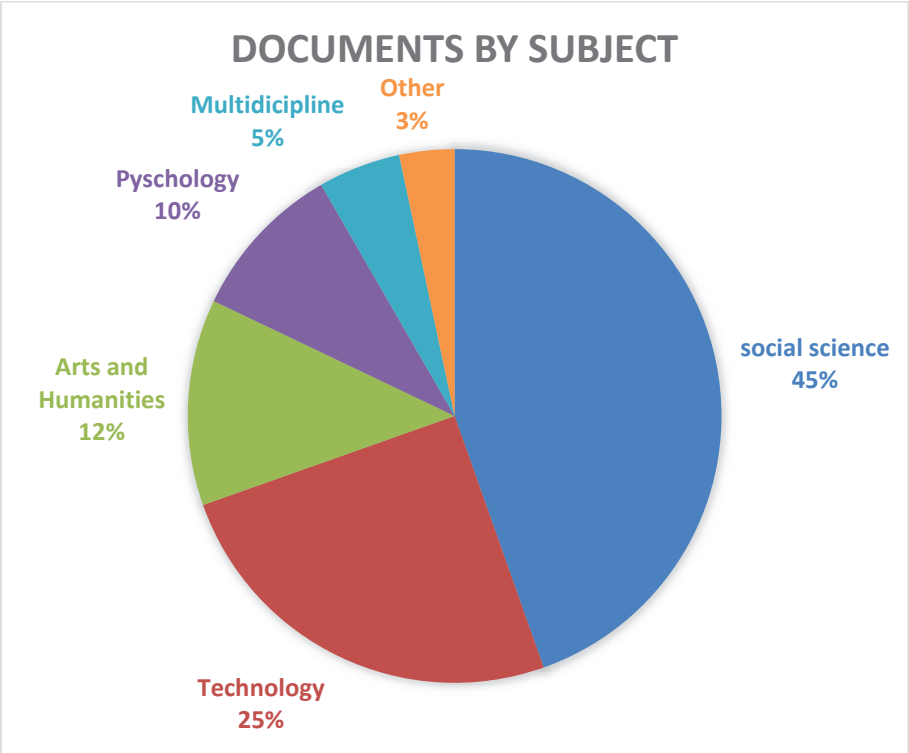


Figure 4: Distribution of Research Subjects

Keywords Analysis and Mapping

The identification of the most frequently used keywords and dominant terms within article abstracts, as well as their distribution, was conducted using bibliometric visualization techniques (Mokhtari et al., 2020). This analysis employed the VOSviewer software to visualize bibliometric relationships (Ellili, 2022), highlighting key thematic areas and trends within the field of disabled librarians and their role in building inclusive knowledge ecosystem for person with disabilities. Figure 5 presents a visual representation of the most frequently utilized keywords by authors in the Scopus database**.**

The VOSviewer network visualization illustrates five major thematic clusters distinguished by color, each representing interconnected topics in the research landscape on disability and librarianship. This co-word analysis reveals the intellectual structure of the field and how concepts cluster around central issues such as accessibility, inclusive service provision, digital inclusion, and institutional roles in knowledge equity.

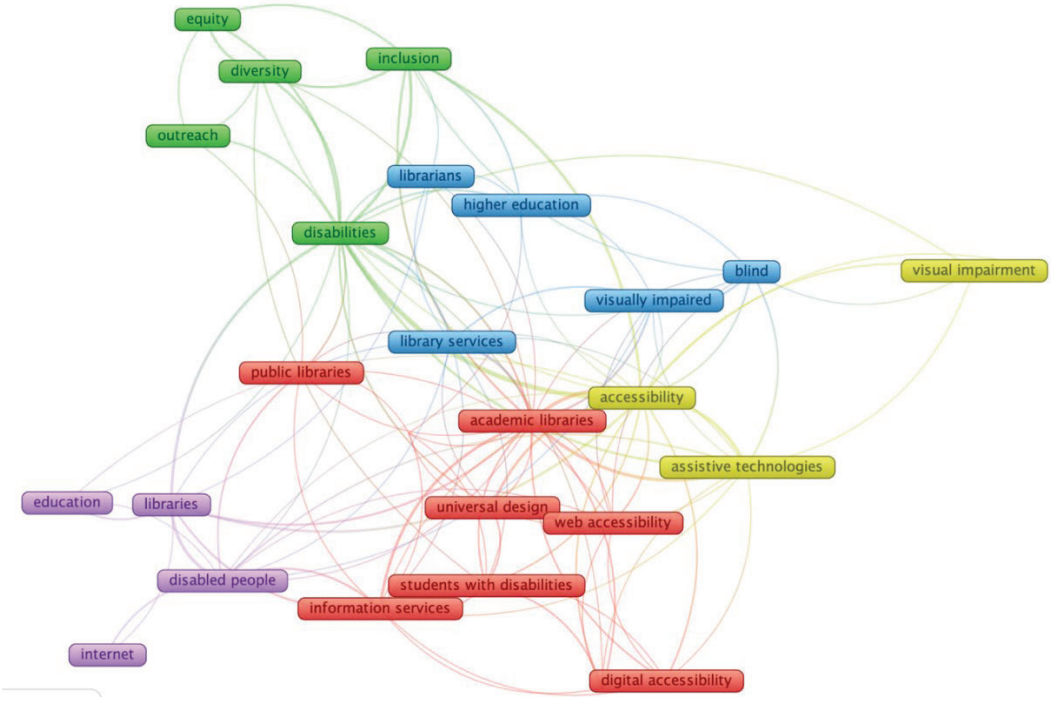


Figure 5: Keyword visualization

Table 1: Keyword clustering (Links, total link strength, occurrences)

Cluster (Color)	Keywords	Links	Total link strength	Occurrences
1 (Red)	Academic libraries	19	51	43
	Digital accessibility	7	11	7
	Digital inclusion	8	13	5
	Information services	11	20	9
	Invisible disabilities	6	6	5
	Public libraries	8	10	14
	Students with disabilities	9	14	8
	Universal design	7	13	7
	Web accessibility	8	9	11
2 (Green)	Disabilities	18	52	43
	Diversity	7	13	8
	Equity	4	9	7
	Inclusion	8	21	13
	Outreach	4	5	5
3 (Blue)	Blind	9	13	6
	Higher education	7	9	7
	Librarians	6	6	5
	Library services	12	19	16
	Visually impaired	8	13	10
4 (Yellow)	Accessibility	20	61	53
	Assistive technologies	12	28	20
	Information needs	2	3	6
	Visual impairment	5	7	7
5 (Purple)	Disabled people	12	22	15
	Education	4	5	6
	Internet	2	3	5

	Libraries	9	26	20

The bibliometric co-occurrence analysis reveals "accessibility" as the most dominant and central keyword in the research network (Table 1). With the highest number of occurrences (53) and total link strength (61), “accessibility” serves as both the intellectual and structural anchor of the field. It is closely connected to terms such as “assistive technologies”, “academic libraries”, “library services”, “web accessibility”, and “universal design”, confirming its role as a primary entry point in scholarly discussions surrounding inclusive library services and the broader knowledge ecosystem.

Closely following in centrality is the term "disabilities", which appears 43 times with a strong link strength of 52. This keyword functions as a bridge across thematic clusters, connecting user-specific concerns such as “students with disabilities”, “visually impaired”, and “blind” with institutional domains like “academic libraries” and “public libraries”. Its bridging role emphasizes the dual focus of current scholarship, addressing both the individual experiences of disabled users and the structural capacity of library institutions to meet their needs.

The network also highlights a tightly connected subcluster concerned with digital and inclusive design. Keywords such as “digital accessibility”, “web accessibility”, “universal design”, and “assistive technologies” reflect an increasing emphasis on the technological enablers of inclusion. These terms demonstrate how digital innovation is not only transforming access to information but also reshaping expectations around equity in knowledge production (Manwiller et al., 2023). Though less frequent, keywords like “digital inclusion” and “internet” suggest a broader concern with participation in the digital knowledge economy, particularly for those at the margins of traditional service models.

Beyond the central clusters, a range of value-oriented keywords including “equity”, “diversity”, “outreach”, and “inclusion”, signal a growing normative shift in the field. Though these terms occur less frequently (ranging between 4 and 13 times), they represent a significant transformation toward justice-oriented scholarship and practice. Additionally, emerging terms such as “invisible disabilities” and “information needs” point to a more nuanced, user-centered, and intersectional understanding of accessibility, acknowledging the importance of both visible and non-visible impairments in service design and policy development.

Interestingly, the keyword “librarians” appears only five times and holds a relatively low total link strength (6), indicating that the explicit focus on disabled librarians as agents of institutional transformation remains underrepresented. In contrast, institutional keywords such as “academic libraries” (43) and “public libraries” (14) are well-represented, reinforcing the emphasis on libraries as the primary setting for implementing inclusive practices. This imbalance suggests a critical gap in current scholarship, one that future research could address by more directly exploring the agency and leadership of disabled professionals within the knowledge ecosystem.

Humanizing Access: Reflections from an Interview with a Blind Librarian on Assistive Technology and Library Services

The interviewed librarian, a blind professional with an educational background in Islamic education, exemplifies how persons with disabilities can successfully navigate higher education and contribute meaningfully to professional environments. His journey challenges prevailing stereotypes by demonstrating that disability does not preclude academic achievement or active participation in the workforce. His entry into Perpusnas in 2018 marked a pivotal moment, driven by personal initiative and a belief that disability services should be designed and delivered by those with lived experience.

Upon joining the institution, he played a strategic role in advocating for assistive technologies such as screen-reading computers and audiobook players. More than a service user, he became a technology mentor for other blind patrons, guiding them in using library systems like OPAC and iPusnas, installing screen readers, and fostering digital literacy. His support is both technical and personal, helping users develop confidence and independence in navigating the library space. In parallel, he also educates non-disabled librarians, training them in inclusive service practices that blend empathy, technical competence, and safety protocols.

His presence in the institution strengthens both representation and communication. As someone with direct experience of disability, he offers authentic and bias-free information about disability rights and capabilities, which helps counter societal stigma. He also advises on practical improvements, such as promoting the use of open-source screen readers and rejecting symbolic approaches to accessibility in favor of genuine, user-driven solutions. These contributions position him as a dual agent, serving both the institution and the disability community.

Moreover, his ability to connect with blind users is deeply rooted in shared experiences, which enhances communication and accelerates learning. Unlike non-disabled staff, he requires less adaptation time, enabling more efficient and empathetic support. This continuity of service even extends beyond the library through phone-based follow-ups, reflecting the relational dimension of his work.

The librarian has also been instrumental in evaluating library collections and facilities. Early in his tenure, he found that the braille collections were sparse and misaligned with user needs, and that accessibility infrastructure such as guiding blocks and voice-enabled lifts was underdeveloped. His feedback led to concrete improvements, including updated collections and better assistive technologies. He stresses that facility design must not be top-down, but it should involve disabled users to ensure relevance and functionality.

Building on this participatory approach, he proposed a mobile digital library service (*pusteling*) for blind users, arguing that while such services exist for the general public, they often neglect users who face greater mobility challenges. He sees *pusteling* as a tool for promoting equity, especially in digital literacy among visually impaired students, many of whom lack access to assistive technology and training.

Digital platforms such as iPusnas have also become critical in fostering adaptive digital literacy. Unlike sighted users who navigate visually, blind users rely entirely on keyboard commands and screen readers, slowing down the process and requiring greater focus. The librarian bridges this gap by assessing individual skill levels and offering tailored, practical training. He notes that despite available accessibility features, many users remain unaware of them, highlighting the importance of direct support and personalized instruction.

Beyond technical access, he frames digital literacy as a form of empowerment. His own journey from learning about screen readers independently to mastering digital platforms during his studies demonstrates how assistive technologies can support both academic and social confidence. He observes that braille collections are now less favored, with users preferring the flexibility of audiobooks and digital texts. Yet integration across formats remains a challenge, prompting him to serve as a mediator who ensures users can find alternative access points when needed.

He is also active in public education and service promotion, participating in events like Braille Day and Independence Day webinars that attract hundreds of attendees. These activities are not only celebratory but serve to inform and educate the public about disability services and inclusive practices. In this capacity, he operates not just as a service provider but as a community representative and agent of cultural transformation.

In reflecting on his personal and professional journey, he articulates a deep emotional connection to the library. He describes Perpusnas as the realization of a long-held dream, a space that not only offers technical support but also emotional validation, solidarity, and empowerment. His appreciation for empathetic service, even when not directly needed, underscores the importance of human connection in building a truly inclusive knowledge ecosystem.

Finally, he addresses a critical gap in current library services, the lack of feedback mechanisms to track whether users with disabilities are translating their access to information into knowledge production, such as publications or creative outputs. He believes such contributions may already exist, particularly on platforms like Kartunet, but remain institutionally invisible. This highlights the need for libraries to support not just access but also knowledge circulation, by creating spaces for disabled users to publish, share, and contribute their work back into the ecosystem.

INTEGRATING BIBLIOMETRIC TRENDS AND QUALITATIVE INSIGHTS ON INCLUSIVE KNOWLEDGE ECOSYSTEMS

This section presents the integrated findings of bibliometric trends and qualitative insights to better understand the construction of inclusive knowledge ecosystems, particularly through the role of disabled librarians. Using joint-display mapping and thematic analysis, the integration highlights key areas of convergence between scholarly discourse and lived experience. Table 2 further illustrates the alignment between frequently occurring keywords in the bibliometric analysis and the lived experiences identified through qualitative interviews. The keyword "accessibility," for instance, was the most dominant term in the bibliometric network and is closely linked with concepts such as “assistive technology”, “web accessibility”, and “universal design”. These themes are directly reflected in the librarian’s promotion of tools like screen readers and talking computers. Similarly, the keyword "disabilities" bridges clusters related to library users, such as “blind” and “visually impaired communities”, and service-

related concepts like “public libraries” and “inclusion”. Although terms such as "librarians" appeared less frequently, their presence in the field data confirms their central, but under-recognized role in shaping inclusive services.

Table 2: Keyword overlap mapping (Thematic/Semantic overlap)

VOSviewer Keywords	Qualitative Findings	Thematic/Semantic Overlap
Accessibility	Assistive technology, digital literacy	Accessibility through assistive and digital technologies
Digital accessibility	Screen reader, iPusnas, Bintang Pusnas	Access to digital library platforms designed for the blind
Digital inclusion	Digital literacy for persons with disabilities	Inclusion through digital skills and participation
Information services	Library services for persons with disabilities	The library as an inclusive provider of information
Library services	Disability-friendly library services, inclusive librarianship	Adapted services to meet the needs of disabled users
Disabled people	Disabled users, disabled librarians	Key user group and internal actors within the service
Visually impaired	Blind users, Braille, talking computers	Focus on the visually impaired as a primary group
Assistive technologies	Screen reader, talking computers	Tools that enable information access for the blind
Inclusion	Representation, peer support, inclusive service design	Core values in building equitable library services
Equity	Mobile library outreach for the blind	Ensuring fair access for structurally marginalized groups
Outreach	Pusteling (mobile services), digital promotion	Expanding reach and awareness of digital library services
Students with disabilities	Blind students, digital library users	Target users of inclusive digital library services
Universal design	Accessible toilets, guiding blocks, assistive infrastructure	Physical accessibility based on direct user feedback

Academic libraries	National Library as an inclusive public space	Institutional context of inclusive service transformation

Moreover, the co-occurrence of keywords like "digital inclusion," "universal design," and "equity", while not dominant in frequency, suggests a growing normative orientation within the field. These keywords resonate strongly with the librarian's field-based initiatives, such as user training and the *pusteling* proposal, indicating that while scholarly discourse is beginning to embrace broader justice-oriented concepts, field practices are already operationalizing them in tangible ways.

The keyword mapping diagram positions the disabled librarian at the center of an inclusive knowledge ecosystem, linking three primary thematic domains, digital accessibility, inclusive library services, and knowledge empowerment. The joint thematic-semantic mapping (Figure 6) reveals consistent intersections across these domains. It reflects both global scholarly priorities and local field practices.

1. Digital accessibility is framed by bibliometric emphasis on assistive technologies, screen readers, and digital platforms. In practice, this is exemplified by the blind librarian's use of screen-reading technologies and training of peers on accessible platforms like iPusnas.

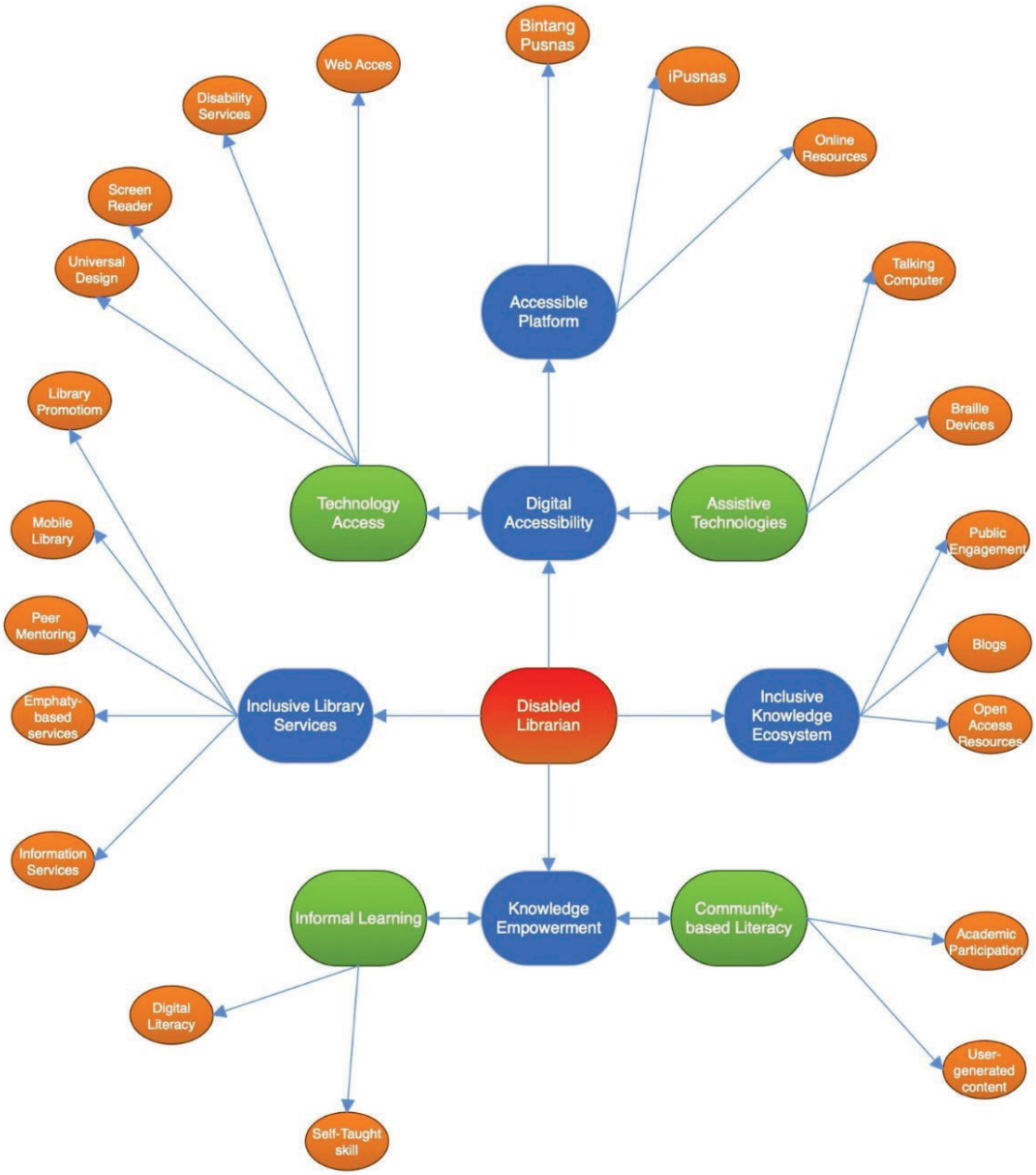


Figure 6: Keyword mapping for inclusive knowledge ecosystem

2. Inclusive library services emerge through a focus on user engagement and peer mentorship. The field data underscore how disabled librarians lead by example, training non-disabled librarians and supporting blind users. Thus, extending the theoretical concept of inclusion beyond infrastructure.

3. Knowledge empowerment links bibliometric terms like "user-generated content" and "open access" with the librarian's practical initiatives to build digital literacy, support

informal learning, and advocate for mobile library services (*pusteling*). This integrated mapping demonstrates how bibliometric frameworks align with, diverge from, or are expanded by local lived realities. A deeper interpretive analysis of these findings and their broader implications is developed in the next section.

Interpretive Discussion: Connecting Global Trends with Local Realities in Inclusive Knowledge Ecosystems

Building on the integrated mapping of bibliometric trends and qualitative field data, this section offers a deeper interpretive analysis of the findings. It examines critical gaps, challenges prevailing narratives, and proposes actionable directions for strengthening inclusive knowledge ecosystems. One notable gap revealed through the bibliometric analysis is the minimal explicit focus on disabled librarians. Despite the centrality of accessibility and assistive technologies in the literature (Ellili, 2022; Mokhtari et al., 2020), the low frequency of the keyword "librarians" reflects a continued marginalization of disabled professionals as active contributors to institutional knowledge production (Manwiller et al., 2023).

The field data address this gap by demonstrating how the blind librarian at Perpusnas plays a transformative role not only using assistive technologies but also mentoring peers, advising on service improvements, and proposing innovative outreach models like the *pusteling* mobile library service. This lived agency counters prevailing stereotypes of disabled users as passive beneficiaries and affirms Fricker's (1999) theory of epistemic injustice, the exclusion of marginalized individuals from knowledge-making roles. Assistive technologies, while critical, achieve their true potential only when paired with personalized support. As Beyene (2018) and Grassi (2018) argued, relational engagement fosters confidence and navigational agency among disabled users. The librarian's one-on-one training initiatives exemplify how digital access is best realized through empathetic, situated instruction.

Moreover, the proposal for *pusteling* illustrates how inclusion must move beyond static infrastructure to context-sensitive, mobile solutions. This resonates with De Los Reyes and Rieger's (2010) call for services designed with disabled users, not merely for them, and embodies what Valentino et al. (2023) term "equity-in-practice". Finally, the librarian's feedback on gaps in accessibility infrastructure (for example, guiding blocks, voice-enabled elevators) highlights the disconnect between universal design principles and real-world usability. This finding urges institutions to adopt participatory design models that center disabled users as co-creators rather than recipients. In summary, the interpretive discussion affirms that inclusive knowledge ecosystems are most sustainable when they recognize and

institutionalize the epistemic agency of disabled librarians shifting from symbolic inclusion to structural transformation.

Recommendations for Strengthening Inclusive Knowledge Ecosystems

In order to build truly inclusive knowledge ecosystems, it is not enough to focus solely on tools or infrastructure. Inclusion must be embedded structurally through policies, capacity-building, and collaborative practices that center they lived experiences and agency of persons with disabilities, particularly those working within the library systems. Based on the integrated findings of this study, the following recommendations are proposed to strengthen long-term inclusivity and sustainability:

1. **Policy development grounded in lived experience**

   Inclusive library policies should be co-developed with disabled professionals, ensuring that service design, infrastructure, and digital access reflect the real needs of users. Institutions must move beyond symbolic inclusion by embedding participatory mechanisms that allow disabled librarians to act as both contributors and consultants in policy formulation.

2. **Capacity building and continuous training**

   There is a critical need to provide tailored training programs for disabled librarians, focusing on assistive technologies, digital literacy, and service delivery. These programs should also empower them as mentors and trainers for other users with disabilities, positioning them as agents of transformation rather than passive recipients of support

3. **Cross-sector collaboration and outreach**

   Libraries should actively collaborate with schools, universities, disability organizations, and government agencies to expand the reach and impact of inclusive services. Initiatives such as mobile digital libraries (*pusteling*) and community-based literacy programs should be scaled through joint action, ensuring equitable access to knowledge for persons with disabilities regardless of location or background.

4. **Institutionalizing inclusive leadership**

   Disabled librarians should be systematically included in leadership and decision-making roles. Their perspectives are vital for embedding empathy, accessibility, and innovation within institutional cultures. Promoting inclusive leadership fosters a sustainable model of knowledge ecosystems where diversity drives excellence.

CONCLUSION

This study demonstrates that integrating bibliometric and qualitative approaches provides a more holistic understanding of inclusive knowledge ecosystems particularly in the context of disability and librarianship. While bibliometric analysis revealed global trends such as digital accessibility, inclusive services, and assistive technologies, the qualitative data enriched these themes with lived experiences from disabled librarians. These firsthand insights confirmed the relevance of technological access, expanded the concept of inclusion to encompass representation and peer mentorship, and challenged institutional assumptions about accessibility. The mapping of overlapping keywords across both datasets illustrates a strong thematic alignment while also highlighting underexplored areas, most notably the central role of disabled librarians as facilitators and knowledge producers.

The findings carry important implications for both research and practice. For future scholarship, the study calls for deeper attention to the voices and contributions of disabled professionals in knowledge institutions. For practice, it emphasizes the need for inclusive policy co-creation, capacity building through targeted training, and collaborative outreach programs that go beyond symbolic gestures. Libraries that embrace inclusive leadership and engage with disabled communities not only meet accessibility standards but also foster a more equitable, dynamic, and sustainable knowledge ecosystem. By centering the lived expertise of disabled librarians, institutions can move toward meaningful inclusion that benefits all users.

ACKNOWLEDGEMENTS

The authors would like to express their sincere gratitude to the National Library of Indonesia (*Perpustakaan Nasional Republik Indonesia* or Perpusnas) for supporting this research through funding and facilitating access to essential data and resources. The institutional support and openness of the Perpusnas team have played a vital role in enabling both the bibliometric and qualitative components of this study. This research would not have been possible without their generous collaboration and commitment to advancing inclusive library practices.

REFERENCES

Adam, A., & Kreps, D. (2006). Enabling or disabling technologies? A critical approach to web accessibility. Information Technology and People, 19(3), 203. https://doi.org/10.1108/09593840610689822

Alabi, A. O., & Mutula, S. M. (2020). Digital inclusion for visually impaired students through assistive technologies in academic libraries. Library Hi Tech News, 37(2), 14. https://doi.org/10.1108/lhtn-11-2019-0081

Allgood, M. (2021). Increasing equitable access to individuals with disabilities: Participation in electronic public administration research. Journal of Public and Nonprofit Affairs, 7(3), 434. https://doi.org/10.20899/jpna.7.3.434-442

Anna, N. E. V., Harisanty, D., Srirahayu, D. P., Mannan, E. E. F., & Irfana, M. (2018). Developing information services for visually-impaired students in Indonesia. International Journal of Engineering & Technology, 7, 215. https://doi.org/10.14419/ijet.v7i3.7.16354

Beyene, W. M. (2018). Digital inclusion in library context: A perspective from users with print disability. Journal of Web Librarianship, 12(2), 121. https://doi.org/10.1080/19322909.2018.1427657

Blechner, A. (2015). Improving usability of legal research databases for users with print disabilities. Legal Reference Services Quarterly, 34, 138. https://www.scopus.com/inward/record.uri?partnerID=HzOxMe3b\&scp=84931380957\&origin=inward

Bray, D. A. (2009). Knowledge ecosystems: Technology, motivations, processes, and performance (Doctoral Dissertation). SSRN Electronic Journal. https://doi.org/10.2139/ssrn.1016486

Brown, M. E. (2015). Invisible debility: Attitudes toward the underrepresented in library workplaces. Public Library Quarterly, 34(2), 124. https://doi.org/10.1080/01616846.2015.1036707

Brown, R., & Sheidlower, S. (2019). Claiming our space: A quantitative and qualitative picture of disabled librarians. Library Trends, 67(3), 471. https://doi.org/10.1353/lib.2019.0007

Chalfen, D. H., & Farb, S. E. (1996). Universal access and the ada: A disability access design specification for the new UCLA library online information system. Library Hi Tech, 14(1), 51. https://doi.org/10.1108/eb047981

Chiricuzio, S., & Enis, M. (2024). Intersectional accessibility: Creating inclusive spaces, Examining Ebook Accessibility. https://www.libraryjournal.com/story/intersectional-accessibility-creating-inclusive-spaces-examining-ebook-accessibility

Chiscano, M. C. (2021). Giving a voice to students with disabilities to design library experiences: An ethnographic study. Societies, 11(2), 61. https://doi.org/10.3390/soc11020061

Clark, J. (2020). A coordinated effort: Cultural and policy requirements for digital accessibility. College & Undergraduate Libraries, 27, 265. https://doi.org/10.1080/10691316.2021.1932659

Copeland, C. A., Cross, B. C., & Thompson, K. M. (2020). Universal design creates equity and inclusion: Moving from theory to practice. South Carolina Libraries, 4(1). https://doi.org/10.51221/sc.scl.2020.4.1.7

Creswell, J. W. (2001). Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research. http://ci.nii.ac.jp/ncid/BB26859968

Creswell, J. W., & Poth, C. (2017). Qualitative Inquiry and Research Design : Choosing Among Five Approaches. https://openlibrary.org/books/OL28633749M/Qualitative_Inquiry_and_Research_Design

Diana, M., Yanto, Y., & Pirmansyah, R. (2021). Pemberdayaan masyarakat melalui perpustakaan desa berbasis inklusi sosial (Studi kasus Perpustakaan “Sumber Ilmu” Desa Marga Sakti Kabupaten Musirawas). TIK ILMEU Jurnal Ilmu Perpustakaan Dan Informasi, 5(1), 57. https://doi.org/10.29240/tik.v5i1.2389

Fors, H., Hagemann, F. A., Sang, Å. O., & Randrup, T. B. (2021). Striving for inclusion – A systematic review of long-term participation in strategic management of urban green spaces. Frontiers in Sustainable Cities, 3. https://doi.org/10.3389/frsc.2021.572423

Fricker, M. (1999). Epistemic oppression and epistemic privilege. Canadian Journal of Philosophy Supplementary Volume, 25, 191. https://doi.org/10.1080/00455091.1999.10716836

Fricker, M. (2007). Epistemic Injustice: Power and the Ethics of Knowing. http://academic.oup.com/analysis/article-abstract/69/2/380/128282

Gibson, A. N., Bowen, K., & Hanson, D. (2021). We need to talk about how we talk about disability: a critical quasi-systematic review. In the Library with the Lead Pipe. https://apo.org.au/node/311161

Grassi, R. (2018). Building inclusive communities: Teens with disabilities in libraries. Reference Services Review, 46(3), 364. https://doi.org/10.1108/rsr-03-2018-0031

Guder, C. (2014). Universal design and the library website. Public & Access Services Quarterly, 10(3), 229. https://doi.org/10.1080/15228959.2014.931784

Hassan, H. (2021). Impact of organisational factors on tacit knowledge sharing in HEIs: Focusing the mediating role of KM system quality. Management Science Letters, 1621. https://doi.org/10.5267/j.msl.2020.12.010

Hill, H. (2013). Disability and accessibility in the library and information science literature: A content analysis. Library & Information Science Research, 35(2), 137. https://doi.org/10.1016/j.lisr.2012.11.002

Hill, H. (2021, May 22). Public library staff experiences of accommodation in the workplace. Proceedings of the Annual Conference of CAIS / Actes Du Congrès Annuel de l ACSI. https://doi.org/10.29173/cais1212

Hollich, S. (2019). What it means for a disabled librarian to “pass.” The International Journal of Information Diversity & Inclusion (IJIDI), 4(1). https://doi.org/10.33137/ijidi.v4i1.32440

Hossen, M. M., & Reed, B. (2023). Disability, stigma, and the pursuit of social justice: Future research directions. Journal of Applied Rehabilitation Counseling, 54(4), 287. https://doi.org/10.1891/jarc-2023-0015

Ivankova, N. V., Creswell, J. W., & Stick, S. L. (2005). Using mixed-methods sequential explanatory design: From theory to practice. Field Methods, 18(1), 3. https://doi.org/10.1177/1525822x05282260

Jaeger, P. T. (2008). User-centered policy evaluations of Section 508 of the Rehabilitation Act. Journal of Disability Policy Studies, 19(1), 24. https://doi.org/10.1177/1044207308315274

Jaeger, P. T., Wentz, B., & Bertot, J. C. (2015). Accessibility, inclusion, and the roles of libraries. In Advances in Librarianship (p. 1). Academic Press. https://doi.org/10.1108/s0065-283020150000040008

Kaeding, J., Velasquez, D. L., & Price, D. (2017). Public libraries and access for children with disabilities and their families: A proposed inclusive library model. Journal of the Australian Library and Information Association, 66(2), 96. https://doi.org/10.1080/24750158.2017.1298399

Khademi, B. (2019). The ecosystem knowledge explorer: A tool to systematically discover external knowledge. Technology Innovation Management Review, 7(10), 28. https://doi.org/10.22215/timreview/1253

Kruse, D., & Schur, L. (2003). Employment of people with disabilities following the ADA. Industrial Relations A Journal of Economy and Society, 42(1), 31. https://doi.org/10.1111/1468-232x.00275

Library, A. (2017). LibGuides: Library Service to Persons with Disabilities: Home. https://libguides.ala.org/libservice-disability

Manwiller, K. Q., Anderson, A., & Crozier, H. (2023). Hidden barriers: The experience of academic librarians and archivists with invisible illnesses and/or disabilities. College & Research Libraries, 84(5). https://doi.org/10.5860/crl.84.5.645

Morales, L., Arteaga, S. M., & Kurniawan, S. (2013). Design guidelines of a tool to help blind authors independently format their word documents. 31. https://doi.org/10.1145/2468356.2468363

Mursalim, S. W., & Haq, F. (2022). Decent work inclusive policy for persons with disabilities in Indonesia. Jurnal Ilmiah Ilmu Administrasi Publik, 12(2), 450. https://doi.org/10.26858/jiap.v12i2.38581

Novosel, E. C. (2023). Let’s talk about disability: Disability justice in engineering librarianship. ASEE Annual Conference and Exposition, Conference Proceedings.

https://www.scopus.com/inward/record.uri?partnerID=HzOxMe3b\&scp=85172069766\&origin=inward

Okoroji, C., Mackay, T., Robotham, D., Beckford, D., & Pinfold, V. (2023). Epistemic injustice and mental health research: A pragmatic approach to working with lived experience expertise. Frontiers in Psychiatry, 14. https://doi.org/10.3389/fpsyt.2023.1114725

Olbrich, S., Trauth, E. M., Niedermann, F., & Gregor, S. (2015). Inclusive design in IS: Why diversity matters. Communications of the Association for Information Systems, 37. https://doi.org/10.17705/1cais.03737

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T., Mulrow, C. D., Shamseer, L., Tetzlaff, J., Akl, E. A., Brennan, S., Chou, R., Glanville, J., Grimshaw, J., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E., Mayo-Wilson, E., McDonald, S., … Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ. https://doi.org/10.1136/bmj.n71

Patra, S. K. (2021). Disability and Library Services: Global Research Trend. arXiv (Cornell University). https://doi.org/10.48550/arxiv.2112.03580

Pionke, J. (2019). The impact of disbelief: on being a library employee with a disability. Library Trends, 67(3), 423. https://doi.org/10.1353/lib.2019.0004

Pontoriero, C., & Zippo-Mazur, G. (2019). Evaluating the user experience of patrons with disabilities at a community college library. Library Trends, 67(3), 497. https://doi.org/10.1353/lib.2019.0009

Rabin, B. A., Cakici, J. A., Golden, C. A., Estabrooks, P. A., Glasgow, R. E., & Gaglio, B. (2022). A citation analysis and scoping systematic review of the operationalization of the Practical, Robust Implementation and Sustainability Model (PRISM). Implementation Science, 17(1). https://doi.org/10.1186/s13012-022-01234-3

Radanliev, P., Roure, D. D., Novitzky, P., & Sluganovic, I. (2023). Accessibility and inclusiveness of new information and communication technologies for disabled users and content creators in the metaverse. Disability and Rehabilitation Assistive Technology, 19(5), 1849. https://doi.org/10.1080/17483107.2023.2241882

Raharja, S., Bustari, M., & Fadhli, R. (2021). Exploration of school library services for students with disabilities. KnE Social Sciences. https://doi.org/10.18502/kss.v6i2.10018

Robertson, J. (2020). Competition in knowledge ecosystems: A theory elaboration approach using a case study. Sustainability, 12(18), 7372. https://doi.org/10.3390/su12187372

Rogers-Shaw, C., Carr-Chellman, D., & Choi, J. (2017). Universal design for learning: guidelines for accessible online instruction. Adult Learning, 29(1), 20. https://doi.org/10.1177/1045159517735530

Rosen, L. T. (2021). Mapping out epistemic justice in the clinical space: using narrative techniques to affirm patients as knowers Philosophy Ethics and Humanities in Medicine, 16(1). https://doi.org/10.1186/s13010-021-00110-0

Solone, C. J., Thornton, B. E., Chiappe, J. C., Perez, C. M., Rearick, M. K., & Falvey, M. A. (2020). Creating collaborative schools in the United States: A review of best practices International Electronic Journal of Elementary Education, 12(3), 283. https://doi.org/10.26822/iejee.2020358222

Stregger, E., & McLean, J. (2021). Location-based trickery: Librarian efforts to provide access to unaffiliated users. Weave Journal of Library User Experience, 4(2). https://doi.org/10.3998/weaveux.222

Tumlin, Z. (2019). “This is a quiet library, except when it’s not:” On the lack of neurodiversity awareness in librarianship. Music Reference Services Quarterly, 22, 3. https://doi.org/10.1080/10588167.2019.1575017

Valentino, R. A., Rusmana, A., & Damayani, N. A. (2023). Motif disabilitas netra berprofesi sebagai pustakawan. Berkala Ilmu Perpustakaan Dan Informasi, 19(2), 240. https://doi.org/10.22146/bip.v19i2.3585

Vlase, I., & Lähdesmäki, T. (2023). A bibliometric analysis of cultural heritage research in the humanities. https://www.nature.com/articles/s41599-023-01582-5

Vodă, A. I., Bortoş, S., & Şoitu, D. (2023). Knowledge ecosystem: A sustainable theoretical approach. European Journal of Sustainable Development, 12(2). https://doi.org/10.14207/ejsd.2023.v12n2p47

Wahyuni, W. (2020). Transformasi layanan disabilitas pada perpustakaan perguruan tinggi di era 4.0. JPUA Jurnal Perpustakaan Universitas Airlangga Media Informasi Dan Komunikasi Kepustakawanan, 9(2), 87. https://doi.org/10.20473/jpua.v9i2.2019.87-91

Walsh, E. S., Peterson, J. J., & Judkins, D. Z. (2014). Searching for disability in electronic databases of published literature. Disability and Health Journal, 7, 114. https://api.elsevier.com/content/article/eid/1-s2.0-S1936657413001647

Wentz, B., Gorham, U., & Jaeger, P. T. (2023). Academic libraries and their legal obligation for content accessibility. First Monday. https://doi.org/10.5210/fm.v28i1.12892

Winkelstein, J. A., Bolt, N., Carlsson Asplund, H., Nomura, M., & Rakočević Uvodić, M. (2024). IFLA Guidelines for Making Libraries Accessible for People with Disabilities.

Wood, S. G., Moxley, J., Tighe, E. L., & Wagner, R. K. (2017). Does use of text-to-speech and related read-aloud tools improve reading comprehension for students with reading disabilities? A meta-analysis. Journal of Learning Disabilities, 51(1), 73. https://doi.org/10.1177/0022219416688170

Yoon, K., Dols, R., Hulscher, L., & Newberry, T. (2016). An exploratory study of library website accessibility for visually impaired users. Library & Information Science Research, 38(3), 250. https://doi.org/10.1016/j.lisr.2016.08.006

Library and Information Services for Students with Special Educational Needs

Megay Jamil Umali Dimaano

School of Library and Information Studies University of the Philippines, Philippines

Corresponding email: jamumalidimaano@gmail.com

ABSTRACT

This study examined the inclusivity of library and information services for special education (SPED) students in Quezon City, Philippines, focusing on fostering equitable knowledge ecosystems for marginalized learners. It evaluated how libraries addressed the educational needs of SPED students and identified areas for improvement to ensure equitable access to information and resources. The author employed qualitative and descriptive methods to analyze library set-ups, personnel, collections, services, and resources. Data were collected through interviews with librarians and SPED teachers from 15 school libraries offering SPED programs. The findings revealed that while libraries lacked dedicated resources and collections for SPED students, librarians provided support through storytelling, educational games, and recreational activities. The study identified three main challenges: (1) inadequate resources, (2) limited understanding of SPED students' information needs, and (3) financial constraints. Despite these obstacles, librarians made commendable efforts to create supportive environments. The study highlighted the urgent need for inclusive resources, programs, and additional assistive devices to enhance the library's readiness. Social activities fostering interaction between SPED and regular students were also recommended to promote inclusivity. These findings underscore the importance of transforming school libraries into fully inclusive spaces that empower SPED students and support their educational and social development.

Keywords: Library Inclusivity; Special Education; Knowledge Ecosystems; Assistive Technologies; Educational Needs

INTRODUCTION

Background of the Study

Special education, often known as SPED, refers to academic, physical, cognitive, and social-emotional education provided to students having one or more disabilities (Bateman & Cline, 2016). Some requirements for SPED students are typically inadequate inside of the so-called "traditional" educational setting related to the characteristics of disabilities to be specified and adapted for each individual. SPED programs and services adapt teaching methodology and deliver instructions to meet the needs of each student. Schools with SPED programs usually follow one of these two models: (1) the school provides a special education team that gives support to students with disabilities in traditional environment classes, or (2) there is a separate unit or support classes attached to the school which caters for students with one or more specific disabilities (Murray, 2000).

Other terms for SPED students are “students with disabilities”, “students with special needs”, and “exceptional students” but for this study, the researcher will use the word SPED or special education. SPED students were labeled "disabled" since they are born with genuine, constant, and significant distinct personalities and educational needs that ordinary education is unable to fulfill (Terman et al, 1996). SPED students are those with mental retardation, giftedness and talent, learning disabilities, emotional and behavioral disorders, communication disorder, deafness, blindness and low vision, physical disabilities, health impairments, and severe disabilities (Inciong et al., 2007).

According to Bateman and Cline (2016), SPED has four main characteristics. First, SPED is “individualized” because every SPED student has individual needs based on their category. Second, students who receive SPED services may receive “modifications” of teaching strategies or programs depending on the nature and severity of their disabilities. There are cases wherein modifications needed are extensive and for some cases, only minimal modifications are required. Third, SPED students are systematically “monitored” by evaluating their progress based on their academic, behavioral, and social performance. Fourth, students who receive SPED services also receive “related services” such as speech therapy, occupational therapy, physical therapy, and rehabilitation counseling. These “related services” will ensure an appropriate education for SPED students.

According to Gryta (2019), the following are the individual needs of SPED students:

1. Utilizing assistive technology, such as furnishing a laptop to aid a student with a writing disability in note-taking during class.
2. Implementing accommodations, such as seating the student in proximity to the teacher to minimize distractions or permitting oral presentations instead of written essays.
3. Making modifications, such as reducing the volume of assigned homework.
4. Employing paraprofessionals who act as teacher's assistants, providing support to students through tasks like notetaking and emphasizing key information.

Access to assistive technology is crucial for SPED students to function effectively in any academic environment. SPED students may experience barriers to learning and social integration without a support system. Recognizing these challenges, the Philippine Department of Education institutionalized SPED programs through Department Order No. 26, Series of 1997, to ensure that children with special needs have access to basic education. The initiative emphasizes and promotes inclusion, equity, relevance, and efficiency in SPED services nationwide. As a result, most schools have increased implementation of inclusive education, and school libraries should adopt the collaboration of regular students and SPED students.

The Philippine government's educational reforms in basic education have consistently acknowledged the rightful inclusion of SPED students as beneficiaries. The ongoing pursuit of professionalizing SPED remains evident as teacher and administrator training programs are implemented nationwide. The government's goal is to foster inclusivity, fairness, and active involvement of students with special needs within the mainstream of basic education. This is to enhance the quality, applicability, and effectiveness of SPED within educational institutions and communities while also ensuring the continued provision of SPED programs and services throughout the country (Inciong et al., 2007).

In school libraries, librarians and library staff need to keep in mind that some students whom they interact with, may have a disability or could be enrolled in the school’s SPED program. Chase (2011) underscored five significant predictors that influence whether SPED students perceive the library as a welcoming and voluntarily frequented space. The first predictor is the presence of quiet zones in the library, where students who struggle with concentration can

have a dedicated space. Second, social zones which is similar to quiet zones but for those who require areas for socializing. Third, a library's collection of current and diverse materials with different reading levels that cater to various independent interests. Fourth, the availability of technology, particularly computers with high-speed internet access, as students are often drawn to these resources. Fifth, the attitudes of the librarians who manage the library play a crucial role. Students are more likely to feel welcomed when librarians are approachable, helpful, and possess qualifications that enable them to effectively support SPED students.

As of 2023, the Department of Education has recognized a total of 648 SPED centers and regular schools that provide SPED programs. Out of these, 471 are dedicated to elementary students, while 177 cater to high school students. Additionally, there are 4,000 SPED teachers across the country, serving a student population of 126,598. Thus, the current student-teacher ratio stands at 31:1 (Dela Pena, 2023).

These statistics prove that the population of SPED students is growing and schools should provide the necessary support for these students. Together with the school's administration, the library is recognized as an essential aid in providing the necessary support for students with special needs. School librarians should guarantee that their libraries are well-equipped and can cater to the needs of the SPED students. Thus, to accommodate these needs, school libraries should innovate in a way that the services and programs will accommodate both the needs of regular and SPED students.

Problem Statement

According to Small et al., (2015), libraries and librarians hold a catalytic role in promoting the full participation of individuals with disabilities in society since accessibility and inclusion are fundamental principles that lie at the heart of the library's mission and purpose. To know if school libraries are doing their part in inclusive education, documentation of library and information services for students is required. However, there is insufficient study about the current situation of school libraries that offer services to SPED students in the Philippines. Thus, this study, focusing on school libraries within Metro Manila, will aid in the understanding of the existing library services for people with disabilities.

The study aims to answer the following questions:

1. What are the library services and resources for SPED students offered by the schools?

2. Based on the perceptions of SPED teachers and school librarians or personnel-in-charge, how do they accommodate and address the information needs of SPED students?

Objectives of the Study

The study aims to provide documentation of library and information services for SPED students in Quezon City, Philippines. The researcher has to do the following:

1. Gain insights into the current library activities and services of schools with SPED programs in Quezon City,
2. Determine the existing library resources and collections for SPED students, and
3. Identify the challenges faced by the school library when having a SPED student as a library user.

Significance of the Study

The study may be an endeavor in which SPED students may take a step closer to the library environment by giving them an equal opportunity of being able to function inside a school library. By conducting this study, SPED students will have an opportunity to experience and maximize the use of a school library. Despite changes in the school curriculum by implementing the SPED program, school libraries should continue their role in supporting student learning. Since this study might be the first of its kind in the Philippines, the output can be used by future researchers as a reference to the status of school libraries.

Scope And Limitations of the Study

The main intent of this study is to provide information about school libraries in the Philippines with the SPED program. Due to time and financial constraints, the researcher decided to focus only on Quezon City because based on the data from the National Council of Disabilities Affairs, this area has a large number of SPED centers in the National Capital Region (NCR). Only 15 out of 174 school libraries in NCR qualified for the study because these libraries are schools located in Quezon City and have elementary and/or junior high school students enrolled in the SPED program.

REVIEW OF RELATED LITERATURE

Brief History of Inclusive Education

Inclusive education (IE) is a process aimed at strengthening the education system's capacity to reach and cater to all learners, making it a fundamental strategy for achieving universal education (Suleymanov, 2015). In order to provide a more precise definition, IE involves educating learners with special educational needs within a regular educational setting. Inclusion refers to the practice of admitting children with special needs into regular classes, allowing them to learn alongside their peers. Furthermore, inclusion represents a progressive approach to addressing and accommodating the diverse needs of all children, adolescents, and adults by promoting increased participation in learning, culture, and communities while reducing and ultimately eliminating exclusion from education. IE entails modifications and adjustments in content, methods, structures, and strategies, guided by a shared vision encompassing all children within the appropriate age range. It is firmly rooted in the belief that the regular education system bears the responsibility of educating all children (UNESCO, 1990).

Suleymanov (2015) stated that IE initially emerged in the form of integration, mainstreaming schooling, or normalization, and it was first introduced in the United Kingdom, the United States, and Scandinavian countries. He said that the overarching aim of IE is to assign equal value to all children within the educational system, ensuring that they have the opportunity to actively participate in society as fully engaged adults later on in life. IE represents a comprehensive overhaul of the educational system, encompassing changes in pedagogy and curriculum. This reform is characterized by a commitment to embrace all forms of diversity, including factors such as gender, nationality, culture, language, academic abilities, and disabilities. Included in this reform is the library setting where services and programs cater to the needs of the regular students. School libraries should innovate in a way that students with special needs in a regular classroom setting will receive library services and programs catering to their specialized needs.

IE has emerged as a prominent concept that has motivated numerous educational institutions and educators to embark on initiatives aimed at transforming cultures and practices within schools and libraries to embrace diversity (Barton & Armstrong, 2007). They argued that IE has manifested in various social and historical contexts, suggesting that it should be seen as a concept rooted in specific geographical settings rather than a universally shared value. The essential pillars of an inclusive society encompass human rights, equality, justice, and the ongoing efforts to combat segregation. However, Briggs (2004) perceives IE as a tool not only to enhance academic aspects within schools but also to foster positive social outcomes. Briggs felt that the principles of inclusion in schools should encompass objectives focused on

transforming schools into more conducive environments for both active participation and learning.

Library Resources and Collections for SPED Students

Media resources have positive impacts on students in the SPED program (Nierman, 2012). It was observed that a wide range of adaptive technologies are accessible for SPED students. These adaptive technologies are FM receivers and adapted software, screen enlargers and screen readers, alternative keyboards, text-to-speech and speech-recognition software, augmentative communication devices, and software tailored for multisensory learning environments. These technologies are instrumental in providing support and addressing the unique needs of SPED students in various educational contexts. In order for these to be useful and helpful, they should be strategically located where students can easily access them.

Aside from technologies, Wopperer (2011), emphasized that inclusive literature featuring positive portrayals of characters with disabilities holds significant value in school libraries with SPED programs. Such literature plays a crucial role in fostering an understanding and appreciation among all students, including those without disabilities, regarding the experiences of students with disabilities. Wopperer argued that by reading stories featuring characters facing similar challenges, SPED students can better cope with their own struggles. Furthermore, inclusive literature serves as a powerful educational tool for teaching regular students the essential values of acceptance and empathy, enabling them to gain insights into the experiences of others who may be dealing with disabilities or unique circumstances.

The New Jersey State Library's Talking Book & Braille Center offers assistance to those with vision impairment or physical impairment that prevents them from reading standard print, holding a book, or turning the pages of a book. This regional library provides braille, cassettes, and e-books with more than 60,000 book titles and 76 periodicals with recorded materials that are available on loan. The San Francisco Public Library offers the same "Talking Books" and other special playback machines which can be borrowed either in person or through mail (Talking Book & Braille Center, 2019).

Peralejo (2014) highlighted the array of adaptive technology resources offered by the Calgary Public Library in Canada to assist individuals with visual or hearing impairments and those with disabilities. These adaptive technologies contribute significantly in enhancing accessibility and inclusivity for library patrons with diverse needs. Moreover, the San Francisco Public

Library's Accessibility Services offers valuable resources to enhance accessibility and inclusivity. Some of the services and their features they provide include a braille and audio reading download (BARD) where the service provides access to over 20,000 downloadable digital audiobooks and 40 magazines (Paralejo, 2014). Another service is the Staff Assistance where the library has staff members stationed on each floor to assist all kind of users and direct them to the appropriate sections. The final service is the Terminals with ZoomText Xtra where each section of the library is equipped with terminals featuring ZoomText Xtra, which facilitates access to online catalogs and reference databases. The technology enhances accessibility and ensures that library resources are readily available to all patrons, including those with visual impairments or other disabilities. All these services and resources contribute significantly to making the library more accessible and accommodating to a diverse range of patrons' needs.

In the United States, they have a non-profit organization called National Lekotek Center which aims to improve the lives of children with special needs using toys and play. The center offers therapeutic play-based family sessions for the family of the children as playing can improve interactions within the family and the community. With over 50,000 toys analyzed and cataloged for families by the Family Play specialists, recommendations for traditional and specially adapted toys can be given while taking into consideration that the toys provided are matched to their child's skills and interests. They also keep track of family loans which they can use as a reference to check a child's development and indicating which other areas require their focus. This helps the parents to decide the types of toys they can purchase for their child (Akesson & Brodin, 1991).

The National Library of the Philippines (NLP) also offers library resources and collections for library users with disabilities. The NLP has a Blind Section under the Reference Division which provides print and non-print materials such as braille, large print books, audiobooks, and e-resources for persons with visual disabilities (National Library of the Philippines, 2022). In 2022, the NLP made a significant subscription to Bookshare, an online library offering e-books designed for individuals who read differently due to disabilities that impact their ability to use traditional print materials. These disabilities include blindness, visual impairment, learning disabilities, and physical disabilities. The Bookshare database provides a wide range of e-books in various accessible formats, including audio, highlighted text, braille, large font, and others. This resource empowers library users with disabilities such as dyslexia, blindness, cerebral palsy, and other reading challenges to personalize their reading experience to match their preferred learning style. It allows them to access a comprehensive collection of books for their educational, professional, or recreational reading needs. For the expansion of their library

services, the NLP stated that, “Navigation on the Bookshare, as well as downloading information resources, was cascaded to select account holders from Baguio City Public Library, Davao City Library and Information Center, Quezon City Public Library, Tayabas City Public Library, and Urdaneta City Public Library on September 29 and October 12, 2022, respectively. These public libraries were identified based on their existing services for persons with print disabilities”.

Library Activities and Services for SPED Students

Pressler (1963) studied the effectiveness of storytelling with slow learners at the junior high school age level. She explored the possibilities of both storytellers in person and by tape recording, using stories from folklore and legend. She prepared a series of tape recordings of such material for the exclusive use of retarded youngsters in the classroom as well as in the school library where audio equipment is available for private listening. The study investigated the two ways of storytelling for slow learners, namely face-to-face and recorded storytelling. Pressler pointed out the importance of the collaboration between teachers and school librarians in order to execute a successful library program. Her study indicated that both face-to-face and recorded storytelling created an interest in the slow learners, but the taped/recorded stories were the most popular because it is more appealing to retarded students.

In Canada, the Calgary Public Library made it possible for users who cannot visit the library due to health or mobility issues access the library by establishing the Homebound Reader’s Program. This involves volunteers who select, deliver, and exchange reading materials for homebound users. Another service provided by the library is the In-home Computer Help Program that offers personalized one-on-one coaching sessions at a user's residence. These sessions cover topics such as internet usage, email management, and the utilization of the Microsoft Office software.

The San Francisco Public Library Accessibility Services in California, USA offers a commendable service. They send a selection of books that can fit into a spacious, reusable canvas mailbag, and this service is provided free of charge through the US Postal Service. It is designed to cater to borrowers who are unable to physically visit the library due to disabilities. This comes with a pre-addressed and pre-paid return mailing card which borrowers will use when they return the books through a mail courier or by asking someone to take it to the post office. A fine will be collected if books are returned beyond the due date or returned with damage (Paralejo, 2014).

Conceptual Framework of The Study

This study aims to document the status of school libraries with SPED student as users, and it includes the library services and resources that the school offers to SPED students. For this reason, exploration and written documentation based on the internal perspective of the library were conducted to determine the state of the library's competitiveness and preparedness to provide services to these students. A research paradigm that the school library must execute for this study was developed (Figure 1).

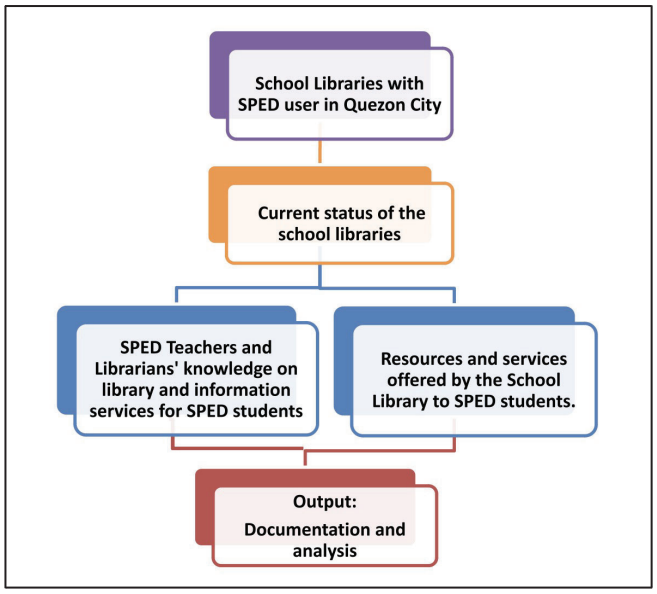


Figure 1: Schematic diagram of the research paradigm

METHODOLOGY

Research Design

The study's research is qualitative and descriptive in nature since the aim of the study is to examine the current status of school libraries with SPED users in Quezon City. The physical set-up, furniture and equipment, personnel/staff, library collection and services, and financial resources were covered in this study.

In 2019, the researcher conducted preliminary groundwork to ensure that there is an existing SPED program in the schools. Library visits were also carried out during preliminary

groundwork to explore the physical set-up of the libraries. Physical and virtual interviews with the librarians and SPED teachers were conducted to supplement the study with enough data.

Respondents

The focus of this study is on the private and public schools with elementary and/or high school students enrolled in the SPED programs located within the vicinity of Quezon City. A total number of 15 schools with SPED programs were included based on the preliminary groundwork. Information on the schools with SPED programs were gathered from different sources, namely the Department of Education, National Council on Disability Affairs, and telephone inquiries.

The following are the private and public schools with SPED programs and a library:

1. Akademia Schools, Inc.
2. Alternative Learning Resource School Philippines
3. Ateneo Grade School
4. Blessed Horizon Learning Center
5. Commonwealth Elementary School
6. Dona Manuela Elementary School
7. Fairview Elementary School
8. Immaculate Concepcion Cathedral School, Inc.
9. Maligaya Elementary School
10. Open Hand School
11. San Antonio Elementary School
12. Saints & Angel School, Inc.
13. Teodora Alonza Elementary School
14. Take the Nations for Jesus Christian Academy
15. T.D. & S. Hope Christian Academy

Research Instruments

Interviews to collect data from the librarians and SPED teachers were conducted. Due to the pandemic caused by the coronavirus disease 2019 (COVID-19), most of the data were collected virtually. During the physical interviews, the researcher used guided questions for the successful execution of the physical interviews. For the virtual interviews, the researcher used a Google form for the questionnaire. The guided questions and questionnaires were divided into three parts: (1) General Questions consisting of the name of the school and the number of SPED students, library staff, and SPED teachers; (2) Available Assistive Devices in the school; and (3) Library Services and Resources for SPED students. Following from the interviews, documentation and analysis of the results were presented as an output of this study.

Data Collection

Before the actual data collection, permission was obtained from the heads of the schools to which the respondent libraries are beholden. This was done through a letter addressed to them and sent via email. Once the school administration gave permission, the researcher went to the school library to interview the library managers/librarians and SPED teachers on the scheduled dates. The librarians and SPED teachers were free to choose the date and time for their interview. Before leaving the premises of the respondent school, the researcher asked follow-up questions for items in the interview that were unanswered or those items that needed clarification. Once the answers were recorded, the data gathered using these tools were analyzed.

Due to the COVID-19 pandemic, not all respondents were interviewed physically and thus, the Google Form was used as the research instrument. Respondents who did not go through a physical interview were contacted during the pandemic through emails and telephone calls/messages to send them the link to the research questionnaire. After receiving all the responses from the questionnaire, the researcher asked follow-up questions via email and phone calls for those answers that required further clarification.

Data Analysis

The data collected from the interviews were tabulated, categorized, and analyzed in line with the objectives of the study. The researcher started the analysis by identifying the disabilities of enrolled SPED students. The analysis is followed by a tabulation of the assistive devices available for each disability in the school. The rest of the data analysis used a qualitative content analysis approach. Since the study had a small sample, the data was manually coded by using an inductive coding approach. In order to come up with the theme, the hierarchical

coding frame to analyze the meaning of responses' words and sentence structure was used. The responses were grouped based on their similarities and differences. Words, quotes, or any related terms that describe the responses were used and labelled as a theme per response. The data collected were presented as outputs that represent the resources and services of school libraries for SPED students in Quezon City, Philippines.

DATA PRESENTATION, ANALYSIS, AND INTERPRETATION

Profile of Selected Respondents

A total of 15 schools within Quezon City were selected and contacted beforehand (Table 1). Interviews were held with 24 respondents consisting of nine school librarians and 15 SPED teachers. Six other selected schools – Akademia Schools, Inc.; Dona Manuela Elementary School; Immaculate Concepcion Cathedral School, Inc.; Maligaya Elementary School; Saints & Angel School, Inc.; and T.D.& S. Hope Christian Academy had no librarians as respondents since they could not be contacted and interviewed.

Table 1: List of Respondents

No.	Name Of School	Number Of Respondents	
		School Librarian	SPED Teacher
1	Akademia Schools, Inc.	0	1
2	Alternative Learning Resource School Philippines	1	1
3	Ateneo Grade School	1	1
4	Blessed Horizon Learning Center	1	1
5	Commonwealth Elementary School	1	1
6	Dona Manuela Elementary School	0	1
7	Fairview Elementary School	1	1
8	Immaculate Concepcion Cathedral School, Inc.	0	1
9	Maligaya Elementary School	0	1
10	Open Hand School	1	1
11	San Antonio Elementary School	1	1
12	Saints & Angel School, Inc.	0	1
13	Teodora Alonza Elementary School	1	1
14	Take the Nations for Jesus Christian Academy	1	1
15	T.D.& S. Hope Christian Academy	0	1
	Total	9	15

Categories of Students Enrolled in the SPED Program

According to Inciong et al. (2007), the categories of SPED students are mental retardation, giftedness and talent, learning disabilities, emotional and behavioral disorders, communication disorder, deafness, blindness and low vision, physical disabilities, health impairments, and severe disabilities. Thus, these categories were used to present the data (Figure 2).

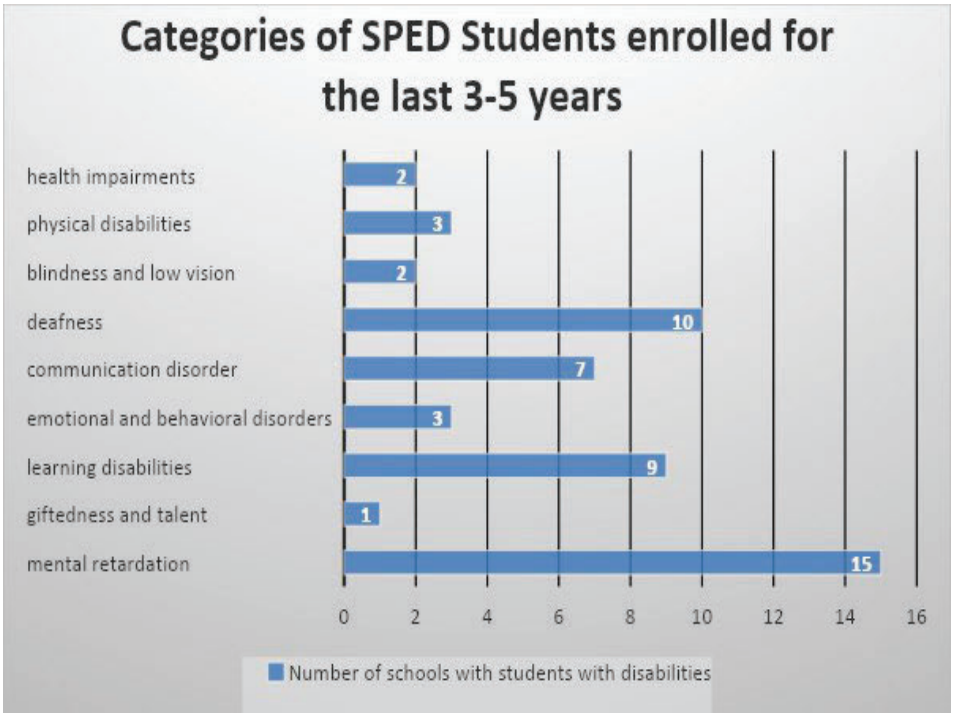


Figure 2: Categories of SPED Students

(Note: With multiple responses)

All the selected schools (100%) have students with mental retardation which includes students with Autism Spectrum Disorder, while 66.7% of selected schools have deaf students, followed by 60% with communication disorders. According to the respondents, the categories of SPED students enrolled for the last three to five years could affect the information needs of the school library users and the challenges that the school librarian currently faces. The respondents stated that the total number of students enrolled in the SPED program for the school year 2021/2022 is an average of 30 students.

Assistive Devices for SPED Students

The respondents were asked about the types of assistive devices that are available in the school library. The answers were interpreted and categorized based on the availability of assistive devices per student's disabilities (Table 2).

For three out of 15 schools, the library provides various types of assistive devices for students with visual, hearing, and physical disabilities. However, the data also indicates that for three out of 15 schools, the library does not provide these assistive devices.

Table 2: Available assistive devices per school based on the students' disabilities

(Note: With multiple responses)

School	Availability of Assistive Devices Based on Student's Disabilities			
	Blind	Low Vision	Deaf	Physical Disabilities
School 5	✓	✓	✓	✓
School 11	✓	✓	✓	✓
School 15	✓	✓	✓	✓
School 1		✓	✓	✓
School 2			✓	✓
School 3		✓		✓
School 13			✓	✓
School 7			✓	✓
School 4			✓	
School 8				✓
School 10		✓		
School 12			✓	
School 9				
School 6				
School 14				
No. of schools with assistive devices per disabilities	3	6	9	9

For the deaf students, nine out of 15 schools stated that they provide assistive devices such as hearing aids, sign language books, speech kits, wall mirrors, speech trainers, and group hearing

aids. For students with physical disabilities, nine out of 15 schools provide assistive devices such as wheelchairs, braces and splints, adjustable desks, tables, and chairs, communication aids for clear speech and adapted computer systems. For low vision students, six out of 15 school stated that they provide large print books, large print typewriters, magnifying lenses, and Grade 1 lined pad paper. For blind students, only three out of 15 schools noted that they provide a braille writer, braille slate and stylus, braille books, braille watches, braille rulers, tape measure, braille calculators, arithmetic slates, computers with a voice synthesizer, embossed materials, manipulative materials, talking books, tape recorders, and braille paper.

Library Collections for SPED Students

Unfortunately, all the respondents stated that there is no specific library collections intended for SPED students because they have inclusive collections that are suitable for all types of students. Another reason is the lack of budget to acquire resources for the SPED students. However, the school library strives to ensure that financial constraints does not limit their services for the SPED students and their educational growth and development.

Library Services for SPED Students

The library services provided for the SPED students are:

1. Recreational services: The librarians let the students play educational games such as puzzles, and board games that will help them to develop their social skills and camaraderie with their schoolmates.
2. Children's literacy services: At times, during the students' library hours, the library runs puppet shows and story-telling activities that will help the students to develop their creativity, and interest in reading the children's literature. Some examples of the storytelling activities are social stories and read-a-loud.
3. Information services: The librarians provide information services through the library orientation programs so that the students are familiar with the resources available in the library and know how to use the collections.

Information Needs of SPED Students Perceived by SPED Teachers

The respondents were asked to narrate their observations of the SPED students who seek information and thus translating this into their information needs. These students have three types of information needs namely assessment, social and curricular or educational needs (Table 3).

Table 3: Information Needs of SPED Students perceived by SPED teachers (N=15)

(Note: With multiple responses)

Information needs of SPED students	No. of responses
Assessment needs	6
Social needs	5
Curricular or educational needs	4
Total	15

(a) Assessment needs

These are information needs that will help the medical professionals and SPED teachers to identify the type of approach and school activities that can be applied to a SPED student. The majority of the respondents stated that the school should provide assessment needs to SPED students such as psychological assessment, developmental assessment, doctor's evaluation, Individualized Education Plan (IEP), SPED Program Reports, neurotypical examination, and neurodevelopment assessment.

(b) Social needs

These are information needs that will teach the SPED students how to interact with fellow students, and provide life skills lessons for their daily lives. Five respondents stated that in order to develop the social skills of the SPED students, the schools should provide environmental signs and prints to familiarize the SPED students with the safety signs and symbols of their surroundings, social stories, deaf sign language materials, hearing test materials, and livelihood and community integration programs.

(c) Curricular or educational needs

These are information needs that will help the student to excel in their academic performance. Four respondents stated that schools should provide a modified curriculum, seminars on how to use assistive devices, materials to enhance vocabulary, and reading-aloud activities to accommodate the educational needs of the SPED students.

Learning Activities Done in the Classroom Perceived by SPED Teachers

The respondents were asked to enumerate all learning activities done by the SPED students inside the classroom to assess how the library can support them in their school activities such as curriculum-based activities, practical or life skills activities, and therapeutic activities.

Table 4: Learning Activities Done by SPED Students Inside the Classroom (N=19)

(Note: With multiple responses)

Learning activities inside the classroom	No. of responses
Curriculum-based Activities	10
Practical or Life Skills Activities	6
Therapeutic Activities	3
Total	19

(a) Curriculum-based Activities

These are the activities in line with the DepEd curriculum or the activities where they can learn academic skills like counting, writing, and reading. Ten respondents provided samples of curriculum-based activities they did inside the classroom such as storytelling, functional academics, reading, counting, writing, drawing, coloring, playing, functional mathematics, physical education, graphic organizing, art, painting, and activities using manipulative materials that will engage the students visually and physically with objects like coins, blocks, puzzles, and markers.

(b) Practical or Life Skills Activities

These are the learning activities for the everyday lives and life lessons for the SPED students. Six respondents stated that they have practical or life skill activities such as self-help, vocational, culinary, cooking, baking, hand sewing, household chores, socialization, sign language, and any small group activities to practice the social skills of the SPED students.

(c) Therapeutic Activities

These are learning activities for medical purposes. Three respondents provided therapeutic activities inside the classroom such as experimental and multi-sensory learning activities, Picture Exchange Communication System (PECS) activities, dance and music therapy.

Policies for SPED Students Inside the Classroom and The Library

The data collected was categorized into two categories, behavioral policy and school policy (Table 5). Behavioral policy is a policy related to instilling discipline in the SPED students' behavior that affects their interaction with fellow students inside the classroom and the library. While the school policy is a policy written in the student's manual or guidebook.

Eight respondents stated that most of their policies inside the classroom are behavioral policies such as no hitting, no spitting, no hurting, no running, and asking permission if they want to do something or go somewhere. While three respondents stated that they follow a school policy inside the classroom such as students should avoid being absent and they have to participate, interact, and communicate during class activities and lessons. Four respondents said that they do not have any specific policy for the SPED students since most of their policies are for all types of students.

Table 5: Policies for SPED students inside the classroom

Policies for SPED Students inside the classroom perceived by SPED teachers	No. of Responses
Behavioral Policy	8
School policy	3
No specific policy for SPED	4
Total	15

Five respondents stated that they do not have a library policy specifically for the SPED students because they treat every library user equally (Table 6). Three respondents said that in order to maintain orderliness inside the library, they reinforce behavioral policies such as no throwing books at fellow students or hitting them; no eating, drinking and running inside the library; and the SPED students should handle the library materials with care. Only one respondent said

that they follow school policies inside the library such as the SPED students should listen and participate during library hours/sessions, and the SPED teachers will borrow library materials and collections on behalf of their SPED students.

Table 6: Policies for SPED students inside the school library

Policies for SPED Students inside the classroom perceived by school librarians	No. of Responses
Behavioral Policy	3
School policy	1
No specific policy for SPED	5
Total	9

Challenges Encountered by School Librarians

An analysis of the interviews revealed that one of the biggest challenges encountered by the school librarians is the lack of resources specifically for the SPED students, especially assistive technologies, books, and learning materials. Accommodating the learning needs of students with disabilities is not met because they have the same resources as the regular students.

Five out of nine librarians mentioned that the challenges they encountered were a lack of knowledge of the information needs and behaviors of the SPED students such as:

1. Lack of training in basic sign language to communicate with the deaf students properly
2. Difficulties in understanding the learning methods of students with disabilities
3. Lack of knowledge on how to accommodate the information needs of students with disabilities because most of the library collections are for regular students; and
4. Lack of experience in the proper handling of the SPED students' behavior especially shouting, running, and uncontrollable movements.

Finally, two out of nine librarians said that they do not have sufficient funds to acquire updated and accurate resources for the SPED students and to purchase additional assistive technology. According to the respondents, almost half of the library resources are from donations and therefore, they are unable to choose the proper resources based on the information needs of the regular and the SPED students.

Librarians' Solutions to The Challenges

In order for the school library to undertake its role of fulfilling the information needs of the SPED students, the librarians agreed to continue doing what they do. The respondents said that some of their initiatives to address the challenges they encountered in the school libraries are:

1. Acquire assistive technologies, materials, and collections suitable for the SPED students. However, they said that it is still insufficient to address all the information needs of the SPED students
2. Seek assistance from the SPED teachers to determine how the library can support the SPED teachers teach students with special needs or during mainstream classes. They said that coordinating with the SPED teachers helped the library services to improve
3. Attend sign language workshops to improve communication with the deaf students.

CONCLUSION AND RECOMMENDATIONS

The study revealed that the current status of library services and resources provided to the SPED students within the school libraries are insufficient and not tailored to cater for the educational needs of these students. Despite this, the libraries do make efforts to accommodate the information needs of these students through the provision of services such as educational games, storytelling sessions, puppet shows, read-aloud activities, and library orientation programs.

In addition, the awareness of the librarians about the SPED students is insufficient as they rely on the SPED teachers to provide assistance in handling SPED students who go to the school library to utilize their services. Consequently, collaborative teaching initiatives with the SPED teachers play a pivotal role in enhancing the overall quality of library services to the SPED students, and benefits the students from diverse backgrounds and abilities.

It is suggested that school libraries, especially those schools with student with educational needs, should have curriculum-based activities such as storytelling, art sessions, and activities using manipulative materials that will engage the students visually and physically with objects like coins, blocks, puzzles, and markers. These activities will help the curricular or educational needs of the SPED students. By providing more social activities at the library, the social skills of the SPED student will improve especially if the activities encourage the regular students to have a social bond with the SPED students. Thus, everyone can practice inclusivity not only for the SPED students but also for the regular students.

With a 45% readiness rate based on the available assistive devices that the library can provide, the inclusive school needs improvement by acquiring more assistive devices that are unavailable in the library. Therefore, inclusive libraries must have all types of assistive devices regardless of the number of enrolment in the SPED program.

For future researchers, it is advisable for them to undertake an additional study that centers on the development of exclusive library collections tailored to the unique needs of the SPED students. Hence, this can serve as a foundational resource and guidance for school librarians, and even public librarian in the selection and acquisition of materials specifically designed to foster equitable knowledge ecosystems for marginalized learners.

ACKNOWLEDGEMENTS

I would like to extend my deepest gratitude to the following individuals, whose support and encouragement served as my pillar of strength throughout the writing of this research paper:

1. To my 24 respondents, thank you for all the valuable insights and contributions during the data collection process. I hope we can still continue to collaborate towards creating an inclusive library environment for all students.
2. To my thesis adviser, Dr. Iyra Buenrostro-Cabbab, I am deeply grateful for your guidance and support over the past four years. Your motivation and patience have been invaluable, and I could not have completed this without you. You are the one who made me feel that my research topic holds value for both the library and information science (LIS) community and the broader public.
3. To my UP Professors, I extend my heartfelt gratitude for imparting not only knowledge but also invaluable life lessons. Your guidance and mentorship have been instrumental

in shaping my academic and personal growth. Thank you for your dedication to education.

4. To all special education (SPED) students, and in particular, my students from Tabernacle of Faith Christian Academy, thank you for being the driving force behind my research. It is my sincere hope that the world will continue to evolve and become a better place where it can accommodate the diverse needs of all kinds of individuals. Your experiences and challenges have inspired me to be committed in making a positive impact and to advocate inclusive educational approaches.
5. To my friends and peers, particularly those from the University of the Philippines Future Library and Information Professionals of the Philippines (UP FLIPP), thank you for being my support system throughout this journey. Your encouragement, study sessions, and late-night brainstorming sessions helped me persevere through the most challenging moments. I will forever cherish the memories we shared. I would also like to express my gratitude to Aijeleth for her unwavering support and motivation during my CONSAL 2025 conference journey.
6. To my family, including my beloved dog, Miya, and niece, Amelia, thank you for being my sources of joy and comfort during stressful days of writing. To my siblings, Merald, Ate Janine, and Ate Miles, thank you for your constant support, encouragement, and for always being there to listen to my frustrations. Your presence and the small comforts you provided during my writing process were invaluable.
7. To my parents, thank you for your exceptional patience and unwavering support over the past decade. Your belief in me, even during the most difficult times, has been a constant source of strength.
8. Lastly, to God, thank you for guiding me throughout this journey and for allowing me to advocate for inclusive approaches in education, and foster equitable knowledge ecosystems for marginalized learners.

REFERENCES

Akesson, E., & Brodin, J. (1991, February). Toy libraries and Lekotek in an international perspective [Handicap Research Group]. University College of Jonkoping.

Barton, L., & Armstrong, F. (2007). Policy, experience, and change: Cross-cultural reflections on inclusive education. Springer.

Bateman, D. F., & Cline, J. L. (2016). A teacher's guide to special education. ASCD.

Briggs, S. (2004). Inclusion: Meeting SEN in secondary classrooms. David Fulton Publishers.

Dela Pena, K. (2023). Zero budget for special education in 2023 makes SPED law 'meaningless'.Inquirer.Net. https://newsinfo.inquirer.net/1674980/zero-budget-for-special-education-in-2023-makes-spe d-law-meaningless#ixzz84ljmCw00

DepEd. (1997, March 7). DO 26, s. 1997 - Institutionalization of SPED programs in all schools. Department of Education. https://www.deped.gov.ph/1997/03/07/do-26-s-1997-institutionalization-of-sped-programs-i n-all-schools/

Dulock, H. L. (1993, October 1). Research design: Descriptive research. Journal of Pediatric Oncology Nursing, 10(3), 154-157.

Gryta, V. (2019). Understanding special education. Understood. https://www.understood.org/en/school-learning/special-services/special-education-basics/u nderstanding-special-education?amp

Inciong, T. G., Quijano, Y. S., Capulong, Y. T., Gregorio, J. A., & Gines, A. C. (2007). Introduction to special education: A textbook for college students (1st ed.). Rex Book Store.

Mayo Clinic. (2017, July 15). Autism spectrum disorder. Mayo Clinic. https://www.mayoclinic.org/diseases-conditions/autism-spectrum-disorder/symptoms-cause s/syc-20352928

Murray, J. (2000). The response of school libraries to the inclusion of students with disabilities in mainstream schools (Unpublished doctoral dissertation). Monash University.

National Council on Disability Affairs. (2019). List of SPED centers. National Council on Disability Affairs. https://www.ncda.gov.ph/list-of-sped-centers/

National Library of the Philippines. (2022, November). NLP is subscribed to Bookshare. National Library of the Philippines. http://web.nlp.gov.ph/nlp/?q=node/11080

Nierman, A. (2012). The impact of library services on students in special education programs (Unpublished M.L.S. thesis). University of Central Missouri, Department of Educational Leadership and Human Development

Paralejo, E. (2014, March 20). Library services and resources for people with disabilities (PWDs). National Library of the Philippines. http://web.nlp.gov.ph/nlp/sites/default/files/20Mar2014/Library%20Resources%20and%20S ervices%20for%20PWDs%20-%20peralejo_0.pdf

Pressler, J. (1963, February). A storytelling project for slow learners. American Library Association, 57(2), 168-169.

RadyoNatin Nationwide. (2017, February 25). DepEd ensures inclusive education for learners with special needs. RadyoNatin.com. https://radyonatin.com/story.php/16717

Reitz, J. M. (2004). Dictionary for library and information science. Libraries Unlimited.

Regular School. (2011). Welcome to Autism Pinoy: A website for families dealing with autism in the Philippines. https://www.autismpinoy.com/doctors-and-schools/regular-schools.html

Small, R., Myhill, W., & Herring-Harrington, L. (2015). Developing accessible libraries and inclusive librarians in the 21st century: Examples from practice. Accessibility for Persons with Disabilities and the Inclusive Future of Libraries, 40(1), 73-88.

Suleymanov, F. (2015). Issues of inclusive education: Some aspects to be considered. Electronic Journal for Inclusive Education, 3(4), 1-23.

Terman, D. L., Larner, M. B., Stevenson, C. S., & Behrman, R. E. (1996). Special education with disabilities: Analysis and recommendations. The Future of Children, 6(1), 4-24.

Talking Book & Braille Center. (2019). NJ State Library. https://www.njstatelib.org/talking-book-braille-center/

UNESCO. (1990). World Declaration on Education for All, Jomtein. UNESCO.

Wopperer, E. (2011). Inclusive literature in the library and the classroom. Library Literature and Information, 39(3), 26-34.

From Marginalization to Inclusion: National Library of Indonesia (NLI) Bridges the Gap for Street Children in Supporting SDGs

Restu Putri Sholikhah, Suharyanto Mallawa

National Library of Indonesia, Indonesia

Corresponding email: restu_putri@perpusnas.go.id

ABSTRACT

This paper explores the National Library of Indonesia's (NLI) role in supporting the United Nations Sustainable Development Goals (SDGs), particularly SDG 4 (Quality Education) and SDG 10 (Reduced Inequalities), through literacy initiatives aimed at marginalized children. The study focuses on two key programs, PROTAP JELITA and the Creative Writing Workshop - conducted in collaboration with the Kartini Emergency School in Jakarta, which serves street children who lack access to formal education. Using a qualitative research approach, data were collected through interviews with the NLI librarians, street children beneficiaries, and the Head of the Library's Information Services and Management of the Indonesian Manuscripts Center. These were complemented by an analysis of official reports and events documentation. The research is grounded in Bourdieu's theory of cultural capital, alongside the SDG framework. Findings show that PROTAP JELITA and the workshop effectively bridges the information and literacy gap by bringing library services directly to society, especially in the underserved areas, including informal schools and urban slums. Activities such as read-aloud sessions, educational magic shows, library membership creation, and library-user orientation help empower children while introducing them to library resources in an engaging, child-friendly manner. However, sustaining these initiatives remains a challenge. The study concludes that libraries can function as powerful social institutions that foster inclusion and empower marginalized communities. For long-term sustainability, the NLI should serve as a training and mentoring institution, while regional libraries take a more active role in implementing adapted versions of PROTAP JELITA.

Keywords: Street Children; Marginalized Children; PROTAP JELITA; SDG 4; SDG 10; Cultural Capital

INTRODUCTION

In an increasingly globalized world, literacy and education remain fundamental pillars for social and economic development. However, marginalized communities, particularly street children, often lack access to these essential resources, leading to cycles of poverty and social exclusion. In Indonesia, the street children represent one of the most vulnerable populations, facing barriers to formal education, limited access to information, and a lack of structured learning environments. Addressing these challenges is crucial to ensuring equitable development and fostering inclusivity, aligning with the Sustainable Development Goals (SDGs), specifically SDGs 4 (Quality Education) and 10 (Reduced Inequalities). Acknowledging these challenges, the National Library of Indonesia (NLI) has taken significant steps to bridge the educational gap for street children through literacy initiative programs.

As the national information center, the NLI aligns its programs and services with its 2025 vision, *Perpustakaan Hadir Demi Martabat Bangsa* (The Library is Present for the Nation's Dignity). The word *hadir* (present) here is not merely a physical presence, but a manifestation of the library's active involvement, empathy, and responsiveness to the needs of society, especially the underserved. It reflects the NLI's commitment to being relevant, accessible, and impactful for everyone within the society. By prioritizing marginalized groups such as street children, the NLI brings its vision to life through inclusive outreach programs that foster equitable access to information, literacy, and lifelong learning.

Libraries as inclusive institutions that provide free and open access to knowledge, play a pivotal role in social transformation. Access to libraries is essential for fostering lifelong learning, promoting literacy, and providing vital information resources to communities (Bargahi et al., 2024). In Indonesia, where disparities in educational opportunities persist, the NLI has taken creative and innovative approaches to extend its services to underserved communities. One such initiative focuses on street children, who often find it difficult to gain knowledge and experience. By leveraging its resources and expertise, the NLI aims to empower these children to access information and knowledge through reading books and writing activities, thereby fostering social inclusion for street children.

This paper explores how the NLI has been instrumental in addressing the educational needs of street children, with focusing on the Kartini Emergency School in Jakarta. Through the

qualitative research method, including interviews and an analysis of past reports, this study examines key initiatives implemented by the NLI to support marginalized communities, especially for the street children in the slum areas of North Jakarta. Among these initiatives, the *PROTAP JELITA* or the Integrated Program of Nusantara Literacy Exploration and the Creative Writing with Street Children workshops stand out as impactful interventions designed to enhance literacy skills, foster creativity, and encourage self-expression. By bringing books and interactive learning opportunities directly to street children, the NLI has helped create a bridge between exclusion and inclusion.

The NLI contributes to the broader objectives of the SDGs by promoting lifelong learning opportunities, reducing inequalities, and fostering social engagement. Providing street children with access to books and literacy programs not only improves their educational prospects but also inculcates a sense of self-worth. Furthermore, these initiatives highlight the role of libraries as social centers that actively participate in social development, rather than merely serving as repositories of books.

Despite these efforts, challenges remain in sustaining and expanding literacy programs for street children. Limited funding, government coordination, and the transient nature of the street children's lives pose ongoing difficulties in implementing long-term solutions. Strengthening collaborations and developing comprehensive policies are essential steps in enhancing the impact of literacy initiatives for marginalized youth, in this case, the street children.

This paper not only reports the endeavors of the NLI but also makes recommendations for policymakers and stakeholders to improve the maintainability and adequacy of library-driven proficiency programs. By showing best practices and success stories, the study aims to inspire other libraries, both within Indonesia and internationally, to adopt similar inclusive strategies that address the needs of the vulnerable populations.

On a final note, libraries are more than just centers for reading and research, they are powerful agents of social change. The NLI’s commitment to bridging the educational gap for street children demonstrates the transformative potential of libraries in fostering inclusivity and supporting the SDGs. As societies strive for more equitable access to education, the role of libraries in uplifting marginalized communities must be recognized and strengthened. By

continuing to innovate and collaborate, libraries can ensure that no child is left behind in the pursuit of knowledge and a better future.

LITERATURE REVIEW

Street Children, Their Challenges and Existence in Indonesia

Over the past 50 years, the presence of street children has become a significant issue in major cities worldwide. The United Nations estimates the worldwide population of street children at 150 million. This issue continues to rise, reaching a point where it is widely recognized as a pressing global concern. There is no country, no city anywhere in this world today without the presence of street children (Rwamuhuru, 2011). Street children as defined by the United Nations (UN) are children working or living on the street, whose families are on the street or children who have run away from their families and are living on the streets. According to UNICEF, “children in street situations” or CiSS are those whose livelihood and world depend on what they can obtain in the streets, including those who live or work there, or who accompany families or peers into these situations and are inadequately protected or supervised. Meanwhile, the Consortium for Street Children (CSC) said street children are also known as “homeless” or “homeless children” (Gabriel, 2022). However, street children are not always considered homeless because they spend their time on the streets playing and working, but they still return to their families and parents because their main requirement on the streets is to survive (Asante, 2019).

The statistics of street children have increased from 27% in 1955 to 43% in 2005 (UNICEF, 2012). In light of recent UN estimated numbers of 100 to 140 million street children, it is obvious that 20 million children are living on the street alone. There are 40 million in Latin America, 25 million in Asia, 10 million in Africa, and 25 million in Eastern Europe, but most of them live in Asia (UNICEF, 2012). Meanwhile, according to the Ministry of Social Affairs of the Republic of Indonesia and reported by the Central Bureau of Statistics in 2021, there were 232,894 street children in 2022, with 205 children in Jakarta,

According to data from UNESCO, in 2021, there were 244 million children worldwide who do not attend school. This is a reasonable approximation of the scale of the phenomenon of children in street situations. They are ignored by the education system, and yet, like any other children, they have the right to free, quality education. The existence of street children is one of the complex social challenges faced by major cities in Indonesia. According to data from the Ministry, the five provinces with the highest number of street children are West Java, Jakarta, East Java, Central Java, and North Sumatra. Although often seen as a social issue, the root

cause of this phenomenon is primarily economic, driven by fundamental needs and lack of knowledge from parents about the importance of school and literacy skills. The government has undertaken numerous measures to remove and minimize the activities of these street children, including arrest and detention, as well as other seemingly harsh acts, but this has not resulted in a reduction in the number of street children (Anwar, 2022).

In Indonesia, Article 34 of the 1945 Constitution is proof of the importance of the government in addressing the problems of street children in Indonesia. The article mentions that the poor and neglected children are to be kept by the state. In addition, the government has issued Law No. 4 Year 1979 on child welfare and Law No. 23 Year 2002 on child protection. It states that "Every child has the right to receive education and teaching in the context of developing his/her personality and level of intelligence according to his/her interests" and this includes street children. Generally, the basic rights of abandoned children and street children are essentially the same as the human rights, as stated in Law No. 39 of 1999 concerning the Human Rights and the Presidential Decree of the Republic of Indonesia No. 36 of 1990 ratifying the Convention on the Rights of the Child (Amendment IV, Law No. 39 of 1999). The children referred to here includes street children.

Social Inclusion, SDGs and Their Connection to Libraries

Social inclusion is related to social exclusion. Social exclusion is a concept formed by society about those marginalized due to specific conditions that render their voices unheard (Davey & Gordon, 2017; Edwards et al., 2001). Social inclusion is a concept that includes efforts and policies to promote equal opportunities for individuals from various marginalized social backgrounds (Fourie, 2007). Further, Silver (2015) added that social inclusion is a process that encourages social interaction between individuals with different social attributes and opens access to participation in all areas of social life.

Given the importance of social inclusion, libraries play a crucial role in bridging information gaps and empowering marginalized communities through inclusive access to knowledge resources. Access to libraries is essential for fostering lifelong learning, promoting literacy, and providing vital information resources to communities (Bargahi et al., 2024). The International Federation of Library Associations and Institutions (IFLA) acknowledges libraries as crucial allies in promoting inclusive and sustainable development. Libraries play a key role in providing meaningful access to information, which is vital for achieving economic, social, and environmental sustainability (Wang & Chen, 2018).

Social inclusion and the SDGs are deeply interconnected, particularly in the role that libraries play in fostering equitable access to knowledge and resources. Social inclusion emphasizes creating opportunities for marginalized and disadvantaged groups to participate fully in society, aligning directly with SDGs 4 (Quality Education) and 10 (Reduced Inequalities). As centers of knowledge for society, libraries play a vital role in bridging educational and social disparities by offering free access to information, literacy programs, and digital resources. By facilitating lifelong learning and breaking down barriers to knowledge, libraries empower individuals, particularly those from marginalized groups like street children, to develop their skills and improve their opportunities for social development.

Libraries are essential in supporting the SDGs established by the United Nations in 2015. These 17 goals are designed to create a sustainable future for everyone, and libraries play a key role in supporting their achievement through various initiatives. SDGs are a global and national commitment to improve society, including 17 international goals and 169 targets for 2030, which were declared by both developed and developing countries at the UN General Assembly in September 2015. The SDGs aim to address broader issues related to economic, social, and environmental sustainability. Among the 17 goals, social inclusion is a key focus, emphasizing the importance of providing equal access to resources and opportunities for all, particularly for vulnerable and marginalized communities, to enhance their quality of life.

Research on the SDGs indicates that the focus on upholding rights is an effort to promote equality of human rights, especially in the social sector and particularly for street children, a target of the SDGs (Setiawan, Larasati, & Sugiarto, 2021). The goal of fostering equality, particularly for street children, is also part of the SDGs. The commitment to uphold and fulfill the rights of street children is reflected in SDGs 4 and 10.

According to IFLA (2018), for SDG 4 (Quality Education), libraries are at the heart of schools, universities and colleges in every country worldwide. All libraries support literacy programmes, provide a safe space for learning, and support researchers to access, apply and reuse research and data to create new knowledge. Libraries also act as facilitators in their communities, setting up local learning centres to support learning.

In line with SDG 10 (Reducing Inequalities), equitable access to information, freedom of expression, freedom of association and assembly, and privacy are central to an individual's independence. Libraries help to reduce inequality by providing safe spaces that are open to all, in both urban and rural areas across the world. They foster community engagement and citizen participation through local programmes and partnerships with other civil society

organisations and local governments. They are a lifeline to marginalized groups, who may struggle to access information, skills or support elsewhere. (IFLA, 2018)

Libraries play an important role in achieving the SDGs. As Omona (2020) explained, "Building an ideal nation requires a holistic approach and all facets of human activities and indices of nation building must be taken care of if all SDGs are to be achieved." In some cases, libraries contribute to the SDGs through activities for society, specifically in literacy programs. This proves that the presence of libraries is an important indicator in realizing the SDGs in a country.

Pierre Bourdieu Theory on Cultural Capital

Pierre Bourdieu was a French sociologist who wrote extensively on power and social relationships. Bourdieu studied under Marxist philosophers and believed that ownership of economic capital was the root of power. However, he theorized that there were three types of capital: economic, cultural and social. He considered social and cultural capital to be "disguised forms of economic capital." Bourdieu defines cultural capital as the knowledge, skills, education, and cultural assets that a person possesses, which can help them gain social mobility and improve their position in society. He divides it into three forms (Bourdieu, 1986):

1. Embodied cultural capital – Knowledge, language skills, or literacy that a person acquires over time (e.g. learning to read and write).
2. Objectified cultural capital – Physical objects relating to culture and education (e.g. books, technology, access to libraries).
3. Institutionalized cultural capital – Recognized qualifications or credentials (e.g. certificates, diplomas, literacy program completions).

Bourdieu (1986) originally conceived cultural capital as a way to explain the unequal academic achievement of children from different socioeconomic backgrounds. His theory of social capital and cultural reproduction is highly relevant to the discussion in this article as it examines how the NLI plays a role in bridging social inequalities for marginalized street children. Bourdieu argues that access to cultural and educational resources is often determined by one's social position, reinforcing existing social hierarchies. Street children, who lack institutionalized cultural capital such as formal education and literacy skills, face systemic barriers to social mobility. By implementing literacy programs like PROTAP JELITA and the Creative Writing Workshop with Street Children, the NLI actively disrupts these cycles of marginalization, providing street children with access to knowledge and skills that can enhance their social capital.

METHODOLOGY

This study uses a qualitative research approach to explore the impact of the NLI's literacy initiatives on street children, particularly through the PROTAP JELITA and the Creative Writing Workshop for Street Children programs. The research methodology consists of semi-structured interviews, document analysis, and post-event observations to ensure a comprehensive understanding of the program's effectiveness and alignment with SDGs 4 (Quality Education) and 10 (Reduced Inequality).

Semi-Structured Interviews

In order to capture diverse perspectives, interviews were conducted with four key groups:

1. The Head of the Center for Library Information Services and Management of Nusantara Manuscripts (Mr. Suharyanto): To gain insights into the institutional support, policies, and strategies for sustaining literacy programs for marginalized groups.
2. Five street children who participated in the programs (Adit, Dwi, Azam, Hatan and Bagus): To explore their experiences, perceived benefits, and whether the program influenced their literacy skills or aspirations.
3. The librarian who is in charge and involved in PROTAP JELITA (Mr. Faizzudin): To understand the program's objectives, implementation challenges, and observed impact on street children.
4. The former Head of the Center for Library Information Services and Management of Nusantara Manuscripts and initiator of the PROTAP JELITA program (Mr. Agus Sutoyo): To find out about the main goals and vision of organizing the program and its considerations with regards to social inclusion.

The interviews followed an open-ended format, allowing participants to share their experiences freely while addressing specific research questions related to educational access, social inclusion and program sustainability.

Document Analysis

Program reports, official publications of PROTAP JELITA and the Creative Writing Workshop with Street Children will be analyzed to provide:

1. Institutional perspectives on the effectiveness of these initiatives in reducing educational inequality, and

2. Documentation of any follow-up efforts to sustain literacy engagement among street children.

By reviewing these documents, the study will assess how the library's literacy programs align with SDGs 4 and 10, while also examining any gaps in policy or implementation.

Post-Event Observations

Since field observations during the program were not feasible, this study incorporates post-event observations to evaluate the sustainability and long-term impact of these literacy initiatives. It focused on:

1. Assessing the children's continual engagement with literacy activities after the program, and
2. Visible behavioral changes or shifts in attitudes towards reading and education.

Post-event observations serve as a complementary method to validate interview findings and assess whether the street children still experience the benefits of the program.

FINDINGS AND DISCUSSION

PROTAP JELITA & The Creative Writing Workshop: Library Program for Society

As a state institution, the NLI performs various functions and delivers various services. One such service is the provision of PROTAP JELITA (*Program Terpadu Jelajah Literasi Nusantara* or Integrated Program of Nusantara Literacy Exploration). JELITA is a movement that summarizes several literacy activities including reading books, library guidance that provides information on physical and digital collections as well as information about the NLI, read aloud and educational magic shows, all of these activities have educational values in them. These programs are organized as an effort to expand the national library's services to the community through visits to schools, reading parks or village libraries. The NLI is responsible for carrying out one of the mandates of the 1945 Constitution to Indonesians, that is, to educate the nation and disseminate information on library services that can be utilized by the nation.

PROTAP JELITA for street children was held on 17 September 2024 at the Kartini Emergency School which is located in a slum area in North Jakarta. The event was held to commemorate

the Library Visit Day and the participants were 70 students from the school. The Kartini Emergency School or Sekolah Darurat Kartini was founded by a pair of twin teachers, Sri Rossyati and Sri Irianingsih. Through their dedication, the Kartini Emergency School located in Lodan, Ancol, North Jakarta, stands as a symbol of hope and determination. It not only provides formal education but also valuable life skills where the students are trained in culinary arts, sewing, workshop, and make-up to enable them to be work ready individuals. The twin founders emphasized on the importance of possessing a good attitude and being honest since these are the foundation of a successful life.

The Creative Writing Workshop for Street Children was held on 23 October 2024 at the NLI in Jakarta and was attended by 100 participants from the Kartini Emergency School.



Figure 1: The Creative Writing Workshop for street children held on 23 October 2024

It was held to commemorate the Language Month 2024 and the NLI plays an important role in encouraging the street children's interest in reading and writing. The NLI also provided a space for them to develop their creative potential through the development of reading and writing literacy. The writing workshop not only provides training in writing, but it also builds self-confidence, hones creativity, and inspires them to dream big through writing. Thus, this program is expected to be part of an effort to empower street children through a literacy approach that will increase their self-confidence and open up opportunities for a better future. By utilizing the facilities at the library, the program will provide a conducive learning

environment for the street children to carry out their activities and to the wider world of literacy.

The Impacts and Effectiveness of The NLI's Program in Bridging the Gap and Cultural Capital for Street Children Lives

The NLI's initiatives through PROTAP JELITA and the Creative Writing Workshop for street children represents a transformative effort in addressing structural barriers among marginalized street children. This initiative shows an impactful approach to reducing social exclusion and providing cultural capital to marginalized society, especially the street children. It not only addresses the educational gap, but it also tackles inequalities that prevent street children from fully participating in a society. Bourdieu's (1986) theory of social and cultural capital is highly relevant to the discussion here, as it examines how the NLI plays an important role in contributing and bridging social inequalities for marginalized street children. He argued that a person's ability to access cultural and educational resources is often determined by their social status.

According to Bourdieu (1986), cultural capital exists in three forms, namely embodied (knowledge, reading habits and literacy skills), objectified (books, educational tools), and institutionalized (library member card, certifications). PROTAP JELITA has succeeded in enhancing all forms of the cultural capital for the street children. Activities such as guidance for the library's new users, storytelling, read aloud, educational performances, and library card registration provide both access to knowledge and tools of learning. Creating the library card for street children is also part of the institutionalized form of Bourdieu's theory. Therefore, it can be said that the NLI, through programs such as PROTAP JELITA, acts as a transformative agent. By focusing on marginalized groups such as street children, the library attempts to revive cultural capital outside of the formal schooling structure. As evidenced in interviews with the children, they reported an increase in their motivation to read and learn, and a strengthened sense of belonging to the society. For instance, Adit, a 15-year old participant, shared how the program made him felt recognized by the state, and how it shifted his learning habits to become more enthusiastic and self-driven.

Mr. Suharyanto explained the symbolic and literal meaning of the library's presence. He noted that the NLI's slogan, *Perpustakaan Hadir Demi Martabat Bangsa,* is translated into a moral responsibility to uplift the dignity of every Indonesian, including the marginalized. The word *hadir* or present, is very meaningful since it reflects that the library is not only a building. The library is actively involved in various initiatives for marginalized groups who have difficulties

accessing the library to use the library effectively. However, he also acknowledged critical limitations, particularly technological access. Many street children lack internet connectivity and devices, creating a digital divide that limits participation in the library's digital programs. This reflects what Bourdieu might call technological capital, a modern extension of cultural capital, which makes inequalities more real in today's era. He also mentioned that in future, the PROTAP JELITA program has to be passed down to the regional libraries. The NLI will educate these libraries on how PROTAP JELITA works so that they can duplicate and implement the same concept in their respective regions. The NLI will take a supervisory role over the regional libraries.

Street children lack both access to formal education and exposure to environments that foster literacy, critical thinking, and self-expression. The Kartini Emergency School, while addressing their basic educational needs, does not fully bridge the gap in cultural capital. In this context, the NLI's intervention becomes crucial. PROTAP JELITA serves as a program that brings library services directly to the marginalized communities. Rather than expecting the children to come to the library, the library extends its presence into their living spaces. Mr. Faizzudin noted that the program is an endeavor to break up the structural barriers such as physical inaccessibility, bureaucratic constraints, and social stigma. For the Creative Writing Workshop for Street Children, it had a significant impact on the participants' confidence, literacy, and sense of identity. Based on interviews with Adit, Dwi, Azam, and Hatan, participants from the Kartini Emergency School, the workshop gave them a platform and a medium to tell their stories and validate their life experiences through their writings for the very first time.

Despite its limited duration, the effectiveness of the program lies in its transformative potential. By facilitating a safe space for learning, the NLI helps transform the street children's self-perception that reading is an activity that can change its cultural capital, and this activity can be found in the library. The perception of the street children about the library will be embedded in them is that it is a very joyful place to grow and learn. It will be remembered as one of the state institutions that is present in their live for them. However, there are challenges as well. The sustainability of such initiatives is often threatened by limited funding, lack of policies, and difficulties in maintaining the program in the long term. Future endeavors to maintain the program in its current concept must take into account multi-stakeholder collaboration involving schools, local governments, and child advocacy groups in order to reach out to all the slum areas throughout Indonesia, making it a national program for Indonesia.

The Contributions of The NLI Initiatives in Supporting and Achieving the SDGs

The NLI has made tangible contributions to the SDGs, particularly SDGs 4 (Quality Education) and 10 (Reduced Inequalities), through inclusive literacy initiatives aimed at marginalized populations, especially the street children. Through outreach programs like PROTAP JELITA and the Creative Writing Workshop for Street Children, the NLI exemplifies how libraries can act as agents of social transformation, bridging cultural and educational gaps.

Supporting SDG 4 (Quality Education)

Street children represent one of the most marginalized and vulnerable groups in Indonesia, often lacking access to formal education due to poverty, environment and the absence of legal documentation. In Indonesia, children from unmarried couples or couples who are married in secret or religious marriages, not an official marriage recognized and recorded by the state, do not possess birth certificates which are required for registering the children at an official formal school. Their parent's lack of knowledge and awareness on this matter has resulted in the children being unable to go to school. Coupled with inadequate funds, these children have difficulties in accessing lessons and knowledge. Emergency schools such as the Kartini Emergency School, provide basic educational support but their lessons do not follow a structured curriculum. They do not have resources and do not award certification as practised in the more formal education systems. In this context, the NLI plays a crucial role in bridging the gap between the state and the right to quality education for these children.

The Creative Writing Workshop for Street Children served not only as a literacy enhancement program, but also as a platform for self-expression and personal empowerment. Dwi, a 14-year-old participant, shared, "I had never written a story before. In this program, I could tell my own story, and people actually read it." This opportunity enabled children to gain confidence and see the value of their experiences through their writings. By providing these creative learning spaces, the NLI complements the limited education offered at informal schools and fulfills the state's obligation to provide inclusive and equitable quality education. These efforts directly contribute to SDG Target 4.5 (eliminate all discrimination in education), which states that "By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations." In this case, the street children as children in vulnerable situations can have equality in accessing quality education at least from the state. By bringing the "information, science and knowledge" through the initiatives from the NLI, the street children can have the benefits from the state that should be made available and utilized by all levels of the society.

Advancing SDG 10 (Reducing Inequalities)

While inequality is often measured in terms of income or healthcare, access to knowledge and information is an equally critical, yet often overlooked dimension. SDG 10 emphasizes on reducing inequality of outcomes and ensuring equal opportunities for all, particularly for those who are socially and economically marginalized. The NLI directly addresses this through its PROTAP JELITA, which brings library services to people who would otherwise have no access to them. This includes outreach to communities in slum and rural areas, persons with disabilities, and street children. Instead of expecting these users to visit formal libraries which are often inaccessible due to structural, physical location, or social barriers, the NLI proactively brings books, reading sessions, and interesting programs to the communities. Thus, the NLI is able to bring new experiences and addresses the needs of the marginalized communities. Libraries can help reduce inequalities within society as reflected in SDG 10. The International Federation of Library Associations and Institutions (IFLA) acknowledges libraries as crucial allies in promoting inclusive and sustainable development. This aligns with IFLA's statement, "Equitable access to information, freedom of expression, freedom of association and assembly, and privacy are central to individuals' independence. Libraries help to reduce inequality by providing safe, civic spaces open to all, in both urban and rural areas across the world. They foster community engagement and citizen participation through local programmes and partnerships with other civil society organizations and local governments. They are a lifeline to marginalized groups, who may struggle to access information, skills or support elsewhere." Mr. Suharyanto stated that, "PROTAP JELITA is our way of making sure that access to information is a right for all citizens, including those who have been excluded by systems."

Adit, one of the participants, said that, "With the arrival of the NLI program here, I feel more cared for by the state, because we know that the Kartini Emergency School is under a bridge, so I am very happy that the NLI's program is here. I hope that the NLI can come here again to bring new books and chairs for us to study." His experience reflects the power of inclusive library services to transform not only access to knowledge, but also the feeling of being cared for by the state.

By facilitating this type of program participation, the NLI reduces the structural inequality that often occurs in a society. These initiatives align with SDG Target 10.2 (empowering and promoting social inclusion) which states that, "By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status." It is also aligned with SDG Target 10.3 (ensuring equal opportunity and reducing outcome inequalities), which states that, "Ensure equal opportunity

and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard," while also challenging the unequal distribution of cultural capital as discussed in Bourdieu's (1986) theory.



Figure 2: Post-event observation at the Kartini Emergency School in Jakarta

Bridging Exclusion: Inclusive Education for Marginalized Street Children

Street children, often excluded from formal education systems, face structural barriers that limit their access to learning and accessing information. The NLI, through programs like PROTAP JELITA and the Creative Writing Workshop for Street Children, seeks to create inclusive educational spaces that go beyond traditional classrooms. These initiatives represent a commitment to inclusive education as outlined in SDGs 4 (Quality Education) and 10 (Reduced Inequality), whilst also embodying the principles promoted by IFLA with regards to equitable access to information and lifelong learning for all. IFLA acknowledges libraries as crucial allies in promoting inclusive and sustainable development. This is important as libraries have a critical role in providing access to all levels of society and making sure that no one is left behind. PROTAP JELITA embodies this approach. Instead of waiting for children to come to the library, the library goes to the children. According to Mr. Faizzudin, the outreach activities at Kartini Emergency School included not only reading and storytelling but also an introduction to digital collections and a simplified library membership process. These interactions serve a dual purpose, to build up the children's literacy skills and to validate their learning experiences through the library's activities.

According to Bourdieu's (1986) theory of cultural capital, many street children lack the institutionalized, embodied, and objectified cultural resources that are often conditions for success in formal education. Their real-life experiences, shaped by poverty, displacement, and exclusion, position them to become people who are marginalized and do not have any privileges to improve their social standing. However, the programs organised by the NLI is able to change this and also change the viewpoint that people need to come to the library to improve their standard of living. The NLI does the opposite, they "come and be present" for marginalized communities who cannot afford to come to the library. This approach challenges the traditional education paradigms, but it aligns with IFLA's Global Vision which highlights the importance of inclusive, community-centered library services.

For example, the Creative Writing Workshop for Street Children not only gave an opportunity for expression but also a validation of the children's voices and stories. As shared by Azam and Dwi, the experience of writing and being listened to helped them feel "seen" and "proud." These moments reflect that they feel more confident and strengthen their sense of identity.



Figure 3: PROTAP JELITA at the Kartini Emergency School in Jakarta

CONCLUSION

This study emphasizes the transformative potential of the NLI in promoting inclusive literacy and social equity for the street children through initiatives like PROTAP JELITA and the Creative Writing Workshop for Street Children from the Kartini Emergency School. These programs demonstrate how libraries can be more than custodians of knowledge, they can become dynamic agents of change that actively reduce educational and social disparities in line with SDGs 4 (Quality Education) and 10 (Reduced Inequalities).

PROTAP JELITA has played a crucial role in improving literacy access among marginalized children by bringing library services directly to the underserved communities. Through interactive programs such as read-aloud sessions, educational magic shows, library membership registration, and user guidance, the program not only provides learning materials but also helps children build cultural and social capital, empowering them to better participate in society.

However, sustaining and expanding the program's impact presents ongoing challenges. To achieve long-term success, there needs to be a clear division of roles between the NLI and local libraries. The NLI, as the central coordinating and capacity-building institution, should serve as a mentor and facilitator, while regional libraries should take ownership of the PROTAP JELITA-inspired programs within their local contexts. This decentralized approach would ensure that literacy services reach more marginalized groups across Indonesia, particularly in informal schools, urban slums, and remote schools with limited awareness of the value of libraries. Strengthening the role of local librarians and empowering them to conduct outreach programs aligned with PROTAP JELITA will be crucial for achieving sustainable and scalable impact.

ACKNOWLEDGEMENTS

The authors would like to express their sincere gratitude to the NLI, especially the Library Information Services and Management of Indonesian Manuscripts Center, for supporting the data collection and documentation process. Our special thanks are extended to Mr. Suharyanto, Head of the Center; Mr. Faizzuddin, librarian and coordinator of PROTAP JELITA; and Mr. Agus Sutoyo, the initiator of the program, for sharing their insights and experiences that greatly enriched this study. Appreciation is also conveyed to the students and teachers (Ibu Kembar or the Twin Teachers) of the Kartini Emergency School in Jakarta, whose openness and participation made this research possible. Their voices and stories are the heart of this paper. Lastly, the author is thankful for the opportunity to contribute to the Congress of

Southeast Asian Librarians (CONSAL) and to collaborate with fellow professionals committed to inclusive and transformative library services.

REFERENCES

Anwar, S. (2022). Pemberdayaan anak jalanan melalui program pendidikan dan keterampilan. lembaran masyarakat. *Jurnal Pengembangan Masyarakat Islam*, *8*(2), 402-442. https://doi.org/10.32678/lbrmasy.v8i2.2255

Asante, K. O. (2019). Factors that promote resilience in homeless children and adolescents in Ghana. *A Qualitative Study. Behavioral Sciences*, *9*(6), 64-76. https://doi.org/10.3390/bs9060064

Badan Pusat Statistik Provinsi DKI Jakarta. (n.d.). *Jumlah penyandang masalah kesejahteraan sosial (pmks) menurut jenis dan kabupaten/kota administrasi*. https://jakarta.bps.go.id/id/statistics-table/2/NjE1IzI=/jumlah-penyandang-masalah-kesejahteraan-sosial--pmks--menurut-jenis-dan-kabupaten-kota-administrasi.html

Bargahi, M., Yazici, A., Finn, D., & Tran, C. (2024). Assessment of accessibility and equality of access in Long Island libraries from the perspective of community resilience. *Case Studies on Transport Policy*, *15*, 101163. https://doi.org/10.1016/j.cstp.2024.101163

Bourdieu, P. (1986). *The forms of capital*. New York: Greenwood Press.

Davey, S., & Gordon, S. (2017). Definitions of social inclusion and social exclusion: The invisibility of mental illness and the social conditions of participation. *International Journal of Culture and Mental Health*, *10*(3), 229-237. https://doi.org/10.1080/17542863.2017.1295091

Fondation Apprentis d'Auteuil International. (n.d.). *International Day for Street Children 2024*. https://faai.ch/en/international-day-street-children-2024

Fourie, P. I. (2007). Public libraries addressing social inclusion: how we may think .... world library and information congress. *73rd IFLA General Conference and Council, Durban*, 19-23. http://origin-archive.ifla.org/IV/ifla73/pa-pers/128-Fourie-en.pdf

Gabriel, J. (2022). Traits of street children. *Educational Research And Reviews*, *17*(5), 169-167. https://doi.org/10.5897/ERR2022.4245

IFLA. (2018). Libraries and the sustainable development goals: A storytelling manual. The Hague: IFLA.

https://repository.ifla.org/rest/api/core/bitstreams/b1fbe3c0-bb50-4c89-b5c8-73d4d3ebba62/content

Republic of Indonesia. (1989). *The 1945 Constitution of the Republic of Indonesia*. https://constitutionnet.org/sites/default/files/the_1989_constitution_of_indonesia.pdf

Indonesia. Law No. 4. (1979): About child welfare.

Indonesia. Law No. 23. (2002): About child protection.

Kementerian Sosial Republik Indonesia. (2022). *Pemenuhan hak pendidikan anak jalanan di Kota Bengkulu*. https://kemensos.go.id/jurnal-dan-artikel/direktorat-jenderal-

perlindungan-dan-jaminan-sosial/pemenuhan-hak-pendidikan-anak-jalanan-di-kota-bengkulu

Merton, R. K. (1968). *Social theory and social structure*. London: Collier Macmillan Publisher.

Observer Research Foundation. (2022). *Street children: The neglected pathology*. https://www.orfonline.org/expert-speak/street-children-the-neglected-pathology

Omona, W. (2020). The roles of library and information services in achieving Sustainable Development Goals (SDGs) in Uganda. *Library Philosophy and Practice (e-journal)*, *4018*. https://digitalcommons.unl.edu/libphilprac/4018

Setiawan, I. K. A., Larasati, P. A., & Sugiarto, I. (2021). CSR contextualization for achieving the SDGs in Indonesia. *Journal of Judicial Review*, *23*(2), 183-196. http://dx.doi.org/10.37253/jjr.v23i2.5021

Silver, H. (2015). *The contexts of social inclusion*. https://ssrn.com/abstract=2641272

UNICEF. (2023). *The state of the world's children 2023 for every child vaccination*. https://www.unicef.org/media/108161/file/SOWC-2021-full-report-English.pdf

UNICEF. (2024). *Children in street situation*. https://www.unicef.org/iran/en/children-street-situation

Wang, L., & Chen, J. (2018). Social dispersal in library access: Case Studies in several metropolitan cities. *Journal of Information Science*, *45*(2).

A Research Study on the Challenges Faced by Students with Disabilities Enrolled in Bachelor of Library and Information Science in Terms of Physical Barriers, Stigma and Discrimination and Inadequate Accommodations During On-The-Job Training

Kayla Erika V. Juanzo

University of the Philippines Diliman, Philippines

Corresponding email: kerikajuanzo@gmail.com

ABSTRACT

The study examines the challenges encountered by students with disabilities enrolled in the Bachelor of Library and Information Science (BLIS) program during their On-the-Job Training (OJT). It focuses on three primary challenges of concern, namely physical accessibility, stigma and discrimination, and inadequate accommodations. Through a qualitative descriptive approach, the study provides a vast explanation of how these barriers affect the academic experiences of students with disabilities. The findings reveal that physical barrier concerns, such as inaccessible campus facilities, insufficient ramps, elevators, and inaccessible restrooms, limit the mobility and independence of students. Stigma and discrimination are also considered another critical challenge, with students reporting experiences of marginalization, biased assumptions about their capabilities, and exclusion from academic and social activities. Inadequate accommodations were also identified as a significant issue. Despite policies mandating support for students with disabilities, delays in providing necessary adjustments and a lack of tailored accommodations hindered students' ability to succeed. The study also emphasizes the need for changes in higher education institutions to address these barriers. Beyond addressing these challenges, the study also explores aligning these findings with the United Nations Sustainable Development Goals (UNSDGs), particularly Goal 4 (Quality Education) and Goal 10 (Reduced Inequalities). The research underscores the importance of ensuring inclusive and equitable education for all students, particularly those with disabilities,

to foster greater access to opportunities, reduce inequalities, and promote diversity in the education spheres. Key recommendations include improving physical infrastructure to ensure accessibility, implementing diversity and inclusion training for faculty and staff, and developing efficient systems for providing accommodations. By addressing these challenges, it is safe to conclude that the BLIS program and similar academic initiatives can better equip students with disabilities to thrive academically and professionally. Such efforts create a more inclusive and equitable educational system, ultimately fostering diversity and innovation within the library and information science program.

Keywords: Disability Inclusion; Advancing Inclusion; Accessible Infrastructure; Education for People with Disabilities; Community Awareness and Empowerment

INTRODUCTION

The Bachelor of Library and Information Science (LIS) is the study of the development, deployment, and management of information resources in print, non-print, electronic, and digital formats and services. Graduates of this program are being prepared to apply information technology to basic library operations and functions. Moreover, they are trained to harness a range of bibliographical and online tools to support teaching, research, and other services (Commission on Higher Education Memorandum Order No.24, Series of 2015).

One of the core goals of the LIS program is to highlight the dynamic relationship between information, technology, and society. Students are taught to appreciate this relationship and how it influences the development of information systems. Through this, they gain the tools necessary to create systems that address the needs of modern societies, were technology and information are increasingly intertwined. Moreover, the program emphasizes research, with students using LIS tools and concepts to contribute to the field's body of knowledge and develop solutions to complex information-related problems.

While the goal of higher education institutions is to provide equal access to all students, students with disabilities frequently encounter unique challenges that limit their participation and success.

Physical Barriers

Article 1 of the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD, 2006) defines “Persons with disabilities as those who have long-term physical, mental, intellectual, or sensory impairments which in interaction with various barriers may hinder their full and effective participation in the society on an equal basis with others.”. It is a part of the human condition. Nearly everybody will be temporarily or permanently impaired at some point in their life and the people who survive to old age will experience increased difficulties in functioning. There can be health conditions that are “invisible, temporary, long term, painful or degenerating.” (W HO, 2011).

Discrimination and Stigma

According to the Journal of Postsecondary Education and Disability (2015), many students report experiencing stigma that impacts their decision to seek accommodations, fearing that their disability will lead to negative perceptions about their abilities, especially in intellectually demanding fields like library science. This discrimination can be compounded by a lack of understanding of the diverse needs of students with disabilities, which further alienates them from the academic community (Marshak et al., 2012).

Inadequate Accommodations

A study by Love et al. (2015) found that students frequently face bureaucratic hurdles when requesting accommodations, such as difficulties in obtaining timely support from disability offices or untrained faculty who are unfamiliar with the procedures for providing accommodations. Furthermore, the accommodations that are provided are sometimes not sufficient for students to fully participate in academic life. For example, students in fields like Library Science, which require specialized software or access to physical archives and libraries, may find it challenging to get accommodations that meet their specific needs (Sniatecki et al., 2015). These barriers not only affect students' ability to succeed academically but can also contribute to a sense of frustration and helplessness, which may discourage them from continuing their studies.

This study investigates the multifaceted barriers experienced by persons with disabilities (PWDs) enrolled in the LIS program during their OJT. Three prominent challenges are addressed: physical inaccessibility, stigma and discrimination, and the lack of timely and adequate accommodations. These issues are not only reflective of institutional shortcomings but also of broader systemic inequalities that persist in the academic and professional environments (World Health Organization [WHO] & World Bank, 2011).

Understanding and addressing the challenges faced by students with disabilities is important because it supports two main United Nations goals: Goal 4 (Quality Education) and Goal 6 (Reduced Inequalities). Goal 4 focuses on giving everyone, especially those with disabilities, equal access to good education, but many schools still lack proper support like accessible buildings, tools, and trained staff. Goal 10 aims to reduce unfair treatment and make sure all people, including those with disabilities, are included in school, work, and society. Sadly, many students with disabilities are still left out because of weak policies, lack of support, and negative attitudes.

Moreover, reducing inequality through education is not just a matter of access, but also of equity and participation. Equity demands that students receive the specific resources and support they need to succeed, not just the same treatment as everyone else. This includes implementing reasonable accommodations, fostering inclusive teaching practices, and cultivating a culture of respect and understanding among faculty, staff, and peers (Ainscow, 2020). In the context of OJT, this also extends to inclusive workplace policies, accessible environments, and equal chances for meaningful participation in professional tasks and learning experiences.

Despite the Philippines having legal mandates such as the Magna Carta for Persons with Disabilities (Republic Act No. 7277) and the Enhanced Basic Education Act (Republic Act No. 10533), enforcement in higher education institutions remains inconsistent. Delays in providing necessary accommodations and limited sensitivity training among staff often lead to feelings of exclusion, helplessness, and reduced motivation among students with disabilities (Commission on Higher Education [CHED], 2019).

PROBLEM STATEMENT

How inclusive is the LIS education in facing challenges in terms of stigma, physical challenges, and accommodations during on-the-job training?

RELATED LITERATURE

The review of related literature and studies discusses existing research from both foreign and local that are associated and linked to the researchers' chosen topic.

Physical Barriers

A significant challenge for students with disabilities is the physical accessibility of educational and professional spaces. Lindsay et al. (2018) found that inadequate physical infrastructure in many universities, including poorly designed classrooms, libraries, and laboratory facilities, restricts students with disabilities from fully participating in academic activities. In many institutions, elevators and ramps are often unavailable, while classrooms may lack adjustable desks or sufficient space for mobility aids. This lack of accessible infrastructure is particularly evident in countries with older campuses that have not been retrofitted to meet modern accessibility standards. In the context of LIS, where library and archive resources are essential, students with mobility impairments often face additional challenges in accessing these resources, significantly hindering their academic performance and career development.

Research conducted by Garcia and Villanueva (2019) in the Philippines indicates that many universities still lack accessible infrastructure for students with disabilities. Ramps, elevators, and accessible restrooms are often unavailable or poorly maintained in older institutions, limiting students' ability to fully participate in campus life. This problem is particularly evident in programs that require significant physical interaction with resources, such as the LIS. In such programs, access to libraries, research materials, and archives is essential, and physical barriers can significantly hinder students' learning and OJT experiences. The inadequacy of accessible infrastructure is also worsened by the lack of assistive technologies, such as screen readers and audio-visual aids, in many academic institutions (Ang et al., 2021).

Stigma and Discrimination

The stigma associated with disability in educational environments is a well-documented issue that affects both the social integration and academic success of students. According to Marshak et al. (2012), students with disabilities often encounter negative stereotypes from faculty and peers, which can impact their self-esteem and academic performance. This stigma may lead students to feel isolated or excluded from group work and class discussions, limiting their ability to engage with the course material fully. Furthermore, students may internalize this stigma, leading to further disengagement from their studies (Grimes et al., 2019). Fear of discrimination may also prevent students from disclosing their disabilities or requesting accommodations, which can further impede their access to necessary support services. This fear of negative judgment and exclusion is particularly prominent in fields such as the LIS, where professional competence is often highly scrutinized.

The social stigma surrounding disabilities in the Philippines also poses a significant barrier to the academic and professional success of students with disabilities. Aquino et al. (2020) note that students with disabilities in local universities often face prejudice and negative attitudes from both their peers and instructors. These students report being treated differently, excluded from group activities, or presumed to be less capable than their peers. The fear of being stigmatized can discourage students from seeking the accommodations they need to succeed, further marginalizing them in academic settings. In particular, students enrolled in competitive programs, such as LIS, may experience heightened pressure to conform to professional standards, leading them to conceal their disabilities for fear of professional repercussions (Sarmiento, 2020).

Inadequate Accommodations

Despite legislative efforts in many countries to ensure equal access for students with disabilities, inadequate accommodations remain a widespread issue in higher education. Sniatecki et al. (2015) highlight that many faculty members are not adequately trained in disability accommodations, leading to delays or outright denial of necessary academic support. In some cases, students may not receive timely adjustments, such as extended exam times, assistive technologies, or accessible reading materials, which can negatively affect their academic performance. Edwards et al. (2022) further emphasize the need for individualized accommodations, arguing that a one-size-fits-all approach to disability support is insufficient. Inadequate or delayed accommodations also hinder students' ability to succeed in OJT placements, as employers may not have the necessary resources or knowledge to support them effectively in the workplace.

Similar to international findings, inadequate accommodations in the Philippine higher education institutions contribute significantly to the challenges faced by students with disabilities. Ang et al. (2021) found that while some universities in the Philippines have established disability services, these services often lack the necessary resources and funding to support students fully. Delays in providing accommodations, such as accessible course materials, assistive technologies, or extended exam times, are common. Students with disabilities also report that faculty members often lack the training and knowledge to implement accommodations effectively. This lack of support is particularly problematic for students in the LIS program, who require access to specialized resources, such as research archives and library databases, which may not be accessible without appropriate technological accommodations (Sarmiento, 2020). In addition to the physical and logistical challenges, the lack of institutionalized support for students with disabilities also reflects broader societal attitudes towards disability in the Philippines. As noted by Aquino et al. (2020), there is a need

for greater awareness and sensitivity to the needs of students with disabilities in both academic and professional contexts.

Sustainable Development Goals

SDG 4 aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (United Nations, 2015a). A growing body of literature emphasizes the importance of inclusive education systems that can adapt to the diverse needs of all learners, especially those with disabilities. According to UNESCO (2020), inclusive education is not just about physical access to schools and universities but also about creating supportive learning environments, inclusive curricula, and the provision of necessary accommodations.

The Global Education Monitoring Report 2020 highlighted that learners with disabilities are among the most marginalized in educational settings worldwide. In many countries, including the Philippines, physical, social, and attitudinal barriers prevent these students from fully participating in education (UNESCO, 2020). Similarly, Ainscow (2020) argues that equity in education requires tailored support systems, teacher training, and policy reforms to eliminate systemic barriers that disproportionately affect marginalized learners.

In higher education, accessibility issues become more pronounced in the absence of structured support systems. Students with disabilities often face difficulty in accessing course materials, participating in discussions, and completing practical requirements like internships or OJT programs (Cimmino, 2019). These challenges reveal gaps in the implementation of SDG 4, especially in terms of equity and inclusivity, where the focus should be not only on enrollment rates but also on the quality of participation and outcomes.

SDG 10 focuses on reducing inequality within and among countries, with a specific emphasis on the social, economic, and political inclusion of all, irrespective of disability, race, gender, or other status (United Nations, 2015b). Literature suggests that persons with disabilities are often excluded not only from education but also from employment and community engagement due to pervasive discrimination and lack of accommodations (UN DESA, 2018).

Studies also stress the importance of institutional transformation where universities become more inclusive not just through infrastructure, but through curriculum design, teaching methods, and faculty awareness (Ainscow, 2020; Cimmino, 2019). These transformations are

essential to bridging the gap between policy and practice and ensuring that the principles of SDG 4 and SDG 10 are realized within academic institutions.

RESEARCH METHODOLOGY

This study used a qualitative research design combining elements of ethnography and phenomenography to explore the challenges faced by students with disabilities who were enrolled in the LIS program, particularly during their OJT. The research focused on three key areas: physical barriers, stigma and discrimination, and inadequate accommodations encountered during field placement.

Semi-structured interviews were conducted with three BLIS graduates with disabilities, two with congenital physical disabilities and one with visual impairment. Participants were selected through purposive sampling based on referrals and accessibility. The aim was to represent a range of disability experiences to better understand the systemic and personal challenges faced by students during OJT.

The interviews were conducted both online and in person, depending on what was most convenient and comfortable for the participants. With their consent, all conversations were recorded for transcription and analysis. These discussions provided valuable insights into how physical environments, social attitudes, and institutional support, or lack thereof, shaped their OJT experiences.

FINDINGS AND DISCUSSION

One of the most pressing issues identified was the prevalence of physical barriers within educational institutions. There were responses that campus infrastructures, such as classrooms, libraries, and other facilities, were not fully accessible. The absence of ramps, elevators, and accessible restrooms was a recurring concern, often making it difficult for students to navigate their learning environments independently.

Beyond physical barriers, the study revealed more subtle and indirect forms of stigma and discrimination encountered by students with disabilities during their OJT. Participants shared experiences where negative perceptions about their abilities were not openly expressed but were implied through behaviors, decisions, or policies. Unlike overt discrimination, these

actions are harder to challenge, yet they have a profound impact on the students' sense of inclusion, confidence, and professional development.

Inadequate accommodations further compounded these challenges. While some institutions made efforts to support students with disabilities, many reported delays in receiving necessary adjustments or found that the support provided was insufficient. These shortcomings often left students feeling unsupported and undervalued, undermining their academic progress and professional readiness.

The results reveal a critical gap between institutional policies promoting inclusivity and the lived experiences of students with disabilities. Despite legislative frameworks mandating equitable access, systemic barriers persist, limiting the potential of these students to excel in their academic and professional endeavors. To bridge this gap, there is a pressing need for structural inclusion to be embedded in the design, planning, and implementation of OJT programs. This means not only providing physical access but also ensuring accessible communication, proper training for supervisors, and proactive support systems. Universities and partner institutions must collaborate to implement inclusive OJT policies and practices to ensure equal opportunities and meaningful participation for all. Structural inclusion is essential to guarantee equal opportunities and meaningful participation for all.

CONCLUSION

In conclusion, this study highlights the multifaceted challenges faced by students with disabilities in the BLIS program and underscores the need for systemic reforms to create a truly inclusive educational environment. By addressing physical barriers, dismantling stigma, and enhancing accommodations, institutions can empower students with disabilities to reach their full potential and contribute meaningfully to the field of Library and Information Science.

REFERENCES

Ainscow, M. (2020). Promoting equity in education: Lessons from international experiences. Nordic Journal of Studies in Educational Policy, 6(1), 7-16. https://doi.org/10.1080/20020317.2020.1729587

Ang, D., Ferrer, L., & Vargas, S. (2021). Barriers to educational access and accommodations for students with disabilities in higher education institutions in the Philippines. Journal of Disability Studies, 34(2), 57-70.

Aquino, M., Cruz, P., & Mendoza, S. (2020). Stigma and discrimination faced by students with disabilities in Philippine universities: A qualitative study. Disability & Society, 35(4), 470-485.

Cimmino, L. (2019). Barriers and supports to college transition and persistence for students with disabilities. Journal of Postsecondary Education and Disability, 32(3), 235-248.

Commission on Higher Education. (2019). Guidelines on inclusive education and support for students with disabilities. https://ched.gov.ph

Edwards, D., Jansen, L., & Wilson, J. (2022). Barriers to effective disability accommodations in higher education: Perspectives from students and faculty. Journal of Postsecondary Education and Disability, 35(1), 15-28.

Garcia, R., & Villanueva, L. (2019). The state of physical accessibility in Philippine universities: Implications for students with disabilities. Asian Journal of Higher Education, 22(3), 124-136.

Grimes, S., Carr, D., & Hughes, C. (2019). The impact of stigma on students with disabilities in higher education: Implications for mental health services. Journal of College Student Development, 60(4), 354-365.

Lindsay, S., Hartman, S., & Koetting, C. (2018). Physical barriers and student participation in higher education: The role of campus accessibility. Disability Studies Quarterly, 38(2), 97-110.

Love, L., Burgstahler, S., Comden, D., & Lewis, J. (2015). Challenges to accommodation access in higher education. Journal of Postsecondary Education and Disability, 32(3), 299-310.

Marshak, L., Van Wieren, T., Ferrell, D. R., Swiss, L., & Dugan, C. (2012). Student experiences with accommodations in higher education: A literature review. Journal of Postsecondary Education and Disability, 25(1), 13-22.

Sarmiento, R. (2020). Inclusive education in the Philippines: Challenges and opportunities for students with disabilities. Philippine Journal of Education and Disability Studies, 28(1), 21-35.

Sniatecki, J. L., Perry, T. L., & Snell, L. H. (2015). Disability accommodation practices in higher education: A survey of faculty perspectives. Journal of Postsecondary Education and Disability, 28(3), 277-289.

UN Department of Economic and Social Affairs. (2018). Disability and development report: Realizing the SDGs by, for and with persons with disabilities. https://www.un.org/development/desa/disabilities/publication-disability-sdgs.html

UNESCO. (2020). Inclusion and education: All means all. Global Education Monitoring Report 2020. https://unesdoc.unesco.org/ark:/48223/pf0000373718

United Nations. (2015a). Sustainable Development Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. https://sdgs.un.org/goals/goal4

United Nations. (2015b). Sustainable Development Goal 10: Reduce inequality within and among countries. https://sdgs.un.org/goals/goal10

World Health Organization, & World Bank. (2011). World report on disability. https://www.who.int/publications/i/item/9789241564182

Enhancing Access to Reading Materials for Visually Impaired Individuals: Implementation and Implications of the Marrakesh Treaty at the National Library of Malaysia

Tamimi Taib, Mohamad Fahmi Faiz Abd Ghani

Electronic Resources Division, National Library of Malaysia, Kuala Lumpur, Malaysia

Corresponding email: tamimi@pnm.gov.my

ABSTRACT

On June 30, 2022, the National Library of Malaysia (PNM) was gazetted as an Authorized Entity under the Copyright (Authorized Entities) Order 2022 and the Copyright (Authorized Entities) Guidelines 2022. This appointment aims to facilitate access to reading materials for individuals with visual impairments or print disabilities. As the national library, PNM plays a critical role in supporting inclusive literacy by providing materials in accessible formats such as Braille, audiobooks and e-books. Despite the initial efforts, the implementation of the Marrakesh Treaty faces significant challenges. These include a lack of accessible reading materials, insufficient staff training on assistive technologies, and low public awareness of the rights of visually impaired individuals. Financial constraints also limit the expansion of collections and infrastructure development. This study aims to evaluate the effectiveness of the Marrakesh Treaty's implementation at PNM, to identify key challenges, and propose practical steps to strengthen inclusive library services. The study adopts document analysis and general observations of library services for visually impaired individuals. Findings reveal that PNM has initiated efforts such as providing Braille and audiobook collections. However, digital material expansion remains limited due to resource constraints. Assistive technologies such as screen readers are also insufficient in public reading areas. Library staff require additional training to enhance their understanding of assistive technologies, while users have requested more digital materials in multiple languages. The study recommends implementing regular training sessions for library staff, strengthening collaborations with NGOs, and leveraging social media platforms to promote the rights and facilities available to visually impaired individuals. These

efforts are essential for ensuring libraries serve as inclusive literacy institutions that provide equitable access to information for all members of society.

Keywords: Marrakesh Treaty; Assistive Technologies; Visual Impairments; Print Disabilities; National Libraries

INTRODUCTION

Overview of Marrakesh Treaty

The Marrakesh Treaty for Facilitating Access to Published Works for Blind, Visually Impaired, or Otherwise Print Disabled Persons stands as a significant international agreement designed to combat the worldwide "book famine" the scenario describing the critical shortage of accessible reading materials for those with print disabilities. Currently, a mere 1-7% of globally published materials are accessible in formats such as braille, audio books or large print. The situation is particularly dire in developing nations, where approximately 90% of published content remains inaccessible to individuals with visual impairments (Conrad Harris, 2021).

The Marrakesh Treaty, adopted on June 27, 2013, in Marrakesh, Morocco and implemented on September 30, 2016, introduced legally binding limitations and exceptions to copyright frameworks. These measures permit authorized entities (AE) to produce and distribute accessible format copies of published works such as braille or audiobooks without obtaining explicit consent from copyright owners. Additionally, the treaty promotes international resource exchange by enabling the transfer of accessible materials across borders between ratifying countries. This mechanism fosters resource- sharing between high-income and low-income countries addressing disparities in accessible content availability. By reducing duplication of effort and leveraging existing accessible materials, the treaty enhances global access to knowledge and educational resources for print-disabled individuals, thereby promotes inclusive education and information equality (World Intellectual Property Organization, 2022).

Harpur and Suzor (2014) highlighted that while converting printed texts into accessible formats is technologically achievable, fewer than 5% of global publications are available in forms usable by individuals with print disabilities. This systemic inaccessibility perpetuates exclusion, hindering equitable engagement in educational opportunities, cultural engagement, and civic participation. Such widespread barriers underscore the necessity of international frameworks like the Marrakesh Treaty, which was conceived to address this inequity through coordinated

policy action. The persistence of this "book famine" decades into the digital age emphasizes the critical need for robust enforcement of the treaty's provisions to accelerate progress toward inclusive knowledge ecosystems.

Role of the National Library of Malaysia

The World Intellectual Property Organization (2022) documented that Malaysia formally acceded to the Marrakesh Treaty on March 31, 2022, with its provisions effective on June 30, 2022. This effort marked a pivotal step towards Malaysia's dedication in advancing the rights of individuals with print disabilities by legally mandating equitable access to informational resources.

Under the treaty's framework, the National Library of Malaysia (PNM) was designated as an AE through amendments to the Malaysia Copyright Act 2022 (Skrine, 2022). This legal status empowers PNM to produce, adapt and distribute accessible-format copies of copyrighted works such as braille or audiobooks without seeking authorization from copyright owners. By enhancing access to converted materials, PNM's role aims to transform library services for print-disabled communities, aligning Malaysia with global efforts to suppress the "book famine" situation through the mandate by developing collection through curating braille, audiobooks and digital formats, promotes cross- border exchange by sharing materials with treaty-ratified countries via Accessible Book Consortium (ABC) and increase public awareness by promoting accessible services through collaboration with NGOs such as Malaysia Association for the Blind (MAB), *Persatuan Orang-orang Cacat Penglihatan Islam Malaysia* (PERTIs) and Society of The Blind in Malaysia (SBM).

Objectives

This paper aims to examine PNM's implementation of the Marrakesh Treaty since its appointment as the AE since June 2022 by focusing on these objectives:

1. To evaluate the effectiveness of the Marrakesh Treaty implementation on visually impaired individuals in PNM.
2. To identify key challenges in providing inclusive access to reading materials for visually impaired individuals in PNM.
3. To propose practical measures that can be implemented in PNM.
4. To cooperate with other parties such NGOs related to benefit visual impaired individuals or organization.

LITERATURE REVIEW

The global implementation of the Marrakesh Treaty exhibits considerable divergence, shaped by disparities in legal frameworks, resource allocation, and sociocultural priorities. In developed countries with robust infrastructure efforts have centered on refining existing services and strengthening international collaboration. Meanwhile, low and middle-income countries frequently grapple with fundamental barriers including establishing basic services and developing necessary legal frameworks.

Studies on treaty adoption identify recurring obstacles including the need for legislative amendments to copyright laws, the formal accreditation of authorized entities and the development of infrastructure for creating and disseminating accessible materials. Zhou and Chen's (2023) investigation into China's implementation emphasizes the risks of excessive protective measures in legislation, which may unintentionally deepen the stigmatization and exclusion of visually impaired populations. The authors argue that effective implementation requires not just legal compliance but a comprehensive approach that creates "intangible accessible environments" for visually impaired people. An empirical study across six European countries investigated the perceived improvements in access to printed materials following treaty implementation. This research found individuals using braille printer technology were 3.11 times more likely to report improvements in their access to printed materials in the following years of treaty implementation compared to those not using technology ($p < 0.05$) (Ferri & Rossello, 2023).

Within Malaysia, several studies have examined the state of inclusive library services for visually impaired individuals. An article analyze trace the evolution of support systems for Malaysia's visually impaired populations beginning with pioneering institutions like the Princess Elizabeth School for the Blind in Johor Bahru and extending to contemporary inclusive education frameworks. These developments reflect gradual shifts toward recognizing accessibility as a fundamental right rather than a charitable endeavor (Theen, 2024). A 2023 case studies into the St. Nicholas Home (SNH) Library Services in Northern Malaysia evaluated both physical infrastructure and user experiences.

While the library's door-to-door delivery approach effectively mitigated mobility barriers, researchers identified critical limitations in user access. Visually impaired patrons rarely browsed collections directly, instead relying on librarians' curated selections which often failed to align with personal interests or academic needs (Tengku Rafidatul Akma et al., 2023). Adding on, the SBM reported persistent shortages of braille reference materials as of 2019, severely

hindering educational and professional advancement. Alarmingly, approximately 95% of blind children remain excluded from formal schooling due to insufficient access to braille resources and assistive technologies. These systemic gaps highlight the urgent need for practical solutions to improve accessibility to reading materials towards visually impaired individuals in Malaysia.

Despite these efforts, Malaysia's progress in inclusive access becoming a set back by significant challenges. Key challenges include limited resources, inadequate training for library staff in assistive technologies, low public awareness of disability rights and infrastructural limitations in rural regions. Addressing these issues demands a multi-pronged approach integrating legislative reforms, targeted funding for braille production, competency-building programs for educators and partnerships with technology providers to innovate affordable accessibility tools.

METHODOLOGY

This study adopts a qualitative approach to explore the implementation of Marrakesh Treaty at PNM and its implication towards the visually impaired individuals. The methodology compromises two primary components which are document analysis and general observation of library services.

Document Analysis

Document analysis formed a substantial component of the findings of this research. This process involved careful reading and interpretation of documents, policies and reports to allow a comprehensive understanding on the initiatives and mandates related to the Marrakesh Treaty implementation at National Library of Malaysia (PNM). Document analyzed including:

1. The revised Malaysia Copyright Act (2022) to get the insight into the legal framework governing the implementation of the Marrakesh Treaty in Malaysia and Copyright Guidelines (Authorized Entities) 2022.
2. The PNM annual reports and statistical data including 2023 Country's Report and PNM Strategic Planning 2024-2028 to understand PNM initiatives in carrying mandate as an AE.
3. Program documentation and paperwork on specific programs and initiatives such as special needs activities and enhancements of current services and future expansion were examined to understands the impact of these initiatives.

4. Existing studies on inclusive library services in Malaysia and implementation of the Marrakesh Treaty in different contexts were examined to establish a basis for comparative analysis.
5. Create SOPs related to workflow or structured process in implementing Marrakesh Treaty in PNM.

General Observations

To support the findings from the document analysis, general observation was conducted at PNM focusing on several key features such as:

1. Collection development comprises on observation of the availability and diversity of accessible formats specifically designed for visually impaired users.
2. Accessible infrastructure including dedicated spaces dan navigational aids for visually impaired users.
3. Availability of assistive technologies such as screen readers, magnifiers, Braille displays and audio players in reading areas.
4. Staff competency in delivering services towards special needs users including interaction and familiarity with assistive technologies and awareness on special needs of the visually impaired users.

FINDINGS AND DISCUSSION

Legal Framework Revision

Malaysia's legal structure establishes a solid foundation for promoting the rights and inclusion of visually impaired individuals, with a strong focus on equality, accessibility, and social protection.

This framework is primarily anchored by the Persons with Disabilities Act 2008 (Act 685) and further reinforced by constitutional provisions and specific regulations in areas such as education, employment and accessibility.

i. Copyright (Amendment) Act 2022

Pertaining to the accessibility to reading materials, the accession of Malaysia into Marrakesh Treaty on requires amendments to the Malaysia copyright acts to align with the treaty's provision. Hence, Law of Malaysia (2022) documented, the Copyright (Amendment) Act 2022 addressing on Marrakesh Treaty provision was enacted and coming into force on June 30, 2022 with following revisions:

Section 13(2A):

"No infringement of copyright shall occur if a copy is made of a published work in a format accessible to a person who faces difficulties in reading printed materials due to visual impairment or print

Section 13(2B):

"This exception may only be exercised by an authorized entity, such as special education institutions, libraries serving persons with disabilities, or registered NGOs providing services to this community."

Section 13(2C):

"Accessible format copies produced under this provision shall not be used for commercial purposes."

Section 13(2D):

"Authorized entities are permitted to import accessible format materials from countries that are parties to the Marrakesh Treaty and to export such materials to authorized entities in other member

Section 13(2E):

"The protection of rights remains balanced — copyright holders continue to be safeguarded against

The revisions introduced statutory exceptions within copyright law to prioritize accessibility for individuals with visual impairments enabling the reproduction and dissemination of published materials in accessible formats without infringing copyright protections. These provisions authorize designated organizations and beneficiaries to produce or obtain braille, audio books or digitally adapted versions for personal use while simultaneously removing trade barriers to the cross-border transfer of such materials in alignment with the Marrakesh Treaty. As mentioned by Mr. Mohd Syaufiq, the Assistant Director of the Copyright Division at the Intellectual Property Corporation of Malaysia (MyIPO), Malaysia's implementation may

include not only those with visual impairments but also people who are otherwise print disabled and those with hearing impairments (Mohd Faizal, 2019). The amendments also permit the import and export of accessible format copies facilitating international exchange of resources envision by the Marrakesh Treaty.

ii. Copyright (Authorized Entities) Guidelines 2022

The guidelines operationalize Malaysia's obligations under the Marrakesh Treaty by establishing rules for producing and distributing accessible format works for persons with print disabilities. Issued under paragraphs 13(2)(ggggg), 13(2)(r), 13(2)(s), and section 59 of the Copyright Act 1987 [Act 332], these guidelines define the roles, duties, and compliance mechanisms for authorized entities (AEs) (Ministry of Domestic Trade and Consumer Affairs, 2022).

Table 1: Summary of Copyright (Amendment) Act 2022

Amendments	Summary
Paragraph 13(2) (ggggg)	Allows the making and issuing of accessible format copies by: (i) Authorized entities, or (ii) Persons with print disabilities or others acting on their behalf (including caregivers) both on terms set by the Minister.
Paragraph 13(2) (r)	Permits importation of accessible format copies by authorized entities, the person with print disability, or their representative, subject to Ministerial conditions.
Paragraph 13(2) (s)	Permits exportation of accessible format copies by authorized entities to countries that are parties to the Marrakesh Treaty, also under terms set by the Minister.
New Subsections Inserted (Subsections 2b)	Defines the "Marrakesh Treaty" as the international agreement aimed at improving access to published works for persons who are blind or print disabled.
New Subsections Inserted (Subsections 2c)	Grants the Minister the authority to designate non-profit organizations or institutions (that serve people with print disabilities through education, training or information access) as authorized entities.

This follows the enforcement of new Copyright (Amendment) Act 2022 which incorporate provisions related to the Marrakesh Treaty. With the implementation of these sections, Malaysia through designated authorized entities such as the National Library of Malaysia (PNM) and the Malaysian Association for the Blind (MAB) has now better positioned to serve individuals with print disabilities. These entities are empowered to increase the production and distribution of accessible format copies, including materials in braille, audio, large print, and other accessible formats (Skrine, 2022).

Collection Development

Following the appointment as an AE, PNM has been putting efforts on carrying the mandate by developing and enhancing its accessible collection and services. According to PNM Strategic Plan 2024-2025, the blueprint emphasizes implementation of Marrakesh Treaty according to Strategic Thrust 1: Expanding Information Access through the Preservation of the Nation's Intellectual Heritage, Strategy 2 focuses on empowering information services and promoting library utilization. This strategy outlines targeted initiatives to enhance inclusivity and access particularly for individuals with visual impairments. The key components including:

1. Annual production and conversion of library materials into accessible formats. The National Library aims to reproduce or convert at least 10 titles per year into Braille and audiobook formats. This effort is designed to ensure that visually impaired users have equitable access to knowledge resources and to support lifelong learning.
2. Annual circulation of 25 copies of Braille and audiobook materials with a planned increase of 2% each year. This incremental growth reflects the library's commitment to expanding the reach and impact of accessible collections, encouraging greater use among beneficiaries.
3. Registration of new beneficiaries under the Access Book Consortium (ABC) program, with a target of 50 new registrations annually and a projected 2% annual increase. Participation in the ABC initiative enables Malaysian libraries to leverage international networks for accessible content, further supporting the Marrakesh Treaty's objectives of cross-border exchange and resource sharing for persons with print disabilities.

Collectively, these measures demonstrate a structured and measurable approach to advancing information accessibility, strengthening the role of libraries as inclusive knowledge repository and ensuring that the preservation of intellectual heritage benefits all segments of society including those with special needs.

Furthermore, in providing physical accessible materials, PNM has initiated efforts to offer digital accessible formats. However, progress in this area appears to be limited as indicated by available documentation. As of 2023, PNM's digital collection comprises of 6,609 items, some of which may be accessible to visually impaired users using assistive technologies. Nevertheless, there is little evidence to suggest the existence of a systematic or comprehensive strategy for developing a fully accessible digital collection tailored to the needs of users with visual impairments (National Library of Malaysia, 2024).

Disability Information Corner @ PNM

PNM has provided a service area known as the Disability Information Corner and materials for the use of persons with disabilities (specifically for the visually impaired and those with print disabilities) since 2017. As of 2023, PNM has a collection of 216 braille books (43 of which were reproduced), 72 audio books reproduced by PNM, 31 large print books, 35 disability-friendly games, and 145 foreign audio cassette books (National Library of Malaysia, 2024).

Apart from the infostructure, PNM installed screen reader technologies such as JAWS (Job Access with Speech) and NVDA (Non-Visual Desktop Access) to enhance digital accessibility for special needs users, particularly those who are blind or visually impaired. These tools enable users to navigate library websites, access digital catalogues, and utilize online resources by converting on-screen text into synthesized speech or braille output, thereby facilitating independent information access (National Library of Malaysia, n.d.). Through the integration of JAWS and NVDA, PNM aligns with Malaysia's broader disability-inclusive digitalization initiatives as highlighted in national strategies and advocacy efforts following the Marrakesh Treaty. The adoption of JAWS and NVDA at PNM demonstrates a commitment to removing digital barriers and fostering an inclusive library environment. However, ongoing challenges remain, such as ensuring consistent web accessibility standards and providing continuous training for both staff and users. Overall, the use of these screen readers is a significant step toward making library services more accessible and responsive to the needs of visually impaired Malaysians.

However, the revised law offers a framework for guaranteeing accessibility however infrastructure and funding constraints make practical enforcement difficult to be implemented. Currently, collection of materials for individuals with visual impairments including Braille, audiobooks, large print materials and assistive games remains disproportionate to the recorded percentage of visually impaired individuals which

accounted for 8.5% of the person with disabilities (PWD) population in Malaysia in 2023 (Department of Statistics Malaysia, 2024).

Awareness Programs and Promotions

PNM has initiated several awareness and promotional activities in collaboration with NGOs related to the blind and visually impaired users under the Marrakesh Treaty initiatives. These include special user education sessions for the blind, conducted in collaboration with organization such as PERTIs and MAB. For instance, in 2023, PNM organized program "A Day with Visually Impaired – *Sehari Bersama OKU Penglihatan*" as an annual program held on October 15 and conducted "Special needs User Education for the Blind" session (National Library of Malaysia, 2024).

In 2022, PNM collaborated with MAB on a program to promote the Marrakesh Treaty and participated in promotion of accessible reading materials and beneficiaries during World White Cane Day organized by SBM (National Library of Malaysia, 2024). These initiatives aim to raise awareness about the rights of visually impaired individuals to effectively utilize resources and information available. Beyond this, PNM has increasingly embraced its role in promoting inclusive services and information by actively involved in efforts to support the blind and visually impaired individuals through collaboration with NGOs resulted promotion of Marrakesh Treaty and awareness campaigns of inclusive education.

Future Expansion

To further strengthen the inclusivity and accessibility of library services for individuals with print disabilities, several strategic initiatives are recommended for implementation by PNM and related stakeholders. These recommendations are grounded in best practices, recent legislative reforms and innovative approaches observed both locally and internationally.

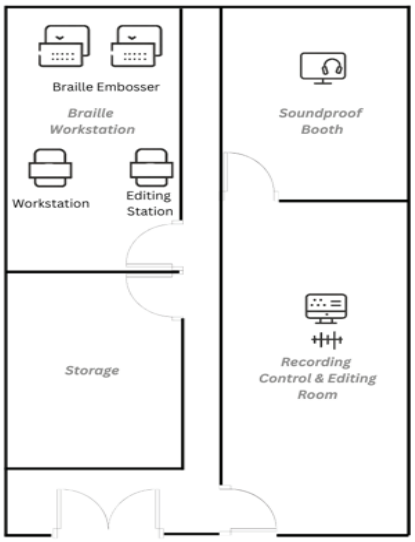


Figure 1: The layout of Mini Braille and Audio Book Studio

Establishment of Mini Braille and Audio Book Studio for In-House Production

It was recommended that PNM established a Mini Braille and Audio Book Studio to facilitate the in-house production of accessible reading materials. This dedicated facility would be equipped with braille embossers and audio recording booths, enabling the conversion of print materials into braille and audio formats. In-house production not only accelerates the availability of localized content but also allows for greater responsiveness to the specific needs of Malaysian users, particularly in the context of educational and heritage materials.

For instance, SNH in Penang has operated Malaysia's first national braille library and audio production unit since the 1970s which demonstrate the effectiveness of localized production in addressing community requirements and enhancing information access for the blind and visually impaired (St. Nicholas' Home, 2021). Furthermore, staff training in braille transcription and audio book production, following international standards such as DAISY and EPUB3 will be crucial for maintaining quality and consistency. By prioritizing staff training and fostering collaboration with publishers as well as disability organizations, PNM can ensure that its accessible collections remain both high-quality and relevant to the needs of its users.

This approach is consistent with the Marrakesh Treaty Implementation Guidelines emphasize the role of authorized entities in the domestic creation of accessible copies (Ministry of Domestic Trade and Consumer Affairs, 2022).

Improvements in Malaysia Development Plan (RMK)

Physical accessibility remains a foundational aspect of inclusive library services. Libraries should prioritize infrastructure upgrades, including the installation of tactile paving, audio-guided navigation systems and wheelchair-accessible lifts. These improvements are consistent with the universal design principles emphasized in the Persons with Disabilities Act 2008 and are supported by Malaysia's ongoing urban planning and social welfare policies (JiranKu, 2024). International models, such as the Washington Talking Book & Braille Library (WTBBL), underscore the importance of integrating physical accessibility with digital services (Washington Talking Book & Braille Library, 2025). Funding for such upgrades should be allocated under the RMKe-12 infrastructure budget and regular accessibility audits should be conducted to ensure compliance with national and international standards.

EchoBuku@PNM Project as National Audiobook Repository



Figure 2: The EchoBuku@PNM Project

The development EchoBuku@PNM Project as part of Innovation and Creative Group (KIK) envisioned as a centralized national audiobook repository would address the persistent "book famine" experienced by print-disabled individuals. This repository would aggregate existing resources 72 audiobooks titles which already in PNM collections. Incorporating this technology could promotes PNM collections towards the blind and visually impaired users.

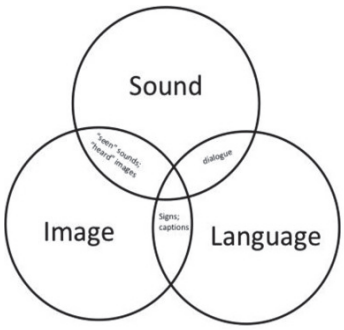
In future, this project can be expanded to serve as a centralized national repository for audiobooks with integration into the ABC to facilitate domestic resource sharing. The development of a cloud-based platform multilingual support (including Malay, English, and indigenous languages) would greatly enhance accessibility.

Revision Of Interlibrary Loan Policies

It is further recommended that interlibrary loan (ILL) policies be revised to explicitly include the sharing of Braille and audio books among Malaysian special needs institution such as NGOs and school. This revision would align domestic practice with Malaysia's obligations under the Marrakesh Treaty and the Copyright (Authorized Entity) Guidelines 2022 which permit the cross-border exchange of accessible formats (Ministry of Domestic Trade and Consumer Affairs, 2022). Updated ILL agreements should classify Braille and audio books as essential materials and staff should be trained in both the legal and practical aspects of circulation.

Fostering Collaboration with Local Filmmakers and Production House for Audio Described Movies Projects

One effective strategy to enhance services for PWD is through the implementation of audio described (AD) movies projects. Audio description provides verbal narration of visual elements in films, making them accessible to individuals who are blind or have low vision (Thomson, 2020). Audio description serves as an important tool in promoting inclusivity by providing spoken explanations of visual elements in films which helps individuals with visual impairments better understand and enjoy cinematic content. Research has shown that the use of audio introductions-comprehensive verbal descriptions of aspects such as visual style, characters and settings-can further improve both the comprehension and overall viewing experience for audiences who are blind or have low vision (Romero-Fresco & Fryer, 2013).



Fryer (2021, p31)

Figure 3: Channel of meaning in film texts by Dr Louise Fryer

Collaboration is fundamental to the successful implementation of AD projects. This collaborative strategy can also be expanded through partnerships with educational and streaming platforms to increase the availability of accessible media. National Library of Malaysia (PNM) may imply these initiatives by cultivating partnership with local production house in implementing AD projects as part of promoting inclusivity and accessibility towards visually impaired users. Such projects have been done by American Council of The Blind through collaboration with filmmakers and streaming platform such as Disney^{+}, Netflix and Hulu.

CONCLUSION

The implementation of Marrakesh Treaty in Malaysia and appointment of PNM as an AE remarks a significant milestone to enhance inclusive access of reading materials for print-disabled users in Malaysia. PNM plays a pivotal role in fulfilling the mandate of translating the treaty's legal provisions into practical benefits for visually impaired individuals. This study explored the status of implementation, highlighting both the advancements achieved and the challenges that remain.

In conclusion, by aligning with international best practices and strengthening community partnerships, PNM has the potential to position itself as a regional leader in promoting equitable access to information, in line with the objectives of the Marrakesh Treaty. As PNM continues to refine its approach in implementing the Marrakesh Treaty, ongoing evaluation, practical strategies and active engagement with visually impaired users will be substantial to ensure that its efforts remain aligned with their actual needs and preferences.

REFERENCES

Department of Statistics Malaysia. (2024). *Person with disability statistics, Malaysia, 2023*. https://www.dosm.gov.my/portal-main/release-content/person-with-disability-statistics- malaysia-2023

Ferri, D., & Rossello, G. (2023). The role of the Marrakesh Treaty in supporting access to printed material for people who are blind or visually impaired: A critical discussion of the results of an empirical study conducted in six European countries. *Disabilities, 3*(2), 147-164. https://doi.org/10.3390/disabilities3020011

Harpur, P., & Suzor, N. (2014). The paradigm shifts in realizing the right to read: how eBook libraries are enabling in the university sector. *Disability & Society, 29*(10), 1658–1671. https://doi.org/10.1080/09687599.2014.973476

Harris, C. (2021). *The Marrakesh Treaty: Summary*. Jamaica Society for the Blind. https://ctu.int/wp- content/uploads/2021/02/THE-MARRAKESH-TREATY-Summary-by-Conrad-Harris-Jamaica-Society-for-the-Blind.pdf

JiranKu. (2024). *Amenities for persons with disabilities in Malaysia*. https://jiranku.my/amenities-for- persons-with-disabilities-in-malaysia/

Laws of Malaysia. (2022). *Copyright (Amendment) Act 2022 (Act A1645)*. Percetakan Nasional Malaysia Berhad. https://www.myipo.gov.my/wp-content/uploads/2025/02/Copyright-Amendment-Act- 2022-Act-A1645.pdf

Mohd Faizal Hamzah. (2019). Marrakesh Treaty Malaysia. *Berita PPM*. https://beritappm.wordpress.com/2019/10/03/marrakesh-treaty-malaysia/

Ministry of Domestic Trade and Consumer Affairs, Malaysia. (2022). *Copyright (Authorized Entity) Guidelines 2022* [MYIPO/CR/1/2022]. https://www.myipo.gov.my/wp-content/uploads/2025/02/Copyright- Authorized-Entity-Guidelines-2022-1.pdf

National Library of Malaysia. (2024). *Country report: Malaysia (Period coverage: 1 January 2023-31 December 2023).* 30th General Conference of Directors of National Libraries in Asia and Oceania. https://www.ndl.go.jp/en/cdnlao/meetings/pdf/2024%20malaysia-%20report.pdf

National Library of Malaysia. (n.d.). *Panduan lokasi perkhidmatan* PNM [Service location guide]. https://www.pnm.gov.my/pnm/resources/UploadFile/Mengenai%20PNM/Panduan%20Lokasi%2 0Perkhidmatan%20PNM.pdf

Romero-Fresco, P., & Fryer, L. (2013). Could audio-described films benefit from audio introductions? An audience response study. *Journal of Visual Impairment & Blindness, 107*(4), 287–298. https://files.eric.ed.gov/fulltext/EJ1017581.pdf

Skrine. (2022). *Provisions on Marrakesh Treaty in Copyright Amendments*. https://www.skrine.com/insights/alerts/july-2022/provisions-on-marrakesh-treaty-in-copyright- amend

St. Nicholas' Home, Penang. (2021). *IRC Library*. https://snh.org.my/portfolio-items/irc-library/

Tengku Rafidatul Akma Tengku Razali, Mohd Hafez Kamarudin, & Ramadana Rappice. (2023). The efficiency of St. Nicholas Home (SNH) Library Services for Blind and Visually Impaired (BVI) users: A Case Study. *Jurnal Ilmi, 13*, 90-107

https://www.unimel.edu.my/journal/index.php/JILMI/article/viewFile/1622/1287

Theen, R. Y. W. (2024). There are over 60,000 registered visually impaired people in Malaysia. What's it like to live with blindness? *Asian Beacon*. https://asianbeacon.org/2024/11/12/blindness- Malaysia-ruth/

Thomson, E. A. (2020). Audio description as a collaborative and reflexive tool (Practice brief). *Journal of Postsecondary Education and Disability, 33*(1),105–112. https://files.eric.ed.gov/fulltext/EJ1273683.pdf

World Intellectual Property Organization. (2022). Summary of the Marrakesh Treaty to Facilitate Access to Published Works for Persons Who Are Blind, Visually Impaired, or Otherwise Print Disabled. https://www.wipo.int/treaties/en/ip/marrakesh/summary_marrakesh.html

World Intellectual Property Organization. (2022). Notification No. 90: Marrakesh Treaty to Facilitate Access to Published Works for Persons Who Are Blind, Visually Impaired or Otherwise Print Disabled. https://www.wipo.int/wipolex/en/treaties/notifications/details/treaty_marrakesh_90

Washington Talking Book & Braille Library. (2025). *Accessible collections*. https://kcls.org/news/get- access-to-more-collections-through-the-washington-talking-book-braille-library/

Zhou, L., & Chen, S. (2023). A Study of the implementation of the Marrakesh Treaty on visually impaired people in China. *Disability & Society, 38*(14), 2205-2992. https://doi.org/10.1080/09687599.2023.2205992

General Sciences Library of Ho Chi Minh City: Developing Services for the Visually Impaired to Help Them Access Knowledge and Integrate into the Community

Bui Thi Hanh

General Sciences Library of Ho Chi Minh City, Vietnam

Corresponding email: buihanh2269@gmail.com

ABSTRACT

The General Sciences Library of Ho Chi Minh City is a public library with the mission of serving the visually impaired. The article has 4 parts: Part 1: Introduction to the General Sciences Library of Ho Chi Minh City; Part 2: Introduction to activities and services for the visually impaired in the General Sciences Library of Ho Chi Minh City such as on-site service and borrowing documents to take home; mobile library, serving books door-to-door for the visually impaired; inter-library borrowing and document sharing; organize the "Family reading for the the visually impaired" contest; organize reading activities; organize skill training classes and experiential activities with books, instructions for using computers for the visually impaired e; organize online book reading through the “Zalo group of the visually impaired readers”; provide consultation, Q&A services in the library through the “Zalo group of readers”, or the visually impaired can go to the library's website with the help of reading devices to exchange and search for information; promote communication and dissemination of information about libraries for the visually impaired in the mass media; Part 3: Introduction to the production of alternative documents for the visually impaired; and Part 4: Orientation for improving the quality of activities and services to help the visually impaired access knowledge and integrate into the community in the coming years

Keywords: Library; Visually Impaired; Library Activities; Library Services; Library Orientations

INTRODUCTION

There are currently about 900.000 visually impaired in Vietnam, accounting for 1.2% of the country's population. Providing opportunities for the visually impaired to access information to help them integrate into the community is necessary and needs to be given due attention by the information and library agencies. Identifying this urgent need, on September 23, 1999, the General Sciences Library of Ho Chi Minh City (GSLHCMC) officially opened a reading room for the visually impaired. Over 25 years, the GSLHCMC has implemented many activities to help the visually impaired access knowledge, helping them integrate into the community:

Activities to develop services for the visually impaired

1. Developing human resources with sufficient knowledge and skills to serve the visually impaired

Since 2000, with the support of the FORCE Foundation (Netherlands) and many other sources of support, the GSLHCMC has sent many librarians to attend training courses on knowledge and skills to serve the visually impaired held in Vietnam and other countries (Table 1).

Table 1: Training courses

Time	Training	Country
2000-2004	Producing Digital Audiobooks in DAISY Format: Basic and Advanced	
2001-2002	Producing Digital Audiobooks in DAISY Format: Basic and Advanced	Malaysia
2002	Creating a Braille Book	Viet Nam
2006	Creating a Braille Book	Viet Nam
2002	Basic Braille Music Production	Viet Nam
2003	Advanced Braille Music Production	Malaysia
2003	Setting Up a Digital Audiobook Studio	United Kingdom
2004	Basic Braille Graphics	Viet Nam
2004	Workshop “Supporting Public Libraries to Expand Library Services for the Visually Impaired”	Viet Nam
2005	Advanced Braille Graphics	Philippines
2006	Setting Up a Braille Collection	Netherlands

2006	Producing Textbook Audiobooks	United States
2024	Converting Materials for People with Print Disabilities (Digital Transformation in the Library Sector)	Viet Nam

After attending domestic and international courses, the librarians have enough capacity and knowledge to serve the visually impaired and are capable of becoming lecturers to train librarians in domestic and foreign libraries. As a result, the GSLHCMC has conducted retraining on knowledge and skills to serve the visually impaired for 280 librarians in public libraries in Vietnam and 38 librarians in Cambodia, Laos, Kenya, Myanmar, Kazakhstan, and other countries.



Figure 1: Training domestically and internationally

Along with training and improving the capacity of librarians, the GSLHCMC pays special attention to building, maintaining, and developing a team of volunteers because volunteers are the team that contributes to maintaining sustainable services for the visually impaired at the library. Volunteers are retired people or people working in many different agencies within Ho Chi Minh City. They are teachers, doctors, lawyers, students, and others. Over the past 25 years, the library has maintained more than 100 volunteers regularly participating in activities

such as producing talking books (reading and processing books), creating illustrated books, providing mobile services, and other activities

2. Translating and compiling documents for the visually impaired for libraries

In 2005, with funding from the FORCE Fund and the Dutch government, the GSLHCMC translated and published the book “Best Practice Manual” translated into Vietnamese with the title “Library Services for The Visually Impaired”. The book is a necessary handbook for librarians serving visually impaired readers. In addition to the printed version, the book is also published in CD format and distributed to public libraries, blind associations, and school systems with visually impaired nationwide. The content of the book is also posted on the Internet at the website of the GSLHCMC.

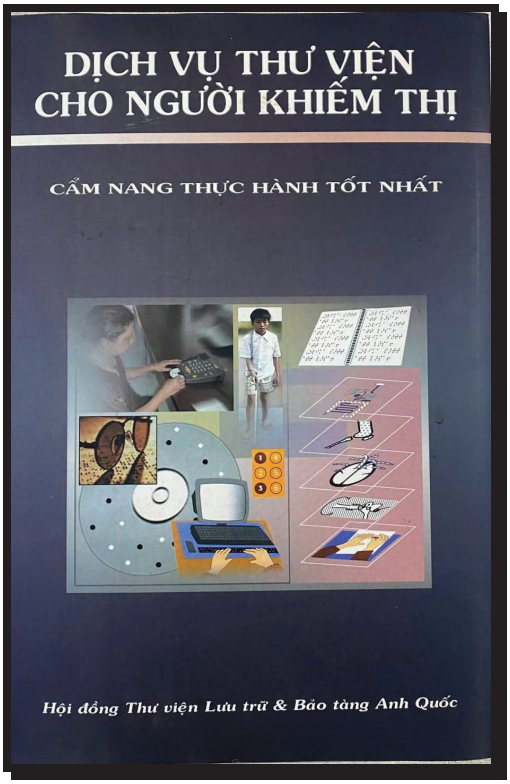


Figure 2: The book “Best Practice Manual” translated into Vietnamese with the title “Library services for the visually impaired”

3. Producing alternative materials for the visually impaired

Over the past 25 years, the GSLHCMC has paid special attention to producing alternative materials to serve visually impaired readers in Ho Chi Minh City and the whole country. This service has been increasingly diversified in types and increased in quantity. The GSLHCMC has produced 218 titles/4,000 braille books (not including the number of duplicate documents). Through the use of braille books, the visually impaired not only grasp knowledge in many fields but also practice writing skills. There are ten sets of embossed illustrations served on mobile vehicles and shared with the Xieng Khoang Provincial Library (Laos); one online database with 260 images. The embossed illustrations are printed on a special type of paper by a heater machine, and the image will swell so that the visually impaired can feel it when touching.

Along with printing braille books, the GSLHCMC is particularly interested in producing digital talking books. From 2003 to 2006, the library has been supported by the FORCE Foundation (Netherlands) to build two studios to produce digital talking books. Since then, the library has increased the production of talking books and illustrated books for the visually impaired, becoming the first unit to produce, distribute, and train to serve this type of document in Vietnam. This project has attracted volunteers and many other people in the community to participate. They are willing to spend their time, voices, and minds to record talking books, make illustrated books, and braille music for the visually impaired, with the desire to create something better for the community. As a result, more than 600 talking books, 200 illustrated books, and 30 braille books have been published by volunteers. All of these products are free of charge and are transferred to other libraries and non-profit organizations for the visually impaired. The project has expanded to 63 provinces and cities in Vietnam and has become an experience for Indochina and Eastern Europe when the librarians became instructors in this program of the FORCE Foundation.

Since 2021, the GSLHCMC has piloted the production of audiobooks with the support of AI technology to help the product be faster to serve the visually impaired community in public libraries and facilities serving the visually impaired. Presently, the GSLHCMC has produced 2,532 audiobooks (excluding the number of copies). The volunteer group for the visually impaired and the library has provided more than 1,000 audiobook players in mp3 format, to facilities serving the visually impaired in Ho Chi Minh City and neighboring provinces. With modern features, the players will help the visually impaired gradually develop their listening and reading skills. From simple to complex readings, diverse in content, will help the visually impaired access rich and effective knowledge information. With simple operations, this device will help the visually impaired remember knowledge more deeply.



Figure 3: Braille books

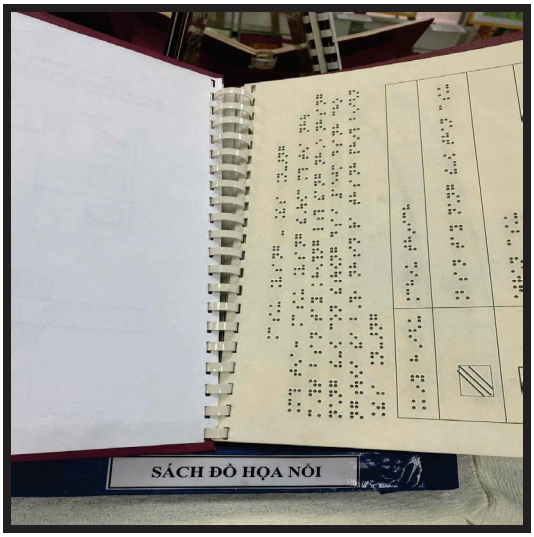


Figure 4: Braille books



Figure 5: Illustrated books



Figure 6: Illustrated books

4. Deploying activities and services for the visually impaired: On-site and take-home services

The reading room for the visually impaired is fully equipped with modern equipment such as tables, chairs, cabinets, shelves, books printed in braille, audio tapes, CD-ROMs, CCTV magnifiers, readers (Victor Reader), mobile talking book readers (Victor Reader/Stream), embossed illustrations, embossed illustrated books for children, and digital talking books. The quiet seating space, along with rich and diverse information technology equipment and devices, has helped the visually impaired to access and read books, newspapers, and documents easily and conveniently.

Documents for taking home are readers (Victor Reader), mobile talking book readers (Victor Reader/Stream), and alternative documents include braille books, embossed illustrations, embossed illustrated books for children, and digital talking books.



Figure 7: Specialized devices for reading documents



Figure 8: Space for the visually impaired



Figure 9: Organize events for the visually impaired

Mobile Library

Since the visually impaired are afraid of contact, have difficulty in traveling, and do not fully understand the products and services that society offers them, it is necessary to organize a mobile library service so that librarians can come to their homes to provide documents, information products, and introduce methods of using reading support tools for the visually impaired. In early 2008, with the support of the FORCE Foundation (Netherlands) and Standard Bank (South Africa), the GSLHCMC established the first mobile library service for the visually impaired in Vietnam. Each mobile trip includes a pickup truck with four computer stations connected to the Internet, application software, one braille printer, one CCTV, 18 Victor Readers, ten Victor Reader Streams, one Heater machine, and alternative materials including braille books, embossed illustrations, embossed illustrated books for children, and digital audiobooks.



Figure 10: The first Mobile Library service for the visually impaired in Vietnam

Every year, the mobile library organizes many trips to schools in Ho Chi Minh City and neighboring provinces to serve the visually impaired who have little chance to access books and knowledge. Organizing a mobile library service to bring audiobooks and documents to serve the visually impaired in and outside the city has met the reading and entertainment needs of this special group. This mode is highly effective because the visually impaired in the remote areas do not have opportunities to access documents, which are suitable for them, and modern equipment such as computers and audio book readers. At the same time, the library has organized free transportation for the visually impaired children to the library, an average of four to eight trips per month, for an average of 150 visually impaired children coming to the library to read books, newspapers, and documents. These activities have contributed to supporting the visually impaired to access knowledge, helping them to integrate into the community, and reducing the burden on the community.

The GSLHCMC has served over 75,000 visually impaired readers (including 226 mobile trips). The GSLHCMC has also established 12 mini libraries in Ho Chi Minh City and neighboring provinces. The mini library has made studying and cultural activities easier for the visually impaired, thanks to the support of new resources and equipment. The books provided have rich and familiar content, in many fields such as economics, culture, history, medical and health, literature and arts to meet the needs of updating information, entertainment, and improving knowledge for the visually impaired. Periodically, after three months, the GSLHCMC rotates the collection with new books to promptly supplement the materials to serve the reading and learning needs of the visually impaired.



Figure 11: Visually impaired use equipment on mobile vehicles

Interlibrary Loan and Document Sharing Services

No library can provide all types of documents for users, especially specialized documents for the visually impaired. Therefore, the GSLHCMC has implemented the sharing of document

resources for the visually impaired with libraries in districts and towns in Ho Chi Minh City and provinces. The sharing of resources between the GSLHCMC and social organizations such as the Association for the Visually Impaired and Facilities serving the visually impaired. From 2000 to 2010, with the support of other units, the GSLHCMC donated 356 devices and support tools to 100 organizations and units serving the visually impaired. The volunteer group for the visually impaired and the GSLHCMC provided 400 audiobook players to schools, and the Association for the Visually Impaired and Facilities that are serving the visually impaired in Ho Chi Minh City and provinces.



Figure 12: The GSLHCMC shares documents for the Blind Association



Figure 13: Visually impaired use audiobooks and braille books

ORIENTATION TO IMPROVING THE QUALITY OF SERVICES FOR THE VISUALLY IMPAIRED IN THE COMING YEARS

Over the past years, the GSLHCMC has actively mobilized many domestic and foreign resources to develop, expand, and gradually improve the quality of services for the visually impaired, helping the visually impaired to access knowledge to help them integrate into the community. In the coming years, the orientation to support the visually impaired in accessing knowledge is as follows:

1. Research and fully implement the Vietnamese government's policies for the disabled in general and the visually impaired in building the annual and 5-year plans to serve the readers.
2. Implement the task of training librarians with new knowledge and skills to serve the visually impaired; maintain and develop the volunteers serving the visually impaired. Strengthen coordination and exchange on training librarians, building and developing a team of volunteers to serve the visually impaired in domestic and foreign libraries.
3. Continue to compile and publish documents to serve the visually impaired, including updating and supplementing new information in the field of serving the visually impaired.
4. Continue to promote the production of alternative documents to serve the visually impaired, with special attention to the application of new technology and artificial intelligence in document production.
5. Maintain, expand, and continuously innovate services to serve the visually impaired at the library through on-site services, mobile services, document circulation services; establish additional library corners (Mini Lib) at facilities serving the visually impaired in Ho Chi Minh City.
6. Strengthen the connection and sharing of information resources with public libraries, schools, facilities serving the visually impaired, and others through direct and online forms.
7. Advise, support, and train public libraries on technical issues related to developing models to help the visually impaired access knowledge to help them integrate into the community and society.
8. Effectively mobilize funding and socialize activities to serve the visually impaired.

REFERENCES

Anh, T. T. (2016). General Sciences Library of Ho Chi Minh City and its activities on improving reading habits in the community: The roles of the General Sciences Library of Ho Chi Minh City in improving reading habits.

Bao, V. Q. (2009). Expanding services and information products for the visually impaired people at the General Sciences Library and the Vietnamese public library system. 14th CONSAL General Conference and Meeting.

General Sciences Library of Ho Chi Minh City. (n.d.). [Homepage]. https://thuvientphcm.gov.vn/

General Sciences Library of Ho Chi Minh City. (2024). Report on activities serving the visually impaired people over 25 years of establishment and development at the General Sciences Library of Ho Chi Minh City (1999–2024).

General Sciences Library of Ho Chi Minh City. (2024). Annual report of the General Sciences Library of Ho Chi Minh City for the period 2019–2024.

Access to Information and Knowledge for Blind Users: A Case Study at the Mitra Netra Indonesia Foundation Library

Damaji Ratmono[1], Gustina Aisyah Tazun[2], Susanti[3], Armita Rahmawati Sandra[4]

[1,2]National Library of the Republic of Indonesia

[3]Ministry of Transportation of the Republic of Indonesia

[4]Senior High School 81 East Jakarta

Corresponding email: ratmonoke@gmail.com

ABSTRACT

The library, located on Jl. Gunung Balong II Lebak Bulus, South Jakarta, is a digital book library in the form of EPUB (Electronic Publication) and audio or digital talking books, which is organized online by the Mitra Netra Foundation. This library can be accessed using a screen reader application via computers or smartphones. It is hoped that the book collection will continue to grow along with the awareness of the visually impaired about the importance of access to technology for their progress. This research aims to determine the types of services and collections in the Mitra Netra Library that can be accessed by the blind users. Apart from that, challenges and obstacles in providing information to the blind people were also looked into. Using the case study analysis method, the results indicated that in developing the collection, there are several book formats created by the Mitra Netra Library, namely, braille, EPUB (Electronic Publication), and audio or digital talking books. Meanwhile, services are delivered online and access to information is through screen reader applications via computers and smartphones. It is recommended that with the collections and services provided by the Mitra Netra Library, it is hoped that the book collection will continue to increase in line with the awareness of the visually impaired about the importance of access to technology for their progress.

Keywords: Blind Partner Library; Visually Impaired; Library Services; Library Collection Development

INTRODUCTION

Information has become a necessity for humans to have knowledge in the self-building process. As a basic need, humans should have the same right to access information based on their needs and capacities. This is no exception for people with disabilities or physical limitations. Physical limitations are not supposed to prevent them from obtaining information and knowledge.

Information and knowledge are fundamental to the rights of people with disabilities, in this case blind people. Providing access to disability-friendly information and knowledge is a necessity that must be done to implement all regulations on human rights and open the way for blind people in the world of literacy. The United Nations (UN) Convention in 20018 gave recognition to equal rights in obtaining employment, education, and all things used in all aspects of life (Soeparman, 2014).

Data shows that 33 million people are living with blindness and 260 million with moderate to severe visual impairment for which can be prevented or treated. In 2021, Vision Atlas by The International Agency for the Prevention of Blindness stated that globally, there are 43 million people living with blindness and 295 million people live with moderate to severe visual impairment (source: https://www-orbis-org.). In Indonesia based on data from Indonesia Disability Research and Advocacy Network (AIDRAN) in 2023, the blind people in Indonesia have reach 4 million or 1,5 percent of the total population (Source: https://m.jpnn.com/news/penyandang-disabilitas-tunanetra-di-ri-capai-4-juta-baru-1-persen-yang-bekerja-di-sektor-formal).

From the data presented above, it is concluded that blind people in the world, especially in Indonesia is quite high. This needs the government's attention and all of us to provide comfortable facilities for the blind, especially facilities for getting access to knowledge and information through the library.

In Indonesia, there are only a few specialized libraries for the blind people. Apart from the National Library, several independent organizations have special libraries for them:

1. The Disability Library

This library is located in Pendidikan I street, Block B, Number 58, Makassar, South Sulawesi. This library collects a wide variety of books that discuss disability issues. In collecting this disability literature, the Disability Library has enrolled in a mobile book program. The library receives book donations on the 17th of every month.

2. Mitra Netra (MN) Library

This library was established under the MN Foundation in 1991. There are more than 1.500 books collection accessible to blind people. The MN Library has also opened online membership access. Therefore, blind people who want to read books do not need to come to the library that is located at Gunung Balong II street, Number 58, Lebak Bulus, South Jakarta.

3. Smart Netra Library

This library is a digital library that uses Google Drive as book storage. The collection in this online library is around 100 books. This digital library has 5 folders that contain the division of the types of books. There are Audio, English, technology information and video. Audio files contain digital books in the form of readings that have been recorded. The types of books in this slot consist of storybooks, motivation, religion, and songs (Source: https://www.tempo.co/politik/3-perpustakaan-mandiri-yang-ramah-buat-tunanetra).

The existence of a library is certainly a hope for people with disabilities in facilitating access to information and literacy. However, not all libraries can accommodate the needs of access to information and knowledge for the visually impaired. The minority reason becomes the reason for not organizing a disability-friendly library, because it will affect the use and usefulness that will not be maximized, even though it has spent a lot of money on organizing facilities. Everyone knows that not maximizing the utilization of library information is the result of the passivity of library managers in managing and promoting the information in the library.

The lack of facilities and infrastructure for blind people is an issue that is rarely touched by policy makers, both at the national and regional scales. The availability of access to information and knowledge for blind people is still very rare in Indonesia. Libraries, especially public libraries, also rarely have inclusive services that provide services for the visually impaired. In fact, the implementation of services for people with disabilities, including blind people, is one of the important things in implementing the mandate of the 2008 UN Convention.

Based on some of the facts and realities described above, the development of library services for disabilities has become an issue that is very important to discuss more deeply. Some studies have discussed about knowledge and information access for the visually impaired in libraries. Research by Putri Aziza Desy Asriana titled *Library User Perception of Digital Talking Book Collection in PERTUNI Digital Library House of Representative Central Java* aims to determine the perception of the library users towards the digital talking book collection as well as to find out the factors that cause the library users not maximally utilize the digital talking book collection. The result of this research shows that the users feel uncomfortable using the digital talking book. They prefer to search for information through the internet with tools equipped with JAWS screen reader (Asriana, 2012).

Rayini (2017) explained that libraries have an obligation to provide services for the blind. With technological advances, it is very easy for libraries to provide services that are friendly to the blind.

Furthermore, Yoon (2011) in a study in Korea emphasized that the development of a national strategy to produce and distribute materials suitable for library services for blind users is carried out through the cooperation of various parties.

Research conducted by Untari et al. (2018) examined the development, obstacles, and challenges of digital library development for the blind. The results of this study are that the Digital Library developed by the MN Foundation faced obstacles with the lack of cooperation with publishers to increase the number of Epub, there are still many blind people who are stuttering technology, difficulty in translating formulas contained in books read through the machine do not have intonation and emotion to reduce the meaning of the book, and the limited budget owned by the MN Foundation in developing digital libraries.

This study is specifically aimed at examining the type of services and collections that exist in the MN Library so that can be accessed by blind users. In addition, it also discusses the obstacles and encountered in providing information to blind people. This study uses the case study method. Primary data was obtained through interviews with the parties from the MN Foundation, namely the library manager and librarian at the MN Library. Secondary data was obtained from publications related to the title of this research.

LITERATURE REVIEW

Information Access Rights of Disabled Users

Libraries should serve their users in a fair and non-discriminatory manner. The library must fulfil services for all users without any exception, including disabled users. In serving disabled users, libraries need to take steps to overcome accessibility challenges encountered by people with disabilities when accessing information and knowledge in the library.

According to Depkominfo (Prasetyawan, 2020), access to information is the convenience given to a person or community to gain the public information needed. Access to information can be said to be a bridge that connects information sources so that the information needed by each individual can be fulfilled. Access to information needs is believed to be one of the basic rights for everyone.

However, there is a gap between people who have more access to information and people who have less access to information. People with special needs find it difficult to access information because of their different abilities, while people without special needs find it easy to access information. The gap occurs because people with special needs find it difficult to get information sources. This is possible because of the existence of social layers in society.

The lack of facilities and infrastructure that can be accessed by disabled users, makes it difficult for them to access the information they want. This problem is a general problem that every library has, not a problem that has just surfaced, except for libraries that have prepared and planned and have a disability service centre.

Information institutions such as libraries, should provide access rights to information and knowledge for disabled users can be maximized if it can be supported by excellent service technology. According to IFLA (Safrudin, 2014), several facilities such as facilities and infrastructure, as well as service systems, should be considered by the library to meet the needs of access to information and knowledge for users with disabilities.

Information Services for Disabled Users

The character of a user with disability must be different with other users. Sometimes, this condition makes a user with disability feel unconfident to socialize with other users. Therefore, more attention is needed so that the disabled users can develop themselves.

The provision of information services is an activity of assisting an expert, in this case a librarian, to library users in the form of information about self-understanding, interests, abilities, goals, education, and work to be chosen. Prayitno and Amti (2004) explained that the purpose of implementing information services is divided into two, namely general goals and specific goals. According to them, the general goal of information services is the mastery of certain information by the users. The information is then used by the user for their daily life (effective daily living) and self-development. While the specific objectives of information services are related to counselling functions. The function of understanding is most dominant and directly carried out by information services. Users understand information with various complexities as the content of the service. Mastery of the information can be used for problem solving (if the user concerned experienced it); to prevent problems; and to enable the participants concerned to open themselves in actualizing the rights. In the aspect of information and communication services, librarians should be able to communicate and serve well, clearly, and easily understood. It is important to make them feel accepted so that they are able to communicate the information needed and are comfortable using the services of the library.

In addition, the library is a place to access literacy information for users with disabilities, which is very different to normal users. According to Safrudin (2014) for disabled users, this literacy information activity can make the most of the library as a source of information and it is hoped that educators and librarians can work together to identify the talents and interests of students to be guided systematically by providing means of information needs including expertise in searching for them.

The provision of library information services in supporting the learning process cannot be separated from the development of the learning environment, in this case, the library in an integrated manner. The development of an integrated environment is intended to be an environment that has general principles and specific principles (Delphie, 2006). General principles in the process of information services are certainly inseparable from the principles of motivation, context, direction, social reactions, individualization, discovery, and problem-solving principles. While the specific characteristic of each library user. From the provision of optimal library information services and effective study services in the library, users with disabilities are expected to be able to learning activities and explore information sources by themselves through their abilities.

Definition of Visually Impaired

Linguistically, blindness comes from the word “tuna”, which means damaged or lacking and “netra”, which means eye or vision, so that the blindness is defined as damage to vision. According to Camalia et al. (2016), blindness is a condition of individuals who experience the malfunctioning of their sense of vision as a channel of information in daily activities like ordinary people. The same thing is stated by Muhmainnah (Sofyan, 2023), blind people are those who experience limitations in their sense of vision or even do not have the ability to see. Medically, according to Atmaja (Sofyan, 2023), the blind are those who have a vision of 20/200 or have a visibility is less than 20 degrees. Thus, blindness is a condition in individuals who experience visual impairment with a vision of 20/200 or have a visibility less than 20 degrees.

Impact of Visual Impairment

Blindness has an impact on aspects of life. According to Kim et al. (Sofyan, 2023), these visual barriers cause a blind person have difficulty in processing information such as objects, multimedia content, recognizing the environment outdoors and indoors, and recognizing the obstacles or dangers around. Therefore, a blind person needs assistive devices such as a cane, or braille to help him obtain information.

According to Lowenfeld (Sofyan, 2023), due to visual impairments, blind people experience limitations in three aspects:

1. Limitations on the variety of experiences – The inhibition of visual function makes blind people have to use other senses that are still functioning to capture information. The sense of sight has a very important role in obtaining new diverse experiences.
2. Limitations in interaction with the environment – Mastery of self and the environment will be more effective through vision. This makes it difficult for blind people to interact with their environment.
3. Limitations to move places – The visual impairment experienced by blind people causes difficulties in mobilization. The limitation in recognizing the environment makes it limited in traveling.

RESEARCH METHODS

Research Approach

The method used for this research is qualitative. Qualitative research according to Cresswell (Febriyanti, 2012), is a method for exploring and understanding the meaning of several

individuals or groups of people who are considered to come from social or humanitarian problems.

Research Methods

The research method used by the researcher is a case study. According to Cresswell (Febriyanti, 2012), a case study is research strategic which researcher carefully investigate a program, event, activity, and process of a group of individuals. This research uses a study case because it examines something within an agency or institution to dig deeper. In this case, it is about the types of services and types of collections available at the MN Library and the challenges and obstacles in providing information to blind people.

This research started from March 2025 to April 2025. The place for this research is the Mitra Netra Foundation, specifically at the MN Foundation Library, Jakarta. The research subjects are related parties within the MN Foundation who are responsible for the service process and library collections. The object of this research is the type of collection and the type of service at the MN Library. The data collection is done through observation and interviews.

In this study, data validity checks were carried out by triangulation. Triangulation is defined as a data collection technique and data sources that already exist. With this triangulation technique in data collection, the data obtained will be more consistent, complete, and reliable (Sugiyono, 2009).

RESULT AND DISCUSSION

Mitra Netra Foundation Profile

The MN Foundation is a non-profit organization that focuses its program on efforts to improve the quality and participation of the blind in the field of education and employment (https://pustaka.mitranetra.or.id) It was founded in Jakarta on May 14, 1991, and has legal status, by being registered in the State Gazette Supplement No. 100 on December 14, 2001. The foundation was established by several visually impaired people who successfully completed their studies in college together with their non-visually impaired friends.

Mitra Netra means a friend of the blind, a friend who always accompanies the blind in their efforts to pursue the highest possible education through the provision of special services needed, and a friend who always strives for the blind to function in society according to their

respective interests and abilities (Untari et al., 2018). The vision is to function as a developer and service provider, in order to create an independent, intelligent, and meaningful life for the blind in an inclusive society.

About Mitra Netra Library

The MN Library is a digital book library in the form of EPUB (Electronic Publication) and Audio or digital talking books organized online by the MN Foundation.

This Library can be accessed using a screen reader application via computer or smartphone and it is hoped that the book collection will continue to grow as blind people realize the importance of access to technology for their progress. The MN Library is located at Gunung Balong II Street No. 58, Lebak Bulus, South Jakarta, 12440, Indonesia.



Figure 1: Location of MN Library

Library Service at The Mitra Netra Library

At the beginning of its establishment, based on our interview with the MN Librarians, there were only two library services provided in a simple way; however, these two services have strategic functions and have proven to help blind people learn more independently, both in public schools and universities. The first is the production of talking books (books on tape). The second service is a ten-finger typing course for the blind as a communication bridge for blind students with a teacher/lecturer (Untari et al., 2018).

Library services are very important because they can determine the level of user satisfaction. In its development, based on our observation and interview with MN librarians, at the MN Foundation Library uses a closed service system. One of the reasons for choosing this service system is to make borrowing library materials easier for users and the visually impaired. In addition, there is a possibility that the blind will not be able to search for library materials on the shelves independently, and the librarian is the only person who knows where the library materials are.

In order to meet the needs of its users, the MN Foundation Library offers a variety of services. There are two categories of services in this library, namely:

1. Braille and audio book loans (TB and DAISY DTB)
2. Reservation of braille books and audio books (TB and DAISY DTB) 2.

The library is open for the public from Monday to Friday from 9 am to 4 pm. A librarian can read books or the library collection and borrow them. To become a member of the library, they have to register and pay a registration fee of IDR 100,000, and the membership fee is renewed annually at IDR 50,000.

In addition to borrowing braille books and Audio books (TB and DAISY DTB), the library also accepts reservations for braille and DAISY DTB books. The researcher said that the MN Foundation Library also makes its own collection of braille and DAISY DTB books to meet the information needs of its clients. Since the MN Foundation is the only foundation that has its own software and reading tools to create braille and DAISY DTB books, ordering can be done by library members and non-members, who can come from various regions outside Jakarta.

However, some requirements must be met when purchasing these braille and DAISY DTB books. Members usually come with regular or conventional books. There is no charge for ordering braille or DAISY DTB books; however, if a client who is not a member of the library wishes to have one, the production cost is IDR 25,000.00 per DTB piece and IDR 75,000.00 per braille book volume.

The budget generated from this service will be used for additional library needs, such as purchasing printed textbooks at bookstores and materials for braille and talking books.

In addition to library services, the MN Library began to develop various services. Based on our interview with the librarian at the MN Library, there are various types of services provided, namely:

1. Library member services
2. Reading service
3. Borrowing service

In addition to these three services, the library also helps its users with hand therapy so they can type and read braille books and various other training. In addition to braille books, the library also provides teaching aids and book readers for users who suffer from visual impairment. some of the facilities available in the library are shown below.



Figure: A



Figure: B

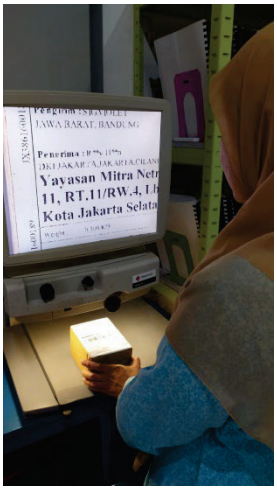


Figure: C



Figure: D



Figure: E



Figure: F



Figure: G

Figure A: Perkins Braille is the most popular and widely used braille typewriter to create braille writing

Figure B. Teaching aids for therapy for blind librarians

Figure C. Telesensory, a tool for seeing small writing, usually for low vision

Figure D. Librarians are providing training on the Perkins Braille tool to blind users

Figure E. Braille book printing tool

Figure F. MN Library Space

Figure G. Interview of one of the authors with the librarian of the MN library

Library Users

The MN Foundation Library in Jakarta definitely has visually impaired readers. Everyone can be a member of this library, regardless of their status. They can come from anywhere, whether from academia or the general public. The number of library members at the MN Library has 1097 members. This data is taken from the library database which has been updated until April 2025.

Types Of Collections at the Mitra Netra Library

The MN Library is a digital book library in the form of EPUB (Electronic Publication) and Audio or digital talking books organized online by the MN Foundation. This Library can be accessed using a screen reader application via computer or smartphone and it is hoped that the book collection will continue to grow as blind people realize the importance of access to technology for their progress.

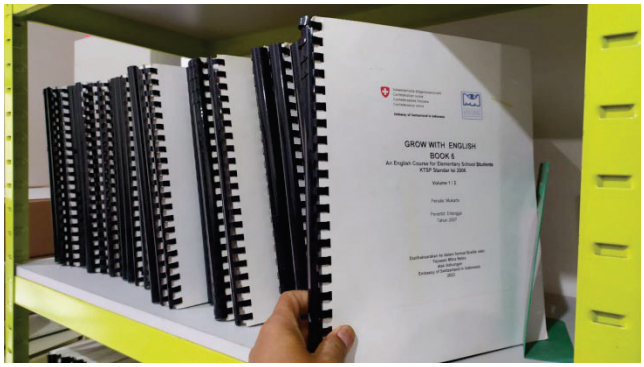


Figure 2: Part of the MN's braille book collection

Based on our interview with the librarian of the MN Library and based on the MN Library website, there are 3 (three) versions of the book format made by the MN Foundation, namely

1. Braille

Braille is a system of raised dots that can be read with fingers by people who are blind or have low vision. braille is not a language; rather, it is a code used to write and read many languages (Source: https://www-afb-org.translate.goog/blindness-and-low-vision/braille).

At the MN Library, Brille books can be accessed via http://kebi.or.id. KEBI stands for *Komunitas Elektronik Braille Indonesia*, a digital library providing braille soft files, managed online by the MN Foundation. This library is accessible to schools or braille production units that have braille printers.

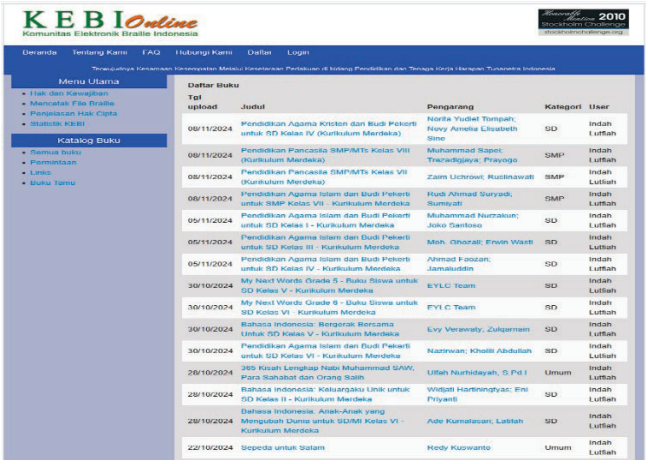


Figure 3: KEBI online display

Figure 3 shows a website from KEBI Online. The book catalogue section presents a list of books in the MN Library that have been converted into braille. Based on the book list, the MN Library has converted printed books into braille from June 25, 2002, to November 8, 2024, or for 22 years. The current collection amounts to 1820 books. The first book is "*Seven Steps to Achieve the Grace and Pleasure of Allah*", which was uploaded on June 25, 2002. To access or read the book, blind users are required to become library members. Picture 4 is the login display to access braille books.



Figure 4: KEBI online member login display

In the member login display, the users are required to fill in the Email and Password data. After filling the data, the book can be accessed or read by downloading. While the identity of the collection to be accessed can be seen in Figure 5.



Figure 5: Display of the KEBI online book identity that will be downloaded

In the book identity display, some information is obtained, namely upload date, title, author, publisher, year of publication, type, number of pages, converter, grade, Dewey, category, file size, uploader name, and uploader institution.

Based on statistics, total of KEBI members is 375 members. While the books that have been downloaded are 1709 titles.

2. EPUB (Electronic Publication)

EPUB or Electronic Publication is an electronic book that is structured to make it easier for the blind to find the part of the book they want to look at. EPUB can be accessed by blind people using a smartphone or computer. There are several EPUB reader applications, including Thorium Reader, Adobe Digital Editions, EPUB File Reader, and so on. The MN Library recommends using Thorium reader. For Windows OS using Thorium reader, for Android using Lithium and Voice Dream, and for IOS iBooks using Voice Dream.

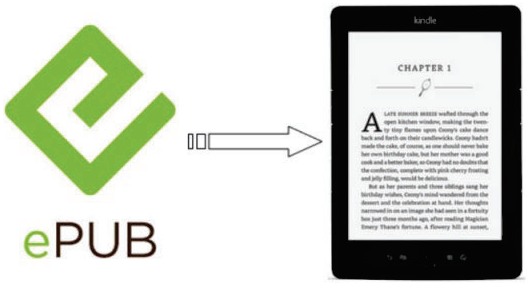


Figure 6: Display of EPUB

EPUB books for visually impaired users after being accessed will make a sound that is the sound of the contents of the book, so visually impaired users can listen to the entire contents of the books.

3. Audio or Digital Talking Book

Audio or digital talking books are human voice recordings that have been structured according to the original book so that it makes easier for the blind to find the part of the book they want to look at using a special player machine or a computer that has 'digital book player' software installed.

Books with the Daisy format audiobook category can be run through a browser and accessed streaming using a computer or Android and IOS smartphones (requires an internet connection when played). Audiobooks can be accessed through the “Audiobooks” category or through the following link: https://pustaka.mitranetra.or.id/sdm_categories/buku-audio/

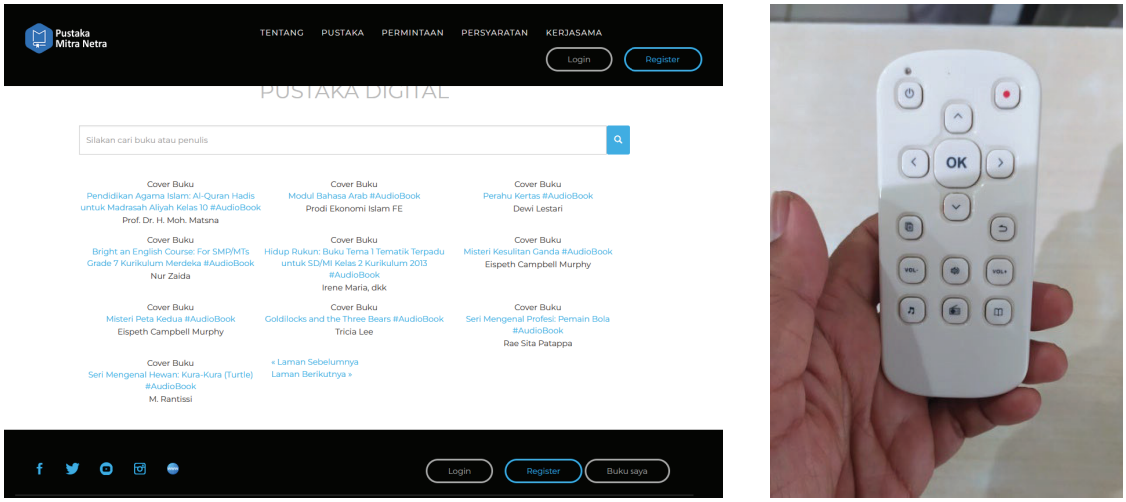


Figure 7: Audio or digital talking book display

Challenges and Obstacles of User Services at the Mitra Netra Library

Disabled users, in this case, blind users, experience limitations in terms of their vision. According to Lowenfeld (Sofyan, 2023), due to visual impairments, blind people experience limitations in three aspects, namely limitations in the variety of experiences, limitations in interaction with the environment, and limitations in moving places. Within these limitations, it is difficult for blind users to access information and knowledge in the library. They still have to be assisted by others, in this case librarians, in accessing the information and knowledge they need.

Unlike the condition of normal users, serving blind users in accessing information and knowledge in the library certainly has challenges and obstacles that are not simple. A librarian who works in a library that specializes in serving blind users must be equipped with adequate knowledge in serving blind users. With a variety of braille collections, facilities and

infrastructure, especially designed buildings, librarians in blind libraries must be able to adapt and master their workplace to serve the information needs of blind users.

The MN Library only has one librarian on staff. In our interview with the librarian there, we found information about the challenges and obstacles encountered by librarians in serving blind users, especially in overcoming limitations in the variety of experiences, limitations in interaction with the environment, and limitations in moving around.

Some challenges and obstacles encountered by librarians in serving blind users who come to the library, namely usually some users cannot read braille books because they do not understand braille letters and for low vision users there are those who cannot use telesensory devices, as well as the use of various means to listen to collections that are less mastered by the users.

To overcome and reduce these challenges and obstacles, librarians make educational efforts to users until they are proficient in using the facilities available in the library.

It should be noted that the task of librarians at the MN Library in addition to serving users is to help users improve their skills such as braille typing therapy exercises with Perkins Braille devices, courses such as English, mathematics and so on.

CONCLUSION

The conclusion of the study on the types of services and types of collections of the MN Foundation Library is that the MN Foundation Library implements a closed type of service and develops various other types of services, such as library member services, reading services, and lending services. In addition, librarians also provide education and therapy to users so that they can utilize the collection and use the facilities in the library.

The types of collections available are printed braille book collections and non-printed (electronic) collections in the form of audio. There are several challenges and obstacles in serving users, namely some users cannot read braille books because they do not understand braille letters and for low vision users there are those who cannot use telesensory devices, as well as the use of various means to listen to collections that are less mastered by users. However, the challenges and obstacles encountered can be resolved well by librarians even

though it takes time and patience so that users can be served in obtaining the information and knowledge they need.

REFERENCES

AFB. (N.D.). Braille. https://www-afb-org.translate.goog/blindness-and-low-vision/braille

Asriana, P. A. D. (2012). Persepsi pemustaka terhadap koleksi digital talking book di perpustakaan digital pertuni dpd jateng. Jurnal Ilmu Perpustakaan, 1(1). https://ejournal3.undip.ac.id/index.php/jip/article/view/791/766

Camalia, F., Susanto, H., & Susilo. (2016). Engembangan audiobook dilengkapi alat peraga materi getaran dan gelombang untuk tunanetra kelas viii smp. Unnes Physics Education Journal, 67–79.

Delphie, B. (2006). Pembelajaran anak berkebutuhan khusus (dalam setting pendidikan inklusi). Pt Refika Aditama.

Febriyanti, R. (2012). Pengembangan koleksi perpustakaan yayasan mitra netra jakarta [Undergraduate Thesis, Universitas Indonesia]. Fakultas Ilmu Pengetahuan Budaya Departemen Ilmu Perpustakaan Dan Informasi Program Studi Ilmu Perpustakaan.

Jpnn. (N.D.). Penyandang disabilitas tunanetra di ri capai 4 juta, baru 1 persen yang bekerja di sektor formal. https://m.jpnn.com/news/penyandang-disabilitas-tunanetra-di-ri-capai-4-juta-baru-1-persen-yang-bekerja-di-sektor-formal

Kebi. (N.D.). http://kebi.or.id

Orbis. (N.D.). https://www-orbis-org

Prasetyawan, A. (2020). Perpustakaan sebagai tempat akses informasi bagi pemustaka disabilitas. Bibliotika: Jurnal Kajian Perpustakaan Dan Informasi, 4(2), 253–258.

Prayitno, & Amti, E. (2004). Dasar-dasar bimbingan dan konseling. Rineka Cipta.

Rayini, J. (2017). Library and information services to the visually impaired persons. Library Philosophy and Practice (E-Journal), Article 1510.

Safrudin, A. (2014). Perpustakaan ramah difabel: mengelola layanan informasi bagi pemustaka difabel. Ar-Ruzz Media.

Soeparman, S. (2014). Faktor-faktor yang mempengaruhi keberhasilan studi mahasiswa penyandang disabilitas. Journal Of Disability Studies, 1(1).

Sofyan, M. N. (2023). Program pembelajaran vokasional teknologi informasi dan komunikasi (tik) bagi peserta didik tunanetra di slb negeri a citeureup cimahi [Undergraduate Thesis, Universitas Pendidikan Indonesia]. Https://Perpustakaan.Upi.Edu

Sugiyono. (2009). Memahami penelitian kualitatif. Alfabeta.

Untari, D., Hariyah, & Widuri, N. R. (2018). Pengembangan perpustakaan digital bagi tunanetra melalui kerja sama lembaga untuk mendukung tercapainya sdgs. Visi Pustaka, 20(3), 219–228.

Yoon, H.-Y., & Kim, S.-Y. (2011). Development strategy of the alternative format materials for disabled people in korea. Aslib Proceedings, 63(4). Https://Doi.Org/10.1108/00012531111148976

Yayasan Mitra Netra. (N.D.). Pustaka Mitra Netra. https://pustaka.mitranetra.or.id

Tempo. (N.D.). 3 Perpustakaan mandiri yang ramah buat tunanetra. https://www.tempo.co/politik/3-perpustakaan-mandiri-yang-ramah-buat-tunanetra

Developing School Library for Deaf Students as a Deaf-Centric Knowledge Ecosystem

Dian Novita Fitriani, Niswa Nabila Sri Bintang Alam

National Library of Indonesia, Jakarta, Indonesia

Corresponding email: dian.novita.f@gmail.com

ABSTRACT

The objective is to investigate how the school library for deaf students can be developed into a fully functioning knowledge ecosystem tailored to the needs of deaf students. This study used a qualitative methodology with a case study approach. Data was collected through in-depth interviews and documentation. Interviews were conducted with key stakeholders, including deaf students, teachers, and librarians at Cicendo State Special School (SLB), a special school for deaf students in Indonesia. The research findings indicate that deaf students have different needs from normal students and other special needs students. The information and learning needs of deaf students include: 1. virtual-based materials, 2. interactive learning and sign language integration, 3. positivity appreciation, and 4. community and cultural integration. However, the current condition is that school libraries are unable to accommodate all of these needs. Therefore, it is necessary to develop school libraries as a special knowledge ecosystem for deaf students, namely the deaf-centric knowledge ecosystem. This model places the school library as the coordinator of all components, consisting of crowd knowledge engineering, visual + sign language content, knowledge cloud platform, co-creation, and feedback mechanism. With the foundation of people-knowledge-technology, it is hoped that this model will be able to become an inclusive and user-centered knowledge ecosystem.

Keywords: School Library; Knowledge Ecosystem; Deaf Students; Technology; Inclusive

INTRODUCTION

The deaf are often categorized as part of an "invisible disability" group, because deaf people cannot be identified as deaf through ordinary observation. Deaf people have unique communication, cognitive, and social-emotional needs. The deaf's hearing impairment is related to their limited ability to understand language. Deaf people tend to make the general public uncomfortable because of communication barriers. The medium of communication used by deaf people is sign language, but not all members of the general public are proficient in sign language. Most people are more comfortable interacting with blind people than deaf people. A blind person can be treated like a sighted person, but the general public does not know what to do with a deaf person (Eisner, 2015; Hagemeyer, 1992).

The deaf are underrepresented in mainstream educational support services, including libraries. Libraries do not pay special attention to providing services for the deaf. In addition, deaf people often have difficulty reading and tend not to use libraries. As a result, most deaf people are not familiar with libraries. Libraries should have a responsibility to ensure that their collections and services are accessible to everyone, including the deaf. Deaf people should also be aware of the library services provided to them (Day, 2000).

In the current era of inclusive education, access to learning environments, especially for deaf students, should be easier. When compared to the blind, the deaf do not get much attention from various resources. There is even a saying that the blind are kept away from various things, while the deaf are separated from others. For example, when comparing library resources for the blind and the deaf, there is special funding to provide quality library services for the blind, but none for the deaf. The Library of Congress has the National Library Service for the Blind and Print Disabled (NLS), which was established by an Act of Congress in 1931 to serve adults who are blind and has been expanded until 2016 by allowing the NLS to provide updated braille displays. This NLS program is funded annually by Congress. The Association of Specialized and Cooperative Library Agencies (ASCLA) also published the Revised Standards and Guidelines of Service for the Library of Congress Network of Libraries for the Blind and Physically Handicapped in 2017 (Eisner, 2015; Hagemeyer, 1992). However, in 1991, IFLA published a guide to library services for deaf people. In 2000, the second edition was published (Day, 2000). In Indonesia, there is no law that specifically regulates the deaf. The rights of the deaf are accommodated in Law Number 8 of 2016 concerning persons with disabilities which includes the right to inclusive education and the right to accessibility of information and communication.

Research on the needs of deaf users is still relatively rare. Most of them discuss disability or blind users. However, some studies have recognized that deaf users also have specific needs for library services. Mularski (1987) conducted research on deaf users in academic libraries. From the research, it was found that the library did not have special services for deaf users, and librarians could not communicate with them. This was also expressed by Jeal et al., (1996), who stated that only a few libraries include access for deaf users, so some adaptations are needed such as deaf awareness training, providing collections that are easily accessible to them and providing visually friendly resources.

Playforth (2004) in his research showed that there were various obstacles for deaf users in utilizing library services and what the ideal library services were for them. Saar and Arthur-Okor (2013) conducted a study at Lamar University in Beaumont, Texas, one of only two educational institutions in the U.S. that offers a doctoral program for deaf students. The study was motivated by the fact that deaf students rarely use reference services. The results of the study indicate that there needs to be a variety of communication options provided by the library for deaf visitors to ask for help from librarians. Librarians also need to encourage them to use library services by showing that the library is interested in serving their needs.

Previous studies have shown that research on deaf users is mostly conducted for college libraries. There are not many studies that specifically examine school libraries, especially school libraries specifically for the deaf. Libraries have an important role in realizing inclusive education that provides fair learning opportunities for all students. The concept of a school library as a knowledge ecosystem is one of the innovations that can be carried out by school libraries to realize inclusive education. School libraries not only function as sources of information but are also able to provide a dynamic and interconnected environment with various resources to create, disseminate, and apply knowledge.

This study focuses on SLBN Cicendo Bandung, one of Indonesia's leading schools for deaf education, to investigate how its school library can be developed into a fully functioning knowledge ecosystem tailored to the needs of deaf students. By analyzing the perspectives of students, teachers, and librarians, this research seeks to identify existing gaps, assess current practices, and propose actionable recommendations for library development.

SLB Negeri Cicendo, originally established by *Perkumpulan Penyelenggaraan Pengajaran kepada Anak-anak Tuli Bisu* di Indonesia on January 3, 1930, has a long-standing history of

educational service for deaf students. The school was initiated by Mrs. C. M. Roelfsema Wesselink in Bandung and initially started with six students. Over the years, with support from Dutch educators and philanthropic figures such as Tn. KAR Bosscha, the school developed its own building and dormitory on land in Cicendo. Officially inaugurated on December 18, 1933, the institution endured multiple transformations, from being used as a maternity clinic during the Japanese occupation, to evolving through several organizational forms, LPATB, P3ATR, YP3ATR, and finally becoming a public school (SLB Negeri) on January 2, 2009. It was officially inaugurated as a public institution on February 26, 2009, by the Governor of West Java. The school's leadership has continued under various heads, most recently under Mr. Wawan, M.Pd., since 2020.

METHODS

This study uses a qualitative research method with a case study approach to explore how the school library at SLBN Cicendo Bandung, a special school for deaf students in Indonesia, can be developed into a knowledge ecosystem. Case study research is conducted where researchers explore one or more cases over time in a particular context, through detailed and in-depth data collection involving various sources of information (such as observations, interviews, audiovisual materials, documents, and reports), and report their findings (Creswell & Creswell, 2018). This study focuses solely on the SLBN Cicendo, without comparing it to other cases, and therefore constitutes a single-case study. The selected cases are based on their uniqueness, rather than representativeness or comparability with other cases.

The technique of determining informants was done by purposive sampling, focusing on those who interact directly with the library or who are responsible for its use. The informants in this study consisted of two teachers who were also responsible for the library, a teacher who was responsible for the curriculum and three deaf students. Data collection in this study was through interviews, observations, and document studies. Interviews were conducted using Indonesian and sign language to deaf students with the help of teachers. Observations were made by observing the interaction patterns of deaf students in the library environment. Document analysis was obtained from library reports, school curriculum, and student activity reports. Data were analyzed using thematic analysis, which includes data condensation, data display and drawing conclusions (Miles et al., 2014).

FINDINGS

Current Condition of the School Library

The physical condition of the SLBN Cicendo library is quite simple. The design of the room is quite conventional and only functions as a collection storage room and a quiet reading room. The main function of the library is as a reading room and quiet storage area, with little integration into daily teaching activities. The library is also less integrated with the student learning process. So even though the library space is quite spacious, it is not optimized for group discussions or other student activities. The library design also does not consider inclusive designs, such as lighting and visual navigation aids.

The total collection is 1,042 copies (https://www.slbncicendo.sch.id/perpustakaan-2/), which is mostly dominated by textbooks and reports from student activities at SBLN Cicendo. In addition to textbooks specifically for the deaf, there are also several textbooks for the blind, mentally retarded, physically disabled and autistic. Some of the available fiction collections are also in the form of novels, most of which are text-heavy and have little visual or multimedia content adapted for deaf students. In addition, there is still a lack of assistive technology, such as video resources with text or digital displays with sign language.

Information And Learning Needs of Deaf Students Virtual-Based Materials

Deaf students have high visual sensitivity. Even for simple things, such as dressing. Therefore, teachers in SLB, especially for the deaf, are quite fashionable.

> *“Our students are very visual learners, right? So if we just keep talking about how they should dress neatly, it won't be enough. Teachers also need to set an example. That's why the teachers at this SLB dress stylishly.”*

In addition, deaf students also pay attention to their teacher's appearance. Like when their teacher does not wear lipstick, deaf students will notice it and say that their teacher looks pale.

> *“There were times when I had not applied lipstick yet, or when it had started to fade, and the students would come to me and ask, 'Why do you look pale, Ibu?”*

Therefore, teachers prioritize materials with illustrations, infographics, and visual storytelling (for example, comics or picture-based encyclopedias). Technologies such as LCD screens, captioned video materials, and interactive media are used to support visual learning. Although personal gadgets are restricted to ensure content quality, school-controlled digital access is provided through scheduled ICT-based classes. The library is encouraged to adopt similar modalities.

Interactive Learning and Sign Language Integration

Deaf students are unable to hear well. Although they are unable to hear well, their sense of hearing must still be trained. The hearing nerve of the deaf is not dead, but asleep. Therefore, their hearing must always be trained.

> *"You still have to train their hearing. Deaf children don't necessarily have dead nerves. It's more like they're asleep. So you have to really wake them up, like, 'Come on, wake up, wake up!"*

In SLBN Cicendo, there are speech therapy programs and sound and rhythm perception communication development. This program aims to train deaf students' hearing. In addition, SLBN Cicendo also provides opportunities for its students to choose various extracurricular activities, such as angklung, painting, dance, and others. In addition, the school also holds an outing program to introduce nature to deaf students.

Deaf students show a desire for interactive and exploratory learning using games, animations, or interactive screens. Interactive learning can also stimulate them to communicate, express what they think and feel. Teachers at SLBN Cicendo always train deaf students to understand the situation around them and what they should say in response to the situation. For example, when a child has a birthday, the student should not only give the sign "hmmm hmmm" but they should try to say "happy birthday" according to their respective speaking abilities.

Language is a basic need for humans, including the deaf. Language is also the key to communication. Deaf students have limitations in communicating, which also impacts the language input they receive. The American Speech Language Hearing Association (ASLHA) also states that the level of hearing loss affects a child's ability to learn language (Eisner, 2015). This also greatly influences them in understanding their environment, both in the form of words and conditions in general.

> *"Deafness impacts everything. Communication depends on language, but deaf students struggle because they have limited access to it."*

When deaf students are enriched with language, it will affect many things, including their social life.

One thing that can be done for deaf students is to provide them with early intervention. Children with hearing loss who receive early intervention have much better developmental outcomes than similar children who receive later intervention. The critical language learning window is from birth to about three years old, when the brain's neuroplasticity is at its highest (American Speech-Language-Hearing Association, 2007; Bradham et al., 2008).

Deaf students need various learning media that have been integrated with sign language or simplified Indonesian. Integration with sign language is usually needed in learning media in the form of videos. In addition to including sign language, subtitles can also be provided, but using simple Indonesian. Limited language input for deaf students makes it difficult for them to understand words, especially abstract ones. Deaf students are better able to understand words that are real and visible. For example, the word "sexual violence" is a word they do not understand. Teachers must explain it simply by giving real examples, such as a man whistling when a woman passes by, a man groping certain parts of a woman's body.

Positivity Appreciation

Deaf students also like positive appreciation, even in simple forms. One example is by giving positive appreciation as a form of praise for the word "good" into a thumbs up movement. When they can understand the communication and are happy to receive it, deaf students will often ask for rewards from their teachers in various forms.

> *"They love getting rewards. I said, 'Good job!' (while giving a thumbs-up and touching it to their nose). Then one of them wanted it here (pointing to their cheek)."*

The limitations of deaf students in understanding language mean that teachers must be able to translate verbal language into various forms of communication.

"*How can we translate spoken language into different forms, like body gestures, that can represent the language and be understood by deaf students?*"

The school uses a blend of structured rules and affective approaches to build student identity and self- esteem. Gestural communication and symbolic rewards (like stickers, public praise, or ambassador roles) are critical to student motivation. The library can reinforce these values by recognizing reading achievements and behavior milestones.

Community and Cultural Integration

Support from the immediate environment is important for deaf students. At school, support from teachers can be done in various ways, such as giving rewards and positive appreciation for small things, and providing opportunities to choose activities that are liked. Support also does not only come from parents or teachers, but also from peers. Some deaf students who are also autistic feel more comfortable with their friends than with their teachers. When told by their teacher, they do not want to listen, but when told by their friends, they are more obedient.

"He doesn't want to be told by the teacher, but he listens more to his friends. Maybe it's because he feels more comfortable that way. Well, that's okay, even if it means going through his friends first. But you know, since he's autistic, we really can't be sure."

Therefore, it is not uncommon for deaf students to feel more comfortable at school than at home. Some children are reluctant to go home even though it is time to go home.

No less important support is support from parents. The school also always involves parents in the learning process at school. Usually, the school invites parents every year at the beginning of learning. This is intended so that learning at school must be in line with learning at home.

"Yeah, so every year at the start of the school year, the school invites parents to talk about parenting. The idea is that learning shouldn't just happen at school. It's got to be the same at home too."

The role of parents at home in supporting the learning process of deaf students will be seen when at school. There is a difference between deaf students who get the learning process at home and deaf students who do not get the same learning.

In addition to support, deaf students must also be able to understand their identity. This can happen when at home, they receive different treatment from their siblings or family members. School is a place to educate them to be themselves.

> *"Deaf kids should be given the right to understand their own identity. Maybe at home they feel compared to their siblings, like an older brother or sister gets more attention, or maybe it's the other way around. But at school, they should be able to just be themselves."*

The minimum awareness that deaf students must have is awareness of being deaf. This awareness will motivate them to learn and acquire as many languages as possible.

Deaf students also need role models who can build their identity and optimize their potential. These role models can be from fellow deaf people or normal people around them. SLBN Cicendo builds this motivation by encouraging teachers and students to participate in various competitions and achieve. In addition, role models are related to the character that must be built in schools. Teachers at SLBN Cicendo also always make it a habit to say thank you and apologize when making mistakes. Teachers must also be consistent with what they teach their students.

> *"It's about the habits we build, right? If we make a mistake, we have to take responsibility. We're the ones who should apologize, no matter how small the mistake is."*

With such role models, deaf students will find it easier to learn what to do and be motivated to do it.

In addition to building their own identity, identity as a member of a particular society must also be built. They must also be introduced to various cultures from the area where they live.

Therefore, schools also provide a place for regional activities such as playing angklung and making modified regional foods, such as making "peyeum kabeulit" (a pastry integrating local ingredients and techniques). These activities highlight the library's potential as a site for cultural knowledge preservation and inclusive experiential learning.

DISCUSSION

The findings of this study reveal that existing school libraries are unable to meet the information and learning needs of deaf students. Libraries should be able to support an inclusive and user-centered knowledge ecosystem. This section discusses the implications of the findings from a knowledge ecosystem perspective.

Reframing the School Library as Knowledge Ecosystem

Before discussing the knowledge ecosystem, first discuss the emergence of the term ecosystem for libraries. The concept of library ecosystem replaces the library service platform. This is because the library management system (LMS) is considered no longer capable of handling the complexity of digital collections and the increasingly diverse needs of users. He uses the example of Apple, which provides a platform for the 'community' to develop content and applications, where Apple still provides considerable control. The term "ecosystem" is used to emphasize connectivity, co-evolution, and interdependence, like a natural ecosystem. An ecosystem consists of all organizations that share the same habitat and have mutualistic dependencies through interaction. This concept is intended so that libraries can become open social spaces that connect visual content, deaf communities, and supporting technology. A system is needed that supports sign language content, visuals and experience-based narratives (Chad, 2013; Ju & Shen, 2015).

The concept of a knowledge ecosystem was originally proposed as a methodology for knowledge management. The concept was introduced Pór (1997) who see it from various perspectives. When viewed from a “bi-focal” perspective, the knowledge ecosystem is a network of conversations and knowledge repositories. When viewed from a “triple network” perspective, the knowledge ecosystem consists of a network of people, knowledge, and technology that generates business and social value. When viewed from a “Complex Adaptive System” perspective, the knowledge ecosystem is a complex adaptive system consisting of people in the same community, both real and virtual, to create, integrate, share, and use knowledge. From these three perspectives, it can be concluded that the knowledge ecosystem is a network between humans, knowledge, and technology, both real and virtual, to create, integrate, share, and use knowledge.

School libraries today are not only required as information storage, but as a dynamic living habitat for the exchange and creation of knowledge for students and teachers. School libraries are slowly changing from “conventional bookshelves” to “learning commons” (Eisner, 2015). School libraries should reduce some of the collection shelves and add a community space. This open space can be optimized for various types of learning. From the open space, it can also be a place to exchange and create knowledge for students and teachers.

Carayannis and Campbell (2009) creating mode 3 for knowledge production. Mode 3 is a pluralistic approach to knowledge creation that is inclusive, open, and networked. In its application to the knowledge ecosystem, he argues that the knowledge ecosystem requires a reciprocal flow between users, technology, and institutional practices. The implication of mode 3 for school libraries is that libraries become adaptive ecosystems, growing based on feedback and collective participation. In addition, they also expand the quadruple helix innovation system model by adding elements of civil society/media/social as the fourth helix. In the context of school libraries, this model emphasizes the involvement of the user community (including deaf students, teachers, and parents) in knowledge services.

Libraries must transform into open and collaborative platforms that can facilitate interactions between producers and consumers of knowledge. Collaborative learning models are also very much needed by deaf students. Parental involvement significantly affects early reading skills in children. In addition, maternal communication skills and the level of hearing loss in children are the strongest predictors of language development in children. In addition, the social and emotional development of deaf students also depends on parental involvement in the learning process. Active parental involvement is also very important to achieve optimal learning outcomes for deaf students (Aftab et al., 2022; Calderon & Rosemary, 2000; Davenport & Smolen, 2023; Honu-Mensah et al., 2024).

Bashir (2023) in his study also showed the importance of parental involvement in the learning process of deaf students. Therefore, schools are required to create a friendly and inclusive environment to encourage partnerships between parents and teachers, such as holding regular open houses, forming committees for parental involvement, and creating online groups as a means of communication. Some of these strategies have been carried out by SLBN Cicendo. They are already aware of the importance of parental involvement in the learning process, so that the learning system at school is by the learning system at home.

In developing school libraries into knowledge ecosystems, they must be user centered. In this case, users are deaf students. In the findings section, various information and learning needs of deaf students have been identified.

Table 1: Analysis of deaf students' needs and their development in the knowledge ecosystem (Source: Researcher processed results, 2025)

Information and Learning Needs of Deaf Students	Contribution to Knowledge Ecosystem
Virtual based materials	Justifies investment in graphic novels, pictorial texts, and bilingual sign-language resources.
Interactive Learning and Sign Language Integration	Supports the role of technology-enabled visual learning and filtered access to digital knowledge. Learning media that has been integrated with sign language or simplified Indonesian.
Positivity Appreciation	Gestural communication and symbolic rewards (like stickers, public praise, or ambassador roles) are critical to student motivation
Community and Cultural Integration	Reframes the library not only as a resource center but as a space for emotional development and identity building. Highlights potential for parent-inclusive library literacy programs.
	Encourages peer-led programs and student-centered library activities.

Model of Deaf-Centric Knowledge Ecosystem

From the analysis of information and learning needs of deaf students and reframing the school library to a knowledge ecosystem, this study offers a concept of the school library as a knowledge ecosystem for deaf students. This model is in the form of an ecosystem cycle where all components interact with each other in a circular and continuous flow. The cycle starts from crowd knowledge engineering > visual + sign language content > knowledge cloud platform > co-creation and feedback mechanism. All of these components are developed from people, knowledge, and technology as the foundation of the knowledge ecosystem. The school library in this model acts as a coordinator.

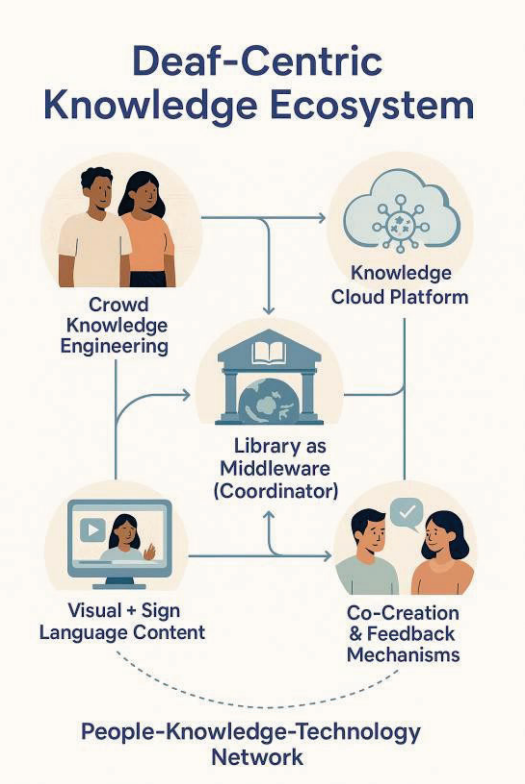


Figure 1: Model of Deaf-Centric Knowledge Ecosystem

(Source: Researcher Processed Results, 2025)

1. Crowd knowledge engineering

Crowd knowledge engineering (CKE) is a methodology in the form of a co-creation platform for knowledge ecosystems that provides editing features to facilitate collaborative participation (Shirky, 2009, 2010). Knowledge can be developed in a participatory way through co-creation and crowdsourcing. Crowdsourcing is a method to gather contributions from various parties, including deaf students, teachers, parents, librarians, and local communities. They play an active role in:

1. Developing visual and sign language-based content
2. Providing input on the design of spaces and materials
3. Participating in determining the priorities of the collection

2. Visual + sign language content

The knowledge content created is in the form of Visual + Sign Language Content. The development of this content is based on the principle of the Internet of Knowledge (IoK). IoK can reflect the characteristics of the knowledge network. With its connectivity, knowledge can be shaped into various expressions, unlimited and endless, and can be expanded anytime and anywhere. Network knowledge is characterized by its high openness so that it can be shared and commented on by many people. Everyone can be a contributor to the creation of knowledge. So that the creation of knowledge does not depend only on individuals, but also on collective processes (Ju & Shen, 2015). Various content that can be developed are:

1. Picture books, visual comics, and videos equipped with sign language
2. Interactive guide to the use of resources in the library
3. Folk tales or thematic books with visual narration

The various forms of content above are intended to provide access to knowledge through the most accommodating format for deaf students.

3. Knowledge cloud platform

All content is collected into a cloud-based digital platform. The integration of IoK with cloud computing will change from “data cloud” to “knowledge cloud” (Ju & Shen, 2011, 2015). The integration of IoK with the knowledge cloud is also a solution to provide a new platform to encourage a paradigm shift in education from “teacher-centered” to “student-centered” (Barr & Tagg, 2023; Ju & Shen, 2015). The platform acts as a collaborative content repository and provides a visual icon or keyword-based search feature. In addition, learning materials can also be accessed online at any time.

4. Co-creation and feedback mechanisms

This system is a participatory system that allows deaf students to provide feedback and help determine the direction of the service. Therefore, deaf students are not only consumers, but also contributors. Feedback can be collected in various ways such as visual surveys, emoji voting, or video testimonials.

5. People-knowledge-technology network

Knowledge ecosystem is built on the foundation of people-knowledge-technology. This model integrates these three components by bringing together actors, content and technology in a mutually supportive network.

6. Library as middleware (Coordinator)

The center of this entire ecosystem is the school library, which serves as:

1. A system coordinator between users, technology, and policies
2. A knowledge connector between physical and digital spaces
3. A manager of inclusive content based on the real needs of deaf students

CONCLUSION

This study shows that school libraries must transform into knowledge ecosystems, especially for deaf students. The model of a deaf-centric knowledge ecosystem is the model offered for SLBN Cicendo, a special school for deaf students in Indonesia. The development of this model has been adjusted to the information and learning needs of deaf students and the concept of knowledge ecosystem. So that this model can also be implemented for other special schools for deaf students. By using the people- knowledge-technology foundation, this model is built in the form of a cycle by combining various components, namely: crowd knowledge engineering, visual + sign language content, knowledge cloud platform, co-creation, and feedback mechanism. The school library becomes the coordinator of the entire system.

ACKNOWLEDGEMENTS

The authors would like to express their sincere gratitude to the SLBN Cicendo for their support and facilitation throughout the research process.

REFERENCES

Aftab, M. J., Ashfaq, M., & Ali, H. H. (2022). Exploring the role of parents for supporting the children with hearing impairment in education. *Human Nature Journal of Social Sciences, 3*(3), 457-469.

American Speech-Language-Hearing Association. (2007). *Childhood Apraxia of Speech*. www.asha.org/policy/.

Barr, R. B., & Tagg, J. (2023). From teaching to learning: A new paradigm for undergraduate education. *Learning from Change: Landmarks in Teaching and Leaming in Higher Education from Change Magazine,1969-1999*,*1383*(October), 198-200. https://doi.org/10.1080/00091383.1995.10544672

Bashir, R. (2023). Challenges of parent-teacher collaboration in the education of deaf students. *Journal of Development and Social Sciences*, *4*(III). https://doi.org/10.47205/jdss.2023(4-iii) 52

Bradham, T. S., Caraway, T., Moog, J., & Houston, K. T. (2008). *Facts about Pediatric Hearing Loss Facts on Hearing Loss in Children*. https://www.kdhe.ks.gov/DocumentCenter/View/8482/Facts-about- Pediatric-Hearing-Loss-PDF

Calderon, R. (2000). Parental involvement in deaf children's education. *Journal of Deaf Studies and Deaf Education*, *5*(2), 140-155. http://jdsde.oxfordjournals.org/

Carayannis, E. G., & Campbell, D. F. J. (2009). "Mode 3" and "Quadruple Helix": Toward a 21st century fractal innovation ecosystem. *International Journal of Technology Management*, *46*(3-4), 201–234. https://doi.org/10.1504/ijtm.2009.023374

Chad, K. (2013). The library management system is dead – long live the library ecosystem. *CILIP Update*, *September*,18-20. http://www.kenchadconsulting.com/wp-content/uploads/2013/09/LMS_is_dead_long_live_ecosystem_CILIP-Update_Sept2013.pdf

Creswell, John. W., & Creswell, J. D. (2018). *Research Design Qualitative, Quantitative and Mixed Methods Approaches* (5th ed.). SAGE Publications Inc.

Davenport, C. A., & Smolen, E. R. (2023). The role of parents in early intervention. *The Journal of Deaf Studies and Deaf Education*, *29*(2), 284-285.

Day, J. M. (2000). Guidelines for Library Services to Deaf People: Development and Interpretation. In *IFLA, 24*, Issue 1. https://doi.org/10.1177/034003529201800108

Eisner, N. (2015). Engaging deaf and hard of hearing students in the school library: a handbook for teacher-librarians. https://doi.org/10.4324/9780203837306.ch19

Hagemeyer, A. L. (1992). We have come a long way. *Library Trends*, *Summer*, 6–20.

Honu-Mensah, C. M., Fobi, D., & Quansah, B. (2024). Developing an understanding of parent–teacher partnerships in schools for the deaf in Ghana. *International Journal of Disability, Development and Education*, *71*(2), 208-221. https://doi.org/10.1080/1034912X.2022.2092601

Jeal, Y., de Paul Roper, V., & Ansell, E. (1996). Deaf people and libraries - should there be special considerations? Part 1: Traditional services. *New Library World*, *97*(1), 12-21. https://doi.org/10.1108/03074809610105600

Ju, D., & Shen, B. (2011). On building knowledge cloud. *2011 International Conference on Computer Science and Service System, CSSS 2011 - Proceedings*, 2351-2353. https://doi.org/10.1109/CSSS.2011.5975064

Ju, D., & Shen, B. (2015). Library as knowledge ecosystem. *Library Management*, *36*(4-5), 329-339. https://doi.org/10.1108/LM-08-2014-0094

Miles, M. B., Huberman, A. M., & Saldana, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). SAGE Publications Inc.

Mularski, C. (1987). Academic library service to deaf students: Survey and recommendations. *RQ*, *26*(4), 477-486.

Playforth, S. (2004). Inclusive library services for deaf people: an overview from the social model perspective. *Health Information and Libraries Journal*, *21 Suppl 2*, 54-57. https://doi.org/10.1111/j.1740-3324.2004.00518.x

Pór, G. (1997). Designing knowledge ecosystems for communities of practice. *Advancing Organizational Capability via Knowledge Management*.

Saar, M., & Arthur-Okor, H. (2013). Reference services for the deaf and hard of hearing. *Reference Services Review*, *41*(3), 434–452. https://doi.org/10.1108/RSR-12-2012-0083

Shirky, C. (2009). Here Comes Everybody: The Power of Organizing Without Organizations. Penguin.

Shirky, C. (2010). Cognitive Surplus: Creativity and Generosity in a Connected Age. Penguin.

Mainstreaming Sign Language Skills for Indonesian Librarians

Zulfa Avidiansyah, Muhammad Rifky Nurpratama, Ika Nur Azizah, Gani Nur Pramudyo

Library and Information Science, Faculty of Humanities, Universitas Diponegoro, Semarang, Indonesia

Corresponding email: zulfaavidiansyah@live.undip.ac.id

ABSTRACT

Librarians in Indonesia are responsible for providing excellent service to all users, including the Deaf Community, who use sign language. However, the sign language skills of librarians are often low, leading to communication gaps when serving Deaf library users. This study aims to emphasize the importance of mainstreaming sign language proficiency as a core skill for Indonesian librarians. The literature review method discussed similar studies on services to users with disabilities and the need for sign language skills for professionals, especially librarians. Several studies have explored the importance of sign language skills, establishing a national commission, and accessibility strategies for disabled users. However, no ideas have been provided for mainstreaming sign language skills as a bottom-up campaign. Recommendations for the future include integrating sign language skills as a core competency for all librarians, emphasizing the need for training programs and policy support to increase accessibility and inclusivity in library services.

Keywords: Mainstreaming; Skills; Sign Language; Librarians; Indonesia

INTRODUCTION

Librarians are one of the professions that deal directly with public services. Everyone from all backgrounds in the society should be given optimal service by librarians, especially librarians who work in the territory of Indonesia which has a very diverse background of users. According to the Central Bureau of Statistics (2024), the population of Indonesia in 2024 is around 281

million people spread from Sabang (Aceh Province) to Merauke (South Papua Province). The diversity of library users in Indonesia, which consists of many ethnic groups, still includes communities that are also library users, ranging from reading, music, sports, social communities to people with disabilities. The Coordinating Ministry for Human Development and Culture of Indonesia (2023) states that there are 22.97 million people with disabilities in Indonesia, or 8.9% of the total population.

In many countries around the world, people with disabilities are unable to use libraries because library administrators do not recognize the need for people with disabilities to use libraries equally with all other citizens. In some countries, it is taken for granted that everyone should be able to use the library (Nielsen & Irvall, 2005). This condition is also in line with Indonesia where it is still rare to find in the public service sector, especially libraries that provide services or facilities that support people with disabilities. The facilities in the library were affected when the floor and the passage to the library are designed with ramps that made it easier to use. Likewise, there are special elevators for the disabled that also provides easy access to the library. However, it is still not enough and there is still a need to improve the services in the library by librarians serving people with all kind of disabilities.

This is also exacerbated by librarians who do not have sign language skills when dealing with the deaf community who are their users. For Indonesian librarians, the ability of librarians is assessed through training and also educational background from college. However, no one specifically equips them with sign language. On the other hand, one of the communities in Indonesia that is about 8.9% is the deaf community called *teman tuli*. Deaf communities that are spread throughout Indonesia have different sign languages in their sign movements. They use this sign language to communicate either with fellow *teman tuli* or with hearing friends who can use sign language in daily conversations at home, at work, and when they spend their leisure time with their friends. Even professional sign language interpreters such as *juru bicara isyarat* (JBI) also use sign language in official press conferences or on television news programs.

Based on this, the question that arise are how are services provided by the Indonesian librarians to people with disabilities? Is the service to the people with disabilities, especially for *teman tuli* optimal? How has the ecosystem of public services, especially libraries in Indonesia, support the inclusiveness of deaf users in public places? Therefore, this research aims to emphasize the importance of mainstreaming sign language to Indonesian librarians in order to provide excellent service to all library users without exception where sign language is one of the core abilities that a librarian must must be possessed. This research aims to be an

initial idea to all stakeholders to create an inclusive ecosystem where all library needs including the deaf are accommodated.

LITERATURE REVIEW

Deaf Community and Sign Language, Deaf Community as User Aspect

Diversity is something that is certain within a society. With the existence of this diversity, we as humans must be able to appreciate the presence of diversity. One form of diversity is disability. Disability is the result of the interaction between health conditions and environmental and personal factors, such as structural or functional body disorders; activity barriers, such as the inability to read or move; or participation barriers (WHO, 2013). Therefore, disability can be understood as a condition that affects the way a person interacts with their surrounding environment. Deafness is a form of disability, as someone who is deaf may have their ability to receive information in the form of sound is affected, which is considered one of the important functions for communication. However, in the deaf culture (Deaf-World), being deaf is a positive cultural identity, not a loss (Lane, 2002).

Deafness, according to the South African National Deaf Association, is defined as a level of impairment that prevents a person from understanding speech through sound. Epistemologically, Deafness refers to the typical way the deaf community understands and constructs knowledge, influenced by sensory experiences, culture, and sign language (Holcomb, 2010). According to Lipschultz (2010), deafness is an invisible disability because deafness is very different from other physical disabilities that require larger assistive devices, such as people who need wheelchairs and so on. Hearing loss experienced by humans since birth can cause many problems that affect the lives of the individuals who suffer from it.

In Indonesia, the term *teman tuli* is more popular than the term *tunarungu* as a form of appreciation for the deaf community in Indonesia. Quoting from a news article on the Kumparan News website (2017) that interviewed several deaf individuals, they explained that they prefer to be called *Tuli* (with a capital T) rather than t*unarungu* because they consider deaf culture and sign language as their identity and selfhood, whereas the term *tunarungu* is associated with damaged hearing condition, inability to speak, and abnormality. For them, the use of the term *tunarungu* seems pitiful and some what abnormal. Unlike humans who use language and voice to communicate, deaf individuals use the sign language. The sign language is a language that does not use human sounds or writing in its application (Pradikja et al., 2018). While spoken language is oral-auditory, sign language is visual-gestural, produced through hand movements (gestures) and perceived through vision (visual) (Isma, 2012).

SIBI and BISINDO as Sign Languages

In Indonesia, there are two sign languages that can be used for communication by the deaf, namely the Indonesian Sign Language System (SIBI) and the Indonesian Sign Language (BISINDO). SIBI is often considered a language that is too formal with its grammatical structure of Indonesian sentences, making communication difficult because SIBI adopts the American Sign Language, unlike BISINDO, which emerged naturally from the interactions of deaf individuals with their environment since childhood, thus possessing a uniqueness similar to the regional languages (Gumelar et al., 2018). Therefore, SIBI is less representative of the deaf culture in Indonesia since it is an adoption of the American sign language and is formal in nature, making it more suitable for formal communication. This is very different from BISINDO, which emerged naturally from the interactions of the deaf individuals in various regions across Indonesia, making it easier to use for everyday communication.

The Directorate of Junior High School of Primary and Secondary Education of the Republic of Indonesia (2024) provides a comparison between SIBI and BISINDO. The comparison of the two is in their functions and use which has several aspects such as origin, grammar, use of hands, context of use, and flexibility (Table 1).

Table 1. Comparison between SIBI dan BISINDO

Aspects	SIBI	BISINDO
Origin	Government-developed	Develops naturally
Grammar	Follows Indonesian grammar	Unstructured, flexible
Use of hands	One hand	Two hands
Context of use	Formal education	Daily life, community
Flexibility	Rigid and standardized	Dynamic and expressive

Library Services for Inclusivity, Library Services for Disability

Libraries in Indonesia have opened up and are in the process of providing the best services to people with disabilities. Several measures have been implemented to provide access for people with disabilities to use the library, in line with the mandate set by the government.

Referring to Government Regulation Number 42 of 2020 concerning accessibility to settlements, public services, and protection from disasters for persons with disabilities,

Articles 16 and 17 of Chapter III states that in Article 1, public service providers are required to provide accessible public services for persons with disabilities in accordance with the provisions of laws and regulations.

For Article 2, the provision of accessible public services as referred to in paragraph (1) is implemented on the basis of the principle of equality in diversity for persons with disabilities and responsiveness to the needs of persons with disabilities. Article 17 paragraph (1) states that the scope of public services as referred to in Article 16 paragraph (1) includes services for goods, services, and/or administrative services provided by public service providers. Paragraph (2), the scope of services as referred to in paragraph (1) includes education, teaching, work and business, residence, communication and information, environment, health, social security, energy, banking, transportation, natural resources, tourism, and other strategic sectors. For paragraph (3), public service providers as referred to in paragraph (1) provide public services that are easily accessible for persons with disabilities including infrastructure and accessibility facilities.

Libraries as one of the public service institutions in Indonesia have an obligation to comply with these regulations. The National Library of the Republic of Indonesia (2021) runs sign language training as a support serve users with deaf disabilities. This training is one of the positive steps taken by the library to ensure equal access to services for persons with disabilities, especially the deaf community, who also have the right to use the library. Librarians who have been trained and are proficient in the sign language play a key role in facilitating access for the deaf community in utilizing library services.

Librarian Skills for the Deaf Community

Several researchers have studied the implementation of disability-friendly libraries in Indonesia (Andriani et al., 2023; Arumsari & Krimayani, 2018; Firnanda & Hertati, 2024; Handari, 2019; Nurfadilawati et al., 2020; Pratama, 2018; Rahmayani, 2020; Supriyatna & Dewi, 2019). A friendly library has librarians who are able to provide the best service to their patrons. The ability of librarians is the key to excellent library services. For example, a librarian who supports the deaf children's literacy programs. Librarians, in their role as educators, are

responsible for providing media that enhance the reading and writing skills of people with disabilities (Fadilla et al., 2024).

However, there are the downsides when the library is not supported by the librarian's ability to provide services. Andriani et al. (2023) mentioned that the Tadulako University Library provides adequate access for wheelchair users, entrances, tables, and shelves that are easy to reach. However, the toilets still do not meet the required standards. The services provided by librarians to deaf users are still limited to written communication because the librarians are unable to use the sign language. It is an obstacle when librarians are unable to provide services, especially to deaf people with disabilities, by being incompetent with the sign language skills. This limitation hinders librarians who are not proficient in the sign language from being optimally deployed in serving the deaf community.

In other words, communication constraints are an issue faced by librarians. However, Alamanda (2023) stated that the librarian of the National Library of the Republic of Indonesia has good communication skills in serving the deaf visitors by using the sign language. This is a meaningful effort to ensure that people with disabilities, especially the Deaf community, receive better service in the library.

Accessibility of Library for Persons with Disabilities

The 1945 Constitution, Article 28H, paragraph (2) guarantees the right of everyone to obtain equal opportunities and benefits to achieve justice. This mandate is realized through various regulations, such as Law Number 20 of 2003 on the National Education System, Chapter IV Article 5 paragraphs (2), (3), and (4) and Article 32 regulates special education for students with abnormalities or extraordinary intelligence in an inclusive manner. Law Number 8 of 2016 on Persons with Disabilities affirms the right of learners with special needs to quality education services in all types and levels of education.

The Ministry of National Education Regulation Number 70/2009 states that learners with disabilities or special potential are entitled to inclusive education according to their needs and abilities. In addition, the Minister of Education, Culture, Research, and Technology Decree No 56/M/2022 emphasizes the importance of curriculum diversification based on the conditions of the education unit and the characteristics of the learners.

The learners with special needs or *peserta didik berkebutuhan khusus* (PDBK) are learners with visual impairments/blind, learners with hearing impairments/deaf, learners with intellectual impairments/mentally disabled; learners with physical motor barriers/physically disabled, learners with emotional and behavioural barriers, slow learners; learners with specific learning difficulties; special smart learners and special talents; Autistic Spectrum Disorders (ASD) learners, and Attention Deficit Hyperactivity Disorder (ADHD) learners (Farah et al , 2022).

The right of everyone to equal opportunities and benefits for access and utilization of library services is regulated in Law Number 43/2007 on libraries. Article 5 states the equal rights of the entire community to obtain and utilize library facilities. Not only the community, but those people with disabilities have the right to obtain library services tailored to their abilities. Unfortunately, not many libraries provide access for people with disabilities (Andriani et al., 2023). Still in the same legislation, Article 14 explains that library services are carried out in an excellent manner and oriented to the interests of the users. Disabled users who utilize library services are generally students who have visual impairments or blind, hearing impairments or deaf, speech impairments (*tunawicara*), and motor impairments (*tunadaksa*).

The International Federation of Library Associations and Institutions (IFLA) specifically issued standards for the organization of disability-friendly libraries (Nielsen & Irvall, 2005). This standard is used to assess and evaluate the level of accessibility of library buildings, services, materials, and programs and to improve accessibility. The standard is divided into three parts, namely physical access, media formats, services and communication.

1. Physical access: outside the library, entering the library, access to collections and services-physical spaces, restrooms, circulation services, reference/information services, children's services, and disabled services;
2. Media formats: specialized media formats for people with disabilities, and computers for people with disabilities;
3. Services and communication: how the library trains librarians, provides special services for disabled users, how the library provides information to disabled users, how the library provides information that is easy to understand especially the websites, and how the library collaborates with disabled organizations and individuals.

Rahmayani (2020) compared five disability-friendly libraries in Indonesia using a literature study and the results are:

1. The University of Education Indonesia Library has yet to meet the IFLA standards related people with disabilities (Nurfadlilawati et al., 2020).
2. The Brawijaya University Library is implementing the Rector Decree No.135/SK/2012 on the establishment of organizational structure and personnel of their disability study and service centre. The availability of a building which is accessible is in place, but is not compliant with the IFLA Standards (Arumsari & Krismayani, 2018).
3. The Banjarnegara Regency Library provides access to users with disabilities to the library. But, the speed and alertness of the service staff in handling complaints does not meet the expectations of the users; (Handari, 2019),
4. The SLBN Pembina Yogyakarta Library provides special book collections with pop-ups, tactile pictures, and braille formats (Supriyatna & Dewi, 2019).
5. The Grhatama Pustaka Yogyakarta has braille and audio book collections, special computers for disabled visitors, and librarians who have the skills to serve and assist disabled users (Pratama, 2018).

Firnanda & Hertati (2024) highlighted the implementation of the Minister of Administrative Reform and Bureaucratic Reform Regulation Number 11/2024 concerning inclusive services for persons with disabilities at the East Java Library and Archive Office. The findings show that the Library and Archive Office has tried to provide inclusive services, some obstacles are still found such as the unavailability of adequate elevator facilities for visitors with limited mobility, the lack of use of subtitles on videos on Instagram makes it difficult for users with disabilities, including the operation of facilities in special reading rooms for disabilities. Policies, regulations, standards, guidelines, and previous research exist to support accessibility for all Indonesian citizens, including people with disabilities, in accessing library services. Accessibility still needs to be a major concern for all types of libraries. The IFLA standards and PERMENPAN RB Regulation Number 11 of 2024 can serve as key references for libraries in ensuring equitable accessibility for users with disabilities. In addition, it is essential to enhance the competencies of librarians and library staff by providing them with specific training to effectively serve users with special needs.

Mainstreaming Sign Language in Daily Life as Bottom-Up Movement

Looking at the condition of Indonesia from the point of view of library services, regulations used to, training for librarians, especially those related to the use of sign language is actually good enough. However, the things that should have supported the equality of services for people with disabilities feel separate and have not become an interrelated ecosystem. The top-

down approach describes the conditions in Indonesia since there are still libraries where librarians do not know the sign language.

An ecosystem that is fluid and leads from the bottom up is needed. Mainstreaming sign language is important as a bottom-up movement that involves stakeholders who play a role in mainstreaming sign language in the community, including librarians. Therefore, the between service delivery to the public and external communication gap does not occur.

The organization is apparently unable to fulfil the promises that have been communicated externally through various activities. The gap between public expectations and the reality of the services received exists since the public's expectations are not met (Agustina, 2019). In this case, it is the library with librarians and people with disabilities, especially the deaf community. They come to use the library but the librarians failed to give their optimum services since they do not know the sign language.

Mainstreaming sign language with librarians who are subject experts and are required to master the sign language still ties in with the concept of disability mainstreaming. UNRWA (2013) noted that disability mainstreaming is a process of assessing and addressing the possible impact of any planned action on the disabled. It is a way to promote inclusion and to address the barriers that exclude persons with disabilities from the equal enjoyment of their human rights.

Through education and training channels for librarians, promotion through social media about the use of sign language by librarians, cooperation between language institutes and libraries to teach the general public about certified sign language, and optimal implementation of the Indonesian legislation can ways to mainstream that is acceptable to today's society. An interesting thing situation took place when a sign language coffee shop was covered by one of the national television media. The staff and customers not only enjoy the coffee products but they also learn how to communicate using the sign language (MDTV OFFICIAL, 2019).

Coffee shops and libraries both sell products and have users. Coffee shops have coffee products that can be enjoyed, while libraries have services that can be provided to their users.

In today's fast-paced era, it should be relatively easy to make a mainstreaming. Utilizing social and viral media, an event will gain exposure. Especially with the arrival of the AI era that can now be applied to education, it can certainly be easily spread and taught. The specifications of sign language learners are also not only deaf people but also hearing people including librarians. The librarians' professional competencies are expected to include specialized subject knowledge that is appropriate and required by the organization; provide services to the users; develop and manage information services that are convenient, easy and inexpensive; provide guidance and support to service users; assess information needs and value information services and products that fulfil the needs; and continuously improve public information services as well as general information services in response to challenges and development (Daryono, 2019). It means that librarians are obliged to be proficient in using the sign language to support communication in order to fulfil the information needs of users from the deaf community with disabilities. As professionals, librarians are expected to drive developments that can support excellent library services.

Development for Inclusivity: Education and Technology in Deaf Children's Learning

Inclusive education is the right of every person, including the deaf children who are to be equally served in the learning process. The greatest hindrance for the deaf children is the limitation of communication and access to learning materials for their needs. Sign language, either SIBI or BISINDO, has a crucial role in filling the gap in communication.

Ufi et al. (2024) suggested creating web-based models for learning sign language, such as the application of the American Sign Language (ASL) for learning English, can enable greater accessibility for the deaf learners. From their study, it was established that the use of an interactive and adaptive model of learning is critical in addressing the needs of deaf children, since they enjoy visual-based learning. Inclusivity, accessibility, and visual orientation emerged as critical factors in creating effective learning materials for them.

As technology evolves, the majority of innovations are geared towards improving the effectiveness of learning the sign language, specifically through the application of image processing technology and artificial intelligence. Hadinata and Sanjaya (2023) examined the implementation of deep learning techniques, such as convolutional neural networks (CNN) and long short-term memory (LSTM) for the recognition of BISINDO. The application of such technology aims to facilitate communication for deaf individuals with the general public by recognizing gestures of sign language from images or videos.

Development of Digital Applications for Deaf Children

One of the notable innovations developed is the SIBI sign language dictionary application that combines text, sound, and video. Syamsuddin et al. (2023) developed this application to allow deaf students to learn the sign language more independently. The application allows users to view videos of sign language gestures with audio and text explanations to help them expand their sign language vocabulary and enhance their communication skills. Moreover, Andhika et al. (2023) introduced an application for sign language learning with the utilization of deep learning techniques to identify concrete objects via a smartphone camera. The new application is a more versatile approach than the use of flashcards since it provides the potential for ongoing updating of learning content without the necessity of specific physical objects. Through the technology, the learning process is rendered more interactive and can be adjusted according to the specific needs of each deaf learner.

The Significance of Sign Language in the Development of Deaf Children

Aside from being a means of communication, the sign language also serves a crucial function in the social and emotional growth of hearing-impaired children. According to Fitriyani et al. (2024), sign language use serves a significant function in facilitating the deaf children's interactions with other people and the environment around them. Better communication abilities allow these children to break down social barriers, lessen feelings of isolation, and enhance their self-esteem. Hence, effective sign language teaching becomes a vital element in enabling deaf children's academic and social development.

Challenges and Solutions in Deaf Education in Indonesia

While efforts have been made to enhance the deaf children's education in Indonesia, challenges still exist and must be addressed. One of them is that there are limited learning materials accessible to the deaf children. Hurlbut (2014) elaborated that Indonesia has two prevalent sign languages namely SIBI and BISINDO. These two distinctions point to the need to create educational materials that are able to tap into both systems, in addition to having a more open and versatile approach to deaf education.

As technology evolves, the utilization of artificial intelligence-based applications and systems provides a potential for increasing the accessibility of education to deaf children. Through technologies such as image recognition programs and video recognition of sign language, learning and teaching can be conducted more simply and interestingly. Moreover, these technologies are easily accessed via mobile phones, which are becoming more prevalent among deaf children.

CONCLUSION

The librarian is the main subject in contributing to the quality of a library, especially in terms of equality of service to people with disabilities. The diverse backgrounds of library users, which include the deaf community, require them to be able to communicate well in the sign language used by the deaf community. Regulations in Indonesia, sign language training for librarians, and previous studies that allude to how disability-friendly libraries are a means of promotion in echoing inclusiveness, when in reality there are still gaps and not optimal services in libraries for the deaf community.

The stuttering of Indonesian librarians is one of the things that must be criticized and improved for good service in the future. Despite this, the central library's librarians have done a good job of providing services in sign language for the deaf community. This means that equalization of this competence must be done by mainstreaming sign language competence for librarians in Indonesia. Recommendations for the future include integrating sign language skills as a core competency for all librarians, emphasizing the need for training programs and policy support to increase accessibility and inclusivity in library services.

REFERENCES

Agustina, E. (2019). Pelaksanaan pelayanan publik berkualitas bagi masyarakat. Literasi Hukum, 3(2). https://doi.org/10.31002/lh.v3i2.1977

Alamanda, F. (2023). Kompetensi Pustakawan dalam Melayani Pemustaka Tunarungu di Perpustakaan Nasional RI. UIN Syarifhidayatullah.

Andriani, D. A., Nurdin, N., & Dakhalan, A. M. (2023). Aksesibilitas Bagi Pemustaka Difabel di UPT Perpustakaan Universitas Tadulako. Inkunabula: Journal of Library Science and Islamic Information, 2(1), 36-46.

Andhika, H. F. R., Rante, H., Sukaridhoto, S., & A. Martianda, E. (2023). Indonesian Sign Language (SIBI) Learning Media Application Based on Deep Learning Technology for Deaf Children. Journal of Technology and Informatics (JoTI), 5(1), 41-47.

Arumsari, D., & Krismayani, I. (2018). Analisis aksesibilitas gedung Perpustakaan Universitas Brawijaya oleh mahasiswa difabel. Jurnal Ilmu Perpustakaan, 7(3), 201- 210.

Badan Pusat Statistik Indonesia. (2024). Jumlah Penduduk Pertengahan Tahun—Tabel Statistik. https://www.bps.go.id/id/statistics-table/2/MTk3NSMy/jumlah-penduduk-pertengahan-tahun--ribu-jiwa-.html

Daryono, D. (2019). Opini: kompetensi pustakawan berbasis Standar Kompetensi Kinerja Nasional Indonesia (SKKNI) di era perpustakaan digital. MADIKA: Media Informasi Dan Komunikasi Diklat Kepustakawanan, 5(1).

Direktorat SMP Kementerian Pendidikan Dasar dan Menengah. (2024). Mengenal Bahasa Isyarat di Indonesia: SIBI dan BISINDO - Direktorat SMP. https://ditsmp.dikdasmen.go.id/ragam-informasi/article/mengenal-bahasa-isyarat-di-indonesia-sibi-dan-bisindo

Farah, A., Agustiyawati, Rizki, A., Widiyanti, R., Wibowo, S., Tulalessy, C., Herawati, F., & Maryanti, T. (2022). Panduan Pendidikan Inklusif. Kepala Pusat Kurikulum dan Pembelajaran Badan Standar, Kurikulum, dan Asesmen Pendidikan Kementerian Pendidikan Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi. https://kurikulum.kemdikbud.go.id/wp- content/uploads/2022/08/Panduan-Pelaksanaan- Pendidikan-Inklusif.pdf

Firnanda, A. T. Z., & Hertati, D. (2024). Layanan perpustakaan inklusif bagi disabilitas pada Dinas Perpustakaan dan Kearsipan Provinsi Jawa Timur. Paradigma POLISTAAT: Jurnal Ilmu Sosial dan Ilmu Politik, 7(2), 68-82.

Fadilla, N., Anwar, R. K., Amar, S. C. D., & Rukmana, E. N. (2024). Peran pustakawan dalam literasi baca dantulisbagi anak penyandang disabilitas (tuna rungu) melalui database Google Scholar. Visi Pustaka. 26(2), 109-122.

Fitriyani, F., Ainii, L. Q., Jannah, R., & Maryam, S. (2024). Analysis of sign language skills in improving communication and learning for deaf children. Continuous Education: Journal of Science and Research, 5(1).

Gumelar, G., Hafiar, H., & Subekti, P. (2018). Konstruksi makna BISINDO sebagai budaya tuli bagi anggota gerkatin. Informasi, 48(1), 65-78. https://doi.org/10.21831/informasi.v48i1.17727

Handari, B. (2019). Aksesibilitas layanan perpustakaan bagi penyandang disabilitas di Kabupaten Banjarnegara: studi evaluasi kinerja Dinas Kearsipan dan Perpustakaan Kabupaten Banjarnegara Provinsi Jawa Tengah. Media Pustakawan, 26(2), 91-97.

Hadinata, F. I., & Sanjaya, S. A. (2023). BISINDO sign language recognition: A systematic literature review of deep learning techniques for image processing. Indonesian Journal of Computer Science, 12(6), 3281.

Holcomb, T. K. (2010). Deaf epistemology: The deaf way of knowing. American Annals of the Deaf, 154(5), 471–478. https://www.jstor.org/stable/10.2307/26235007

Hurlbut, H. M. (2014). The Signed Languages of Indonesia: An Enigma. SIL International.

Isma, S. T. (2012). Meneliti bahasa isyarat dalam perspektif variasi bahasa. Makalah disajikan dalam Kongres Bahasa Indonesia. Kementerian Pendidikan dan Kebudayaan Republik Indonesia. https://repositori.kemdikbud.go.id/9946/1/dokumen_makalah_1540468871.pdf

Kemenko PMK. (2023). Pemerintah Penuhi Hak Penyandang Disabilitas di Indonesia | Kementerian Koordinator Bidang Pembangunan Manusia dan Kebudayaan.

https://www.kemenkopmk.go.id/pemerintah-penuhi-hak-penyandang-disabilitas-di-indonesia

KumparanNEWS. (2017, Februari 13). Sebut Saja Kami Tuli. Kumparan. https://kumparan.com/kumparannews/sebut-saja-kami-tuli

Lane, H. (2002). Do deaf people have a disability? Sign Language Studies, 2(4), 356–379. https://doi.org/10.1353/sls.2002.0016

Lipschultz, H. (2010, December 9). Library services for the deaf and hard of hearing: An update on issues and accommodations.

MDTV OFFICIAL (Director). (2019, April 7). Halal Living - Menikmati Kopi Sambil Belajar Bahasa Isyarat di Kopi Tuli [Video recording]. https://www.youtube.com/watch?v=QFH-YFKcAPs

Mendikbudristek. (2009). Peraturan Menteri Pendidikan Nasional Republik Indonesia Nomor 70 Tahun 2009 tentang pendidikan inklusif bagi peserta didik yang memiliki kelainan dan memiliki potensi kecerdasan dan/atau bakat istimewa.

Mendikbudristek. (2022). Keputusan Menteri Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia Nomor 262/M/2022 tentang perubahan atas Keputusan Menteri Pendidikan, Kebudayaan, Riset, dan Teknologi Nomor 56/M/2022 tentang pedoman penerapan kurikulum dalam rangka pemulihan pembelajaran.

Nielsen, G. S., & Irvall, B. (2005). Access to Libraries for Disabled Persons Checklist: a practical tool. World Library and Information Congress: 71th IFLA General Conference and Council:Libraries - A Voyage of Discovery, 1-8. http://www.ifla.org/IV/ifla71/Programme.htm

Nurfadlilawati, Fauzan, M.R., Azizah, A.N., & Fatihah, T. (2020). Fasilitas bagi pemustaka disabilitas di perpustakaan universitas pendidikan Indonesia.

Peraturan Pemerintah Nomor 42 Tahun 2020 tentang Aksesibilitas Terhadap Permukiman, Pelayanan Publik, dan Pelindungan dari Bencana Bagi Penyandang Disabilitas. https://peraturan.bpk.go.id/Details/142301/pp-no-42-tahun-2020

Perpusnas RI. (2021). Program Pelatihan Bahasa Isyarat: Pusdiklat Perpustakaan Nasional Republik Indonesia. https://pusdiklat.perpusnas.go.id/berita/read/44/program-pelatihan-bahasa-isyarat

Pratama, A. B. (2019). Implementasi pemenuhan hak atas sarana prasarana yang aksesibel bagi penyandang disabilitas fisik di perpustakaan yogyakarta.

https://dspace.uii.ac.id/handle/123456789/13877

Pradikja, M. H., Herman, T., & Brata, K. C. (2018). Pengembangan aplikasi pembelajaran bahasa isyarat berbasis android tablet. Pengembangan Teknologi Informasi Dan Ilmu Komputer, 2, 8.

Rahmayani, A. A. (2020). Kajian literatur desain perpustakaan ramah disabilitas. Fihris: Jurnal Ilmu Perpustakaan dan Informasi, 15(1), 75-96.

Republik Indonesia. (1945). Undang-undang Dasar Negara Republik Indonesia Tahun 1945.

Republik Indonesia. (2003). Undang-undang Nomor 20 Tahun 2003 tentang Sistem Pendidikan Nasional.

Republik Indonesia. (2007). Undang-undang Nomor 43 tahun 2007 tentang perpustakaan

Republik Indonesia. (2016). Undang-undang Nomor 8 Tahun 2016 tentang Penyandang Disabilitas

Supriyatna, S., & Dewi, A. O. (2019). Analisis aksesibilitas layanan perpustakaan sekolah luar biasa negeri pembina Yogyakarta bagi siswa disabilitas. Jurnal Ilmu Perpustakaan, 7(1), 191-200.

Syamsuddin, S., Pristiwaluyo, T., Saleh, W. A., & Zulfitrah, Z. (2023). Development of Indonesian Sign Language System (SIBI) Dictionary Application for Students with Special Needs. Al-Ishlah: Jurnal Pendidikan, 15(3), 3132-3143.

Ufi, R., Yulian, R., & Sayidun Nisa Asy-Syifa. (2024). Uncovering the Needs for a Web-based Sign Language Model for Deaf Students with American Sign Language (ASL). Jurnal Pendidikan Indonesia, 13(3), 629-639.

UNRWA. (2013). Promoting the rights of persons with disabilities disability mainstreaming definition and implementation.

World Health Organization. (2013). Disability: Report by the Secretariat (A66/12). Sixty-Sixth World Health Assembly. https://apps.who.int/gb/ebwha/pdf_files/WHA66/A66_12-en.pdf

Sticker Storytelling: Unleash Your Imagination, One Peel at a Time!

Haizatul Afni Bakhtiar, Mohammad Shafri Mohamad Ros

Perlis State Public Library, Kangar, Perlis, Malaysia

Corresponding email: haizatul@pnm.gov.my

ABSTRACT

Storytelling is a powerful tool for engaging audiences and fostering creativity, particularly among children, including those with special needs (Program Pendidikan Khas Integrasi). This innovative approach incorporates stickers as visual aids to enhance narrative skills and stimulate imagination during storytelling sessions at the public library. By utilizing stickers, participants can create dynamic stories that blend art and language, encouraging them to express their thoughts in a fun and interactive manner. The activity aims to enable children who are not yet able to read and write to craft their own stories. Sticker Stories demonstrates how stickers can serve as prompts for storytelling, helping participants organize their ideas and develop plotlines within a minimum duration of five minutes. Through guided activities, children will learn to select and arrange stickers to represent characters, settings, and key events, enhancing their ability to narrate stories both verbally and visually. This integration of stickers makes storytelling accessible and enjoyable while nurturing critical thinking and collaborative skills as participants share their creations. Sticker Stories seeks to cultivate a love for storytelling, fostering creativity and communication skills, and making learning an engaging experience for all children, including those with learning difficulties. It can also be implemented for children aged three and above to expose them to new vocabulary and knowledge.

Keywords: Storytelling; Sticker; Storytelling Technique; Public Library; Program Pendidikan Khas Integrasi

INTRODUCTION

The history of the Perlis State Public Library Corporation dates back to 1966. During the first meeting on September 28, 1968, the committee agreed to establish a library by converting the Civil Defense room in the Old Court Building. Reading materials were obtained through donations from various parties, including private companies and individuals. After renovations, the building officially became a library on February 15, 1969, with a floor area of 3,600 square feet and a collection of 5,000 books. Over the years, the library's collection grew, and the establishment of the "Perlis State Public Library Corporation Enactment" was successfully drafted with assistance from the National Library, and it was officially gazetted on November 20, 1973. In 1977, the Board of Directors agreed to change the name from Public Library to State Library to standardize with other state library corporations. The new building for the Perlis State Public Library Corporation was completed in 1987, and its official opening was conducted by DYMM Tuanku Raja Perlis on September 20, 1988.

Library Reading Promotion Activities

The year 2024 marks the golden anniversary of the Perlis State Public Library Corporation in providing services to the community throughout the state. The library's users include individuals from all groups, such as infants and preschool children, primary and secondary school students, higher education students, civil servants, communities, families, and those with special needs. Therefore, the services and reading promotion activities cater to all these user groups. For example, the special needs group includes persons with disabilities senior citizens, single mothers, the homeless, and rehabilitation center residents. This demonstrates that libraries are for everyone, and no one is excluded from accessing library services.

As of October 2024, the Perlis State Public Library (2024) has recorded a total of 3,290 reading promotion activities, consisting of 1,596 physical activities and 1,694 online activities, contributing to a total of 304,415 participations across all library service networks in the state of Perlis.

Story Telling

Storytelling sessions are one of the activities conducted at the Perlis State Public Library. This activity is well-received by children, as they are actively involved in the story during the session, making the storytelling experience very engaging and lively. Forest as cited in Mohd. Gulam et al. (2013) stated that storytelling encourages students to become aware of their ability to express desires, articulate thoughts, and communicate feelings in a clear and organized manner. The author further added that there are various storytelling methods used by people from different nations and cultures around the world that can captivate the interest

of listeners, especially children. Some of the popular techniques include oral storytelling, storytelling using large books, puppetry, Kamishibai, and many others. The library staff use various techniques to diversify their storytelling sessions

Bacatong et al., (2022) also highlights the importance of providing children with additional support and exposure to engaging in conversations and expanding their vocabulary. Therefore, the initial findings from this activity support the statement from both researchers. In other hands, Robin et al. (2020) approach with the use of Didi & Friends songs as a method for teaching Malay vocabulary has a positive impact on both children and teachers' acceptance of the songs. Not only do the songs help enhance the emotional development of children, but they also support the mastery of vocabulary and effective language learning for Iban children who are non-native Malay speakers. Thang and Vu (2024), reported that students generally consider storytelling to be highly effective in improving vocabulary development and communication skills. On the other hand, Nurdiyanti et al. (2022), mentioned that storytelling is a medium of communication aimed at developing a child's personality through the absorption of knowledge conveyed to the child or audience. In addition, numerous past studies have shown that storytelling, as a rich oral tradition, is an effective tool for emotional healing and intervention (Brave Heart & DeBruyn, 1998; Bryant-Davis & Ocampo, 2006; Chioneso et al., 2020; Friskie (2020)

Sticker Story Telling

Sticker Storytelling is a new program, a fresh storytelling method for children especially children with special needs. This sticker storytelling initiative is still in its early stages. The idea to implement this program came from the author's own experience and the belief that this concept would be suitable for practice in libraries to diversify storytelling sessions for children. At that time, the author's child, who was over 2 years old, was very interested in stickers featuring various characters and figures. The child would stick the stickers anywhere, including on the body parts of family members. This led to the idea of creating a story based on these stickers, and the first successful story created together with the child was "The Hungry Dinosaur." The stickers used included a dinosaur, cactus plants, food, and dinosaur eggs. The mother and child worked together to place the stickers to create a story, and in this simple activity, a learning session took place as the child learned new vocabulary. In addition to the learning session, a bond between the mother, father, and child was formed through the collaborative effort of placing the stickers and working together to create an engaging story.

This storytelling activity using stickers also adapts the method of play while storytelling. Early childhood teaching and learning are more effective when conducted through play activities, as

play is an integral part of a child's world (Ali, 2011). Bacotang et al. (2022) stated that specific language and communication skills in children aged 3 to 4 years include non-verbal communication, such as facial expressions and body language, as well as verbal skills, which encompass listening and speaking abilities and Tohamba and Ukbayana. (2024) supported that he storytelling method can enhance language skills. Tan and Alias (2023) concluded that the storytelling method is one of the effective interventions for improving communication, social, emotional development, self-management, and behavior management in children with autism. Sekarini et al. (2023) stated that storytelling and playing with stacking blocks can help reduce anxiety in preschool children starting early education, but storytelling is more effective.

The sticker storytelling activity at the Perlis State Public Library focuses on children with special needs. This initiative provides an inclusive and enjoyable learning environment for children of all backgrounds. It allows them to express their creativity, develop communication skills, and boost their self-confidence through storytelling, with the support of library staff or teachers. The use of stickers as visual stimuli makes the activity more accessible and engaging, especially for children who may face challenges with conventional learning methods. Furthermore, this activity supports not only literacy development but also the social and emotional growth of children with special needs, making it a truly meaningful inclusive education effort. This activity is suitable to be implemented because it is easy, inexpensive, and requires a short period of time for its execution.

The Implementation

Sticker Storytelling, as a storytelling method, further enhances this skill by allowing students to creatively express themselves through visual aids, helping them organize their thoughts and ideas effectively. The method of carrying out this activity is very simple. The first step is preparing materials such as stickers and A4 paper. If there is a bigger budget, a notebook can be used, which can later be turned into a sticker scrapbook. The cost of preparing this activity is very affordable, for just RM2.60, a set of stickers containing four to six pieces with various patterns and shapes can be purchased. Each participant only needs one sticker.

The second step involves a brief explanation on how participants can create a sticker storytelling piece. Participants will examine the entire image on the chosen sticker and begin to draft a short story. The selected sticker is then pasted onto a sheet of paper or in a notebook and forms the basis of a story. For example, if the sticker is themed around food and drinks such as cake, juice, fruits, and so on, the participant can create a story about healthy eating. Likewise, if the sticker features a beach, sea, fish, and similar elements, a story about a vacation, picnic, or environmental care can be created.

After finishing their story by creatively arranging and pasting the sticker, participants can present their story to be heard by their friends or tell it to the teacher or facilitator. This activity is not only simple and straightforward, but it also brings out the participants' creativity while helping children build new vocabulary. It also trains children to communicate and develop their self-confidence in sharing stories with their teacher or peers. Zaniah Mohamed Isa et.al, (2024) stated that language and communication skills are essential elements that form the foundation of reading skills, and subsequently, a child's academic success. This is because there are children with special needs who are able to read and write. Their experience with such activities will serve as a motivation for them to succeed in their studies. This activity is suitable to be implemented since it is easy, inexpensive, and requires a short period of time for its execution. How it works?

1. Participants choose preferred sticker.
2. They create a storytelling while placing a sticker wherever they decide in a piece of paper or books.
3. Share the stories with others.

Program/Activity

1. Train of Trainers (ToT)

To ensure the smooth implementation of this activity, two sessions were conducted involving 15 library staff members. They represented five service zones in the state of Perlis. During these sessions, participants were exposed to the methods of conducting the activity, including selecting appropriate stickers, carrying out the activity, and conducting evaluations. Each participant will serve as a representative for their zone to train other library staff members.

2. Activity Session

A total of five sessions were conducted, involving 267 participants aged 6-18 years old. Sticker storytelling sessions with typically developing children were also conducted. These two types of sessions were carried out to observe the differences in how the activity was received by the two target groups. Based on the observations made, children with special needs also demonstrated creativity in storytelling using stickers, just like other children. For example, one child with special needs, who had difficulty with memory or recall skills, requested permission to write down their storyline. Some were even able to create more than one story using the same set of stickers. The group of children with special needs

who participated in this activity included those with hearing impairments, speech impairments, and learning disabilities. Most of the participants fell under the learning disability category, including children who are slow learners, those with Down Syndrome, as well as hypoactive and hyperactive children. Children with Down Syndrome required more assistance from teachers and library staff to carry out the activities.

Comparison

The author also conducted an online review of sticker storytelling activities and discovered three similar approaches. The first is from Ransen (2013), who came up with the idea of creating sticker scenes by drawing a simple background and allowing her daughter to place the stickers wherever she liked. The result is that by annotating these scenes with the exact words spoken by the child, it becomes an easy and meaningful way to document language development and highlight early storytelling skills.

The second example is from Adrianne (2013), who used stickers within a playset. She prepared paper for the activity, allowing her child to create their own stories based on the stickers they had chosen. The themes and the way children placed the stickers emphasized problem-solving skills and creativity. The third is from James (2014) noted that a sticker story set is simple to assemble. She used a box from her craft supplies and filled it with folded paper or card to make small books, some stickers, and a pot of pencils for drawing and writing. Stickers are excellent for sparking story ideas, especially when they feature the child's favourite things. Peeling the stickers also helps develop fine motor skills. Small books are less intimidating than a blank page, and by adding drawings with just a few sentences, children can enjoy the process without feeling overwhelmed

In addition, Sarah (2019). After placing stickers on their paper, students enhance their scenes by drawing additional elements around the stickers. They begin by selecting their own stickers and constructing a visual narrative. Following this, they write about the scene they have created. Early in the school year, most students produce simple sentences such as "I see a cat" or "The cat has a ball." At this stage, educators are encouraged to guide students in expanding their descriptions and developing more detailed narratives. This activity supports future writing development and serves as a valuable tool for shared writing exercises. Additionally, it is especially beneficial for students who struggle to generate ideas, as it offers a clear visual prompt to help overcome writer's block.

The author believes that there are many other sticker-based concepts used in storytelling sessions. The findings from the above review indicate that although the methods of

implementation differ, they all share a common objective. The sticker storytelling activity conducted at the Perlis State Public Library is somewhat distinct in its focus on children with special needs. Its main objective is to provide an inclusive and enjoyable learning environment that supports the development of communication skills, emotional growth, and self-confidence through visual and interactive activities. This activity emphasizes the role of stickers as visual stimuli and tools to help children express their ideas freely, with the support of teachers or facilitators.

Feedback

Md. Yazid Bin Muji (2018) outlined that one of the key benefits of feedback is its role in enhancing the quality of services within a department or organization. Feedback allows departments to improve the services they offer to clients. In addition, it provides an opportunity for clients to share ideas or knowledge, enabling the adoption and dissemination of best practices within the department. Furthermore, feedback helps to establish networks and relationships, which can facilitate future processes and collaborations.

1. Teacher's feedback

Throughout the implementation of the activity, we received positive feedback from teachers. Among the key responses were the development of new ideas for engaging activities with children, and the enhancement of children's socio-emotional well-being — with children expressing joy at being treated with kindness and attention during the activity. The children showed clear enjoyment while participating. Furthermore, teachers noted that the activity helped build the children's self-confidence. For example, some children voluntarily offered to present their stories in front of the class, demonstrating increased confidence and improved communication skills.

2. Children's feedback

In addition, during the activities, the library staff also took the opportunity to chat with the children about the activities being carried out. The questions asked were simple, such as 'Did you enjoy this activity?' and 'How do you feel?' Most of the children felt happy with the activity, excited by the storytelling-with-stickers concept, and were eager to present their work (competing to be the presenter).

As the initiators of this activity, the library staff were very satisfied with the feedback received. The response from both teachers and students was very encouraging. Nevertheless, the library

staff continue to strive to improve the quality of the activities so that they do not become boring for the children and to further enhance their creativity

Impact

The short-term impact observed during the Sticker Storytelling activity with children includes the development and enrichment of their vocabulary. In addition, the activity helped boost the children's self-confidence, while they were initially shy, they eventually gained the confidence to present their work. It also fostered creativity among the children, surprising us with their ability to craft interesting and engaging stories. For the library, this program demonstrated its commitment to inclusivity, supporting self-directed learning and exploration, as well as building emotional and social skills among participants.

SUGGESTIONS FOR IMPROVEMENT

From several training sessions and activities that have been carried out, a few suggestions for improvement have been listed to ensure that this activity can have a greater impact. Additionally, these suggestions are also important to ensure that the activity can be carried out continuously and expanded more effectively.

The first is training for library staff. This step is important to ensure that library staff are constantly exposed to the latest concepts or techniques. Additionally, training on how to communicate with children with special needs can help in understanding the needs of these children. Secondly, holding activity sessions more frequently. This will allow more children with special needs to benefit from this activity. Moreover, involving parents could also be implemented to share storytelling techniques that can be practiced at home, while also strengthening family bonds in the learning process of children.

Lastly, involving collaboration with other institutions. Cooperation with special education centers or non-governmental organizations (NGOs) that focus on children with special needs can further enrich the content and approach of the activity. Furthermore, financial support can help make the activity better and more engaging.

CONCLUSION

The Sticker Storytelling activity provides an opportunity for library staff to explore new knowledge and share it with all library users. It is evident that this activity has trained several

other staff members to get involved in the sessions with children. Additionally, this activity allows library staff to understand and gain insight into the needs of children with special needs and how to manage them, especially in terms of their emotions. This knowledge is not formally taught but can be learned in the field. Furthermore, library staffs also have the opportunity to share knowledge with special education teachers about student management, appropriate activities to be implemented, and more.

ACKNOWLEDGEMENTS

The Perlis State Public Library would like to express its gratitude to all parties who have contributed to implementing this program at the school or library level, as well as to all those who have supported it, either directly or indirectly. The Perlis State Public Library welcomes any suggestions for the improvement of services in the state of Perlis.

REFERENCES

Adrianne. (2013). Sticker stories (for Little Kids with Big Imaginations). Happy Hour Projects. https://happyhourprojects.com/sticker-stories-for-little-kids-with-big-imaginations/

Ali, Aliza. (2011). Pendekatan bermain dalam pengajaran dan bahasa dan literasi bagi pendidikan prasekolah. 1. 1-15.

Bacotang, J., Abdul Latif, A., Mohd Nor, N. D., Md. Yasin, S. F., Ompok, C. S. @ C. C., Taat, M. S., Sukor, N. S., & Idang, J. (2022). Interkorelasi konstruk bagi kemahiran Literasi Awal Kanak-Kanak. PENDETA, 13(1), 70-83. https://doi.org/10.37134/pendeta.vol13.1.7.2022

Brave Heart M. Y. H., & DeBruyn L. (1998). The American Indian holocaust: Healing historical unresolved grief. American Indian and Alaska Native Mental Health Research, 8(2), 60-82

Bryant-Davis T., & Ocampo C. (2006). A therapeutic approach to the treatment of racist-incident-based trauma. Journal of Emotional Abuse, 6(4), 1-22.

Dewi, I. K., & Haryati, E., & Chandra, A. (2023). Story Telling dan Pembentukan Karakter Anak Usia Dini. Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini. 7. 5531-5538. DOI: https://doi.org/10.31004/obsesi.v7i5.5162

Fatchurahman Mohammad, Setiawan Muhammad Andi, Karyanti Karyanti. (2021). The Development of Group Healing Storytelling Model in Multicultural Counselling Services in Indonesian Schools: Examination Of Disciplinary Cases // Образование и наука. №4. URL: https://cyberleninka.ru/article/n/the-development-of-group-healing-storytelling-model-in-multicultural-counselling-services-in-indonesian-schools-examination-of (дата обращения: 26.11.2024).

Friskie, S. M. (2020). The healing power of storytelling: Finding identity through narrative. The Arbutus Review (TAR), 11(1), 19-27.

Haris, H., & Khairuddin, K. F. (2021). Pelaksanaan pedagogi inklusif bagi murid berkeperluan khas masalah pembelajaran. Malaysian Journal of Social Sciences and Humanities, 6(2), 197-210. https://doi.org/10.47405/mjssh.v6i2.666

Md. Yazid Bin Muji. (2018). Kepentingan memberi maklumbalas/respon pada pelanggan. Diakses

https://beritappm.wordpress.com/2018/01/11/kepentingan-memberi-maklumbalas-respon-pada-pelanggan/

Miswartiningsi, J. N. (2022). Storytelling untuk mengurangi perilaku agresi pada anak. Procedia: Studi Kasus Dan Intervensi Psikologi, 10(3), 93-97. https://doi.org/10.22219/procedia.v10i3.19220

Mohamed Isa, Z., Che Mustafa, M., Shamsudin, I. D., Bacotang, J., & Piragasam, G. A. G. (2021). Aktiviti sokongan bagi perkembangan bahasa dan komunikasi kanak-kanak: Support activities for development of child language and communication. Jurnal Pendidikan Awal Kanak-Kanak Kebangsaan, 10(2), 27–34. https://doi.org/10.37134/jpak.vol10.2.3.2021

Nasir, S. N. A., & Halim, H. A. (2023). Aplikasi buku cerita teladan haiwan sebagai sastera kanak-kanak dalam pemerolehan bahasa pertama murid attention deficit hyperactivity disorder. Jurnal Pertanika MAHAWANGSA, 10(2), 83-98.

Nurdiyanti, Y., Prasetyo, E. B., Muaz, Hasanah, A., & Arifin, B. (2022). Model Pengelolaan Pendidikan Karakter Di Rumah Qur'an Aisyah Radiyallahun'anha. AL-ASASIYYA: Journal Of Basic Education, 6(2), 139-157. doi:https://doi.org/10.24269/ajbe.v6i2.5397

Ranson, A. (2011). Sticker storytelling. The Imagination Tree. https://theimaginationtree.com/sticker-storytelling/

Robin, P. A., Hamzah, M., & Pandang, M. (2020). Penguasaan kosa kata Bahasa Melayu kanak-kanak Iban melalui lagu Didi & Friends: Mastery of Malay language vocabulary by Iban children through Didi & Friends songs. Jurnal Pendidikan Awal Kanak-Kanak Kebangsaan, 9, 41-51. https://ejournal.upsi.edu.my/index.php/JPAK/article/view/4536

Sarah. (2019, September 4). Sticker story freebie- A favorite center among students. Sarah's Teaching Snippets. https://sarahsnippets.com/sticker-story-freebie-favorite-center/

Sekarini, S., Galleryzki, A., Miranda, I., & Lestari, D. (2023). Story telling and playing stacking blocks effective in reducing children anxiety in early childhood education. South Asian Research Journal of Nursing and Healthcare, 5, 61-64.

DOI: 10.36346/sarjnhc.2023.v05i05.001

Tan, L. W., & Alias, A. (2023). Penggunaan Kaedah Bercerita Sebagai Intervensi Anak yang Mengalami Autisme dalam kalangan Ibu Bapa. Malaysian Journal of Social Sciences and Humanities (MJSSH), 8(3), e002150. https://doi.org/10.47405/mjssh.v8i3.2150

Tohamba, C. P. P., & Ukbayana, U. (2024). Meningkatkan kemampuan berbahasa anak melalui metode bercerita. Dharma Acariya Nusantara: Jurnal Pendidikan, Bahasa Dan Budaya, 2(2), 255-269.

Implementation of the Gema Arca Program in Growing Community Literacy in Klungkung Regency, Bali

Richard Togaranta Ginting[1], Grimonia Alena Callysta[1], Ni Putu Melati Widya Putri[2]

[1]Udayana University, Bali, Indonesia
[2]Ministry of Agriculture, Denpasar, Indonesia

Correspondence e-mail: richardtogaranta@unud.ac.id

ABSTRACT

The Gema Arca program is an innovative initiative launched by the Klungkung Regency Archives and Library Service to enhance literacy among local communities. By offering a range of creative and interactive activities, the program aims to cultivate a sustainable and engaging reading culture. This study adopts a descriptive qualitative method, collecting data through literature review, observation, and documentation. Findings indicate that Gema Arca plays a crucial role in promoting literacy through inclusive outreach and accessible reading resources. Designed as a strategic effort to strengthen reading habits and raise literacy awareness, especially in areas with limited access to information. The program fosters an inclusive learning environment and empowers communities with improved literacy skills.

Keywords: Library Innovation; Role Of Library Role; Public Library; Literacy; Community Development

BACKGROUND

The literacy campaign is a series of activities designed to increase awareness, interest and literacy skills among the community. However, in various regions, including Klungkung Regency, access to literacy, including interest in reading, is a challenge that requires special attention. Low literacy levels can have an impact on limited people's insight and skills. The Klungkung Regency Archives and Library Service already has adequate facilities to foster literacy and interest in reading in the community, but these efforts alone are not sufficient to

foster literacy and reading interest. Based on the data collected, the number of community literacy development indexes in 2023/2024 for Klungkung Regency is still at 61.0700 (Source bali.bps.go.id) when compared with the literacy index in Badung Regency, thus the Gema Arca program emerged as an effort to increase literacy and arouse public interest in reading activities. This program was created by the Klungkung Regency Archives and Library Service specifically to provide wider access to reading and attract the public's attention with a creative and inclusive approach. By providing a variety of reading materials and interactive literacy activities, it is hoped that Gema Arca can be a solution in creating a society that is more information literate and has good reading habits. With this program, it is hoped that society's literacy level can continue to increase, so as to create a generation that is more critical, intelligent and ready to face global challenges in the future. Based on the phenomenon that has been described, the author is interested in researching the Gema Arca Program in the Archives and Library Service.

PROBLEM FORMULATION

How to Implement of The Gema Arca Program in Growing Community Literacy in The Klungkung Regency, Bali?

INFORMATION LITERACY CAMPAIGN

Efforts to increase reading literacy in libraries have significant short-term and long-term impacts. Increasing critical thinking capacity in society allows individuals to analyze information better and make more informed decisions. Additionally, an inclusive approach to literacy helps shape a more tolerant generation, reduces prejudice, and increases understanding of diverse cultures. To increase public understanding of the importance of information literacy, it is necessary to organize various methods or activities aimed at socializing information literacy activities. Information literacy is an essential skill in the current digital era, where information is available in large quantities and easily accessible, but not always reliable. Society is vulnerable to the spread of misinformation or hoaxes, which can have a negative impact on various aspects of life. Based on Ramadhan's opinion " They consider that information must be conveyed immediately because it is useful for other people" (Ramadhan, 2017, p. 1). Another opinion expressed by Catts and Lau (2008, p. 12), "an information literate society is a society that can realize that they need, obtain, and evaluate the quality of information". This is different from the opinion which states that: Information literacy is information needed by someone that can be identified, accessed, found, evaluated, and used effectively and ethically. ALA (1989, h. 1), and further according to Sulistyo Basuki (2018:430-431) information literacy is the ability to interact appropriately with information, such as formulating information needs, gaining access to needed information and evaluating

effectively using information and distributing it in accordance with ethical and legal provisions. The Information Literacy Campaign is not just a short-term initiative, but an ongoing movement that requires support from all parties. In the midst of the rapid flow of information that continues to flow every second, the ability to sort and understand accurate information becomes very important. By continuing to improve information literacy, we can form a society that is more critical, intelligent and responsive to the issues around it.

INFORMATION LITERACY PROGRAM IN LIBRARIES

Information literacy is very important in the current era of digitalization, where information is increasingly abundant and very broad, this information also has difficulty accessing and its credibility is assessed. Connor and Newby (2011) concluded that by identifying information needs and understanding the basis of search, you have obtained a strong basis for collecting, filtering, sorting and consolidation processes. Mackenzie in the IFLA Information Literacy Section (2006) also states that an information literate person is "someone who is capable of three things, namely, searching for information, interpreting information, and creating new ideas". The Information Literacy Program in libraries is a systematic way to equip library visitors with the skills needed to search for, evaluate and use information effectively. The American Library Association defines the concept of information literacy as, “To be information literate requires a set of skills. These include how to locate and use information needed for problem-solving and decision-making efficiently and effectively”. Someone who is considered to have information skills requires an ability called information literacy. This ability includes a person's way of searching for and utilizing the information needed to help solve problems and make decisions effectively and efficiently. The literacy program is used to foster literacy and interest in reading among the public, where the hope is to create a generation that is more fond of reading, critical and information literate. Through this program, it is hoped that people will also be able to utilize information effectively for self-development, education and daily life. Apart from that, the literacy program also aims to build sustainable reading habits, which can encourage improvements in quality of life and competitiveness in facing the challenges of the times.

GEMA ARCA PROGRAM

The Community Movement that Loves Reading (Gema Arca) is one of the programs created by the Klungkung Regency Archives and Library Service to foster literacy and interest in reading in the community. Good literacy enables people to engage in lifelong learning, think critically, and contribute productively to their communities (Nutbeam, 2000). According to UNESCO (2006), "literacy skills in a society are closely related to increasing welfare and social

development". Gema Arca is expected to be able to answer this need by building a reading culture in society and improving literacy skills widely

TYPES OF RESEARCH

The method used in this research is a descriptive qualitative approach where data is collected through literature studies and related reading materials as well as observation and documentation. This approach aims to gain a deep understanding of the phenomenon being studied. Through this method, you can also dig up detailed and in-depth information about the Gema Arca program.

PROFILE OF THE KLUNGKUNG REGENCY ARCHIVES AND LIBRARY SERVICE

The Klungkung Regency Archives and Library Service is the agency that manages the Library Archives sector in and is responsible to the Regent of Klungkung and is tasked with assisting the Regent in administering the Government in the field of Development, Arrangement, Service and Maintenance of Regional Archives and Libraries and functions as a vehicle for education, training, information preservation and recreation to increase the intelligence and empowerment of the community. The main tasks and functions of the Klungkung Regency Archives and Library Service are to emphasize services to increase people's interest in reading, with the aim of building intelligent and creative human resources (HR). Considering the geographical conditions of Klungkung Regency, which mostly consists of island areas, this service is required to be able to reach all levels of society evenly, both in the city area and in other island areas such as Nusa Penida, Lembongan and Ceningan.

In 2022, the Klungkung Regency Archives and Library Service will build a special service building which will function as a service building for the Klungkung Regency Regional Library. Which was inaugurated by the Regent of Klungkung I Nyoman Suwirta, along with the Director of the National Library of the Republic of Indonesia, Syarif Bando, in February 2023. This Service Building occupies an area of 1,000 square meters, this library has facilities that can be utilized by its users. They have a collection of 10,635 titles, 19,192 copies with a library membership of 685 people and user visits reaching 14,733 people.



Figure 1: Klungkung Regency Archives and Library Service building

GEMA ARCA PROGRAM

The Community Movement that Loves Reading (Gema Arca) is one of the programs created by the Klungkung Regency Archives and Library Service to foster literacy and interest in reading in the community. According to (Nutbeam, 2000), good literacy allows people to engage in lifelong learning, think critically, and contribute productively to their communities. Literacy also includes practices and social relationships related to knowledge, language and culture (Silvana & Setiani, 2018). Gema Arca is expected to be able to answer this need by building a reading culture in society and improving literacy skills broadly.

The Gema Arca Program has various direct library services, including:

Cross Service

Cross-service is a form of library service that aims to provide various resources between libraries connected in a network based on the principle of cooperation. This service allows libraries to borrow collections, access various information or provide technical support to meet the needs of users.

Office Literacy Center (WIKAN)

The service is a collaborative program between the Klungkung Regency Archives and Library Service and various agencies to support literacy development in the work environment. In this program, the Klungkung Regency Archives and Library Service provide a collection of library materials in special places at participating government agencies, so that they can be used by employees or staff as well as visitors to the agencies to read on site or borrow. This program is

designed to keep library collections fresh and relevant to reading needs, because once a month the collection will be replaced with new library materials.



Figure 2: Activities when providing collections at the Population and Civil Registration Service

Literacy in Places and Culinary Tourism (LITAKU)

The LITAKU service is a program initiated by the Klungkung Regency Archives and Library Service by establishing several culinary tourism destinations in the Klungkung Regency area. Through this program, the Archives and Library Service provide collections that are selected and placed attractively at tourist locations or culinary spots. This initiative aims to create a more inclusive literacy space outside the library environment and foster interest in reading among people from various levels, including local tourists and visitors. By presenting an interesting and relevant reading collection, this program is expected to combine recreational experiences with literacy culture.



Figure 3: Reading activities at the Pengganggon Laklak Culinary Place

Lapak (educational play equipment service for underprivileged children)

During the COVID-19 pandemic, the Klungkung Regency Archives and Library Service launched an innovative one which was carried out in collaboration with the Klungkung Regency Social, Women's Empowerment and Child Protection Service. This program aims to obtain data on children from underprivileged families, who are then selected to receive educational game tools. These tools are expected by children to develop their skills, as well as educational support in difficult times.



Figure 4: Providing educational games

Home delivery literacy service (PINTER)
The community have access to reading materials without having to leave thehouse.

This service is specifically intended for people who are registered as library members. Members only need to contact the library service officer to convey their information needs or desired book titles. If the collection is available, the books will be delivered directly to the borrower's home address by library staff. This program offers a practical solution for maintaining continuity of literacy during the pandemic, but also a concrete form of the library's commitment to supporting efforts to limit community mobility to prevent the spread of the virus



Figure 4: Literacy services between homes

Applied Library Towards a Prosperous Klungkung (PUSPA MUNGGAH)
This is an innovative program designed to support the application of applied science-based literacy through the use of special library materials. This program is carried out by providing a collection of library materials that focus on applied science, as well as providing guidance, cooperation and training to the community. The main aim of this service is to encourage people to apply the practical knowledge gained to create new business opportunities, open jobs and increase income.

Mobile Library Service

The mobile library service is one of the services provided by the Klungkung Regency Archives and Library Service, with the aim of bringing library access closer to the community through the use of land vehicles, namely cars, which have been modified to be used to get around. This service is designed to bring reading materials to various locations on a rotating basis, so that people can enjoy direct access to reading locations without needing to come to the library building. This service operates according to a predetermined schedule, and the service is carried out directly at the scheduled location. In this concept, reading materials are not lent out to be taken home, but can only be read on site as long as a mobile library exists at that location.



Figure 4: Mobile Library activities at SD N 2 Getakan

Thus, this service aims to expand literacy reach to various communities, especially in areas that are difficult to reach or do not have permanent library facilities.

CHALLENGES OF THE GEMA ARCA PROGRAM IN GROWING COMMUNITY LITERACY

The Gema Arca program faces several challenges in increasing literacy in the community. First, the lack of promotion and effective socialization means that this program is not yet widely known by the wider community. This causes the level of community participation in Gema Arca activities to remain low so that the expected impact is not yet optimal. Second, there are limited supporting infrastructure, such as a diverse collection of reading materials. Third, limited resources in implementing the program. Fourth, budget limitations, limited budget

support is one of the main obstacles. Insufficient budgets limit the program's ability to expand its reach, increase library collections, and carry out literacy activities on an ongoing basis.

CONCLUSION

The Gema Arca program is a strategic initiative from the Klungkung Regency Archives and Library Service to increase community literacy through an inclusive and diverse approach. This program not only focuses on reading materials but also involves the community in various literacy activities. In this program there are many services designed to increase literacy in the community. However, this program also has challenges, such as limited promotion, supporting infrastructure and lack of budget. Based on the research above, researchers can provide the following suggestions: Seeing the various challenges contained in this program, it is hoped that they can use and utilize social media such as Instagram, TikTok and others, as a place for promotions by creating interesting content in them. In limited resources, it can be recommended to recruit volunteers from among students, teachers or the literacy community to help implement the program.

ACKNOWLEDGEMENTS

We would like to thank all parties who helped in the completion of this research paper. We would like to thank the Institute for Research and Community Service of Udayana University, Library and Archives of Klungkung Regency, Bali. We would also like to thank the committee of CONSAL XIX Malaysia who gave us the opportunity to present our paper at the prestigious library conference in Southeast Asia.

REFERENCES

Anisti, A. (2018). Kampanye Literasi Media (Studi Pada Masyarakat Paseban Kecamatan Senen Jakarta Pusat). Jurnal Abdimas BSI: Jurnal Pengabdian Kepada Masyarakat, 1(1), 112–120.

Badan Pusat Statistik Provinsi Bali. (2023). Indeks Pembangunan Literasi Masyarakat dan Unsur Penyusunnya Menurut Kabupaten/Kota di Provinsi Bali, 2023. Badan Pusat Statistik Provinsi Bali.

Bali Berkarya. (2016). Klungkung Gencarkan Program Gema Arca Tingkatkan IPM. Baliberkarya.

Batubara, A. (2015). Literasi informasi di perpustakaan. Jurnal Iqra', 09(01), 43–56.

Bella, Z. I. B. A., Sriwijayanti, R. P., & Qomariyah, R. S. (2023). Implementasi gerakan literasi sekolah dalam meningkatkan minat baca peserta didik di SDN Mangunharjo I Kota Probolinggo. Pedagogy: Jurnal Ilmiah Ilmu Pendidikan, 10(2), 38-47.

Dani, R. W., Rukmana, C., Vlora, R. K., & Fitri, E. (2024). Literasi Informasi dalam Pembayaran Zakat Digital Melalui Aplikasi KitaBisa di Desa Payakabung, Indralaya Utara, Ogan Ilir. Welfare: Jurnal Pengabdian Masyarakat, 2(1), 137-142.

Ekayani, N. L., & Suwedawati, G. A. K. A. (2023). Implementation of the school literacy movement (GLS) in growing reading interest of the students. International Journal of Multidisciplinary Sciences, 1(2), 205-217.

Ginting, R. T., Santoso, S. P., & Samosir, F. (2022, August). Marjinalization Information Literacy of Community Nusa Penida, Klungkung Regency, Bali. In BIC 2021: Proceedings of the 6th Batusangkar International Conference, BIC 2021, 11-12 October, 2021, Batusangkar-West Sumatra, Indonesia (p. 459). European Alliance for Innovation.

Harahap, M. H., Hasibuan, N. I., Nugrahaningsih, R. H. D., & Aziz, A. C. K. (2017). pengembangan program literasi sekolah untuk meningkatkan kualitas pendidikan dasar tingkat sekolah menengah pertama negeri di Kota Medan. Jurnal Pembangunan Perkotaan, 5(2), 115-128.

Hobbs, R., Moen, M., Tang, R., & Steager, P. (2022). Measuring the implementation of media literacy statewide: a validation study. Educational Media International, 59(3), 189-208.

Marwan, A., Harahap, R. H., & Ridho, H. (2024). Local literacy initiatives program as a means of improving communities' literacy in Indonesia. Research Journal in Advanced Humanities, 5(2).

Nur'aeni, R., Nurhayati, S., & Ansori, A. (2023). Enhancing community literacy through community engagement strategy: A descriptive study in community reading park. Empowerment: Jurnal Ilmiah Program Studi Pendidikan Luar Sekolah, 12(2), 112-122.

Peck, W. C., Flower, L., & Higgins, L. (1995). Community literacy. College Composition & Communication, 46(2), 199-222.

Rahayu, L., Anggraeni, R. K., Sumiati, O., Makariam, L., & Permatasari, R. B. (2014). Layanan perpustakaan (Edisi 1, 3 SKS, Modul 1-9). Tangerang Selatan: Universitas Terbuka

Silvana, H., & Setiani, S. (2018). Peran guru pustakawan dalam peningkatan minat baca siswa pada program literasi informasi. Edutech, 17(2), 215. https://doi.org/10.17509/e.v17i2.14101

Sudarsana, U. (2014). Pembinaan minat baca (Edisi 1, 3 SKS, Modul 1-9). Tangerang Selatan: Universitas Terbuka.

Sumanti, D. A., & Fauziah, K. (2018). Implementasi literasi informasi dalam pemenuhan kebutuhan informasi pemustaka di perpustakaan Kementerian Pendidikan dan Kebudayaan. Jurnal Ilmu Informasi, Perpustakaan, Dan Kearsipan, 19(2). https://doi.org/10.7454/jipk.v19i2.121

Empowering Education for Indigenous People at Chenan Cherah, Cameron Highlands: A Case Study from Tuanku Bainun Library

Firdausiah Ahamad[1], Muliati Samad[1], Muhammad Fazlie Nordin[2], Anuar Ali[3]

[1]Universiti Pendidikan Sultan Idris, Tanjong Malim, Perak, Malaysia

[2] Cameron Highlands District & Land Office, Tanah Rata, Cameron Highlands, Pahang

[3]Faculty of Communication and Media Studies,

Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia

Corresponding author's email: firdausiah@upsi.edu.my

ABSTRACT

Academic libraries are vital in supporting teaching, learning, and research in higher education institutions for students and faculty. However, the academic libraries serve not only students and faculty but also provide equal access and resources to the community. Therefore, the Tuanku Bainun Library, Universiti Pendidikan Sultan Idris (UPSI) worked together with the Cameron Highlands District & Land Office and Universiti Teknologi MARA to create meaningful partnerships to address the needs of education for Indigenous people of Chenan Cherah, Cameron Highlands, Pahang. By aligning this partnership's resources and expertise, this paper aims to share the experiences and initiatives by fulfilling the community's needs and equipping them with infrastructure to bridge accessibility gaps and support diverse user communities. Community engagement for this project includes providing a new building for the library, developing the library collection, conducting English classes, and organizing activities and events. Our mission is to foster long-term benefits for the community by ensuring every individual we serve has equal opportunities and no one is left behind. This initiative will explore the transformative journey of libraries to embrace empowerment and emphasize their vital role in nurturing inclusivity within the community.

Keywords: Indigenous People; Marginalized Community; Equal Opportunity; Community Engagement; Collaboration

INTRODUCTION

The term Indigenous people of Malaysia refer to the "Orang Asli," who are mostly widespread in the states of Peninsular Malaysia. This group is marginalized and impoverished not only in Malaysia but also globally. Indigenous people are recognized as among the most vulnerable, disadvantaged, and marginalized communities in the world (United Nations, 2021). As stated by (Nabilah Ismail et al., 2024), indigenous people's lifestyle has been closely related to nature, where the forest is their primary source of income and economic activities. They have unique belief and knowledge systems and vital expertise in sustainable natural resource management strategies (Salim et al., 2023).

In Malaysia, the government organization tasked with ensuring indigenous peoples' welfare and job opportunities is called the Department for Orang Asli Development (JAKOA) under the Ministry of Rural Development. Indigenous people in Malaysia are divided into three main ethnic groups that are The Negritos, Proto-Malays, and Senois, based on their physical form, language, culture, customs, and economic functions (Government of Malaysia, 2023). These three groups are divided into eighteen smaller ethnic groups. The Negritos are composed of the ethnic, namely Kensiu, Kintaq, Jahai, Mendriq, Bateq and Lanoh. The Proto-Malays are composed of the ethnic Temuan, Jakun, Semelai, Orang Kuala, Orang Seletar, and Orang Kanaq (Ramli, 2020). Meanwhile, the Senois are composed of the ethnic Semoq Beri, Temiar, Semai, Jahut, Che Wong, and Mahmeri.

According to the latest figures for 2020, the Indigenous population throughout Malaysia is approximately 206,777 people (Department of Statistics Malaysia (DOSM)). Despite the increasing number of this population, Indigenous people in education are far behind compared to other races. Many are still missing out on education due to various constraints and obstacles to obtaining proper education in the country (Marzuki et al., 2014). This is parallel to the study by Ghani (2015), which found that many parents have low awareness of the importance of education and lack access to quality education. Thus, this paper highlights the collaborative initiatives undertaken by Tuanku Bainun Library (PTB), Universiti Pendidikan Sultan Idris (UPSI), the Cameron Highlands District and Land Office, and Universiti Teknologi MARA in addressing the needs of the Chenan Cherah community to support and provide equal access to educational resources and ensuring that no Malaysian is left behind.

LITERATURE REVIEW

Education is vital in empowering Indigenous people, fostering cultural preservation, and promoting socio-economic advancement. Numerous studies have been done to discuss Indigenous people's education, and it remains one of the key agendas in enhancing the quality

of national education. In addition, the Malaysian government has implemented several initiatives and efforts to improve Indigenous people's education through Malaysia Education Blueprint 2013-2025 to increase enrolment and attendance among Indigenous students and ensure they receive quality education relevant to their needs.

However, many studies have shown that Indigenous people have a low level of education (Abdullah & Primus, 2021; Abu Kassim & Adnan, 2005; Adnan & Saad, 2010; Adnan, 2012). According to Hasbullah (2015), academic performance in school has consistently been linked to the challenges faced by indigenous people. Although there are documented success stories of Indigenous students who excel academically, numerous reports also highlight Indigenous student dropouts and failures within the Malaysian formal education system (Shah et al., 2020). As highlighted by Sims (2011), indigenous students are often faced with the issue of poor attendance and low academic achievement.

Most indigenous people only obtain formal education at the primary level. A significant trend observed is that many Indigenous students who complete primary schooling ultimately choose not to pursue their studies at the secondary level. This pattern aligns with findings by Yahaya (2008), who reported that approximately 50% of Indigenous students drop out of the formal education system after just six years of primary education. Studies by Abdullah et al. (2013) and Roslan and Mansor (2019) revealed that the participation rate of indigenous students in higher education remains critically low; their participation rate is less than 1%.

Many studies indicate that low education or achievement of indigenous students is related to parental involvement and lack of exposure to the importance of education (Misnaton Rabahi et al., 2016; Abdul Razaq Ahmad & Mohd Mahzan Awang, 2016; Renganathan, 2016; Norwaliza & Ramlee, 2016; Doreen Primus et al., 2017). Many indigenous students remain out of school due to their parents' fear and mistrust of the external environment. In addition, some parents, particularly those living in rural villages, cannot afford educational expenses as they must prioritize the needs of their larger families. Previous studies have revealed that some indigenous parents hold negative perceptions toward formal education, viewing it as irrelevant to their community's survival and daily life needs (Abdullah, 2010). Moreover, Salleh and Ahmad (2009) found that parents perceive schools as places where children play and eat rather than as institutions for meaningful learning and development.

Access to quality education has remained a longstanding and critical challenge for Malaysia's diverse indigenous populations since the years following Malaysia's independence from colonial rule in 1957 (Mohd Adnan et al., 2021). Geographic isolation continues to be a significant barrier, particularly for indigenous communities residing in remote or rural areas. Deli and Yasin (2016) emphasized that long distances and poor infrastructure often delay the delivery of essential educational resources, such as textbooks and examination materials, which are inaccessible due to limited transportation routes. According to Abdul Razaq Ahmad and Mohd Mahzan Awang (2016), parents' lack of adequate educational guidance and encouragement plays a decisive role in shaping students' academic outcomes, particularly in sustaining their engagement through the school system.

EMPOWERING EDUCATION INDIGENOUS PEOPLE

Empowerment is helping people with little control over their lives to gain power and make their own decisions. It means giving them a stronger voice in the places and situations that affect them, such as schools, government, or community programs. Empowerment is about giving freedom, confidence, and the tools needed to make good choices. It also means helping people become informed, educated, and active members of society. These ideas, as explained by Moratoria (2011), are essential to help us understand how to support people fairly and thoroughly.

All over the world, libraries are trusted places where people can access valuable information, which is key to personal and national progress. Libraries are powerful tools for change and help shape individuals into responsible and active citizens. According to IFLA (International Federation of Library Associations), libraries play an essential role in development because they:

1. Help people grow and improve themselves,
2. Provide access to knowledge from around the world,
3. Work together with many groups in society and
4. Need to be recognized in developing policy frameworks.

Academic libraries support teaching, learning, and research among students and lecturers in higher education institutions. They also serve students, faculty, and the community.

As for PTB UPSI, in the last ten years, has transformed from traditional passive to proactive, as outreach and engagement to the community is on the rise. In June 2024, PTB UPSI was assigned by the Cameron Highlands District and Land Office to assist in developing a mini library and organizing educational activities for the benefit of the children and Chenan Cherah community.

THE INDIGENOUS PEOPLE IN CHENAN CHERAH

Chenan Cherah is an indigenous people settlement deep within a forest reserve in Pahang. The journey to the village begins with a 43.6-kilometre drive from Tanah Rata to the Ringlet-Sungai Koyan junction, followed by a 5 kilometre stretch leading to the Lemoi Intake parking area. From there, visitors must trek approximately 800 meters, about a 20-minute walk, to reach the village. The settlement is divided into two distinct sections: Kampung Asal Chenan Cherah (the original village) and Kampung Telip (the newer extension), totaling about 247 acres.

Kampung Telip has 12 houses inhabited by 14 families, totaling 69 residents. This population includes 24 adults, 33 children, 9 students attending boarding schools, and 3 individuals working outside the village. The population is predominantly animist (82%), with a minority practicing Islam (18%).

Kampung Telip has several basic facilities, including a *surau* (prayer hall), ten homestay units established under the Hardcore Poverty Eradication Program (BMT), and a *Balai Sewang* hall as a traditional communal gathering space. In contrast, Kampung Asal, the original section of the village, comprises 13 houses accommodating 12 families, with a total population of 63 individuals with 38 adults, 19 children, 5 boarding school students, and one person working outside the village. Although development programs have been introduced, both settlements still struggle with inadequate infrastructure and limited access to basic services. No paved roads exist; limited electricity is sourced only from generators and solar-powered lighting. The village benefits from a water supply provided by the Ministry of Health's Rural Water Program. Still, there is a lack of telecommunication coverage, and living remains poor and requires immediate attention and improvement.

The distance between Kampung Telip and Kampung Chenan Cherah is approximately 3 kilometres, which takes about one hour to walk. Children from this area who attend Sekolah Kebangsaan (SK) Lemoi must travel even further, navigating forest trails on foot for around three hours to reach the school. Seven children make this journey and stay in the school's hostel during the week, returning home every weekend. Economically, many villagers participate in the BMT program, with 24 heads of households actively

involved, primarily through the homestay initiative, which is a key strategy for generating income.



Figure 1: Children of Chenan Cherah

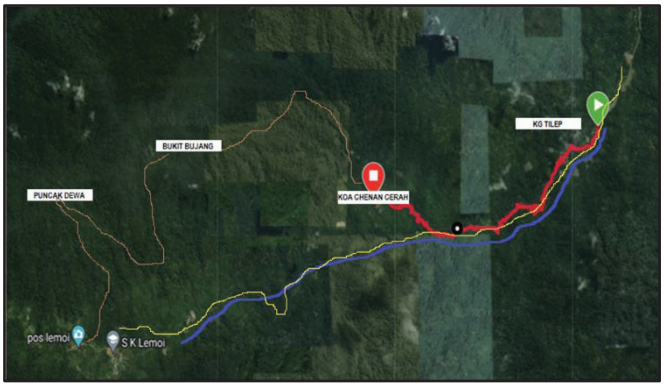


Figure 2: Distance Kg. Telip and Chenan Cherah by topography map

TUANKU BAINUN LIBRARY

PTB is the heart of UPSI, which plays an important part in our nation's education history. UPSI is located in Tanjung Malim, Perak Darul Ridzuan, with two campuses, namely Sultan Abdul

Jalil Shah Campus (KSAJS) and Sultan Azlan Shah Campus (KSAS), that are unique in terms of education leadership based on historical splendor and leading global changes.

The presence of PTB as the only library in Tanjong Malim has created opportunities for us to promote our visibility through activities and apply the concept of open doors to the public. Librarians who go out into rural or isolated communities will increase the library's visibility in their community (Reid & Howard, 2016).

As for the year 2025, PTB has carried out almost sixty activities or initiatives to make the library closer to the community. The three significant activities engaged with communities are grouped into three sections: (1) The Library Project, (2) UPSI Book Fair (3) Knowledge Sharing/Online Competitions/Reading Activities. However, this paper will highlight more on The Library Project. The Library Project is voluntary work setting up or transforming a library that provides a conducive learning space and collection development.

EMPOWERING EDUCATION AT CHENAN CHERAH: TUANKU BAINUN LIBRARY INITIATIVES

The involvement of PTB in developing the indigenous community of Chenan Cherah, Cameron Highlands, began in 2024. This initiative was in response to a request from the Cameron Highlands District and Land Office, which sought the library's expertise in development of book collections and designing the interior layout of a mini library. The mini library project was sponsored by a non-governmental organization, Entrepreneurs Organization (EO) Malaysia.

The Entrepreneurs' Organization Malaysia (EOM) is the Malaysian chapter of a global, peer-to-peer network of over 18,000 business owners across 220 chapters in more than 75 countries. Established in 1997, EOM serves as a dynamic community for entrepreneurs to connect, learn, and grow both professionally and personally. The library's construction was carried out entirely by the local indigenous community of Chenan Cherah and was completed in June 2024. A financial contribution of RM10,000.00 has been allocated for the development of this mini library.

Phase One: Develop Interior Design and Library Collection Development

Based on the past experience, the most fundamental step in establishing a library is to determine the size of the library and physical location. Our first visit to Chenan Cherah is on 23 June 2024, where it requires discussion with representatives of Cameron Highlands District

and Land Office. When starting from scratch, it is the most critical phase as we have to think big about how the space looks, how to develop book collections, and what furniture is suitable for this library. In addition to that,for curated and demand-driven collection development strategy, we have to identify the age range of childrens, teenagers and older adults aged 50.

This mini library is designed to be a community hub, educational resource center, registration counter for eco-tourism, and informative exhibition space. Thus, it challenged us to create space that served multiple purposes and the goal is to develop the library into a “One-Stop Centre” - a hub of knowledge. Before continuing for the next visit, we created a layout inside the library on how the arrangement of the bookshelf, furniture and reading area.

From 29 to 30 June 2024, our team consists of seven staff from PTB came over to Chenan Cherah and try to achieve the following objectives:

1. The installation of rubber mats
2. The installation of bookshelves
3. Library decoration
4. The opening ceremony is scheduled on 30 June 2024 by representatives of EOM

As part of the implementation process, it involved groundwork tasks in transporting and installing essential equipment such as rubber mats, bookshelves, tables and chairs. Our team was also responsible for library decoration to provide a welcoming environment responsive to this community needs and encourage them the joy of learning.

Initially, on 30 June 2024, this mini library was launched and named "Bei Bebaca", which means "Let's Read" in the Semai language, with a total collection of books on the date 130 titles. Karangkraf and an individual generously donated all the books amounting to RM1300.00. The building measures 15 feet (height) × 25 feet (length) × 15 feet () and features bamboo walls and a cement floor. The villagers built it using bamboo harvested from nearby forests. The cement was sourced from an external supplier, and the villagers transported the construction materials on foot over a distance of 2 kilometres.



Figure 3: Proposed architecture design for "Bei Bebaca"



Figure 4: Proposed layout inside Bei Bebaca



Figure 5: Bei Bebaca reading area



Figure 6: Bei Bebaca reading area

Phase Two: Observation And Training

The second phase held on 14 January 2025 focusing on observation and training with appointed local representatives who are responsible for managing the Bei Bebaca. This training session involved *Tok Batin* or The Village Head on practical guidance on library management practices such as the procedure of borrowing and returning books. This initiative aims to enhance community access to educational resources and promote reading habits among the community. In addition to that, we take this opportunity to highlight and remind *Tok Batin* to take care of all the books and furniture inside the Bei Bebaca to ensure the sustainability of this library.



Figure 7: Discussion with *Tok Batin*



Figure 8: Training the person in charge.

Phase Three: Establish Strategic Collaboration

From 13 to 14 February 2025, we continue phase three by organizing activities with the children of Chenan Cherah. In this phase, we create a strategic collaboration between PTB together with ten students and staff from the Off-Campus Residence Unit UPSI. This will focus on strengthening education by conducting educational and interactive sessions with the indigenous children in Chenan Cherah. The activities include reading, coloring sessions, mathematics quizzes and hygiene awareness. These activities aimed to foster literacy, numeracy and awareness of personal hygiene among the children.

Some students played a significant role as facilitators and organized “Learning Through Storytelling." This activity explores ways of storytelling as a teaching and learning tool, turns into a deeper understanding of topics, and stimulates critical thinking skills. The involvement of UPSI students in this learning process is based on experiential learning, a holistic approach, and essential soft skills to make the students more attractive in the job market.

In return, indigenous community at Chenan Cherah performed a cultural performance of the Semai community. All the participants were immersed in their cultural exposure which fostered cultural understanding and strengthened the relationship between the university and the indigenous community.

At the same time, PTB took the opportunity to deliver a new bookshelf along with additional reading materials as part of its contribution. These new collections, donated by the National Library of Malaysia, increased the total number of books available at Bei Bebaca to 363 titles, with a combined value of RM5,662.05. This initiative reflects the university's ongoing commitment to promoting literacy and enhancing access to knowledge within underserved communities.

CAMERON HIGHLANDS DISTRICT AND LAND OFFICES

The Cameron Highlands District and Land Office 0r *Pejabat Daerah dan Tanah Cameron Highlands* (PDTCH) is the principal administrative body overseeing land management, development coordination, and governance within the Cameron Highlands district of Pahang, Malaysia. In Tanah Rata, the district's administrative center, PDTCH plays a pivotal role in implementing state policies, managing land affairs, and facilitating sustainable development initiatives.

Hardcore Poverty Eradication Program, also known as *Program Pembasmian Kemiskinan Tegar* (BMT), is a vital initiative launched by the Malaysian government to eliminate extreme poverty in the country. This program is implemented with various stakeholders, including government agencies, non-governmental organizations (NGOs), and local communities. BMT's primary goal is to help low-income families improve their living conditions. It provides financial help, job opportunities, and training programs. BMT is made for families with very low incomes who struggle to meet basic needs like food, shelter, education, and healthcare. The program gives full support to help these families escape poverty and live better lives.

The indigenous communities of Chenan Cherah have been included in implementing this program, which the Cameron Highlands District and Land Office manage. This project aims to enhance the socio-economic conditions of the Chenan Cherah community through sustainable income-generating activities, cultural preservation, and ecotourism initiatives. The program implementation is systematically structured to uphold the inclusive principles of "leaving no one behind," in line with 'Ekonomi MADANI: Memperkasa Rakyat' and the 2030 Agenda for Sustainable Development (2030 Agenda).

EMPOWERING EDUCATION AT CHENAN CHERAH: CAMERON HIGHLANDS DISTRICT AND LAND OFFICES INITIATIVES

The development initiatives in the Chenan Cherah community are structured to ensure sustainable approach to socio-economic empowerment through key programs and initiatives below to raise income, enhance living standards, and provide access to basic services.

Homestay Program

This initiative involves identifying seven participants to construct ten 15x15-foot homestay units. The entire construction phase is expected to take 12 months to complete. Each homestay unit will feature an attached toilet to enhance visitor convenience. There are two phases involved in this program.

Phase one involves land verification, contractor appointments, and permit applications through the Cameron Highlands District Forestry Office. In addition, this phase includes planning and designing the interior design of the homestay and maintaining chemical-free pest control measures. Phase two comprises developing a standard operating system (SOP) to guide participants through managing bookings, receiving guests, and overseeing activities before, during, and after guest visits. Participants will gain skills in managing sales records, accounting and communication with the visitor.

This project is expected to yield an estimated monthly income of approximately RM1,000 per participant, depending on the visitor numbers. As of February 2025, this program has reached 100% completion. Along with this construction, Cameron Highlands District and Land Office decided to build a traditional community hall, also known as *Balai Sewang*. The *Balai Sewang* will serve as a hub for cultural demonstrations and visitor engagement, supporting both the Homestay Program and the Arts & Culture initiative while promoting cultural heritage.

Human Capital Development

Human capital development is crucial in empowering the local community by enhancing their skills, knowledge, and competencies. This phase focuses on training participants in English language proficiency, hospitality services, and cultural awareness to ensure they are well-prepared to manage and sustain tourism-related activities. By investing in the personal and professional growth of individuals, the program aims to build a capable and self-reliant community that can actively contribute to the success and sustainability of the Homestay Program.

In 2023, English language lessons were conducted for the indigenous community at Chenan Cherah by Dr. Anuar Ali, a lecturer from Faculty of Communication and Media Studies at the University of Technology MARA, aimed to bridge the language gap and facilitate better access to education and social integration. The target participants for these lessons are among selected individuals who manage the homestay and serve as guides for Jungle Trekking. Approximately 15 people attended the class, which consisted of five sessions focused on teaching basic English. During these classes, the participants learned fundamental vocabulary, including opening remarks and greetings. They engaged in activities such as paste learning materials on the board and repeating practicing sentences. To make the lessons more engaging, they also sang songs, played games, and used musical instruments. As a result of this class, the participants improved their ability to communicate with tourists and better understand conversations.

Jungle Trekking and Eco-Guiding

Another initiative approach involves supporting skill development through Jungle Trekking and eco-guiding to facilitate lasting positive change in this community. These initiatives leverage the indigenous communities' deep-rooted knowledge of the natural environment, enabling them to serve as authentic guides in ecotourism ventures. Several participants have been identified to become certified nature guides under the Mountain Guide Programme. These certifications validate their traditional ecological knowledge while integrating modern guiding standards, enabling them to serve as credible and skilled mountain or nature guides. This initiative boosts their confidence and income-generating capacity and reinforces their role in conserving their communities' natural and cultural identity. The program aims to generate RM12,000 in total monthly earnings, offering each villager an average monthly income of RM1,200.

Value-Added Products and Initiatives

Several initiatives have been introduced to enhance local economic development, focusing on value-added products and experiential tourism. These efforts are categorized as follows:

1. Local products: Community members produce marketable items such as herbal soaps, essential oil-infused candles, and various traditional herbs, tapping into wellness and cultural markets.
2. Eco-attractions: Plans for inclusive ecotourism experiences are underway, including developing glamping (glamorous camping) sites and organizing river-based recreational activities such as tubing and rafting. These attractions are designed to appeal to environmentally conscious travellers while promoting sustainable use of natural resources.
3. Cultural packages: Educational and immersive cultural experiences are also being developed. These include mountain school programs and live demonstrations of traditional practices, offering visitors more profound insight into the local way of life.

CHALLENGES IN THE IMPLEMENTATION OF CHENAN CHERAH COMMUNITY DEVELOPMENT

Despite the passion to implement all the initiatives, we faced several challenges. There are three main challenges in this project.

Geographic Isolation and Physical Accessibility

The geographical remoteness of the Chenan Cherah settlement, located approximately 24.5 kilometres from the nearest main road and accessible only via a 6.5-kilometer dirt trail, impedes program delivery. Thus, we faced logistical challenges related to transporting materials needed for the Bei Bebaca and lack of human resources who are willing to travel. For the indigenous people, these mobility constraints reinforce long standing barriers to education, healthcare, and market access.

Infrastructural Limitations

Many indigenous communities face significant challenges regarding their electricity supply. In our project, we rely on solar energy to support our activities, especially in the evenings. The lack of electricity hinders our ability to meet basic needs and perform our work effectively and affects the lives of the Chenan Cherah community now and for future generations. To address this issue, we set up a campfire to provide learning opportunities by facilitating evening activity sessions.

Our team also encounters considerable challenges due to the lack of mobile network coverage and limited access to telecommunication services. This creates difficulties to contact *Tok Batin* for permissions or discussions. As a result, we have had to depend on officials from the Cameron Highlands District and Land Officers as intermediaries. In the Chenan Cherah community, owning a mobile phone is not necessary. When residents need to make calls, they often ride their motorcycles to a nearby location or walk around with their phones held high in search of a signal.

Language And Culture Barriers

The indigenous population of Chenan Cherah speaks native dialects and has limited proficiency in both Bahasa Melayu and English. This language barrier makes it difficult for them to access information related to library management and participate in English classes. Additionally, effective communication is essential for providing educational and engaging experiences to tourists; therefore, these barriers can negatively impact visitor satisfaction. Meanwhile, the Chenah Cherah community feels that they are in a "comfort zone," relying on natural resources as their primary source of income. As a result, parents may lack motivation to support their children's education and initiatives established by others.

CONCLUSION

Today, universities play a vital role in creating and sharing knowledge with the community, which positively impacts local development through various projects. Collaboration and community engagement can be challenging; however, libraries act as agents of change. They provide communities with diverse resources that foster inclusive and equitable education and promote lifelong learning opportunities for everyone, aligning with the Sustainable Development Goals (SDGs).

Furthermore, successful community engagement programs require strong relationships, driven by total commitment and ongoing support from higher education institutions, government agencies, and NGOs. These partnerships are essential for sustainable development through knowledge sharing, expertise, technology, and financial resources to achieve the SDGs. The initiatives discussed in this paper serve as documented evidence of academic libraries' efforts to enhance their visibility and impact in the community.

ACKNOWLEDGEMENTS

The author would like to extend heartfelt appreciation to Tuanku Bainun Library, Universiti Pendidikan Sultan Idris (UPSI) for their unwavering support in the preparation and presentation of this paper. Special thanks to Ms. Noriha Muhammad, Chief Librarian of Tuanku Bainun Library, for her kind permission and continuous encouragement throughout the process. We would also extend our gratitude to Cameron Highlands District and Land Office for their collaborative efforts and valuable insights that contributed significantly to this study. The opportunity to present this work would not have been possible without the generous support and commitment of these institutions to community development and educational outreach.

REFERENCES

Abu Kassim, Z., & Adnan, A. H. M. (2005). The English language performance of Orang Asli pupils at primary level in Perak: A longitudinal study. In K. Ariffin, M. Ismail, M. Latif, N. K. Leng & R. Aziz (Eds.) English in Education: Issues and Challenges in the Malaysian Classroom (pp. 29-42). Shah Alam: *UPENA Universiti Teknologi MARA* / UiTM Press.

Abdullah, M. N. L. Y., & Primus, D. (2020). The impact of institutional support and student engagement on educational outcomes of Orang Asli students at public universities. *Asia Pacific Journal of Education*, *41*(1), 182-197. https://doi.org/10.1080/02188791.2020.1773393

Abdullah, R. (2010, June). Keciciran pendidikan murid orang asli: Kajian kes di negeri Terengganu. In *Prosiding Seminar Internasional Perbandingan Sistem Pendidikan Indonesia dan Malaysia*.

Abdullah, R. B., Mamat, W. H. W., Zal, W. a. A., & Ibrahim, A. M. B. (2013). Teaching and Learning Problems of the Orang Asli Education: Students' perspective. *Asian Social Science*, *9*(12). https://doi.org/10.5539/ass.v9n12p118

Abdul Razaq Ahmad., & Mohd Mahzan Awang. (2016). Culturally Responsive Pedagogy: Socio-Educational Support and Community Engagement for Educational Development of Aboriginal Students. *The New Educational Review*, 157-164.

Adnan, A. H. M. (2010). Teaching English to a Malaysian minority group (the Orang Asli/Asal): empowerment or disenfranchisement? *Paper presented at the 15th English in Southeast Asia Conference: Our diverse communities*, 9-11th December, University of Macau, Macau SAR, China

Adnan, A. H. M., & Saad, M. A. (2010). Teaching English to the minority Orang Asli: A case of systematic disempowerment. *In Proceedings of the International Conference on Minority and Majority: Language, Cultures and Identity*, 23rd to 24th November, Hilton Kuching, Sarawak, Malaysia.

Adnan, A. H. M., Salim, M. S. A. M., Haniff, M., Tahir, M., Shah, D. S. M., & Yusof, A. M. (2021). Educating the 'orang asli'(native people) of Malaysia in the eyes of Orang Asli teachers. *Journal of Academic Research in Business and Social Sciences*, *11*(9), 717-731.

Deli, M. M., & Yasin, R. M. (2016). Quality Education of Orang Asli in Malaysia. *International Journal of Academic Research in Business and Social Sciences, 6*(11), 233-240.

Department of Statistics Malaysia. (2020). *The indigenous people data*. https://dosm.gov.my

Ghani, A. A. (2015). The teaching of indigenous Orang Asli Language in Peninsular Malaysia. *Procedia - Social and Behavioral Sciences*, 208, 253-262

Government of Malaysia. (2023). *The indigenous people*. https://data.gov.my/dashboard.orang- asli.

Hasbullah, Z. (2015). *Tingkah laku bermasalah dalam kalangan pelajar orang asli di sebuah sekolah menengah*. Doctoral dissertation, Universiti Pendidikan Sultan Idris..

Maruatona, T. (2011). Lifelong learning and the pursuit of a vision for sustainable development in Botswana. *Studies in Continuing Education*, *33*(2), 121-138.

Marzuki, M., Mapjabil, J., & Mohd Zainol, R. (2014). Mengupas keciciran pelajar orang asli Malaysia: Suatu tinjauan ke dalam isu aksesibiliti sekolah. *Geografia-Malaysian Journal of Society and Space*, *10*(2), 189-198.

Misnaton Rabahia et al. (2016). Leading Learning: A Grounded Theory Perspective of Orang Asli Parental Involvement and Engagement. *Procedia - Social and Behavioral Sciences*, 94 -103.

Nabilah, I., Kamarudin, M. K. A., Simin, M. H. A., Ismail, W. N. a. T., & Wahab, N. A. (2024). Planning for quality of life: an assessment of indigenous communities in Malaysia. *Planning Malaysia*, 22. https://doi.org/10.21837/pm.v22i30.1433

Norwaliza, A. W., & Ramlee, M. (2015). Reflections on pedagogical and curriculum implementation at Orang Asli schools in Pahang. *Procedia-Social and Behavioral Sciences*, *172*, 442-448.

Primus, D., Abdullah, M. N. L. Y., & Ismail, A. (2016). Indigenous students' challenges, adaption and selfesteem during post-secondary education: a study on selected Malaysian public universities. *Malaysian Online Journal of Educational Management*, *5*(1), 16-28. https://doi.org/10.22452/mojem.vol5no1.2

Ramli, M.W. (2020). Keadaan ekonomi komuniti orang asli Semoq Beri di Kampung Sungai Berua, Terengganu. *e-Bangi*: *Journal of Social Sciences and Humanities*, *17*(6), 68-79.

Roslan, M. R., & Mansor, A. T. (2019). Indigenous Education Rights: The Malaysian Case. *International Journal of Academic Research in Business and Social Sciences*, *9*(10), 149-167. https://doi.org/10.6007/IJARBSS/v9-i10/6470

Renganathan, S. (2016). Literacy and development for the Orang Asli in Malaysia: What matters? *PROSPECTS*, *46*(3-4), 479-490. doi:10.1007/s11125-017-9412-y

Salim, J. M., Anuar, S. N., Omar, K., Mohamad, T. R. T., & Sanusi, N. A. (2023). The Impacts of Traditional Ecological Knowledge towards Indigenous Peoples: A Systematic Literature Review. *Sustainability*, *15*(1), 824. https://doi.org/10.3390/su15010824.

Salleh, M. J., & Ahmad, A. R. (2009). Kesedaran pendidikan dalam kalangan masyarakat Orang Asli. Abdul Razaq Ahmad, Zalizan Mohd Jelas. *Masyarakat Orang Asli: Perspektif pendidikan dan sosiobudaya*. Penerbit UKM, Bangi.

Shah, D. S. M., Adnan, A. H. M., Salim, M. S. A., Yusof, A. M., & Tahir, M. H. M. (2020). The Nonformal education of Orang Asli adolescents in Malaysia: From community to university. *International Journal of Humanities, Technology, and Civilization*, *8*(1), 1-13.

Sims, M. (2011). *Early childhood and education services for indigenous children prior to starting school*. Australia: Australian Institute of Health and Welfare and Australian Institute of Family Studies.

United Nations. (2021). *United Nations Declaration on the Rights of Indigenous Peoples. UnitedNations*. https://www.un.org/development/desa/indigenouspeoples/declaration- on-the-rights-of-indigenous-peoples.html

Yahaya, F. H. (2008). Pendidikan masyarakat orang Asli. Ma'rof Redzuan & Sarjit S. Gill (Eds.) *Orang Asli: Isu, Transformasi dan Cabaran.* Serdang: Penerbit Universiti Putra Malaysia.

Foot Librarians: Collaborative Exploration and Exchange of Knowledge With Indigenous Communities

Mark Edzel R. Gonzales, Alvin E. Halcon, Razel Natalie D. Muñoz, Leonora H. Astete, Marilyn L. Ngales, Ph.D.

Sotero H. Laurel Academic Resource Center,

Community Outreach and Service Learning
Lyceum of the Philippines University,

Manila, Philippines

Corresponding Email: mark.gonzales@lpu.edu.ph

ABSTRACT

Higher education institutions in the Philippines are guided by three core functions - research, instruction, and community extension. The library plays a pivotal role in fulfilling these essential roles, offering invaluable support and resources. Beyond its traditional duties, the library actively champions and aids in the promotion and execution of sustainable community extension programs, solidifying its integral role in advancing the institution's mission. The objective of this paper is to revisit the effort of foot librarians in bringing library to the indigenous communities that the university is partnering with. Foot librarians are actively involved in community works by conducting read along sessions, storytelling, facilitating basic literacy, helping in building infrastructures, and establishing community library. Over the past decade of continued engagements and community immersions, this study will unfold stories and narratives of librarians' volunteer. Using narrative and document analysis and interviews, both experiences and learnings of librarians will be presented. With consolidated narratives of librarians, this paper attempts to present the unique efforts of the university to celebrate the foot librarians' commitment in exploring and exchanging knowledge with communities. Foot librarians realized that their role extends beyond mere dissemination of information. The librarians become learners by deeply knowing rich cultural traditions, understanding oral history, and adopting sustainable practices of the communities. The exchange of knowledge is reciprocal, a dance of shared insights, where the indigenous communities impart wisdom to librarians. Foot librarians recognized that true enrichment of knowledge does not always lie in

what they bring to the community, but in what knowledge they acquire from the IP communities in return.

Keywords: Foot Librarians; Indigenous People; Community Immersion; Community Engagement; Volunteers

INTRODUCTION

Dr. Jose P. Laurel, founder and first president of Lyceum of the Philippines University, emphasized his commitment to poor and marginalized communities when he stated, *"an educational system that is discriminatory in character, that does not grant equal opportunities to rich and poor, will turn out citizens who are undemocratic in orientation, who will be loyal to class rather than to country, who will be self-seeking rather than concerned with community welfare."*

Responding to Dr. Laurel's challenge, activities with different communities were pursued, expanded, and formalized which led to the establishment of Community Outreach and Service Learning (COSeL). COSeL is the community extension arm of the university for social mobility and inclusion. The core objective of COSeL is to engages the Indigenous Peoples (IPs) and non-IPs to mutually evolve approaches in creative learning and resources sharing with one enhancing the other for the attainment of quality of life. Also, to foster a strong school-community relationship through collaborative research, outreach and extension activities that are not limited to education but also covers environmental, livelihood, and other activities that promote advancements and well-being. Most importantly, to mobilize the LPU community's multidisciplinary interventions with partner IP communities and the IPs in turn share their indigenous knowledge, skills, systems, and practices for both entities to fulfill their roles as custodians of heritage and culture.

More and more academic institutions realize the importance of engaging the immediate and wider communities as their learning laboratory, at the same time draw valuable insights from the rich experiences of these communities' locale and people. Community learning engagements complete the interfacing of the three pillars of education – instruction, research, and extension followed by Higher Education Institutions (HEIs). Hence, the establishment of community extension programs becomes equally relevant as the others.

Reflecting a strong advocacy, COSeL established numerous programs and activities that involve its administration, faculty members, and the students. Programs and activities were also actively participated by librarians in different capacities. The librarians are actively involved in community works by conducting read along sessions, storytelling, facilitating basic literacy, helping in building infrastructures, and establishing community library.

The library plays a pivotal role in fulfilling essential roles with the community by offering invaluable support and resources. Beyond its traditional duties, the library actively champions and aids in the promotion and execution of sustainable community extension programs, solidifying its integral role in advancing the institution's mission.

BACKGROUND TO THE STUDY

Evolving Roles of Libraries: From traditional library services to active community involvement

The library is generally viewed as occupying an important role in its community and its development (Abu 2011). Hence, there is a dearth of scholarly works on how libraries currently give value to community development, particularly on its evolving roles and potential values contributing to the development of the indigenous communities. This paper will report on some initiatives and efforts of the librarians into the community development contribution of selected partner indigenous communities in the Philippines.

IKSPs and the Sharing of Culture

Indigenous Knowledge Systems and Practices (IKSPs) are dynamic, living bodies of knowledge that have been developed, sustained and passed down by IPs across generations. These systems serve as the backbone of their identity, governance, ecological stewardship, and community life. As defined by the National Commission on Indigenous Peoples (2012), IKSPs consist of systems, institutions, mechanisms, and technologies that form a unique body of knowledge. They reflect patterns of relationships not only between individuals within indigenous communities but also between people and their ancestral lands, environments, and spiritual worlds.

For Indigenous Peoples in general, IKSPs are more than cultural artifacts; they are catalysts for sustainable development. According to Flor (2013), IKSPs are directly linked to effective resource management and conservation. One notable example is the *kaingin* system or swidden farming practiced by the Dumagat and other IP communities residing in the Cordillera

Mountain ranges, which is a traditional forest management practice that ensures biodiversity protection and soil conservation while facilitating social and economic bonding. This illustrates how indigenous wisdom promotes a form of development that balances ecological integrity with economic benefit.

IKSPs covers centuries of lived experience, oral tradition, and communal knowledge. They are vital to maintaining equilibrium in the physical, socio-economic, and cultural ecosystem, ensuring the survival and continuity of indigenous ways of life. These practices reflect a deep-seated respect for nature, ancestral wisdom, and spirituality.

LPU respects and recognizes these IKSPs through its engagement programs with its partner communities. Central to these efforts are the TAYAN and LORNA projects of COSeL led and/or joined by the *foot librarians* who immerse themselves in partner communities conducting ethnographic participatory research, immersion activities, community mapping, literacy sessions, storytelling, library-building initiatives and other endeavors that are deeply rooted in mutual respect and cultural sensitivity. LPU's programs are not about imposing external ideas but instead aim in co-creating spaces where indigenous knowledge, oral histories, and traditional practices are honored and integrated into educational efforts.

By engaging directly with IP communities, LPU acknowledges that indigenous knowledge holds invaluable lessons for environmental stewardship, cultural sustainability, and community resilience. The University fosters a reciprocal exchange where librarians and community members learn from one another, positioning IKSPs as essential for sustainable development practices.

Engagement with IKSPs by institutions like LPU underscores the importance of reciprocal learning. In the university's extension work with IP communities, librarians become not only facilitators of information and programs but also become learners, acquiring insights into oral history, sustainable living, and cultural resilience. This mutual exchange fosters cultural humility and promotes ethical, inclusive knowledge partnerships that lend a unique, though still limited, indigenous lens through which librarians can view the indigenous way of life. Through these exchanges, librarians and other volunteers are influenced and transformed in a way that broadens their horizons and deepens their understanding of Indigenous Peoples and people in general.

OBJECTIVES OF THE STUDY

Enumerated below are the outlined purpose and objective of the study:

1. To revisit and analyze the years of engagement of LPU librarians under COSeL,
2. To document specific programs and activities implemented by foot librarians,
3. To gather and synthesize personal narratives and reflections of foot librarians; how motivated they were, what were the challenges, and what were their transformative experiences,
4. To explore the impact of these engagements on LPU's institutional mission, cultural competency of its community and the field of librarianship; how did these encounters redefine what a librarian is in the academic and social context,
5. Examine the reciprocity of knowledge exchange between foot librarians and IP communities; identify impact of IKSPs to shaping practices and perspectives of foot librarians
6. To recommend strategies for enhancing librarian-led community engagement and institutional support for partnerships with IP communities.

METHODOLOGY

This study will employ a qualitative research design to explore the experiences and reflections of librarians involved in COSeL programs. Qualitative research methods are chosen for its ability to provide an in-depth understanding in rich and detailed data about the phenomena.

The data collection process will involve two primary methods:

1. Extension reports, reflections, and narratives: These documents will provide insights into the librarians' narratives - experiences, challenges, and successes, in community outreach experiences. The data will be collected from curated reports and writeups of COSeL programs starting 2010.
2. Interviews with librarians involved in community outreach: Interviews will be conducted with librarians who are directly involved in community outreach activities. These interviews will allow for a deeper exploration of their personal experiences, motivations, and the impact of their work and engagement with the IP communities.

Further, the collected data will be analyzed using the following methods:

1. Interview analysis: The interviews will be transcribed and analyzed using thematic analysis. This method will help identify common themes, patterns, and insights across the interviews.
2. Narrative analysis: The reflections and narratives provided by the librarians will be analyzed to understand the stories and experiences shared. Narrative analysis will help in identifying the key elements and structure of the librarians' stories.
3. Document analysis: Extension reports will be reviewed to extract relevant information about the outreach programs, including objectives, activities, outcomes, and challenges. This analysis will provide a comprehensive overview of the programs and their effectiveness.

By combining these methods, the study aims to provide a holistic understanding of the librarians' roles in community outreach and the impact of their efforts on the IP communities.

DISCUSSION

Food Librarians Defined

The concept *"Foot Librarians"* was coined in 2010 when librarians and staff of the university visited sitio Kailugan, Matawe of Dingalan, Aurora Province, to conduct a read along session along the riverbed with the Dumagt (Lingap 2011). Participated by 60 kids with their parents, the objective of this activity was to "*reinforce with the Dumagat children a deeper appreciation of their roots in the mountains.* [As] *these children are more vulnerable to embracing a more contemporary lifestyle given modernization's influence."* This activity sparks the advocacy of foot librarians to support LPU COSeL program.

Similarly, based on existing literature, *"Barefoot Librarians"* exists. This term was coined originally in 1975 after D. E. K. Wijasuriya, Lim Huck-Tee and Radha Nadarajah authored a book entitled *"The barefoot librarian: library developments in Southeast Asia with special reference to Malaysia."* This book documents the effort of Southeast Asian Librarians in the attempt of establishing libraries from national up to the village level - an update on country-by-country library developments. Also, it is believed to be the first publication about Southeast Asian Librarians written also by the same.

Furthermore, another literature is also using the same exact term to share and discusses the effort of librarians in localizing the practice in their community. Practice that is fitting to the

community that they are serving. Parallel to the concept given by Mulindwa in 2013, she defined Foot Librarians as:

> "*a metaphor for a library worker who would be more in touch with the many children and in some cases adults who walked the African countryside barefooted and who needed a place and service that could help them boost their literacy, reading, and learning skills, as well as assist them in gaining access to development information. Such a librarian would strive to know the information needs of the population and would therefore intimately fit in the environment in which he/ she worked*."

Earlier literature was homogeneous to the local definition given to foot librarians of the university. The primary role of a foot librarian is to bring the library and its resources to local and partner IP communities to offer and promote literacy. Ultimately, the goal is to establish libraries within the IP community.

Role of Foot librarians in the University's IP engagements

The International Federation of Library Associations and Institutions (IFLA) recently published a newsletter highlighting the contributions and significance of librarians within the community. In this publication, IFLA acknowledged librarian volunteers as pivotal change-makers in community initiatives (IFLA, 2025). Librarians play a significant role in creating initiatives and programs that empower its community. Focusing on the social role of the library, it is believed that librarians facilitate the creation of social capital and actively advocate social change (Baba and Abrizah, 2018). The social capital can be perceived as the relationships and network of foot librarians to the university that extends beyond its partner IP communities. This contributes to improving various aspects like access to quality resources, facilities and infrastructure, and even to environmental preservation. It encompasses the dynamics of social interactions in mobilizing the community towards collective action based on the concept of social capital.

On the other hand, foot librarians are champions of advocating social change. The primary objective of foot librarians is to provide reading materials and introduce the love for reading in the IP community. More so, to engage and immerse themselves in the culture and firsthand learn from the community. Hence, after years of COSeL's engagement and series of consultation, immersion, and coordination with the IP community, access to quality education is only one of their many concerns in the community. To identify and address concerns, several approaches like needs assessment, community immersion and assimilation, planning, research, etc. were conducted by the university through COSeL. This approach allows librarians

to identify programs and activities that are well-suited to the needs of the IP community. Consequently, it offers librarians the chance to become more active and engaged with the IP communities by participating in various university programs and activities

For more than a decade, LPU COSeL with its partner agencies - National Commission on Indigenous People (NCIP), Department of Education (DepEd), different Local Government Unit (LGU), Public and Private agencies, including non-profit organization, are key component in executing numerous programs with the IP communities. For over ten years, LPU COSeL has partnered and engaged with various IP communities in the Philippines. During this time, the foot librarians have initiated and participated in numerous activities and engagements. Below are some of the most notable programs and activities of foot librarians:

Table 1: Programs and Activities Conducted/Participated by Foot Librarians

DATE	TITLE OF ACTIVITY	COMMUNITY	HIGHLIGHTS
Dec. 20-21, 2010	"Project A.D.H.I.K.A. - ARC's Information Literacy Project for the Dumagat People"	Matawe, Dingalan, Aurora Province	• 2 days community immersion • Mountain hiking and eco-tour. • Feeding program • Read-along activity • Gift-giving & games • Book donation
May 4-6, 2011	“Confidence Building for the Dumagat School Children”	Matawe, Dingalan, Aurora Province	• Personality Assessment • Discussion about Self-esteem and other facets of personality development. • Open dialogue/ interview • Workshop: Essay writing; Goal setting. • Scholarship Screening and Orientation for promising participants in the program.
May 16, 2011	"Confidence Building for Dumagat School Children"	Sitio Dumagat, Calawis, Antipolo, Rizal	• Personality Assessment. • Open dialogue/ interview

			• Pep talks and experience sharing in preparation for School year 2011-2012.
May 22-23, 2011	"Community Library for Better Dumagat Future!'	Sitio Masla, Gen. Nakar, Quezon	• Book Donation • Organizing the donated books • Read-along activity • Recreational Activities
June 10-11, 2011	The 1st Agta/ Dumagat Congress on "Indigenizing Education in the Sierra Madre"	Matawe, Dingalan, Aurora Province	• IP Education Drive • Congress on IP Educational Rights • Interview with Dumagat from different provinces • Workshop Activity/ Getting to know more about the Dumagat people • Dialogue with representatives of National Commission on Indigenous Peoples
August 28, 2011	"Community Library for Better Dumagat Future! 2"	Sitio Masla, Gen. Nakar, Quezon	• Library Check-up • Book Donation • Establishment of "Sotero H. Laurel Community Library" • Meeting with the Elders
October 19-20, 2011	Community Immersion/ Orientation of Dumagat on Managing Libraries	Sitio Masla, Gen. Nakar, Quezon	• Dialogue with Municipal Mayor of Gen. Nakar on matters of support in education, legal rights and community involvement of Dumagat. • Book donation • Read-along activity • Recreational activities & games • Gift-giving • Maintenance of SHL Community Library • Eco-Tour
January 22-23, 2012	Community Immersion of LPU Teaching and	Sitio Masla, Gen. Nakar, Quezon	• Meeting and dialogue with Gen. Nakar Mayor,

	Non-Teaching Staff with the Dumagat		Hon. Leovegildo R. Ruzol along with National Commission for Indigenous People (NCIP), Dumagat and LPU representatives. • Read-along activity at the new SHL Community Library • Story telling by the Dumagat Children, sharing of personal experiences • Art activities and group games
April 11-12, 2012	Information Literacy Program for the Dumagat children	Sitio Masla, Gen. Nakar, Quezon Province	• Book and school supplies donation • Read-along-the-river • Art workshop • Recreational and Parlor games • Gift-giving
October 10, 2012	Ocular Visit to Dingalan National High School Library	Matawe, Dingalan, Aurora Province	• Ocular inspection of DNHS Library • Assessing library facilities and collection
October 25, 2012	Organization and Automation of Dingalan National High School Library	Matawe, Dingalan, Aurora Province	• Book Donation • Organization, cataloging and classification of holdings • Re-designing library layout to optimize use of space
April 26, 2013	Rocky Road Tour to Calawis, Antipolo: Sharing the Joys of Reading with the Dumagat Children	Brgy. Calawis, Antipolo, Rizal	• Read-along activity • Book and school supplies donation • Recreational and Parlor games • Gift-giving
October 29-30, 2013	Organization and Automation of Paaralang Sekundarya ng Heneral Nakar	Sitio Masla, Gen. Nakar, Quezon Province	• Book Donation • Organization, cataloging and classification of holdings

	(Public Secondary School)		• Technical and Mechanical processing of holdings • Re-designing library layout to optimize use of space
May 17-18, 2014	Construction Librarians Laid Foundations for Information Literacy Program and Community Library Build-up for the Dumagat People	Sitio Masla, Gen. Nakar, Quezon Province	• Completion of the new building for the SHL Community Library • Film Showing • Story telling sessions • Book Donation • Landscaping and garden setting
May 29 – June 1, 2014	Inauguration of the Community Library, new structures and Tree Planting with LPU Senior Leaders	Sitio Masla, Gen. Nakar, Quezon Province	• Blessing and inauguration of the "Katutubong Paaralang Jose P. Laurel", "Ina Apolonia Community Library" (formerly "Sotero H. Laurel Community Library"), and other structures built in partnership with LPU. • Tree Planting activity with LPU Senior Leaders
July 29-30, 2024	Community Library Buildup and Read Along	Sitio Masla, Gen. Nakar, Quezon Province	• Story telling sessions • Arts and Crafts – coloring • Fun game – community games • Finishing the community library – application of varnish paint
September 6-7, 2014	"Assess the newly acquired bookshelves and Information Literacy programs for the Dumagat"	Sitio Masla, Gen. Nakar, Quezon Province	• Installation of 2 computer units • Computer parts and use orientation to the Dumagat adults and children • Transferring of library collections from former library building to the new "Ina Apolonia Community Library"

October 21-22, 2014	Monitoring the Ina Apolonia Community Library and view deck construction	Sitio Masla, Gen. Nakar, Quezon Province	• Story telling sessions • Book Donation • Educational games • Recreational activities (sing and dance contest) • Art activities • Appointment of a Dumagat elder as library-caretaker • Setting up of artwork area in the library
April 7-8, 2015	Information Literacy Program, Community Immersion, and Ecolodge Buildup	Sitio Masla, Gen. Nakar, Quezon Province	• Conduct information literacy for the Dumagat children • Construction of Ecological sanctuary
July 15-16, 2017	Assessment /Exploration of 87 hectares water shed in Mt. Data/Research	Mt. Data, Mt. Province	• Community visit and exploration • Data gathering - Research
April 21-22, 2017	Information Literacy Program and Tree Planting Activity	Sitio Masla, Gen. Nakar, Quezon Province	• Conduct information literacy for the Dumagat children • Reading and writing • Tree planting activities
October 25-28, 2017	Inauguration Of Tagnaya Community School	Tagnaya, Palawan	• Preparation for the inauguration • Community immersion • Social and cultural presentation • Inauguration of IP school
December 27-29, 2017	Hunter Gatherer Research	Maguisguis, Zambales	• Community immersion – assimilation • Data gathering
January 14-16, 2018	CHAG's XII: Community of Hunter Gatherers	Botolan, Zambales	• Research Conference • Community immersion
April 2-4, 2018	Unang Pagtatapos at Pasasalamat = First Graduation Ceremony and Thanksgiving	Sitio Masla, Gen. Nakar, Quezon Province	• First graduation rites of the IP school – elementary level

May 21-25, 2018	(CABEH IKSP) Culturally Adaptive Basic Education and Health: Indigenous Knowlege, Systems, and Practices	Bacolod City	• Teachers' training handling IP pupils • Workshop and seminars • Community immersion • Cultural exchange programs
September 5-8, 2018	National Coalition in Indigenous People Education (NiCHE)	Nueva Vizcaya	• National Conference attended by IP Leaders and Educations
November 2-5, 2018	Baseline Data Gathering for Dinapigue	Quirino Province	• Immersion and data gathering – profiling of Agta of Quirino Province
Jan.3-5, 2019	Research Writing - Bootcamp	Benguet	• Lectures • Research writing
January 7-12, 2019	Community visit and Immersion	Agta Community, Palanan Isabela	• Community visit and immersion • Profiling of the community
February 2-3, 2019	Conversation; Social Inclusion 2	Botolan, Zambales	• Research paper presentation
Apri 8-9, 2019	Monitoring of Construction of Culinary Kitchen	Sitio Masla, Gen. Nakar, Quezon Province	• Monitoring and construction of culinary kitchen
Nov. 10-11, 2019	TAYAN Reseach Validation/Community Profiling	Matawe, Dingalan, Aurora Province	• Community visit and immersion • Profiling of the community
June 2023	Information Literacy Program, Community Immersion	Sitio Masla, Gen. Nakar, Quezon Province	• Assessment of basic literacy and numeracy • Read along sessions

Engagement and Learning with the Community

This section presents the emergent themes distilled from the reflections, narratives, and interview accounts of librarians involved in Lyceum of the Philippines University's (LPU) community extension work with IPs. Three thematic categories surfaced prominently, encapsulating the experiences, insights, and challenges inherent in these engagements.

Table 2. Narrative analysis

NARRATIVE ANALYSIS		
Ideas	**Concepts**	**Theme**
Foot librarians in the Field (Volunteerism and Transformative Encounters)		
• Delivering books to remote communities • Conducting storytelling and reading sessions • Developing empathy through direct engagement • Librarians as cultural bridges • Building trust with Indigenous leaders and elders • Volunteering as personal commitment • Learning from community practices	• Actions: Book donations, storytelling sessions, community visits • Experiences: Empathy development, cultural bridging, relationship building • Values: Volunteerism, service, commitment, cultural respect	Transformative volunteerism through culturally rooted engagement
• Exposure to Indigenous Knowledge Systems and Practices (IKSPs) • Appreciation of oral traditions and ancestral narratives • Understanding of Indigenous ecological knowledge • Insights on community solidarity and resilience • Respect for traditional governance and leadership • Realization of cultural richness and heritage preservation	• Content Learned: Oral traditions, ecological knowledge, ancestral practices • Reflections: Increased cultural sensitivity, admiration of resilience, acknowledgment of Indigenous governance • Values: Heritage appreciation, cultural empathy, mutual respect	Deepened cultural appreciation and recognition of IKSPs.
• Difficulty accessing remote communities • Financial constraints in sustaining outreach programs • Limited human resources for consistent engagement • Need for long-term partnerships	• Operational barriers: Distance, costs, lack of manpower • Sustainability issues: Limited partnerships, inconsistent engagement	Structural and logistical challenges hinder sustained community partnership.

• Challenges in institutional support and policy alignment • Risks of cultural insensitivity without continuous immersion	• Institutional hurdles: Policy gaps, inadequate support mechanisms	

Foot Librarians in the Field

The role of LPU's "foot librarians" extends beyond conventional librarianship. These individuals' step into the field not merely as service providers but also as co-learners. Their volunteerism is facilitated through activities such as literacy outreach, storytelling sessions, community mapping, and library-building initiatives. The accounts reveal how entering indigenous communities demands humility, cultural sensitivity, and relational labor that is rooted in genuine partnership. As a saying goes in the University volunteer community, "community visits require one to leave their titles and degrees behind" and aim to see the world at a similar point of view with the community members.

These encounters reshape the librarians' worldviews. They recount moments of deep connection while listening to ancestral stories under a mango tree in with the Dumagat in Quezon Province, while walking the lahar covered expanse of the communities in Mt. Pinatubo alongside Ayta hunters and community elders, and engaging Agta children in read-along activities along the rivers of Aurora Province. The act of volunteering becomes a space where librarians witness resilience in adversity, communal solidarity, and indigenous ways of knowing that differ from formal education systems. Many describe a deepened sense of empathy, a redefinition of their professional purpose, and a strengthened resolve to advocate for inclusive, community-centered education. Volunteerism, therefore, is not transactional but transformational, enriching both librarians and the communities they serve.

Over time, these experiences leave a lasting impact. The foot librarians speak of becoming more empathetic, patient, and conscious of how their roles can help uplift communities, not by carelessly imposing distant external solutions but by supporting local strengths culturally acceptable strategies. They return from these engagements with a clearer sense of their responsibilities—not just as information providers but as advocates for inclusive education and cultural understanding. For them, volunteering is not just an extra task but a meaningful part of their identity as information professionals and as Filipinos.

Cultural Insights

Through immersion in indigenous communities, librarians gain firsthand experience with Indigenous Knowledge Systems and Practices (IKSPs). They witness how knowledge is passed down through stories, rituals, hunting and farming practices, and community decision-making. IKSPs are not just traditions from the past; they are active ways of managing resources, preserving the environment, and maintaining community harmony. Librarians see how the people's understanding of their land, history, and spiritual beliefs shapes their daily life and how these are closely tied to daily survival and well-being.

These encounters shift how librarians view knowledge. Knowledge is not only written in books but also shared through lived experience and oral traditions. They learn to value the wisdom in local practices that promote sustainability and cooperation. For example, practices like hunting, swidden farming, and traditional dispute resolution systems show deep understanding of nature and social balance. The librarians come to respect these as valid and important forms of knowledge that deserve recognition and protection.

This growing appreciation influences how they design their outreach programs. They become more mindful about creating activities that do not disrupt local customs but instead build on what communities already know and value. Their reflections show an awareness that true learning happens when both parties—the librarians and the community members—teach and learn from each other. This approach helps ensure that extension programs honor indigenous ways of knowing while offering new tools and resources in respectful and relevant ways such as community libraries and culturally relevant learning materials and activities.

Barriers in Community Engagement

Despite the rich learning and positive outcomes, librarians face several challenges in doing this work. The most common barrier is the difficulty of reaching distant communities. Many partner sites are located far from urban centers, often accessible only by long land travel, boat rides, or hikes. Limited funds, lack of reliable transportation, and unpredictable weather conditions make trips harder to plan and sustain. These logistical issues sometimes limit how often librarians can visit or how much material they can bring.

Another challenge is balancing these outreach efforts with their regular work in the university. Librarians are expected to handle their daily tasks on campus while also planning and joining community activities. Finding enough time, support, and manpower is a constant concern. In some cases, sustaining long-term projects is hard because of changes in staff, shifting

institutional priorities, or the need for continued funding. Without steady support, even well-intentioned projects can lose momentum or struggle to meet community expectations.

Librarians also point out that working with indigenous communities requires careful cultural sensitivity. They need to follow local customs, respect leadership structures, and communicate in ways that build trust. Misunderstandings or mismatches in expectations can cause setbacks. For this reason, many librarians emphasize the importance of establishing goodwill, consistent dialogue, partnership building, and institutional commitment to ensure that engagements are not short-lived or one-sided. Addressing these barriers is key to making sure that the work remains meaningful, effective, and beneficial to both sides.

To present the discussion and outline of the interview with librarians, presented in bullets are the key elements and findings of the study:

Foot librarians in the field (volunteerism and transformative encounters).

a. Literacy and Education
    i. The United Nations for Indigenous Peoples identified several facets contributing to the challenges faced by IP groups in relation to achievement of education. Due to the diversity of cultures among IP groups, a one-size-fits-all curriculum approach is not feasible for IP groups. IKSPs must be respected by course developers as well as the accuracy of these information vis-a-vis the IP group's cultural practices. Remoteness of location,
        1. Obstacles to education
            a. Nutrition
            b. Distance / Remoteness
            c. Discrimination
        2. Loss of identity
            a. Forced assimilation
        3. Invisible
            a. Often are unregistered at birth
        4. Education often irrelevant
            a. Competition vs cooperation approach in learning
            b. Education "normalized" for non-IP people / irrelevant to needs of IP
        5. Indigenous language barrier/ loss of heritage
            a. Lack of incorporation of indigenous language in education

b. “forgotten”

ii. DepEd Order 62, s. 2011 - National Indigenous Peoples Education Policy Framework
   1. Formulated after several consultations with IP leaders and elders
   2. “IP Education Program” [2011] (IPEd program)
   3. Rights-based approach; education anchored on the social and cultural context of IP learners
      a. Respects identities
      b. Values and promotes IP knowledge systems and heritage
      c. Contextualized lesson plans
      d. Use of local language for teaching
      e. Elders as teachers
      f. Use of ancestral domain as classrooms

iii. TAYAN (Tanging Yaman Alagaan Natin), borrowed from a Bontok (Mt. Province) term literally referring to “one’s territory or domain”, is LPU’s response to the growing need of embracing inclusivity as a transforming philosophy which brings out the best in people.
   1. Project ADHIKA (Arugain ang Dalikang Hiyas ng Kalikasan tungo sa Katarungan) [Nurturing nature’s bounty towards environmental justice]
      a. Is the Environment component of TAYAN
         i. Objective: reinforce with the IP community (particularly the Dumagat children) a deeper appreciation of their roots in the mountains.
         ii. Particularly children as they are vulnerable to embracing a more contemporary lifestyle given modernization’s influence.
      b. December 20-21, 2010
         i. The “foot librarians” hiked 4-hours into the mountains to conduct read–along activities and other projects promoting literacy, and creativity. The materials used were then left with the community at the LPU-Kailugan Community Library, to build up and empower their community through education.
         ii. This evoked in foot librarians a more permanent concern in the preservation and protection of its pristine state – a habitat still unpolluted and not as heavily tarnished by man-made incursions; where reading is not just confined to books but also to read what the environment is saying.
      c. January 22-23, 2012 (General Nakar)
         i. Foot librarians departed from Manila via Van at 2:30am and arrived at the site via Jeepney at 11:00am. As with most trips, the change in vehicle is necessary for the uphill drive towards these communities.

ii. Foot librarians conducted storytelling aimed to motivate and inspire children to read and orient them the value of reading. Interactive games was used as a method to gauge understanding. Other activities such as art activities were also prepared to empower their talents when it comes to art works, group games to build camaraderie and boost their morale.

d. June 1-2, 2013 Community Library Buildup – Sitio Paglitao, Antipolo Rizal

i. Foot librarians hiked a 3-4 hour muddy trail going to the mountains where the Dumagats resided. This trip was done for the finalization of the structural plan of the community library, orient the community on the use and purpose of the community library, draft guidelines for the use of the community library, and lastly, supervise and help in the construction of the community library.

2. Project PUGAHAN (Pamana'y Ugatin, Hasain, at Arugain)

a. Is the education component of TAYAN that contributes to the pursuit of access, relevance and equity in education for the IPs.

i. Objective: provide basic education to underprivileged Agta, Dumagat, and Batak youth due to remoteness of area

3. Project DEEP (Dumagat's empowerment for the Elimination of Poverty)

a. Is the research arm of TAYAN that provides data for more accurate interventions and dissemination of knowledge about the IPs. From these research, skills, training, livelihood, capacity building and other resource mobilization activities are based.

iv. Katutubong Paaralang [Indigenous School] Jose P. Laurel – Masla (KPJPL)

1. School site ground breaking: April 15, 2012
2. The community, with the approval and endorsement of their tribal leader, community leader, and community association, decided to name said school after JPL as their respect and vow to foster education

a. "... sa mahabang panahon naming pinangarap, umusbong ang katuparang PANG-EDUKASYON na makakatugon sa pangangailangan ng aming KABATAANG KATUTUBOBG naghahangad na matuto at makapagtapos ng pag-aaral."

b. Trans: for the longest time our dream of achieving progress EDUCATION-WISE that will answer to/ be the solution to the needs of our INDIGENOUS YOUTH aspiring to learn and complete their education.

b. Library establishment

i. Ina Apolonia Library

1. Purpose
2. Establishment

3. Visits

ii. Dingalan National High School (DNHS) Library

1. October 25, 2012

a. Library undergone organization (cataloging using DDC) and automation through the efforts of SHLARC

B. Cultural insights (take-aways from immersion: appreciation of IKSPs)

a. Reflections

i. LPU Community

a. Community Immersion of LPU faculty and non-teaching staff with the Dumagats in Sitio Masla, General Nakar, Quezon (Jan 22-23, 2012)

i. "Dumagats value education so much. They cares and valued all the things that LPU gave them especially the books donated. When you visit the community library, all the books are arranged properly, and they have their rules and policies on borrowing materials which amazed me." ARC Librarian (Cutchon)

ii. "I have learned that Dumagats are struggling to maintain their cultural heritage as an indigenous tribe. They are having difficulties in recognizing their native language and some of them don't know how to speak this native language, especially the children. That's why one of our main goal is to help them preserve their culture, language, also the environment that will sustain them for many years to come." ARC Librarain (Apalisok)

b. November 2012

i. "I learned that in the place like Dingalan, and isolated province, its people should maximize their resources for their school. Their school libraries do not have a full-time librarian to organize the books. But people live a very simple life and they are thankful for what they have." ARC Librarian (Otep)

ii. "...Participants [LPU] of outreach programs like this should remain consistent, sensible, respectful, and genuine." Dean CITHM (Beth)

iii. "We must be proud of our mother tongue. Honestly, before, I really don't care [for] when it comes to 'Mother Tongue" [Tagalog was common], but when I saw and heard the people and the speaker, I was amazed and suddenly, I feel like I want to learn that [Dumaget] native dialect. I'm happy for those volunteer teachers who chose to teach tribes their native tongue." COSeL Volunteer (Ilagan)

iv. "I realized and observed that students in places like Sitio Payong (who have a lower quality of education as compared to more prestigious schools) have a passion to learn and excel in studying. I met a lot of bright minds today that could be developed more if they get wonderful quality of education." CAS Student (Nishioka)

ii. IP Community

1. November 2012 – KPJPL community teacher
    a. “Nakakatuwa po na makita ang mga bata na magsikap na matuto at madagdagan ang kanilang kaalaman. Sa mga batang dati ay hindi maalam magsalita ng Dumaget, natutuwa ako na sa ngayon sila ay may alam na. Salamat sa Lyceum sa paggabay sa amin sa pagpapanatili sa aming lenggwahe at kultura.”
    b. Trans: It's heartwarming to see the children working hard to learn and increase their knowledge. The children who previously didn't know how to speak Dumaget, I'm glad that now they know how. Thank you Lyceum for guiding us in preserving our language and culture.
2. PUGAHAN – Making education accessible & equitable towards quality IP Education (July 2013 – Lingap) “Cultural competency is deemed as very important component in achieveing a truly equitable education. Teachers as “second parents” in schools are expected to be AWARE OF and SENSITIVE TO the rudiments of the being of their schoolchildren.
    a. “Education really is for all. Regardless of what [ethnic group] one belongs (with), how far or near the place is, through IP education, the unreachable becomes reachable.” Head teacher III – Quirino
    b. “We must respect the differences of individual in terms of their culture, language, religion, beliefs, and their way of living.” Teacher – Quezon
    c. “IP curriculum makers should broaden more their knowledge about IPs’ way of living that can serve as a baseline [for] making IP curriculum.” Aurora
    d. “[The] “one-size-fits-all" doesn’t apply when it comes to teaching IP groups. What is best for Dumagats of [Northern] Aurora is not necessarily best for Dumagats of [Southern] Aurora” ESP (Education Support Professional) – Aurora

CONCLUSION

The collaboration between LPU COSeL and various IP communities over the past decade has fostered a rich exchange of knowledge and mutual enrichment. By reimagining librarianship, librarians have evolved into cultural bridges and community advocates, playing a pivotal role in connecting and supporting IP communities.

Foot librarians, in particular, have been instrumental in this journey. Their dedicated efforts in initiating and participating in numerous activities have significantly contributed to the success of these partnerships. Through their on-the-ground engagement, they have facilitated reciprocal learning, sharing invaluable stories and lessons on resiliency, sustainability, and collective memory with IP community members. These exchanges have not only enriched the librarians' understanding but also highlighted the strength and wisdom inherent in IP communities.

LPU's commitment to ethical considerations and sustainability has been paramount in ensuring that partnerships are respectful, non-extractive, and mutually beneficial. By promoting co-ownership in programs, LPU has laid the groundwork for sustainable and enduring collaborations.

The implications of this study underscore the importance of ethical engagement and the transformative potential of librarianship when approached as a collaborative and community-centered practice. Future recommendations include continuing to build on these partnerships, expanding outreach efforts, and ensuring that all initiatives are guided by principles of respect, reciprocity, and sustainability.

This conclusion encapsulates the essence of the knowledge exchange and mutual enrichment achieved through these partnerships, highlighting the crucial role of foot librarians and setting the stage for ongoing and future collaborations that honor and uplift IP communities.

REFERENCES

Abu, R., Grace, M., & Carroll, M. (2011). The role of the rural public library in community development and empowerment. International Journal of the Book, 8(2), 63-74. https://doi.org/10.18848/1447-9516/cgp/v08i02/36863

Anishinabe, L. R., & Frydman, A. (2013). Library Services to Indigenous Populations: Case Studies. 119.

Baba, Z., & Abrizah, A. (2018). Transformation strategies in community engagement: Selected initiatives by Malaysian libraries, IFLA Journal, 44(2), 90-105. https://repository.ifla.org/server/api/core/bitstreams/3163e8f3-0a59-4508-b381-bf68fe369732/content

Cram, J. (1993). Colonialism and Libraries in Third World Africa. Australian Library Journal, 42(1), 13-20. https://doi.org/10.1080/00049670.1993.10755621

Department of Education. (2016). DepEd Order No. 22, s. 2016. Implementing Guidelines On the Allocation and Utilization of the Indigenous Peoples Education (IPEd) Program Support Fund for Fiscal Year (FY) 2016. 1-14.

International Federation of Library Associations and Institutions (IFLA) 2025 IFLA Newsletter, April 2025: Empowering communities – IFLA. https://www.ifla.org/news/ifla-newsletter-april-2025/

Kaya, H. O., & Seleti, N. (2013). African indigenous knowledge systems and relevance of higher education in South Africa. The International Education Journal: Comparative Perspectives, 12(1), 30-44. www.iejcomparative.org

Mhlongo, M., & Ngulube, P. (2018). Public Libraries as conduits for indigenous knowledge in South Africa. Library Philosophy and Practice, 2018.

Mulindwa, G.K. (2013). [Foreword of an article]. National Library of Uganda. https://www.igi-global.com/pdf.aspx?tid=94471&ptid=84173&ctid=15&t=Foreword&isxn=9781466650435

Nyana, S. A. (2009). Creating a Library System that Serves the Needs of Rural Communities in Africa South of the Sahara. Journal of Pan African Studies, 3(1), 9-22. http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=44369505&site=ehost-live&scope=site

Rivera, A. (2013). Indigenous Knowledge and Cultural Competencies in the Library Profession: From Theory to Practice. IFLA WLIC 2013 Singapore, 1-15. http://library.ifla.org/275/1/125-rivera-en.pdf

Roy, L. (n.d.). Indigenous Libraries and Innovative Multicultural Services. https://www.ischool.utexas.edu/~loriene/prez_elect/media/publications/IFLA-keynote-lorieneroy.pdf

Thornberry, P. (2012). The UN draft Declaration on the Rights of Indigenous Peoples. Indigenous Peoples and Human Rights, 370-396. https://doi.org/10.7228/manchester/9780719037931.003.0016

Tise, E. R., & Raju, R. (2015). Library and information services in Africa in the twenty-first century. Trends, 64(1), 3-18.

Trahn, I. (1980). Librarianship in Asia: What do we know? Should we care? Australian Library Journal, 29(1), 32-37. https://doi.org/10.1080/00049670.1980.10755410

United Nations. (2010). Gender and Indigenous Peoples' Education. https://www.un.org/esa/socdev/unpfii/documents/BriefingNote3_GREY.pdf

United Nations For Indigenous Peoples. (n.d.). Education. https://www.un.org/indigenous/education.shtml

The Official Publication of Community Outreach & Services Learning – Lyceum of the Philippines University. (2012). LINGAP. DHNS Library gets catalogued by SHL-ARC, Vol 3, no.2, p. 4.

The Official Publication of Community Outreach & Services Learning – Lyceum of the Philippines University. (2012). LINGAP. Achieving Dreams in Baby Steps. Dumagat is not Taga-dagat' – Dr. Reid, Vol. 3, no. 4, p. 14-15.

The Official Publication of Community Outreach & Services Learning – Lyceum of the Philippines University. (2012). LINGAP. Insights from the Field, Vol. 3, no. 4, p. 17-19.

The Official Bi-Annual Newsletter of Community Outreach & Service Learning – Lyceum of the Philippines University. (2011). LINGAP. LPU "Foot librarians" read along with the Dumagats, Vol. 1, npo. 2, p. 4-5.

The Official Publication of Community Outreach & Services Learning – Lyceum of the Philippines University. (2012). LINGAP. SHL-ARC tells tale to Dumagat youth, Vol. 3, no. 1, p. 5.

The Official Publication of Community Outreach & Services Learning – Lyceum of the Philippines University. (2012). LINGAP. VPAA Lead CODDH in school site groundbreaking ceremonies, Vol. 3, no. 1, p. 8.

The Official Publication of Community Outreach & Services Learning – Lyceum of the Philippines University. (2012). LINGAP. Project PUGAHAN: LPU's response to inclusive education, Vol. 3, no. 1, p. 10.

The Official publication of Community Outreach & Services Learning – Lyceum of the Philippines University. (2012). LINGAP. Insights from the Field, Vol. 3, no. 1, p. 12-14.

The Official Publication of Community Outreach & Services Learning – Lyceum of the Philippines University. (2012). LINGAP, Vol. 3, no. 1, p. 15.

Community Outreach & Service Learning. (2013). Community Outreach & Service Learning Handbook. Lyceum of the Philippines University

The Official Publication of Community Outreach & Services Learning – Lyceum of the Philippines University. (2013). LINGAP. SHL-ARC conducts 3rd read-along with the Dumagat kids, starts community library buildup, Vol. 4, no. 1, p. 4.

The Official Publication of Community Outreach & Services Learning – Lyceum of the Philippines University. (2013). LINGAP. Insights from the field, Vol. 4, no. 1, p. 5.

The Official Publication of Community Outreach & Services Learning – Lyceum of the Philippines University. (2013). LINGAP. Making education accessible & equitable towards quality IP education, Vol. 4, no. 1, p. 10-11.

The Official Institutional Magazine of the Lyceum of the Philippines University – Manila. (2015). LPU Tower. People Program of the Year award 2014, Vol. 7, no. 2), p. 3-4.

The Official Institutional Magazine of the Lyceum of the Philippines University – Manila. (2015). LPU Tower. Celebrating the Life and Legacy of SHL, Vol. 7, no. 2, p. 26-28.

The Official Institutional Magazine of the Lyceum of the Philippines University – Manila. (2015). LPU Tower. CCS community outreach in Dingalan Aurora, Vol. 7, no. 2, p. 42-43.

The Official Institutional Magazine of the Lyceum of the Philippines University – Manila. (2016). LPU Tower.

Driving Change: The National Information Literacy Agenda for Marginalized Communities

Yazid bin Ibrahim[1], Nor Edzan Che Nasir[2], Mohd Jeffri Abu Hassan Vadival[3]

[1] Prime Minister Department of Malaysia, Putrajaya, Malaysia

[2]Librarians Association of Malaysia, Kuala Lumpur, Malaysia

[3] Information Literacy Promotion Division, National Library of Malaysia, Kuala Lumpur, Malaysia

Corresponding email: yazid.ibrahim@jpm.gov.my

ABSTRACT

The development of knowledge ecosystems that empower the disabled and marginalized communities is crucial for creating an inclusive society. In Malaysia, the National Information Literacy Agenda (NILA) has achieved significant strides by integrating comprehensive modules tailored to diverse educational and social needs. This agenda is spearheaded by the National Library of Malaysia in collaboration with academic librarians, school librarians, media and library teachers, community representatives, and other stakeholders. Through these efforts, NILA fosters information literacy skills essential for bridging socio-economic and digital divides, particularly for Orang Asli communities and persons with disabilities (PWD). Specialized modules and targeted outreach programs ensure these groups gain equitable access to information resources, promoting their active participation in society and addressing unique barriers they face. These initiatives align with Sub-Theme 3 by showcasing libraries as pivotal agents in building inclusive knowledge ecosystems. By advancing Sustainable Development Goal 4 (quality education), NILA emphasizes equitable opportunities for lifelong learning. Libraries are thus transformed from traditional repositories into dynamic facilitators of knowledge and empowerment. This paper advocates for the adoption of the NILA framework by policymakers to further integrate inclusivity into national strategies, ensuring the marginalized can thrive in a knowledge-based society

Keywords*:* Information Literacy; National Information Literacy Agenda; Inclusive Society; Orang Asli; Persons with Disabilities; NILA

INTRODUCTION

We live in an era popularly known as the digital or new media age. Information is a valuable commodity and widely accessible through computer technology. Following from this, information literacy is therefore an important component of lifelong learning. This is the point of entry towards achieving the national educational goals. The development of information seeking competencies should take place throughout the citizen's lifetime, especially during the years of pursuing education.

However, marginalized communities such as orang Asli (indigenous peoples), rural populations, persons with disabilities (PWDs), and urban poor—continue to experience significant barriers to information access. According to UNESCO's Global Media and Information Literacy Assessment Framework (2021), nearly 2.9 billion people worldwide still lack meaningful internet access, many of whom belong to marginalized communities. In Malaysia, data from the Department of Statistics Malaysia (DOSM, 2023) reveals that 23% of rural households lack consistent internet connectivity compared to only 3% in urban areas. For Orang Asli communities, the gap is even wider, with literacy rates hovering at 70%, compared to the national average of 95% (Jabatan Kemajuan Orang Asli, 2022).

In this instance, librarians as members of the learning community and as information management professionals, should play an important role in promoting information literacy especially among marginal communities. The librarians' role is more clearly defined when working with others especially with the communities such as the public, universities, and schools. By creating program that can be integrated into the curriculum, librarians can actively contribute to the students' learning process to enable them to become lifelong learners. A country's citizens must continuously develop their skills, knowledge, and values that are necessary to become lifelong learners.

In Malaysia, information literacy education is still within the grey area as there is no standard for information literacy to be as a baseline by educational settings which include schools, colleges and also higher education institutions. As for the school setting, information literacy education was managed by school resource center. The school resource centers of public schools are managed by full-time teachers known as library and media teachers. Among the

responsibilities of the library and media teachers is to assist the teachers and students to search for information. They also manage and conduct information literacy classes in schools. However, more than 60% of library and media teachers do not receive sufficient training in information literacy (Chew, 2013).

Through their libraries, higher education institutions in Malaysia are carrying out their various user education programs such as library orientation programs, library skills programs, library research programs, information skills programs and other similar program related to information literacy education. Most of these academic libraries do not make it compulsory for students to attend information literacy courses. It is only an optional program organized by the library for students who are interested. However, the University of Malaya (UM) has made it compulsory for all undergraduate students to register for the Information Skills Course which students have to pass since this course is a graduation requirement for undergraduates. It is a one-credit-hour course with 14 hours of lecture and is managed and run by the UM Library. The librarians take over the role of a lecturer and facilitator. Throughout the years, the course has been revamped and is now taught using the blended learning approach. The course utilizes web-based technology (online assignments, video, slide, online test), a pedagogical approach with group discussions, and instructional technology with face-to-face training led by librarians (Mohd Sharif Mohd Saad, Edzan, N.N. & Zainab, A.N.,2005).

The National Library of Malaysia (NLM), the state public libraries, and the village libraries are primarily responsible for educating the general public or community with information literacy. NLM has so far conducted a wide range of information and media literacy programmes throughout Malaysia. These included workshops, training, refresher courses, user education initiatives, and seminars on the various subject. The *perpustakaan desa* or village libraries and all other types of libraries do run information literacy courses using their own syllabus.

PURPOSE

This paper discusses the development of the National Information Literacy Agenda (NILA) as a strategic initiative to drive change and bridge the information divide, particularly among marginalized communities in Malaysia. NILA aims to standardize information literacy programs across schools, higher education institutions, and community platforms, ensuring inclusivity regardless of socio-economic status, education level, or geographical location. Currently, Malaysia lacks a comprehensive and structured national framework for information literacy that can guide libraries and educational institutions uniformly. Establishing NILA is critical to creating a clear roadmap for the planning, implementation, and evaluation of information

literacy initiatives. Through this framework, guidelines, standards, modules, and best practices will be developed to support sustainable information literacy education across all sectors. By focusing on marginalized communities including indigenous peoples, rural populations, and persons with disabilities, NILA seeks to empower individuals to participate meaningfully in the information society, thereby contributing to Malaysia's broader social, cultural, and economic development. Collaboration among stakeholders, including librarians, educators, policymakers, and community leaders, is essential to ensure that the information literacy agenda becomes a catalyst for equitable and inclusive national progress.

METHODOLOGY

Document Analysis

Three data collection methods were used and for the first phase, the document analysis gathered as much information-on-information literacy as possible. By looking at the various publications on the subject, the authors were able to understand more about information literacy initiatives from various countries as well as at regional and international levels. Relevant articles, documents, and research studies on information literacy were analyzed. The authors were able to analyzed the information literacy standard from countries such as the United Kingdom, United States of America, some European countries and regional initiatives like Australian and New Zealand Institute for Information Literacy Framework (ANZIIL). In the United Kingdom, the definition of information literacy was developed by CILIP and realized it in October 2004. A committee was formed and charged with producing a definition, as well as supporting material such as case studies demonstrating how information literacy can make a difference to individuals. ANZIIL is derived with permission from the Association of College and Research Libraries (ACRL) Information Literacy Competency Standards for Higher Education. The concept has been adapted and updated to incorporate local and international understandings of information literacy education.

First Focus Groups and Workshops

As for the second phase of data collection, in 2022 the focus groups brought together a diverse range of participants, including librarians from public, school, academic, and special libraries; educators from primary, secondary, and tertiary institutions; representatives from non-governmental organizations (NGOs) working with indigenous peoples and persons with disabilities; policymakers from the Ministry of Education and Ministry of Communications; as well as community leaders from rural and Orang Asli communities.

Participants were tasked with observing and critically analyzing the existing information literacy education programs within their respective organizations. They documented best practices, challenges, and gaps, particularly concerning access, inclusivity, and effectiveness. During the workshops, these observations were discussed in detail, allowing for cross-sectoral sharing and collaborative problem-solving.

One of the key findings from these discussions was the recognition that current information literacy initiatives were heavily influenced by international standards, which were often ill-suited to the local Malaysian socio-cultural and educational context. For instance, while international frameworks emphasized advanced research skills, many marginalized communities in Malaysia still grapple with basic information search competencies and low levels of digital access.

Furthermore, it became evident that existing programs rarely incorporated considerations for linguistic diversity, cultural sensitivities, and the specific needs of persons with disabilities. Materials and instruction methods were typically uniform and urban-centric, inadvertently excluding many rural and indigenous learners.

With all these factors in mind, the NLM decided to adopt and extended the National Information Literacy Agenda (NILA) framework which was developed by Mohd Sharif and Edzan (2005). Using the framework, the NLM through a Steering Committee will develop the definitions, modules, standards and assessment tools for information literacy appropriate to Malaysia and Malaysians.

Second Focus Groups and Workshops

In 2024, the third phase of refining Malaysia's National Information Literacy Agenda (NILA) Module marks a strategic shift from development to consolidation and institutionalization. This phase focuses on ensuring the module is structured, measurable, and inclusive across various sectors of society. The key initiatives under this phase include:

1. Updating the Information Literacy (IL) Module
   The existing module has been reviewed and updated to reflect emerging trends, including the integration of digital citizenship, artificial intelligence (AI) literacy, and culturally relevant pedagogies. This ensures the module remains dynamic and responsive to current information ecosystems.
2. Development of Learning Outcome Standards and Achievement Indicators

Clear and structured learning standards have been established for each level of target audience—students, educators, civil servants, and the general public. Each outcome is aligned with national education goals and includes tiered indicators to measure progression from basic to advanced competencies.

3. Creation of Information Literacy Assessment Tools
   A suite of assessment instruments—both quantitative and qualitative—has been developed to evaluate users' information literacy skills. These tools include self-assessment rubrics, scenario-based tasks, pre- and post-tests, and digital portfolios to track individual and group progress.

4. Identification of Target Groups
   The IL module has been mapped to specific target demographics to ensure maximum relevance and impact. These groups include:

   a. Primary and secondary school students

   b. University students and researchers

   c. Civil service personnel

   d. Marginalized communities (e.g., Orang Asli, rural populations, and PWDs)The general public

5. National Information Literacy Seminar

   A National IL Seminar will be convened to disseminate the updated module, engage stakeholders, and gather feedback. This platform will also foster inter-agency collaboration, highlight best practices, and serve as a launchpad for nationwide implementation.

6. Establishment of the National Information Literacy Centre

   A central coordinating body—the National Information Literacy Centre—will be established to oversee training, research, resource development, and advocacy efforts. The Centre will also act as a hub for policy alignment, international collaboration, and monitoring of literacy outcomes nationwide.

FINDINGS

Defining Information Literacy for Malaysia

The NLM established the NILA Steering Committee (NSC) to adopt the NILA framework with amendments and updates. A workshop was held with stakeholders to decide on the definitions of information literacy and an information literate individual. Both these definitions have to

reflect Malaysians. The participants at the workshop took time to look at the various information literacy programmes that were conducted by schools, institutions of higher education and the public libraries. At the end of the workshop, the participants developed the definition for information literacy, an information literate individual and unanimously decided on six modules for any information literacy programme.

In 2022, at the National Information and Media Literacy Seminar 2022, the NSC held the NILA Round Table Meeting with their stakeholders. The definitions for information literacy and an information literate individual were discussed and agreed upon by the stakeholders. They also agreed on the number of modules and the contents of the information literacy programme for schools, institutions of higher education and public libraries. The information literacy modules will be developed based on the level of education so that they can used it as a guideline for all libraries and information centres. The NSC has also collectively drawn out both the short- and long-term plans to finally develop an information literacy standard for Malaysia. At the same time, NLM has launched their e-LMM system (2021), (http://elmm.pnm.gov.my) which will be integrated into NILA. The e-LMM is a self-paced online information and media literacy program that everyone can use.

After the workshop, the NSC developed the framework that provides the principles, standards, practice, and modules that can support information literacy education in all sectors of Malaysia including the education sector. As a result, the NSC has defined information literacy as “an ability to empower individuals to identify, evaluate, manage, create and disseminate information in various mediums and formats in an ethical manner to support lifelong learning”. In a broader context, NSC has been described as information literate individuals as those who will know when they need information, find the relevant information, evaluate the information for specific needs, and interpret and apply the information to address and help resolve personal job, job-related, financial, and social issues. An information-literate individual is:

1. Identify information for current needs.
2. Construct an effective and efficient information search strategy.
3. Critically evaluate the information to obtain quality information.
4. Organize information in various mediums and formats systematically.
5. Use information ethically by understanding the issues related to the use of the information.

6. Creating new knowledge based on the information obtained to support lifelong learning.
7. Disseminate and share information responsibly with other individuals and civic society through various mediums and formats.

Development of the Six Core Modules

A significant accomplishment of the National Information Literacy Agenda (NILA) initiative was the systematic creation of six detailed core modules aimed at meeting the varied information literacy requirements across different sectors of Malaysian society. These modules were crafted to offer a progressive pathway, matching learning outcomes to the cognitive and developmental stages of individuals from early education to adulthood. Each module is based on the idea that information literacy is not a fixed skill set but rather a developing competency that increases in complexity depending on an individual's educational background, social environment, and technological exposure. The modules aim to enhance not just technical skills but also to nurture critical thinking, ethical reasoning, and independent learning. The six modules are as follows:

1. Module 1: Basic Information Literacy for Primary Schools
   Concentrating on sparking curiosity, this module familiarizes young students with fundamental ideas like recognizing their information needs, comprehending sources of information, and distinguishing between credible and non-credible sources. To make the learning experience enjoyable, interactive activities, storytelling, and game-based approaches are included. Additionally, learners will utilize basic AI-driven search assistants (such as voice-activated queries) to discover answers to entertaining research questions.
2. Module 2: Critical Information Literacy for Secondary Schools
   This module enhances foundational skills by focusing on critical thinking, responsible use of information, and digital citizenship. Students will acquire the ability to evaluate the credibility of online information, safeguard their privacy, and participate in online communities in a responsible manner. Additionally, students will discover how AI algorithms shape their social media experiences or recommend content. They will investigate instances of AI bias and misinformation.
3. Module 3: Advanced Information Literacy for Higher Education Institutions
   Crafted for both undergraduate and postgraduate learners, this module emphasizes skills in academic research, effective scholarly communication, ethics in citation, and

sophisticated techniques for database searching. Learners will be equipped to traverse intricate information landscapes with academic precision. Additionally, students will interact with AI research instruments (such as semantic search platforms, AI-supported citation management systems, and AI-driven literature review tools). Workshops will be held to train students on how to critically evaluate AI-generated content to uphold academic integrity.

4. Module 4: Community Information Literacy for Public Libraries
   This program, which is intended for the general public, offers possibilities for lifelong learning and teaches useful information skills for daily decision-making, such as digital media literacy, financial literacy, and health information literacy. This section will show how AI is utilized in news aggregation platforms, personal finance apps, and health symptom checkers. Participants will get knowledge on how to assess the accuracy and constraints of recommendations produced by AI.
5. Module 5: Inclusive Information Literacy for Special Needs Education
   Recognizing the diverse abilities of persons with disabilities (PWDs), this module incorporates adaptive technologies, alternative communication formats (e.g., Braille, audio books), and specialized instruction techniques to ensure equitable access to information. This module also will introduce AI-powered assistive technologies such as voice-to-text applications, predictive text readers, Braille e-readers, and AI-driven screen readers.
6. Module 6: Culturally Sensitive Information Literacy for Rural and Indigenous Communities
   Tailored to the unique needs of Orang Asli and rural communities, this module emphasizes oral traditions, localized knowledge systems, and bilingual or indigenous language content delivery to ensure relevance and cultural respect.

Each module is accompanied by a detailed syllabus, learning outcomes, suggested instructional methods (including blended learning), assessment rubrics, and resource recommendations. The modular structure provides flexibility, allowing adaptation based on local needs, resource availability, and technological readiness.

Thus, the development of these six core modules marks a significant step toward mainstreaming information literacy across all educational and social sectors in Malaysia, ensuring that no individual or community is left behind.

Key Innovations

In addition to the development of standardized modules, NILA introduced several innovative strategies to enhance the delivery, accessibility, and impact of information literacy education across Malaysia.

1. Integration of Digital Platforms: e-LMM

   One of the landmark innovations is the establishment of the e-Literasi Media dan Maklumat (e-LMM) system, a self-paced, online learning platform accessible to all Malaysians. Hosted by the National Library of Malaysia (NLM), the e-LMM provides modular courses, interactive exercises, video tutorials, and self-assessment tools that users can use at their own pace and convenience. e-LMM not only democratizes access to information literacy training but also ensures continuity of learning, particularly in remote or underserved regions where physical training opportunities are limited. The platform's mobile-friendly design and multilingual options further enhance its inclusivity.

2. Flexible and Adaptive Learning Models

   Recognizing Malaysia's geographic and socio-economic diversity, NILA promotes a flexible delivery model that includes:

   i. In-person workshops in libraries, community centers, and schools.

   ii. Hybrid models combining face-to-face sessions with online resources.

   iii. Fully digital programs for areas with sufficient internet access.

   Moreover, offline resources such as printed modules and mobile library visits are employed to reach communities without stable digital infrastructure, ensuring no one is excluded from the program due to technological limitations.

3. Community-Driven Content Development

   Another key innovation is the emphasis on community-driven content development. Through partnerships with government agencies, private agencies, educators, and NGOs, NILA ensures that learning materials reflect the cultural, linguistic, and socio-economic realities of target communities. This bottom-up approach increases relevance, engagement, and ownership among learners, significantly enhancing program effectiveness.

4. NILA Framework

In 2025, the NSC plans to develop an information literacy standard with indicators, learning outcomes, assessment tools and an information literacy index. All this will be tailored to Malaysians. The NSC is also planning to establish the Information Literacy Center and portal by the 2024 or 2025. They will also develop a mission statement that will include both the advancement of information literacy and also its advancement within a community development agenda. NSC will create a research agenda that will guide its priorities and affect its operations. A stronger body for research is required on many facets of information literacy so that there is enough data to persuade policymakers and other decision-makers.

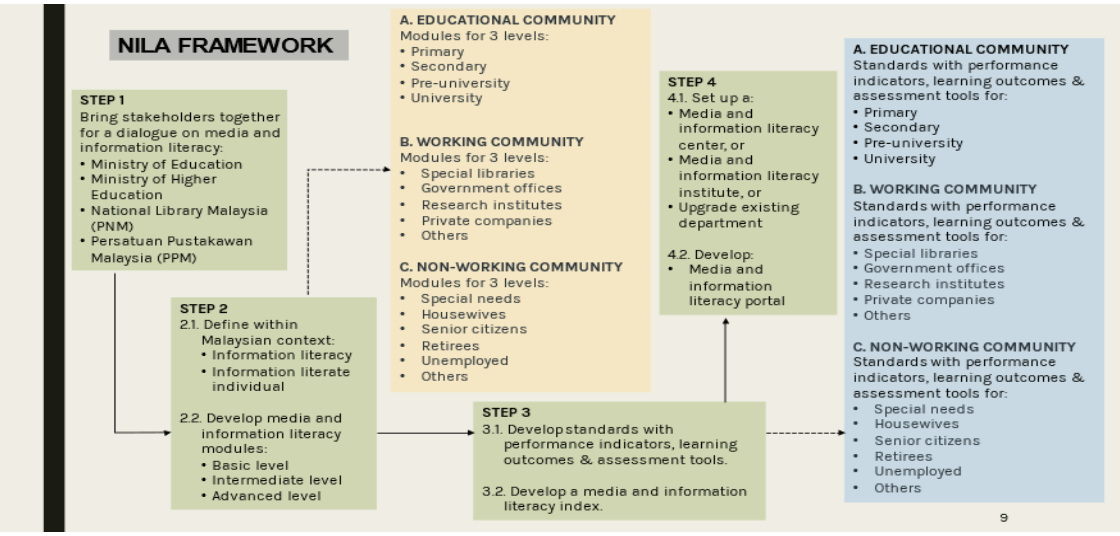


Figure 1 : National Information Literacy Agenda Framework

DISCUSSION

The development and implementation of the National Information Literacy Agenda (NILA) marks a critical step toward fostering an inclusive and knowledge-empowered Malaysian society. However, in translating vision into action, several key themes and challenges emerge that warrant further discussion.

Addressing the Digital Divide

One of the most significant barriers facing marginalized communities in Malaysia is the persistent digital divide. While urban populations enjoy relatively seamless access to broadband internet, rural communities, Orang Asli settlements, and economically disadvantaged groups often experience limited connectivity, insufficient digital devices, and inadequate digital literacy skills.

NILA recognizes that effective information literacy education cannot occur in a vacuum of technological infrastructure. As such, the agenda emphasizes multi-pronged strategies to mitigate these gaps, including partnerships with telecommunications providers to extend internet access, the use of mobile libraries equipped with digital resources, and the development of offline modules for areas with poor connectivity. Furthermore, digital literacy training is embedded within information literacy modules, ensuring that marginalized groups not only gain access to information but can also effectively utilize digital tools for lifelong learning and socio-economic participation.

Libraries as Catalysts for Change

Traditionally seen as custodians of books and information, libraries are being reimagined under NILA as dynamic spaces for community empowerment. Public libraries, school resource centers, and village libraries (Perpustakaan Desa) are positioned at the frontline of the information literacy movement, acting as hubs for learning, innovation, and community engagement.

Librarians are envisioned not merely as information managers but as facilitators, mentors, and advocates for information equity. Through specialized training programs, librarians are equipped to deliver targeted information literacy workshops, mentor community members, and develop localized learning materials that are culturally relevant and accessible.

This repositioning of libraries underscores their pivotal role in achieving Malaysia's broader goals of social cohesion, civic empowerment, and national development. Libraries become not just repositories of knowledge, but active agents in bridging societal divides.

Challenges In Implementation

Despite the comprehensive framework established under NILA, significant challenges remain in ensuring its effective and sustainable implementation.

Among the key issues are:

i. Resource constraints: Many libraries, particularly those in rural areas, face limitations in staffing, funding, and technological infrastructure.
ii. Professional development Needs: Sustained training and capacity-building initiatives are necessary to ensure librarians, teachers, and community leaders are equipped with the latest pedagogical approaches and digital competencies.

iii. Policy alignment: Greater efforts are needed to integrate information literacy objectives into national education policies, curriculum frameworks, and community development strategies. Without formal endorsement and support from key ministries and agencies, NILA risks remaining peripheral to mainstream educational and social programs.
iv. Community engagement: Building trust and active participation among marginalized groups requires culturally sensitive outreach, respect for indigenous knowledge systems, and the co-creation of learning initiatives with the communities themselves.

These challenges highlight the necessity of a whole-of-society approach, involving coordinated actions across government, educational institutions, the library sector, NGOs, and the private sector.

NILA And the Broader Global Agenda

The National Information Literacy Agenda is intrinsically aligned with global efforts to promote equitable access to information and education. It directly supports the United Nations Sustainable Development Goals, particularly:

1. SDG 4: Quality Education – by ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all.
2. SDG 10: Reduced Inequalities – by empowering marginalized groups to access, evaluate, and use information effectively, thus enhancing their socio-economic mobility and inclusion.

Moreover, NILA aligns with the UNESCO Media and Information Literacy (MIL) initiative, which advocates for the integration of media and information literacy into all educational and lifelong learning environments as a means to foster informed, engaged, and resilient societies.

Thus, the successful implementation of NILA not only serves national priorities but also contributes to Malaysia's fulfillment of its international commitments to sustainable, inclusive development.

CONCLUSION

NILA successfully brought together all the stakeholders who are directly and indirectly involved with information literacy programs in Malaysia. They came together in order to determine the direction of information literacy education for Malaysians. Information literacy education in Malaysia schools and universities is not a compulsory subject and the students as well as their media and library teachers are facing considerable challenges in the imparting information literacy skills. NILA is an effort proposed to policy makers to integrate information literacy course in the mainstream primary and secondary school education system. The role of teachers and librarians in the school is crucial and needs to be highlighted as one of main agenda in the educational setting. It is hoped that once stakeholders and other related bodies are convinced of the significance of information literacy, they will become willing partners in this process. They would also realise the need for a mass awareness-raising program about information literacy education in Malaysia to support the Malaysia Education Blueprint (Ministry of Education Malaysia, 2013) and SDG 4 Quality Education (United Nations, 2023).

REFERENCES

Abdul Karim, A. (2014). Exploring student learning of information skills in Malaysian higher education. https://openrepository.aut.ac.nz/handle/10292/8928

Abdullah, S., Ahmad Kassim, N., Mohd Saad, M. S., Tarmuchi, N. R., & Aripin, R. (2006). Developing information literacy measures for higher education. https://repository.arizona.edu/handle/10150/105864

Abidin, H. M. Z., Ahmad, R., & Arsad, S. (2022). The Impact of Information Literacy Programme to Rural Communities in Lifelong Learning for Sustainable Development Goals (SDGs) in Malaysia. International Journal of Academic Research in Business and Social Sciences, 12(8). https://doi.org/10.6007/ijarbss/v12-i8/14664

Armstrong, C., Boden, D., Town, S., Woolley, M., Webber, S., & Abell, A. (n.d.). CILIP defines Information Literacy for the UK. http://eprints.rclis.org/7459/1/Article_Update_25102004.pdf

Chew, F. P. (2013). Literacy among the Secondary Schools Students in Malaysia. International Journal of Social Science and Humanity, 546-550. https://doi.org/10.7763/ijssh.2012.v2.168

Department of Statistics Malaysia (2023). ICT Use and Access by Individuals and Households Survey. Putrajaya: Department of Statistics Malaysia

Edzan, N. N. (2008). Information literacy development in Malaysia: a review. Libri, 58, 265-280. https://eprints.um.edu.my/3587/

Edzan, N.N. & Mohd Sharif, M.S. (2005) NILA: A National Information Literacy Agenda for Malaysia. Malaysian Journal of Library & Information Science, 10(1), 91-103.

Hisham, R., Udin, Z., Hamzah, F., & Mosbah, M. (n.d.). Teaching Information Literacy Skills During the COVID-19 Pandemic: A Case Study of T.J. Danaraj Medical Library. https://umlib.um.edu.my/images/library%20publication/icolis/2021/Teaching%20Information%20Literacy%20Skills%20During%20the%20COVID-19%20Pandemic%20A%20Case%20Study%20of%20T.J.%20Danaraj%20Medical%20Library.pdf

Jabatan Kemajuan Orang Asli (JAKOA) (2022). Annual Report. Putrajaya: Jabatan Kemajuan Orang Asli

Karim, A. A., Bakar, K. A., & Shah, P. M. (2019). Strategic university practices in student information literacy development. Religación. Revista de Ciencias Sociales Y Humanidades, 4(18), 9-15. https://revista.religacion.com/index.php/religacion/article/view/390

Karim, A. A., Din, R., & Razak, N. A. (2011). Investigating students' ways of learning information skills in Malaysian higher education. Procedia - Social and Behavioral Sciences, 15, 3849-3854. https://doi.org/10.1016/j.sbspro.2011.04.384

Karim, A. A., Shah, P. M., Din, R., Ahmad, M., & Khalid, F. (2013). Measuring Information Skills among Malaysian Youth Students: An Instrument Development. Asian Social Science, 9(16). https://doi.org/10.5539/ass.v9n16p22

Malaysian Communications and Multimedia Commission, (2022). 3285 fake news complaints lodged between 2020 and May 31, 2022. https://www.mcmc.gov.my/en/media/press-clippings/3285-fake-news-complaints-lodged-between-2020-and

Ministry of Edcation Malaysia, (2013). Malaysia Education Blueprint: 2013-2025 (PreSchool to Post-Secondary Education. Putrajaya: Kementerian Pendidikan Malaysia. https://www.moe.gov.my/menumedia/media-cetak/penerbitan/dasar/1207-malaysia-education-blueprint-2013-2025/file

Mohammad Fazli Baharuddin, Mohd. Sharif Mohd. Saad & Fuziah Mohd. Nadzar (2011). Information Literacy Practices by Teacher-Librarians: A Case Study by Four Mara Junior Colleges in Kedah, Malaysia. Jurnal PPM, 5. https://myjurnal.mohe.gov.my/filebank/published_article/19567/9.pdf

Mohd Sharif Mohd Saad & Edzan, N.N. (2005). Information literacy initiatives in Malaysia: A framework for implementation. In: The Visible Librarian in the Virtual World: Papers and Proceedings of the PPM-LAS Commemorative Conference, Kuala Lumpur 6-8 April 2005. Kuala Lumpur: Librarians Association of Malaysia, 2005, 77-89.

Mohd Sharif Mohd Saad, Edzan, N.N. & Zainab, A.N. (2005). Assessing learning outcomes of information literacy programmemes: Malaysian academic libraries. International Conference on Libraries (ICOL), 14-16 March 2005, Penang.

Nor Hashimah, H. (2007). Information literacy among secondary school students at fully residential schools in Kuala Lumpur / Nor Hashimah Hussain. http://studentsrepo.um.edu.my/11389/

Perpustakaan Negara Malaysia. (2021). eLMM: Literasi media dan maklumat. http://elmm.pnm.gov.my

Prasad, N. V. (2011). Developing New Media Literacy Among Secondary School Students In Malaysia: Case Studies Of Media Making On Environmental Issues. http://eprints.usm.my/43451/

Sena, S., Hamid, B., Kadir, W., Dolah, W., & Nadzar, F. (2015). Information Literacy in Research Process Among Malaysian Teacher Trainees: Expectation and Inspiration of the Ministry of Education. Journal of Information and Knowledge Management (JIKM), 5(2), 57-68. https://ijikm.uitm.edu.my/pdf/Paper5.pdf

Shamila Mohamad Suhidan, Yazid Ibrahim & Nor Edzan Che Nasir. (2022). Pendidikan Literasi Media Dan Maklumat Di Era Digital: Agenda Literasi Maklumat Negara Malaysia. Seminar Kebangsaan Literasi Media dan Maklumat, 27-29 September 2022, Shah Alam.

Shamila Mohamed Shuhidan and Nor Edzan Che Nasir. (2022). NILA: The Way Forward. Persidangan Tahunan Perpustakaan Malaysia, 25-27 Mei 2022, Kuala Lumpur.

United Nations. (2023). Make the SDGs a Reality. https://sdgs.un.org/

UNESCO.(2021). Global Media and Information Literacy Assessment Framework. https://www.unesco.org/en/media-information-literacy

Weiner, S. A., & Jackman, L. W. (2010). The National Forum on Information Literacy, Inc. College & Undergraduate Libraries, 17(1), 114-120. https://doi.org/10.1080/10691310903584734

Bringing Knowledge and Empowerment To People with Disabilities in Vietnam

Nguyen Manh Hai, Le Thi Huyen Trang

Institute of Scientific Information, Ho Chi Minh National Academy of Politics, Hanoi, Vietnam

Corresponding e-mail: manhnguyen7vn@gmail.com

ABSTRACT

This paper aims to shed light on three critical areas: The challenges faced by people with disabilities in Vietnam, the country's efforts and experiences in fostering knowledge and empowerment for this community, and the remarkable journey of disabled librarians who have established free libraries and reading spaces across the country. The goal is not only to provide a deeper understanding of the difficulties experienced by people with disabilities but also to share practical strategies to promote knowledge sharing and build a sustainable reading culture. By exploring the inspiring stories of disabled librarians who have successfully developed inclusive libraries, this speech aims to illustrate how libraries can transcend their traditional role as repositories of knowledge. Libraries, as demonstrated through these stories, can serve as platforms for empowerment, offering employment opportunities and creating inclusive spaces that foster connection and equality. Beyond being centers of knowledge, libraries can empower individuals to overcome societal barriers, connect with others, and build a more equitable and inclusive future. Through this discussion, we hope to spark a broader conversation about the role of libraries in bridging gaps, breaking stereotypes, and empowering people with disabilities, not only in Vietnam but around the world.

Keywords: People with Disabilities; Knowledge; Empowerment; Disabled Librarians; Vietnam

INTRODUCTION

According to the *Law on Persons with Disabilities of Vietnam* (2010), persons with disabilities are defined as individuals with impairments in one or more parts of their body or functional deficiencies that manifest as disabilities, thereby causing difficulties in their work, daily life, or study. This group includes people with congenital disabilities, those with impairments due to accidents, war veterans, and individuals with illnesses. Physical and intellectual disabilities often deprive these individuals of development opportunities and expose them to numerous challenges in daily life, as well as negative social prejudice. The *2023 Vietnam Disability Survey* reported that the disability rate among individuals aged 16 and above is 7.31%, with rural areas recording a higher rate (8.36%) than urban areas (5.59%). Particularly, the North Central and Central Coastal region had the highest disability rate nationwide at 9.1% (General Statistics Office [GSO], 2024). These figures highlight the pressing issues regarding access to information, education, and development opportunities for persons with disabilities, and underscore the urgent need to promote inclusion and empower this vulnerable group. In response, many innovative models have emerged, established by persons with disabilities themselves, such as private libraries and free community reading spaces, which help spread knowledge, foster resilience, and empower disadvantaged communities. This study aims to examine the current situation, challenges, and practical experiences related to knowledge development and empowerment for persons with disabilities in Vietnam. It also emphasizes the vital role of libraries as essential institutions that promote knowledge equity, foster inclusive development, and help realize the commitment to "no one will be left behind" (United Nations, 2015).

CHALLENGES FACED BY PERSONS WITH DISABILITIES IN VIETNAM

Persons with disabilities (PWDs) in Vietnam continue to face significant challenges, both material and psychological, which hinder their full integration into society. These challenges are complex and multifaceted, including stigma, discrimination, limited access to education and employment, and barriers in accessing essential services like healthcare, social policies, transportation, and public infrastructure. Despite various policies and frameworks aiming to protect the rights of PWDs, implementation gaps persist, and there is still much to be done to ensure equitable opportunities for this marginalized group.

Stigma and Discrimination

Despite progress in inclusive development, PWDs in Vietnam continue to face systemic barriers—particularly stigma and discrimination which profoundly affect their quality of life. According to the Situational Analysis Report on the Rights of Persons with Disabilities in Vietnam (United Nations Development Programme, 2022), inequality and discrimination

remain significant obstacles to the realization of PWDs' rights. The report highlights that stigma and discrimination, whether from state actors, broader society, families, or even from PWDs themselves, permeate all aspects of their lives. To address these issues, the current legal framework requires strengthening, as it only addresses direct discrimination, lacks provisions for reasonable accommodation, rarely cites disability explicitly as grounds for discrimination, and is deficient in effective sanctions and complaints mechanisms. Notably, the depression rate among PWDs is twice that of non-disabled individuals, underscoring the psychological toll of persistent stigma and social exclusion. Many PWDs report feelings of self-consciousness, insecurity, and anxiety, which often result in social withdrawal and difficulty integrating into the community. In public spaces, discriminatory stares and attitudes further discourage them from participating in social activities. These factors not only impair mental well-being but also obstruct their progress in education, employment, and social inclusion.

Marriage and Family

Marriage and family life present significant challenges for PWDs in Vietnam. Although comprehensive statistical data on marriage rates among PWDs is currently unavailable, existing studies indicate that many PWDs encounter social stigma and prejudice when it comes to romantic relationships and marital aspirations. A study on women with mobility disabilities in Hanoi highlights that these individuals often face barriers rooted in societal perceptions of physical appearance and caregiving ability. The study found that women with disabilities tend to have fewer choices in selecting a partner, are more likely to face rejection, and are subject to higher expectations regarding dowries compared to their non-disabled counterparts (Do, 2013). Additionally, families of non-disabled individuals may oppose interabled relationships due to concerns over heredity, parenting capacity, and economic burden. The lack of emotional and financial support from their own families can further exacerbate feelings of loneliness and isolation among PWDs. These social and psychological pressures not only limit their ability to form stable family units but also negatively impact their self-esteem and mental well-being. These challenges call for more inclusive social attitudes and targeted policy support to foster equal opportunities in family life for PWDs.

Education and Employment

PWDs in Vietnam continue to face significant barriers in accessing both education and employment. As of 2023, the literacy rate among PWDs aged 15 and older stands at 79.0%, significantly lower than the 96.3% literacy rate among non-disabled individuals (GSO, 2024). This disparity reflects the systemic challenges PWDs encounter in accessing formal education and acquiring essential knowledge and skills. Many children with disabilities are unable to attend school due to inadequate infrastructure and a shortage of specially trained educators.

In response, the Vietnamese government has set ambitious goals to improve educational access. According to the Master Plan for the Network of Special Education Institutions and Inclusive Education Support Centers for the Period 2021 to 2030, with a Vision to 2050 (Decision No. 403/QĐ-TTg, 2023), the country aims to train approximately 3,300 specialized teachers and 7,400 support staff in special education by 2030.

The labor market presents equally daunting challenges. According to GSO (2024), only 31.7% of PWDs aged 15 and older are employed, compared to 83.8% of their non-disabled counterparts. This employment gap highlights the limited opportunities available to PWDs, particularly in industries that demand physical fitness or emphasize appearance. Structural barriers, coupled with discriminatory hiring practices, contribute to prolonged poverty and restricted career prospects among PWDs. As a result, many are unable to achieve their full potential in both intellectual and social development. Addressing these issues requires a multifaceted approach, including improved vocational training, inclusive workplace policies, and stronger legal protections to ensure equal access to employment for all.

Access to Healthcare, Policies, Transportation, and Infrastructure

PWDs in Vietnam face significant challenges in accessing essential services such as healthcare, social policies, information technology, transportation, and public infrastructure. Despite various government policies aimed at ensuring the rights of PWDs, their actual implementation remains inconsistent and ineffective. According to GSO (2024), only 25% of health stations are accessible to PWDs. Additionally, the healthcare system lacks specialized services, appropriate equipment, and trained medical personnel capable of providing adequate care for PWDs.

Furthermore, many PWDs encounter substantial barriers when using public transportation due to inadequate infrastructure, including the absence of ramps, assistive devices, and dedicated staff to offer support. In the era of digital transformation, the digital divide for PWDs has become a pressing issue, with a significant gap in internet access between PWDs and non-disabled individuals. In 2023, only 33.6% of PWDs had internet access, compared to 83.7% of non-disabled individuals. This digital divide is even more pronounced when compared to 2016 data, where just 6.7% of PWDs had internet access, versus 42.9% of non-disabled people. This disparity not only limits PWDs' access to information, education, and employment opportunities but also marginalizes them in the broader societal development.

These challenges highlight the significant material and psychological difficulties faced by PWDs in Vietnam. To address these issues, both the government and society must take more proactive measures to create an inclusive and equitable environment for PWDs. This will facilitate their integration into society and support their holistic development. A just and humane society cannot thrive without the active participation of all its members, and PWDs deserve respect, support, and the opportunity to lead fulfilling lives.

EFFORTS AND EXPERIENCES IN KNOWLEDGE DEVELOPMENT AND EMPOWERMENT FOR PERSONS WITH DISABILITIES IN VIETNAM

Practical Implementation of Disability Support Programs in Vietnam

In recent years, Vietnam has made significant progress in fulfilling its international commitments and developing national policies related to the rights of persons with disabilities (PWDs). A central focus has been on enhancing knowledge development and empowering PWDs to improve their personal capacities and encourage their active participation in social life. The enactment of the Law on Persons with Disabilities (2010) was a key milestone, emphasizing the right to education for PWDs, including access to inclusive education, the use of specialized learning materials, and tailored support based on specific disabilities (National Assembly of Vietnam, 2010). As a result, Vietnam has seen notable improvements in supporting PWDs through educational programs, life skills training, and the promotion of their rights to education, employment, and community integration. Several localities have implemented models designed to meet the unique needs of PWDs, based on regional contexts and specific conditions.

In Ho Chi Minh City, the integration of information technology (IT) and vocational training for PWDs has yielded encouraging results. Prominent organizations such as the DRD Center and the Ho Chi Minh City Association of Persons with Disabilities have offered life skills courses, basic IT training, e-commerce, programming, and online sales. Additionally, the establishment of multifunctional support centers in major urban areas such as Ho Chi Minh City, where PWDs can access vocational training, psychological counseling, and job placement services, demonstrates a comprehensive and sustainable approach to empowerment. This model exemplifies an inclusive, modern, and enduring framework for integrating PWDs into the workforce and society.

In central provinces such as Quang Tri, the Community-Based Rehabilitation (CBR) model has been effectively implemented through collaborations between local authorities and international organizations like CBM and Humanity & Inclusion. This approach integrates

healthcare, education, vocational training, and livelihood support, specifically targeting PWDs in rural areas affected by war and chemical contamination. The community-based, holistic nature of this model fosters long-term support from families and local communities, thereby strengthening the autonomy of PWDs.

In the northern mountainous region, Lao Cai province has partnered with organizations like ACDC and UNICEF to implement programs specifically for ethnic minority PWDs. These initiatives focus on bilingual education (in both native languages and Vietnamese), life skills development, community awareness campaigns, and the establishment of cooperative production groups. By incorporating local languages and cultural elements into these programs, accessibility and active participation of PWDs in their communities have been significantly enhanced.

In addition to vocational training and social inclusion initiatives, Vietnam has also placed a strong emphasis on promoting a reading culture and lifelong learning for PWDs. On the occasion of the 30th International Day of Persons with Disabilities (December 3, 2022), the "Reading Together – Enhancing Vietnamese Intelligence" program was launched to inspire and disseminate knowledge throughout the national PWD community. Activities such as dialogues with prominent PWD role models, distribution of audiobooks, Braille books, large-print books, and the establishment of disability-friendly libraries have significantly contributed to promoting self-learning, enhancing critical thinking, and ensuring equitable access to knowledge for PWDs (VOV2, 2022). These initiatives play a vital role in breaking down barriers to knowledge and empowering PWDs to take charge of their own education and personal development.

Overall, these programs have laid a strong foundation for developing personal capacities, expanding employment opportunities, and increasing autonomy among PWDs in Vietnam. Although challenges remain, the models implemented have demonstrated substantial practical value, offering a basis for scaling and adapting solutions to meet the diverse needs of different PWD groups and regions.

Experiences in Knowledge Development and Empowerment for Persons with Disabilities in Vietnam

From the practical implementation of disability support programs across various localities in Vietnam, several key lessons can be drawn for designing and implementing effective and sustainable social inclusion models.

First and foremost, programs should be designed with a person-centered approach. Encouraging the direct involvement of PWDs at every stage, from needs assessment and content development to implementation, monitoring, and evaluation, ensures that the program truly meets their expectations and needs. This model not only respects individual rights but also creates opportunities for PWDs to develop their capacities and actively participate in their own development journey.

Furthermore, the effectiveness of support programs is significantly enhanced when there is intersectoral and multi-stakeholder collaboration. Engaging state agencies, civil society organizations, private enterprises, and the community is essential for resource allocation, expanding outreach, and ensuring sustainability. In many cases, public-private partnership (PPP) models have proven to be effective, particularly in areas such as vocational training and employment promotion for PWDs.

The application of information technology also stands out as a key factor. Technology not only serves as a tool for communication and learning, but it also broadens access to knowledge, skills, and job opportunities for PWDs, particularly for those with visual, hearing, or developmental impairments. The dissemination of alternative communication software, electronic reading and writing tools, and online learning platforms plays a crucial role in bridging the access gap between PWDs and the broader community.

Another important lesson is the need to localize support programs. Each locality has its own unique characteristics in terms of language, culture, economic development, and geographical conditions, which requires flexible intervention models tailored to the local context. For example, disability support programs for ethnic minority PWDs in Lao Cai have incorporated local languages, while rehabilitation programs in Quang Tri have combined health and livelihood support for remote communities.

Finally, an encouraging trend is the promotion of a reading culture and lifelong learning for PWDs. This is considered a foundational step in developing independent thinking, learning capabilities, and adaptability in a rapidly changing society. However, for effective implementation, these activities must be accompanied by investments in accessible infrastructure, such as multi-format materials (audiobooks, Braille books, large-print books), disability-friendly libraries, and trained librarians with methods tailored to serving PWDs.

Initiatives like the “Reading Together – Enhancing Vietnamese Intelligence” program have paved the way for new directions, affirming that knowledge is a universal right that should be guaranteed for all, without exception.

In conclusion, these lessons highlight that support for PWDs should not be limited to “assistance” but should evolve into a process of empowerment, fostering autonomy, and enabling PWDs to grow as independent and valuable members of society. Vietnam’s ongoing efforts in knowledge development and empowerment for PWDs reflect a more humane and sustainable approach. Despite ongoing challenges, especially in remote areas, the accumulated experiences position Vietnam to scale up these models and ensure that no one is left behind.

THE REMARKABLE JOURNEYS OF DISABLED LIBRARIANS WHO FOUNDED FREE LIBRARIES AND READING SPACES ACROSS THE COUNTRY

In the process of promoting equality, inclusion, and comprehensive development for people with disabilities, empowering and enabling them to actively participate in social life is an essential direction. Alongside external intervention programs, many individuals with disabilities in Vietnam have independently created community knowledge spaces—places where they are not merely beneficiaries but also founders and operators of free libraries and reading spaces. These models not only contribute to the promotion of reading culture but also provide powerful evidence of the capacity of people with disabilities to take control of their lives, inspiring them to overcome barriers and make positive contributions to society.

Hope Reading Space – Đỗ Hà Cừ: A Pioneering Model of Cultural Empowerment for Persons with Disabilities

Founded by Mr. Đỗ Hà Cừ, a man living with quadriplegia since childhood, in Thái Bình Province, the Hope Reading Space represents a pioneering initiative in the movement empowering persons with disabilities to establish community-based cultural reading spaces. Beginning in 2017 with just a personal bookshelf, Đỗ Hà Cừ, motivated by a deep passion to bring books closer to the public, created a unique, free reading space that now houses over 3,000 titles and remains open daily to all who share a love for books.

At present, the Hope Reading Space Club has developed 27 affiliated reading spaces, 19 of which are managed by persons with disabilities. Each space contains thousands of titles and serves thousands of regular readers annually. These libraries operate effectively; in 2022 alone,

six new reading spaces were established. The Club also organizes book-related outreach activities in various locations. It currently maintains a rotating collection of 4,000 books for more than 1,000 registered regular borrowers, with another 4,000 volumes circulating among both member and non-member libraries.

Despite having the use of only one finger, Mr. Cừ undertakes the classification of books, builds mobile libraries, and serves as a vital connector in the establishment of new reading spaces. His library, open every day and entirely free of charge, welcomes students and local residents. In addition to traditional lending services, he launched the "mobile bookshelf" initiative, bringing books to remote and rural areas while organizing regular reading sessions. Importantly, the library also supports other persons with disabilities in accessing digital knowledge by providing guidance in the use of computers and the Internet.

The Hope Reading Space is not only a symbol of intellectual access and inclusion but also a living testament to the notion of “empowerment through culture”, where persons with disabilities are not merely recipients of services but active creators and leaders of cultural change. This model was honored with the 2020 “Silent Dedication to the Community” award and continues to serve as an enduring source of inspiration for individuals with disabilities across Vietnam.

Audiobook Library for The Blind – Nguyễn Hướng Dương: Expanding Access to Knowledge for Marginalized Communities

Founded in 1998 by Ms. Nguyễn Hướng Dương in Ho Chi Minh City, the Audiobook Library for the Blind is among the most comprehensive and well-organized initiatives in Vietnam dedicated to enhancing access to knowledge for the visually impaired. As the country’s largest nonprofit library specifically designed for blind individuals, the library is professionally structured with soundproof recording studios, digital processing rooms, a digitized archive, and an online distribution platform.

To date, the library has produced more than 2,000 audiobook titles across a wide range of subjects, including textbooks, life skills, literature, and legal materials. Most of the recordings are carried out by a team of dedicated volunteers, with Ms. Hướng Dương directly overseeing coordination, editing, and content management. Visually impaired users can freely download the audiobooks from the library’s website or request CDs delivered by mail, thus ensuring access regardless of internet availability or technical constraints.

As a person with a physical disability herself, Ms. Hướng Dương has leveraged the power of technology to produce and distribute thousands of free audiobooks to blind individuals nationwide. The library is not merely a space for reading, it is a center of humane innovation where knowledge is transmitted through sound, breaking down long-standing barriers to education and inclusion for blind communities. Her efforts reflect a powerful example of how persons with disabilities can lead transformative change through ingenuity and empathy.

The impact of her work extends beyond the library itself. In recognition of her contributions, Ms. Hướng Dương was honored with a commemorative statue in Ho Chi Minh City, symbolizing the vital role persons with disabilities play in creating meaningful and lasting solutions within their own communities.

"Niềm Tin" (Faith) Reading Space – Nguyễn Lan Hương: Spreading Values Through an Inspirational Model

Inspired by Mr. Đỗ Hà Cừ's Hope Reading Space, Ms. Nguyễn Lan Hương, a woman with disabilities, established the "Niềm Tin" (Faith) Reading Space, exemplifying the scalability and replicability of cultural initiatives led by persons with disabilities. Located in her home in Đông Hưng District, Thái Bình Province, the space operates as a small yet thoughtfully organized community library, housing nearly 1,000 books donated by friends, relatives, and various social organizations.

The collection is systematically arranged into categories such as children's literature, life skills, fairy tales, and moral education. A distinctive feature of this model is the organization of "family reading hours," where children attend with their parents to read and discuss books together. These sessions not only promote reading habits but also strengthen the emotional bond between family members through shared intellectual experiences.

In addition, the space provides inclusive reading sessions for children with mild disabilities, offering a friendly, non-discriminatory learning environment. Despite its modest size, the Niềm Tin Reading Space has been widely recognized by local authorities and community organizations as a meaningful cultural initiative, especially in rural areas where access to educational resources remains limited.

Through her unwavering perseverance and deep sense of social responsibility, Ms. Hương has created more than just a place for books, she has built a nurturing environment where values such as compassion, inclusion, and resilience are cultivated. Her reading space demonstrates how people with disabilities can take an active role in fostering cultural engagement and social development, even in under-resourced communities.

Thúy Nga Free Library – Trần Thúy Nga: A Persistent Journey of Building Community Knowledge

In Tân Kỳ District, Nghệ An Province, the Thúy Nga Free Library, founded and maintained by Ms. Trần Thúy Nga for nearly two decades, stands as a rare and enduring example of how personal initiatives can evolve into impactful community-based knowledge hubs, especially in remote areas. Despite being diagnosed with rheumatoid arthritis at the age of 13 and experiencing severe mobility limitations, Ms. Nga has singlehandedly sustained this library, offering free and open access to students and local residents.

What began with only a few dozen used textbooks has grown into a collection of over 7,000 titles, serving thousands of readers annually. The strength of this model lies in its deep community engagement: local residents actively contribute books, teachers assist in organizing extracurricular reading activities, and students are encouraged to write reflections and essays based on their reading experiences.

One particularly inclusive feature is the “reading corner for children,” thoughtfully designed with low tables, chairs, illustrated posters, and educational toys. This space enhances accessibility for young readers, especially children with disabilities or developmental delays, ensuring that no one is excluded from the joy of reading.

More than just a repository of books, the Thúy Nga Free Library is a vibrant cultural institution that fosters literacy, nurtures imagination, and promotes community solidarity. It regularly hosts reading guidance sessions, student-centered interactions, and public book donation campaigns. Through persistent effort and unwavering dedication, Ms. Nga has demonstrated that when individuals with disabilities are empowered and supported, they can build lasting cultural legacies that benefit entire communities.

Lan Phương Reading Space – Tô Lan Phương: Building Knowledge Through Empathy and Creativity

The Lan Phương Reading Space, founded by Ms. Tô Lan Phương in Tiền Hải District, Thái Bình Province, stands as a remarkable testament to the organizational and creative potential of people with disabilities in the realm of informal education. Disabled since childhood, Ms. Phương has not only built a library with over 2,000 books but has also created an environment that promotes active learning through storytelling, interactive reading, and creative thematic activities aimed at local children.

Designed as an "open reading room," the space is equipped with mini tables, child-sized chairs, low bookshelves, and illustrated posters to appeal to young readers. A distinctive feature of this model is its emphasis on interactive reading formats, including role-playing, creative storytelling, and small-group Q&A sessions. These activities enhance children's critical thinking, language development, and overall cognitive skills. In addition, Ms. Phương organizes "life skills reading sessions" that cover essential topics such as abuse prevention and environmental awareness, all conveyed through simple, relatable narratives.

This reading space fosters a culture of reading while simultaneously providing a soft-skills educational platform for children, particularly those from challenging circumstances or with mild disabilities. Through her efforts, Ms. Phương has demonstrated that people with disabilities are not only capable of managing physical spaces but can also take the lead in curating content, designing programs, and employing informal educational techniques. Her initiative highlights the importance of accessible knowledge spaces that are both flexible and supportive, offering vulnerable children a safe and welcoming environment for intellectual and personal growth.

To sum up, the library models founded by individuals with disabilities in Vietnam represent not only a deeply humane and effective approach to empowerment but also a powerful contribution to promoting a reading culture within local communities. A common thread running through these models is their remarkable autonomy: people with disabilities are not mere recipients of services, but active founders, managers, and sustainers of their own libraries, demonstrating immense creativity and resilience. They design inclusive spaces, organize interactive activities, and actively foster reading habits and knowledge access for children, the poor, and other vulnerable groups. Despite material challenges, these libraries have made a profound social impact through strong community engagement, volunteer support, and recognition from local authorities. The inspiring journeys of Đỗ Hà Cừ, Nguyễn Hướng Dương, Nguyễn Lan Hương, Trần Thúy Nga, and Tô Lan Phương clearly illustrate that

people with disabilities are more than capable of not only managing their own learning spaces but also of leading initiatives that encourage others to overcome their limitations and contribute meaningfully to society. In this way, these models not only serve to expand access to knowledge but also function as critical pillars in the creation of a more inclusive, equitable, and comprehensive learning environment. Thus, they represent not just educational spaces but essential forces in fostering a broader societal transformation towards inclusion and empowerment.

CONCLUSION

The current situation of people with disabilities in Vietnam presents both persistent challenges and emerging opportunities as they strive for inclusion and empowerment. Despite facing systemic barriers in education, employment, and access to public services, individuals with disabilities are increasingly claiming their place as active contributors to society. The transition from charity-based to rights-based models, supported by legal reforms and community initiatives, has opened new pathways for social participation. Notably, the emergence of libraries and free reading spaces founded by disabled individuals represents a transformative model of empowerment through knowledge. These initiatives not only promote a culture of reading but also exemplify resilience, creativity, and leadership among people with disabilities. Through their efforts, disabled founders are creating inclusive cultural spaces, inspiring both their communities and broader society. Their stories affirm that, with support and recognition, people with disabilities can become catalysts for change. Moving forward, expanding such grassroots models at both the community and national levels, and integrating them into national strategies, will be key to building a more equitable, inclusive, and compassionate society.

REFERENCES

Báo Lào Cai. (2023). *Lào Cai đồng hành cùng người khuyết tật*. https://baolaocai.vn/dong-hanh-voi-nguoi-khuyet-tat-post400429.html

Báo Nhân Dân. (2021). *Thư viện sách miễn phí của cô gái trên xe lăn*. https://nhandan.vn/thu-vien-sach-mien-phi-cua-co-gai-tren-xe-lan-post677923.html

Cổng thông tin điện tử tỉnh Quảng Trị. (2023, April 7). *Mô hình phục hồi chức năng cộng đồng tại Quảng Trị*. https://www.quangtri.gov.vn/chi-tiet-tin/-/view-article/1/13848241113627/1736853376816

Do, H. T. (2013). Women with mobility disabilities and marriage in Hanoi, Vietnam: Exploring the obstacles. Master's thesis, Clark University.

https://www.academia.edu/27996605/WOMEN_WITH_MOBILITY_DISABILITIES_AND_MARRIAGE_IN_HANOI_VIETNAM_EXPLORING_THE_OBSTACLES

Đồng Hành Việt. (2021). *Tô Lan Phương – Truyền cảm hứng, lan tỏa văn hóa đọc*. https://donghanhviet.vn/to-lan-phuong-truyen-cam-hung-lan-toa-van-hoa-doc/

General Statistics Office. (2024). *Press release on the results of the 2023 survey on persons with disabilities*. https://www.gso.gov.vn/tin-tuc-thong-ke/2024/11/thong-cao-bao-chi-ve-ket-qua-dieu-tra-nguoi-khuyet-tat-nam-2023/

Giáo dục và Thời đại. (2024). *Không gian đọc Hy vọng của chàng trai khuyết tật*. https://giaoducthoidai.vn/khong-gian-doc-hy-vong-cua-chang-trai-khuyet-tat-post683359.html

Mỹ, N. (2023, March 10). *Thành phố thông minh không rào cản cho người khuyết tật*. Mạng xã hội Dân Việt. https://msdvietnam.org/toa-dam-thanh-pho-thong-minh-khong-rao-can-cho-nguoi-khuyet-tat/

Phạm, T. T., & Đào, T. H. (2024). Bảo đảm quyền tiếp cận việc làm của người khuyết tật vì mục tiêu phát triển con người ở Việt Nam. *Nghiên cứu Con người, 126*(3), 34-53.

Thủ tướng Chính phủ. (2023). Quyết định số 403/QĐ-TTg phê duyệt Quy hoạch hệ thống cơ sở giáo dục chuyên biệt và trung tâm hỗ trợ giáo dục hòa nhập cho người khuyết tật giai đoạn 2021–2030, tầm nhìn đến năm 2050. https://thuvienphapluat.vn/van-ban/Giao-duc/Quyet-dinh-403-QD-TTg-2025-Quy-hoach-he-thong-co-so-giao-duc-chuyen-biet-doi-voi-nguoi-khuyet-tat-644428.aspx

Quốc hội nước Cộng hòa xã hội chủ nghĩa Việt Nam. (2010). *Luật người khuyết tật (Số 51/2010/QH12)*. Chính phủ Việt Nam. https://chinhphu.vn/default.aspx?pageid=27160&docid=96045

Rioux, M. H., Buettgen, A., Zubrow, E., & Viera, J. (Eds.). (2024). *Handbook of disability: Critical thought and social change in a globalizing world*. Springer Nature Singapore.

Sở Văn hóa, Thể thao và Du lịch Thái Bình. (2023). *Lan Hương – Cô bé khuyết tật nâng lòng với văn hóa đọc*. https://sovhttdl.thaibinh.gov.vn/tin-tuc/van-hoa-gia-dinh/xay-dung-nep-song-van-hoa/lan-huong-co-be-khuyet-tat-nang-long-voi-van-hoa-doc.html

Thanh Niên. (2023). *Cô gái bại não lan tỏa văn hóa đọc đến cộng đồng*. https://thanhnien.vn/co-gai-bai-nao-lan-toa-van-hoa-doc-den-cong-dong-185230830205526124.htm

Trần, T. H. Y., & Nguyễn, M. C. (2023). Lồng ghép chính sách hòa nhập người khuyết tật trong phát triển bền vững của người Việt Nam hiện nay. *Nhân lực Khoa học Xã hội, (2),* 88-96.

Trần, T. P. N. (2024). Một số đề xuất phát triển mạng lưới các cơ sở giáo dục chuyên biệt ở Việt Nam. *Tạp chí Khoa học Giáo dục Việt Nam, (1),* 39-45.

United Nations. (2015). Transforming our world: The 2030 agenda for sustainable development. https://sdgs.un.org/2030agenda

United Nations Development Programme. (2023). Situational analysis report on the rights of persons with disabilities in Viet Nam. UNDP Viet Nam.

https://www.undp.org/vietnam/publications/situational-analysis-report-rights-persons-disabilities-viet-nam

VOV. (2023). *Sách nói Hướng Dương đem ánh sáng tri thức đến người khiếm thị nhờ công nghệ*. https://vov.vn/xa-hoi/sach-noi-huong-duong-dem-anh-sang-tri-thuc-den-nguoi-khiem-thi-nho-cong-nghe-post996707.vov

VOV2. (2022). *Mang tri thức tiếp thêm nghị lực cho người khuyết tật*. https://vov2.vov.vn/van-hoa-giai-tri/mang-tri-thuc-tiep-them-nghi-luc-cho-nguoi-khuyet-tat-39096.vov2

Sub - Theme 4

Libraries As Partners Forging New Synergies in Community Development

Transit-Friendly Library - Why We Do It?

Mastura Hj. Muhamad, Norelmin Sapuan, Fahrurrazi Md Shukri, Noraina Mohd Arifin, Juliana Es Mohd Munawir, Hikmah Hassan, Ziana Sidek

Selangor Public Library Corporation,

Shah Alam, Selangor, Malaysia

Corresponding email: mastura@ppas.gov.my

ABSTRACT

The journey began in February 2024 after we presented it to the Selangor State Education Committee and they accepted it to be part of their programme. Twelve transit-friendly libraries feature either fully functional cafes or kitchenware-furnished pantries, shower-equipped restrooms, and prayer rooms, in addition to standard library amenities. Our objectives in establishing a transit-friendly library are to create a safe, comfortable, and supportive environment where children can learn and grow; provide assistance from library staff to help students complete their schoolwork and support parents by offering a cost-free, convenient solution for managing their children's daily transit needs. In June 2024, PPAS had the opportunity to collaborate with Adab Youth Garage (AYG), a non-profit organization that helps young people from urban areas with low incomes. For seven years, AYG has run their Pusat Interaktif Belia in PPR Kota Damansara, Petaling Jaya, which is home to 1,153 houses and 5,765 individuals. We believe that the existence of the library in that area will complement each other. Over 10,000 visitors have visited the library in its six-month operation, engaging in over 500 activities, demonstrating its popularity as a trusted, safe space for families, particularly children. This initiative reflects the state's continued dedication to supporting all educational ecosystems, which is in line with the Selangor Menteri Besar's "No one left behind" vision.

Keywords: Transit-Friendly; Supportive Environment; No One Left Behind; Youth Centre

INTRODUCTION

The journey began in February 2024 when the Library Director presented the concept to the Selangor State Education Committee and they accepted it to be part of their programme. There are 105 libraries across Selangor under the management of Selangor Public Library Corporation, and 75 of them have already been upgraded. As a start, twelve transit-friendly libraries have been selected to feature either fully functional cafes or kitchenware-furnished pantries, shower- equipped restrooms, and prayer rooms, in addition to standard library amenities.

What is transit in Malaysian Schools' Context?

Typical Malaysian school children especially Muslim students will have two school sessions in a day: morning and afternoon session. A transit in Malaysian schools' context is a place where school children can conveniently take a shower, have lunch and get changed to be ready for their afternoon school session. Transport for the school children to go to the second session is usually provided by the second school that they go to, and it is packaged in the transit monthly fees. Transit facilities are not widely available even though the demand for them is high. Integration schools which offer the convenience of not having to shift to another school after the morning session are available but their number is limited. As such, students have to undergo a special entrance exam to be selected by an integration school. Such restriction makes the transit in high demand especially in urban areas.

A transit-friendly library is a library that merges the convenience of a transit with library facilities and up-to-date collection. While transit is not a new thing—usually provided by kindergartens, it has never been implemented by any libraries.

Objectives of the Project

The objectives of establishing a transit-friendly library are:

1) To provide a safe, comfortable, and conducive environment;
2) To help students do their homework (UNICEF Malaysia, 2018; AYG, 2022); and
3) To facilitate parents in managing their children's daily transit needs free of charge.

The Bukit Badong Story

The implementation started with a rural library situated in Bukit Badong, Kuala Selangor that was under the year 2021 project. After renovation was completed, the Selangor Public Library@Bukit Badong was opened to the public on 22 June 2022.

An official visit was arranged for the then State Financial Officer, Yang Berhormat Dato' Dr. Ahmad Fadzli Ahmad Tajuddin (who is now the Secretary of the State Government) to the Bukit Badong library on 18 September 2023. He came with his team to see the upgrades of the 1,300 square feet library that included:

- Reading area
- A meeting/discussion room
- Children's area
- Multimedia area
- Pantry - equipped with kitchenware including a fridge that is lovingly called "magic box"
- Prayer room
- Bathrooms (separate for gents and ladies)
- WiFi.

The Bukit Badong Library is one of the libraries that is actively engaging with its community. Bukit Badong, was awarded the "Madani Adopted Village" by the Ministry of Health Malaysia in 2024. The library receives full support from the Head of the village, who also sits as the Chairman of the Bukit Badong Library Management Committee and the Chairman of the Village Development and Security Committee.

The library has organized community-based activities such as knitting, soap flower crafting, al-Quran recitation in a collaboration with Wanita IKRAM Kuala Selangor, an NGO, and the latest regular activity is health-promoting fun walk. Since 9 September 2024, the Bukit Badong library has become the regular transit for two families. One of the families consists of two daughters while the other has a son and a daughter. Both families live in Kota Puteri, Kuala Selangor.

Apparently, the Kota Puteri family with two daughters had been commuting daily from Kuala Selangor to Bukit Badong. Their journey took an hour from their house to the school, and they had no access to any nearest transit facilities. The mother would let her daughters get changed in her car to prepare for the afternoon session, and this had been going on for three years.

After learning about their situation from the nearest mosque which happened to be near the school and touched by the sacrifice of the mother who had to wait for her children while they both went to school, the Bukit Badong library staff contacted her to let her know of the library's transit facilities. The library has since become the family's daily transit where they can comfortably take a shower, perform Zuhur prayer, and have lunch before the school afternoon session starts. Such facilities not only benefit the children but also the parent as she can conveniently and comfortably stay at the library between the two school sessions and participate in the library's knitting community while waiting for her children to finish their classes.

The Bukit Bangkong Story

The Selangor Public Library@Bukit Bangkong, Sepang has a 1,500 square feet built-up area. The library was reopened to the public on 1 August 2022 after its upgrade was complete. Similar to the Bukit Badong library, this library has the same transit-friendly amenities.

In an effort to introduce the latest library concept to the local community, a meeting was held on 2 February 2024 with the Head of the village, Encik Mohd Zuhaidi bin Isman. The Bukit Bangkong library happened to be near an Islamic primary school, and such facilities are its most ideal features to be highlighted. The Head of the village was delighted to have learnt about the library's latest approach as this would help parents tremendously in managing their children's daily school needs, particularly those whose houses were far from their children's schools.

The transit-friendly facilities have benefited two families. The first one is a family from Bukit Changgang, Banting, whose parent is a secondary school teacher with two daughters who go to two school sessions daily. Since he's based at Bukit Bangkong school, he has an hour only to manage his daughters for the transition from the morning school to the afternoon session, and that one hour becomes fully optimized and meaningful with the library's latest offerings.

The second family is a civil servant with a son and a daughter, and they reside in Kampung Hulu Chuchoh, Sepang. Although the trip from their residence to the children's Islamic school takes only 15 minutes, the library's transit facilities are a huge help when the parent is in a hurry.

Collaboration with Adab Youth Garage

In June 2024, PPAS was approached for a collaboration by Adab Youth Garage (AYG), a non-governmental organization (NGO) that develops youths and local communities to assist them to face the challenges of youth life and urban poverty. Their centres are managed by full-time youth workers with a youth-friendly concept.

AYG's mission is to encourage social innovation efforts by establishing a network of youth interaction centres to harness potential and social initiatives, foster values, ethics and mobilize the entire local community to participate in youth development efforts. Up to date, AYG has 13 branches of which eight are in Selangor, two in Johor, two in Pulau Pinang and one in Negeri Sembilan.

One of the AYG branches is located at Projek Perumahan Rakyat (PPR) Kota Damansara, Petaling Jaya which is home to 1,153 houses and 5,765 individuals. This centre has been run for seven years as *Pusat Interaktif Belia* (Youth Interactive Centre). It opens from 3.00 pm to 10.00 pm from Monday to Friday.

The built-up area of the youth centre was originally 1,300 square feet. Previously this centre was equipped with a multi-purpose area, a small pantry, a books corner, and a prayer room but without a toilet, all sponsored by Etiqa Takaful. Since the centre was already a regular hangout place for teens and children within the neighbourhood, AYG planned to add value to the centre by equipping it with a mini library. However, they lacked the funds to purchase high quality books and reading materials that will cater all age groups.

Meetings for the proposed collaboration had been held, and the director of Selangor Public Library Corporation suggested that the library management complement the youth centre with a full-fledged transit-friendly library which was going to be the first in a high-density, low-cost apartment.

The renovation commenced on 4 July 2024 that included an indoor reading area for adults and teens, a children's area, a multimedia corner, a meeting room, a toilet that is equipped with a hot-and-cold shower, a prayer room and an outdoor reading area. All these are standard amenities for all the newly-renovated rural libraries. A 3D printer and a drone were added to complement the multimedia corner. Having such equipment will give a chance to the children to learn more skills.

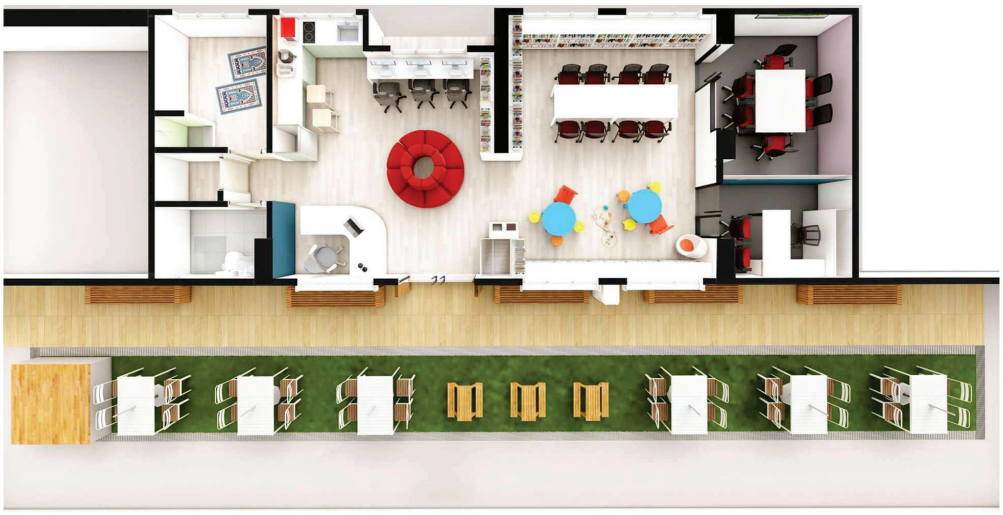


Figure 1: Perspective drawing of the proposed upgrades

The youth centre was fully upgraded to become a transit-friendly library and was fully operational on 1 November 2024.

Within the first two months of its opening, the Selangor Public Library@AYG Kota Damansara managed to attract 3,561 users, with 232 activities held that managed to rope in 1,856 participants (PPAS, 2024). A follow-up meeting was held in early January 2025 between the library management team and the apartment's joint management body (JMB). Initially the purpose of the meeting was to inform them of the proposed date for the library's officiating ceremony by the Selangor Menteri Besar. The meeting was also to review the effectiveness of the library and to form another collaboration in order to boost local community involvement.

It was during this meeting that the library management shared the State Government's vision and the library's objectives in upgrading the centre to be a transit-friendly library. The representatives were excited to learn what the library managed to achieve within the first two months, and they were so moved by the Selangor Menteri Besar's wish that stated "no one is

left behind", that they offered another space for the library expansion. This led to the addition of:

- a second toilet with hot-and-cold shower;
- a multi-purpose room that can accommodate 30 people and is equipped with a 98 inch smart TV, and
- an activity room fashioned as a classroom for 16 users (without the classroom setting, it can hold up to 25 people).

Total built-up area of the library now becomes 3,300 square feet, with overall expenses of the first upgrades and the latest renovation amounting to RM365,000 that include all the furniture, devices and equipment. The library was officiated by the Selangor Menteri Besar, Yang Amat Berhormat Dato' Seri Amirudin Shari, on 8 February 2025, Saturday.

The expansion boosts the library usage further. During six months of operation starting from 1 November 2024 till 30 April 2025, the Selangor Public Library @ AYG Kota Damansara has received great responses from the residents, especially students of 18 years of age and below. More than 10,000 library users were recorded and more than 500 activities were carried out (PPAS, 2025).

Operational Aspect of Selangor Public Library @ AYG Kota Damansara

At this library, initially the Selangor Library management prepared one staff member only. However, based on the high number of users frequenting the library, a total of five library staff members from the Selangor Public Library Corporation headquarters were put on rotation, working from 8:00 am to 4:00 pm from Monday to Friday, in addition to the youth centre's original staff who was already on shift from 3:00 pm to 10:00 pm. Meanwhile, for weekends, the library is open from 8:00 am to 5:00 pm.

Various activities have been arranged ranging from 3M classes to improve the children's reading skills, to doughnut frosting class, colouring activities, DIY sessions, Qur'an learning and recitation, Internet of Things (IoT) class, 3D design and printing class, and Islamic prayers lessons.

Smart Partnership Takes Us Further: Collaboration with Little Caliphs - A Famous Kindergarten in Malaysia

On 19 March 2025, the Selangor Library started collaborating with Little Caliphs by approaching its founder, Datin Sabariah Faridah and her team, in an effort to reduce the 3M skills gap among children in PPR Kota Damansara. There are three programmes run by Little Caliphs:

- Kidzori: a learning interactive application;
- Reading Voyage: reading fluency like NILAM;
- 3M classes (reading, writing and calculating).

The 3M screening was conducted on 22 March 2025 (Saturday) to identify reading level among the children. Out of 13 participants who attended the session, eight (8) of them were identified as unable to read and the other five were identified as able to read but still crawling, and they were recommended to participate in the Reading Voyage programme, which will reward the children who are able to exceed the reading target. Another programme to be added in June 2025 is MyLittleQari. It will be conducted online 100%.

CONCLUSION

There is an assumption that providing 7-star facilities at a high-density residential area will lead to vandalism and theft. However, it's interesting to note that after more than six months of operation of the Selangor Public Library @ AYG Kota Damansara, none of the equipment or kitchen utensils went missing. Everything is in its place and the kids are all well-behaved who always ask permission first whenever they need something from the fridge or the kitchen cabinet. The Selangor Public Library encourages its smart partners and communities to make a difference in people's life by doing something outside the box. The transit-friendly library objectives will ensure that the library remains an essential resource for the academic and personal development of future generations. This strategy reflects the state's continued dedication to promoting equity and supporting all educational ecosystems, which is in line with the Selangor Menteri Besar's "No one left behind" vision.

REFERENCES

Adab Youth Garage. (2022). *Laporan Tahunan 2022*.

Adab Youth Garage. (2025). [*Website page*]. https://adabyouthgarage.com.my/

Perbadanan Perpustakaan Awam Selangor (2025, January, 7). *Laporan Perpustakaan Awam Selangor @ AYG Kota Damansara* [PowerPoint slides].

Perbadanan Perpustakaan Awam Selangor (2025, April, 22). *Laporan Perpustakaan Awam Selangor @ AYG Kota Damansara* [PowerPoint slides].

United Nations Children' s Fund, Malaysia (2018, February). Children without: A study of urban child poverty and deprivation in low-cost flats in Kuala Lumpur.

UNICEF Malaysia. [*Website page*]. https://www.unicef.org/malaysia/

Social Responsibility: Paving The Way for Library and Society Partnerships

Norhafizah Abdul Latif [1,2], Kaur Kiran[2], Samsul Farid Samsuddin[2]

[1]Department of Libraries and Information Science, Faculty of Arts and Social Sciences, Universiti Malaya, Kuala Lumpur, Malaysia

[2]Perpustakaan Sultan Abdul Samad, Universiti Putra Malaysia, Serdang, Selangor, Malaysia

Corresponding email: izahafizahphd@gmail.com

ABSTRACT

This study seeks to identify librarians' engagement in social responsibility activities in Malaysian public university libraries. The research adopted a qualitative approach that utilized two methods: (i) interviews with 17 Library Managers / Heads of Department, and (ii) focus group discussions with library staff (17 Professional and non-professional) involved in social responsibility activities. The findings reveal that academic libraries in Malaysian public universities have now adopted the concept of Library Social Responsibility (LSR). They are now concerned with contributing to the community's overall development and well-being. Library Social Responsibility allows libraries to adopt practices that impact not only their reputation and performance but also further develop the welfare of the community at large. The development of social network ties, shared values and beliefs, and strengthened trust among members of the network are potential roles for LSR.

Keywords: Social Responsibility; Library Social Responsibility; Academic Libraries; Malaysian Public University Libraries; Community

INTRODUCTION

The concept of the library has changed from its traditional role as a place that holds collections of materials to an interactive space with the community (Soderholm and Nolin, 2015). The development of information technology and media at any time is growing rapidly, almost unstoppable. Libraries play the roles of formal and lifelong learning, access to technology,

labour force development, and community participation (Smith, 2019). Extensive scholarship examined libraries' societal roles, with broad agreement that libraries are deeply intertwined with the communities they serve. Functioning as collaborative social institutions, they deliver information to all community members to address both current and future needs. Librarians and library professionals consistently emphasize that libraries play a vital role in generating social capital by "building community" (Varheim et al., 2007).

In recent years, the role of academic libraries has expanded beyond traditional boundaries, with increasing emphasis on social responsibility as part of their institutional mission. Social Responsibility (SR) serves as a bridge between academic libraries and the wider community, fostering the creation of social capital. According to Cooke (2010), one of the most effective ways to strengthen social capital is through an organization's full commitment to social responsibility. Library social responsibility (LSR) highlights the various ways in which libraries can make meaningful contributions to societal growth, development, and well-being.

These efforts, in turn, can enhance the library's standing and competitiveness within the information industry. When university libraries engage in corporate social responsibility (CSR) initiatives, the benefits extend beyond the institution itself, positively impacting the broader community as well. Most Malaysian public universities integrate social responsibility and community engagement into their vision, mission, objectives, strategic pillars, aims, or overall strategic planning. Embracing LSR empowers libraries to implement initiatives that not only enhance their reputation and performance but also contribute meaningfully to the well-being of the broader community.

This study explores how librarians in Malaysian public university libraries engage in socially responsible activities and how these efforts foster community development and strengthen social capital.

LITERATURE REVIEW

This study explores how librarians in Malaysian public university libraries engage in socially responsible activities and how these efforts foster community development. LSR is grounded in the broader concept of CSR, which refers to institutions' ethical commitment to contributing to society's welfare (Ismail, 2009; Turker, 2009).

This study investigates how librarians in Malaysian public university libraries engage in socially responsible activities that support community development. LSR is rooted in CSR, which emphasises ethical, social, and environmental commitments to society (Ismail, 2009; Turker, 2009). LSR encourages libraries to go beyond traditional roles by implementing outreach programs, digital literacy training, and inclusive services that respond to societal needs (Benson, 2019; Enem, 2020). Malaysian academic libraries have actively addressed issues such as digital inclusion and educational access for underserved communities, including rural populations and children with disabilities (Zhao & Wong, 2020).

Academic libraries are also vital in bridging the digital divide by providing access to ICT tools and skills training (Victoria, 2015). Through strategic partnerships and community engagement, libraries contribute to sustainable development and social well-being, aligning their missions with the UN's 2030 Agenda (Smith Aldrich, 2017). Beyond service delivery, libraries play a role in fostering social capital, defined by Bourdieu, Putnam, and Coleman as networks, trust, and shared values that enhance community cooperation and resilience. Nahapiet and Ghoshal's (1998) model of social capital, structural, relational, and cognitive, offers a useful framework for understanding how library initiatives support knowledge sharing and social cohesion. Despite growing interest in LSR, research shows that many librarians lack clarity about its theoretical foundations and practical applications (Abu Eid & Hussin, 2023; Akpom et al., 2020). Addressing this knowledge gap is essential for enhancing libraries' societal impact.

RESEARCH METHODOLOGY

This study adopted qualitative methods to assess understanding of the concept of social responsibility practices adopted in academic libraries in contributing to the community's overall development and well-being. It utilised both interviews and focus group discussions (FGDs) for data collection. In qualitative research, interviews and focus groups were among the most used data collection methods (Gill, 2008).

Regarding the procedure, the study began by contacting all 20 public university library personnel in charge of social responsibility activities in Malaysian public academic libraries, informing them about the study and requesting their participation. The email asked the personnel in charge to provide information on the process of acquiring permission from their libraries' gatekeepers to interview them and other staff who are involved in social responsibility activities. Ultimately, 17 library heads were interviewed between May 2024 and February 2025. Qualitative methods, like interviews, are considered to offer a more in-depth

understanding of social phenomena compared to what can be achieved through purely quantitative approaches, such as questionnaires (Silverman, 2000).

Next, the researcher held a focus group discussion with the Head of Department responsible for social responsibility initiatives, along with both professional and nonprofessional library staff engaged in social responsibility activities that involved the community. Focus groups are particularly effective for eliciting in-depth insights into participants' experiences and beliefs (Morgan, 1998). A total of 17 out of the 20 library heads gave their permission for the researcher to hold a focus group discussion with their staff.

Respondents are encouraged to answer the questions in their own words, allowing for personal expression and detailed explanations. The interviews aim to explore various aspects in greater depth to gain a comprehensive understanding of how the library implements social responsibility initiatives to foster social capital within the community. Additionally, reports on social responsibility programs were examined to identify specific activities that contributed to the formation of social network ties, the promotion of shared values and beliefs, and the enhancement of trust among network members.

All data collected through interviews and focus group discussions were analysed using thematic analysis, a qualitative method used to identify, analyse, and report patterns or themes within the data. This method helps to clearly understand the data by exploring different topics and grouping similar ideas shared by the participants (Boyatzis, 1998). The data was organised using the qualitative analysis software Atlas.ti by creating categories or themes that emerged from the interviews and recordings. Once the interviews and recordings were completed, the researcher transcribed the recordings into text and analyzed them to identify themes and patterns through thematic analysis. This approach allows for a broader understanding of the issues being explored.

Background and Characteristics of Participants

This study employs a purposive sampling technique, selecting participants who possess relevant characteristics representative of the broader population and who can provide valuable insights into the research topic. The target population is limited to public academic libraries in Malaysia that have conducted social responsibility activities that involve the community. Participants for both interviews and focus group discussions (FGDs) must meet the following criteria where Stewart and Shamdasani (1990) recommend an optimal group size

of six to eight participants (excluding researchers) for the FGD sessions. However, focus groups can be effective with as few as three and as many as 14 participants. According to Gill (2008), group size plays a key role in the effectiveness of focus group research.

FINDINGS AND DISCUSSION

Initially, library heads and library staff were invited to share the social responsibility activities carried out by their institutions. The analysis revealed several key themes related to the nature and implementation of LSR activities in Malaysian academic libraries. Firstly, the types of social responsibility programs varied across institutions, but generally included literacy campaigns, digital literacy workshops, leadership and reading programs for school children, and public awareness initiatives on topics such as health and environmental sustainability. These activities reflect the libraries' efforts to align their services with broader national education and development agendas, especially in promoting equitable access to information and knowledge. Some of the notable initiatives mentioned included: setting up libraries in marginalised schools and communities, supporting reading and writing skills, hosting school visits, donating books and other resources to schools and communities, and participating in recycling and environmental projects.

Inclusive, Visibility and Resource Sharing

Academic libraries are increasingly focused on inclusive practices that extend their resources and services to the wider community, thereby enhancing both their visibility and societal impact. This inclusive approach reflects a commitment to equity, ensuring that individuals from all backgrounds, including those outside the academic environment, can access valuable knowledge and learning opportunities. By opening their doors to the public, partnering with local institutions, and offering shared access to digital and physical resources, these libraries position themselves as vital community hubs. The primary motivation behind such involvement is not only to promote lifelong learning and bridge knowledge gaps, but also to encourage efficient resource sharing and foster a sense of shared responsibility in supporting community development.

According to the University of Malaysia Kelantan Library, one of the main reasons they reach out to the community, especially school students across the state of Kelantan and the East Coast in general, is to introduce the fact that Kelantan has a university that is just as outstanding, aiming to attract more applications, particularly from students who have completed their Sijil Pelajaran Malaysia (SPM). By increasing the visibility of the university through such outreach programs, the library not only promotes the institution but also

strengthens the connection between the university and the local community. For example, the Robotics Program organized by the UMK Library aims to spark the interest of these students in getting to know UMK up close and, in turn, introduce them to the fact that their state also has a great university.

Reaching and Empowering Target Communities

Academic libraries in Malaysian public universities have taken a proactive approach in engaging with targeted communities, particularly by empowering future leaders and supporting vulnerable and marginalized groups. These libraries recognize that their social responsibility extends beyond traditional academic boundaries. They have introduced initiatives specifically tailored for student leaders, including school prefects and youth involved in co-curricular leadership roles. Programs such as leadership workshops, communication skills training, and community engagement activities are designed to help these young individuals build confidence and lead effectively in their schools and local communities. Librarians also play a crucial role in mentoring school library leaders, equipping them with essential skills in information management, digital literacy, and organizing school-based library initiatives, thus preparing them to become proactive knowledge facilitators in their environments. At the same time, libraries have prioritized outreach to marginalized and underserved communities, including Indigenous children, orphans, children awaiting court decisions, and senior citizens.

Through mobile libraries, literacy workshops, and inclusive educational activities, these libraries provide a safe and supportive environment that promotes lifelong learning, empowerment, and social inclusion. Such targeted engagement reflects a strong commitment to equity and community development, reinforcing the role of libraries as socially responsible and transformative institutions. Universiti Malaysia Perlis (UniMAP) has established the Autism Hub for Educational Resources and Training (A-Heart), which is now fully operational at the Tuanku Syed Faizuddin Putra Library (PTSFP). A-Heart is a social responsibility project managed by UniMAP Library, designed as an educational and training hub not only for children with autism but for all children with special needs in the northern region, especially in the state of Perlis.

Universiti Sains Malaysia (USM), Penang, and Universiti Malaysia Sarawak (UNIMAS), Sarawak, have both organized social responsibility activities targeting marginalised communities. At USM, a total of 16 volunteers comprising staff from the Main Library and the Engineering Library participated in a community outreach initiative to upgrade the resource centre at Sekolah Kebangsaan Sungai Tiang, Gerik. The school primarily serves students from the Jahai

Orang Asli community in Kampung Sungai Tiang. This initiative was part of USM Library's knowledge transfer and community service programme, aimed at enhancing social well-being and fostering a reading culture among primary and secondary school students. Since 2010, USM Library has contributed to the improvement of more than 13 school and community resource centres, including two serving Orang Asli children.

Meanwhile, the UNIMAS Library contributed used books to a community project at the mini library in Kampung Meriyu, located in Kota Samarahan. This initiative was carried out in collaboration with the Department of Chemical Engineering and Energy Sustainability, Faculty of Engineering, Universiti Malaysia Sarawak. The village was selected based on the socio-economic background of its residents, many of whom belong to the B40 income group.

Building Partnerships and Collaborative Strategies

Libraries recognise the importance of collaboration with various external stakeholders to maximise the impact of their social responsibility initiatives. Libraries actively collaborate with NGOs, local authorities, and educational institutions to offer joint programs, share expertise, and build strong community partnerships. Most academic libraries developed these programs in collaboration with key stakeholders, including university departments, local schools, non-governmental organisations (NGOs), and community leaders. Such partnerships were found to be instrumental in enhancing the relevance and reach of the LSR activities. Strategic partnerships with corporate entities, local governments, and community groups were also identified as vital in facilitating large-scale community programs and securing sustainable funding. The Library of the University of Science Islam Malaysia (USIM), Faculty of Medicine and Health Sciences (FPSK), in collaboration with the Psychiatry Unit of FPSK USIM and the Department of Social Welfare (JKM), organised a community service program at the Children’s Home (RKK) in Rembau. It is one of the children's and youth shelters managed by JKM. The eight-hour program was attended by 100 residents of the RKK, consisting of teenage girls aged between 13 and 18 years. This program was held to engage teenage girls living in the shelter while raising awareness about the importance of mental health care. The program also aimed to promote a reading culture among the participants, ensuring that they maintain a healthy and positive mindset. The collaboration of library skills and psychiatric expertise resulted in a program that benefited the residents of the shelter.

An additional example of collaboration can be seen in the partnership between Perpustakaan Sultanah Nur Zahirah (PSNZ) at Universiti Malaysia Terengganu (UMT) and Perpustakaan Al-Wathiqu Billah (PWB) at Universiti Sultan Zainal Abidin (UniSZA), which signed a Memorandum

of Understanding (MOU) to strengthen the collaborative network between the universities' libraries on the East Coast. This collaboration has led to the development of research resources, knowledge exchange, and lifelong learning opportunities for both academic libraries. The partnership was further demonstrated through a collaborative program involving three academic institutions, PSNZ, UMT, PWB, UniSZA, and Sekolah Menengah Kebangsaan (A) Durian Guling, in the Bengkel Pemindahan Ilmu Kolaborasi. The workshop attracted 49 participants, including students, teachers, and staff from the school's resource center (PSS). It covered topics such as Canva, TikTok, basic photography, Sayembara Puisi, and motivational sessions led by guest speakers. This program is part of the ongoing efforts of both libraries to enhance creativity and out-of-classroom skills, particularly among students. Furthermore, such programs help strengthen the relationship between public universities and schools, contributing meaningfully to the achievement of national educational goals.

Enhancing Community Development Through Educational Outreach and Resource Access

Academic libraries play a pivotal role in meeting the diverse needs of their communities by undertaking a wide range of programs, from educational outreach to social service initiatives. These programs are designed to support underserved populations and foster personal and community development. For example, libraries have implemented best practices such as wellness and health workshops, information skills training, and motivational programs for school students, which have proven effective in empowering individuals, particularly in marginalized communities. In addition, libraries have established resource centres for specific groups, including individuals in correctional facilities and mosque communities, offering access to educational resources, skill-building workshops, and support services. Furthermore, libraries collaborate with schools to improve the system for school libraries, ensuring students have easy access to necessary resources and fostering a culture of reading. These initiatives reflect the library's commitment to not only enhancing individual knowledge but also contributing to the well-being and development of the wider community.

In addition to its community outreach programs, academic libraries play a crucial role in enhancing the efficiency and accessibility of school libraries through system development. These libraries work closely with educational institutions to implement and improve library management systems that facilitate better organization, tracking, and accessibility of resources. By introducing digital cataloguing, online databases, and user-friendly search systems, school libraries are able to provide students and teachers with seamless access to books, journals, and other educational materials. Furthermore, these systems also support real-time data on resource usage, helping school libraries manage their collections more effectively. Academic libraries offer training for school librarians to utilize these systems,

ensuring they can maximize the potential of the technology to enhance learning environments. Through these efforts, libraries contribute to creating a more organized, efficient, and resource-rich space that supports student learning and development.

A strong example of the growing importance of digital libraries in schools can be seen with the initiative at Sekolah Dato' Abdul Razak (SDAR) in Seremban, Negeri Sembilan. In line with the Ministry of Education Malaysia's (KPM) initiative to incorporate digital libraries as part of the School of Global Excellence standards, SDAR has developed its own Digital Library Portal. This project saw SDAR collaborating with the Sultan Abdul Samad Library (PSAS) from Universiti Putra Malaysia (UPM), seeking their expertise in building the portal. According to the school principal, Encik Roslie Ahmad, the decision to consult PSAS was an excellent one, as the library possesses the necessary skills to create an effective digital library portal. The aim is to encourage more students to embrace reading, as per KPM's goal, while also enhancing the quality of the school's resource center services. This initiative highlights the critical role of digital libraries in supporting the continued development of school libraries, complementing the traditional physical library services.

The Universiti Kebangsaan Malaysia (UKM) Library in Selangor conducted a community service programme at the Puncak Alam Correctional Centre, Selangor. The initiative aimed to encourage juvenile offenders to utilize the prison library as a resource for supporting their education, especially given the presence of academic classes at the Sekolah Integriti within the correctional facility. In planning the programme, the UKM Library sought advisory support from Universiti Teknologi MARA (UiTM) regarding appropriate library collections and services that could meet the specific needs of the inmates. As a result, a prison library was established, complete with a designated reading area and a curated collection tailored to the needs of its users.

Roles of Librarians in Library Social Responsibility: Facilitator, Coordinator, and Community Liaison

Librarians play a pivotal role in the success of LSR initiatives by serving as facilitators, coordinators, and community liaisons. As facilitators, librarians guide and mentor participants, helping them access resources and supporting their learning journeys. In their role as coordinators, libraries act as central hubs for planning and organising community programs, collaborating with external partners, and ensuring the smooth execution of various social responsibility initiatives. Furthermore, as community liaisons, librarians foster relationships with local organisations, schools, and other groups, ensuring that library services reach and

benefit the target populations effectively. Together, these roles ensure that libraries remain key players in driving community development through LSR.

A best practice example of this can be seen in the Tunku Tun Aminah Library (PTTA) at Universiti Tun Hussein Onn Malaysia (UTHM). PTTA has developed the Pemimpin Perintis Kejayaan (PETIK) program, which focuses on social responsibility toward the community and environment. The library has formed a group of facilitators and volunteers among its staff to lead this initiative. Regular Training of the Trainers (TOT) workshops are held to improve the program's modules and ensure that facilitators are fully prepared to lead the program. This proactive approach highlights how libraries can effectively combine their roles to foster positive community engagement and development through well-coordinated programs. The Universiti Teknologi MARA (UiTM) Library has staff members who are trained specialists in Speed Reading instruction. Their expertise is incorporated into various social responsibility programmes organised by the library. Notably, one of their instructors shared this Speed-Reading expertise with staff members at Kuala Lumpur Hospital as part of a community engagement initiative.

Achievements in Library Social Responsibility: Recognition and Contributions

Academic libraries that engage in social responsibility programs often receive recognition for their efforts. For example, UniSZA Library was awarded the Anugerah Khas Penghargaan Organisasi by the Bahagian Teknologi Pendidikan Negeri Terengganu (BTPNT) during the Majlis Anugerah Pembestarian Sekolah Negeri Terengganu 2016. This recognition was given in appreciation of the library’s various initiatives and collaborations with BTPNT, the Jabatan Pendidikan Negeri Terengganu (JPNT), and local schools throughout 2016. One of the notable programs conducted by UniSZA Library was the Bicara Antara Benua program, a community service initiative involving school students, teachers, and university staff. This talk program served as a platform for sharing ideas and fostering communication between school and university communities, while also enhancing the students' confidence in speaking English and motivating them to embrace diverse cultures. Furthermore, UniSZA Library contributed its expertise in helping upgrade the Pusat Sumber Sekolah (PSS) by developing a school resource center management system. One such project involved the Sekolah Kebangsaan Kompleks Seberang Takir (STARS). These achievements demonstrate that the efforts of academic libraries in social responsibility programs are not only valued but also recognized at various levels for their positive impact on education and community development.

Development of Social Capital

LSR initiatives in Malaysian academic libraries have significantly contributed to the development of community social capital across structural, cognitive, and relational dimensions. These activities foster social networks, shared values, and mutual trust. Structurally, libraries promote participation through mobile libraries, learning hubs, and inclusive public spaces, increasing access to resources, especially for underserved communities. These efforts create new connections and opportunities for collaboration, reinforcing libraries as hubs for community interaction and support.

Relationally, LSR programs strengthen trust and social bonds through volunteer activities, joint projects, and inclusive programming. By engaging diverse groups in meaningful interaction, libraries nurture a sense of belonging and civic responsibility. Cognitively, libraries promote shared understanding and values through awareness campaigns, educational programs, and inclusive content, helping bridge cultural and social divides.

Overall, Malaysian academic libraries are evolving into socially responsible institutions that actively support community development and inclusion. Despite challenges such as limited funding and awareness, best practices like needs assessments, local partnerships, and digital outreach have enhanced impact. Librarians are increasingly seen as facilitators of social change, promoting equity, engagement, and resilience within their communities.

CONCLUSION

This research offers valuable insights into how Malaysian academic librarians are engaging in socially responsible activities. By embedding LSR into the culture and operations of public university libraries, these institutions can significantly contribute to community development. Future research could explore in greater depth how LSR initiatives foster the development of social capital within communities.

REFERENCES

Abu Eid, Emad, & Che Hussin, A.R, (2022). Deriving factors for library corporate social responsibility using thematic and weighting analysis. *Library Management, 43*(6/7), 492-506.

Abu Eid, E., & Che Hussin, A.R, (2022). Library corporate social responsibility: A systematic literature review. *Journal of Library Administration*, *(79),* 1-40.

Akpom, C. C., Onyam, I.D., & Benson, O.V. (2020). Attitude of librarians' towards provision of corporate social responsibility initiatives in state university libraries in South Nigeria. *Library Philosophy and Practice.*

Akyildiz, S.C. and Ahmed, K.H. (2021). An overview of qualitative research and focus group discussion. *International Journal of Academic Research in Education*, 7(1), 1-15.

Andrews, R. (2010). Organizational Social Capital, Structure and Performance. *Human Relations 63*(5), 583-608.

Aslam, M. (2020). Adapting to change in academic libraries. *Global Knowledge, Memory and Communication, 71*(8/9), 672-685.

Bangani, S. & Dube, L. (2023). Institutional commitment to community engagement in South African academic libraries. *The Journal of Academic Librarianship*, *49*, 1-9.

Boyatzis, R. E. (1998). Transforming qualitative information: Thematic analysis and code development. SAGE Publications.

Carroll, A. B. (1991). The pyramid of corporate social responsibility: toward the moral management of organizational stakeholders. *Business Horizons*, *34(*4), 39-48.

Carroll, A. B. (1999). Corporate social responsibility: evolution of a definitional construct. *Business and Society, 38*, 268-95.

Carroll, A.B. (2016). Carroll's pyramid of CSR: taking another look. *Carroll International* Claridge, T. "What is Social Capital?" *Institute of Social Capital*, 3 August 2014, https://www.socialcapitalresearch.com/what-is-social-capital/.

Cook, D.B. (2022). Is the Library One-Shot Effective? A Meta-Analytic Study. *College and Research Library, 83*(5), 739-750.

Curley, A. (1974). Social responsibility and libraries. In M. J. Voight (Ed.), *Advances in librarianship* (pp.77-90). Academic Press.

Dalilawati Zainal, & Suria Zainuddin. (2013). Corporate social responsibility reporting in Malaysia: A research note. *Asian Journal of Accounting Perspectives, 6(6),* 21-36.

DuMont, R. (1991). Ethics in librarianship: A management model. *Library Trends, 40*(2), Emmanuel Omeiza, M. & Abubakar Lanre, F. (2019). The evolving roles of libraries and Librarians in the 21st century. *Library Philosophy and Practice.*

Enem, F.N, Benson, O.V., & Igbokwe, J.C. (2020). Libraries participation in corporate social responsibility activities for sustainable development in South Nigeria. *Library Philosophy and Practice,* 1-19.

Gill. P. et al. (2008). Methods of data collection in qualitative research: Interviews and focus groups. *British Dental Journal*, *204*, 291-295.

Grossoehme DH. (2014). Overview of qualitative research. *Journal of Health Care Chaplain, 20*, 109-22.

Guillaume, P. (2021). Corporate social responsibility in non-profit organizations: Beyond the evidence. *CIRIEC* No. 2021/0.

International Federation of Library Associations and Institutions. (2000). *Building Strong Library Associations Impact Report 2012.* Netherlands: IFLA Headquarters.

International Institute for Sustainable Development. (2004*). Issue Briefing Note: Perceptions and Definitions of Social Responsibility.* Canada: International Institute for Sustainable Development.

Iskandar Zainuddin Rela, Abd Hair Awang, Zaimah Ramli, Muhammad Rusdan, Musadar Mappasomba, & Anas Nikoyan (2020). Conceptual model of corporate social responsibility impact on community well-being. *Entrepreneurship and Sustainability Issues*, *8*(2), 311-323.

Ismail, M., Alias, S. N., & Mohd Rasdi, R. (2015). Community as stakeholder of the corporate social responsibility program in Malaysia: outcomes in community development, *Social Responsibility Journal, 11(1)*, 109-130.

Ismail, M. (2009). Corporate social responsibility and its role in community development: An International perspective. *The Journal of International Social Research*, *2(9),* 308-318.

Johnson, C. A. (2011). How do public libraries create social capital? An analysis of interactions between library staff and patrons. *Library and Information Science Research*, *34(1)*, 52-62.

Khoir, S. (2011). Corporate social responsibility and library collaborative partnership. *Jurnal PPM, 5*, 89-102.

Lv, Q. and Yang N. (2023). Do CSR practices necessarily increase social capital? A sustainable development perspective*. International Journal of Innovation Science.*

Mashroofa, M.M. (2022). Contribution of academic libraries towards sustainable development goals. *Annals of Library and Information Studies, 69*, 51-58.

Mohammed Ibrahim, A. (2012). Thematic analysis: A critical review of its process and evaluation. *West East Journal of Social Science, 1*(1), 39-47.

Morgan, D. L. (1998). *Focus groups as qualitative research* (2nd ed.). SAGE Publications.

Nahapiet, J., & Ghoshal. S. (1998). Social capital, intellectual capital, and the organizational Advantage. *Academy of Management. The Academy of Management Review, 23*(2), 242.

Okuonghae, O., & Igbinovia. M.O (2019). The role of academic libraries towards the attainment of Sustainable Development Goals: The Nigerian perspective. *Covenant Journal of Library & Information Science (CJLIS), 2*(2), 51-68.

Partridge, H., Bruce, C., & Tilley, C. (2008). Community information literacy: Developing an Australian research agenda*. Libri, 58*, 110-122.

P.S.N. Murthy, (2013). Corporate social responsibility and public libraries: A review*. Journal of Library & Information Technology, 33*(1), 5-6.

Putnam, R. D. (1995). Bowling alone: America's declining social capital. *Journal of Democracy*, *6*(1), 64-78.

Putnam, R. D. (2000). Bowling alone: The collapse and the revival of American community. New York: Simon & Schuster.

Putut, S., Andri, Y., Asep, S.R., Riah, W., & Rahmat, S.S. (2018). Corporate social responsibility through the library for educational facilities. *E3S Web of Conferences, ICSoLCA 2018, 74*, 1-7. https://doi.org/10.1051/e3sconf/20187408011.

Rababah A. et al. (2021). University Social Responsibility during the COVID-19 Pandemic: Universities' Case in the BRICS Countries. *Sustainability. 13*, 1-29.

Raber, D. (2007). ACONDA and ANACONDA: Social change, social responsibility, and librarianship. *Library Trends*, *55(3),* 675–697.

Racelis, A. (2018). Library Services for the Poor: Theoretical Framework for Library Social Responsibility. *Pedagogical Research*, *3(2).*

Ramsey, E. (2016). It's not just what you know but who you know: Social capital theory and academic library outreach. *College & Undergraduate Libraries*, *23*(3), 328-334.

Rudito, B. et al., (2023). Corporate social responsibility and social capital: Journey of community engagement toward community empowerment program in developing country. *Sustainability*, *15*, 466.

Schlak, T., Corrall, S., & Bracke, P. J. (Eds.) (2022). The social future of academic libraries: New perspectives on communities, networks and engagement.

Sechi, G., Skilters, J., Selecka, M., Kanalca, L. and Leskevica, K. (2022). Knowledge exchange and growth in a hybrid community – a social-capital-based approach: Evidence from Latvia. *International Federation of Library Associations and Institutions*, *49(1),* 87-98.

Sheikh Muhmad Hizam, Zulkarnian Iylia Syazana Othman, Mohammad Mohammad Amin, Zalina Zainudin, & Mohd Faiq Abdul Fattah. (2019). Corporate social responsibility in Malaysia. *International Journal of Financial Research, 10*(5): 381-386.

Silverman, D. (2000). *Doing Qualitative Research: A Practical Handbook.* Thousand Oaks, CA: SAGE Publications.

Simant Shankar Bharti. (2021). Tracing the Gap Between Corporate Social Responsibility (CSR) Initiatives and Community Needs. *Uttarvarta, 1*(7), 43-48.

Smith, C. (2019). An evaluation of community-managed libraries in Liverpool**.** *Library Management, 40*(5), 327-337.

Soderholm, J. and Nolin, J. (2015). Collections redux: The public library as a place of community. *The Library Quarterly, 85*(3), 244-260

Soltani-Nejad, N. et. al. (2022). The relationship between social responsibility and public libraries accountability: The mediating role of professional ethics and conscientiousness. *Journal of Librarianship and Information Science*, *54*(2), 306–324.

Stewart, D. W., & Shamdasani, P. N. (1990). *Focus groups: Theory and practice*. SAGE Publications.

Stranger-Johannessen, E., & Doiron, R. (2015). New perspectives on community library development in Africa. *New Library World, 116*(1/2), 1-12.

Taşdemir, D.C, Bahar, A.D., Çayırağası, F., & Oğuzeli (2017). Study on social capital concept, development and importance. *International Journal of Management Science and Business Administration, 4*(1), 52-56.

Turker, D. (2009). How corporate social responsibility influences organizational commitment. *Journal of Business Ethics, 89,* 189-204.

Victoria O, I, Aderonke O, A., & Ifeakachuku, O. (2015). The role of academic libraries in community development: issues and strategies. *International Journal of Information Technology and Business Management, 34*(1), 83-97.

Visser, W., (2006). *Revisiting Carroll‟s CSR pyramid: An African perspective (In Pedersen E.R.,and Huniche, M. (ed.),* corporate citizenship in developing countries. Copenhagen: Copenhagen Business School Press, pp. 29-56.

Vveinhardt, J., Andriukaitiene, R., Cunha, L. M. (2014), Social Capital as a Cause and Consequence of Corporate Social Responsibility, *Transformations in Business & Economics*, *13*, (2A) (32A),483-505.

Weaver, R. (2018). Exploring the elements of social capital leverage points and creative measurement strategies for community building and program evaluation. *International National Civic Review.*

Wojciechowska, MD. (2020). Role of social capital in education. Results of a survey on the individual social capital of school librarians. *Profesional de la información*, *31*(6), 1-12.

Wojciechowska, MD. (2020). Social capital, trust and social activity among librarians: results of research conducted in 20 countries across the world. *Library and Information Science Research*, *42*, 1-9.

Wojciechowska, MD. (2021). The role of public libraries in the development of social capital in local communities – a theoretical study. *International Library Management, 42*(3), 184-196

Wojciechowska, MD. (2021). Trust as a factor in building cognitive social capital among library workers and users. Implications for library managers. *The Journal of Academic Librarianship*, *47*, 1-9.

Public-Private Partnership - The Way to Build and Share Benefits for the Community of the National Library of Vietnam

Trang Hoang Thi Thu, Lan Tran Thi Phuong, Phuong Nguyen Thi Thu

National Library of Vietnam, Hanoi, Vietnam

Corresponding email: Daisy1111vn@gmail.com

ABSTRACT

The limited financial resource of the public sector is a huge obstacle to the development of public libraries in Vietnam, without exception of the National Library of Vietnam (NLV). At the same time, many businesses wish to make practical contributions to demonstrate community responsibility. In order to promote the strengths of both sectors, the public-private partnership model has been implemented by the NLV. This report presents the process of forming and developing cooperative relationships of the NLV as the central library of the country and has many cooperation projects with domestic and foreign organizations and businesses with the goals of enhancing facilities and information resources, training personnel's and promoting activities to spread cultural and intellectual values. The focus of the case study is on two exemplary projects: the establishment of the S.hub Sharing Space, and the Children's Cultural Library at NLV and a number of related cooperation programs promoting the activities of these two projects. The research method includes document researching, field surveying, and interviewing of experts and users. The report summarises learned lessons and proposes ways for libraries to effectively capitalise on and deploy investments on development, become active partners in creating new motivations for community development.

Keywords: Library Partnership; Community Development; Library Cooperation; Library Sharing Model

PUBLIC-PRIVATE PARTNERSHIP

Public Libraries

According to the Library Law (Vietnam), the network of libraries in Vietnam includes eight types of libraries as follows: (1) The National Library of Vietnam, (2) Public libraries, (3) Specialized libraries, (4) Libraries of the People's Armed Forces, (5) Libraries of higher education institutions, (6) Libraries of preschool education, general education, vocational education, and other educational institutions, (7) Community libraries and private libraries serving the community, (8) Libraries of foreign organizations or individuals serving Vietnamese people. Public libraries are libraries that are funded by the state, ensuring operational conditions and ownership representation. These libraries are organized according to the public service unit model or in accordance with the model of the relevant managing organization. In this study, public libraries refer to the 63 provincial-level libraries. The public library system is funded by Goverment budget. There is no fixed budget standard for city/province library, it depends on each province/city. On average, provincial libraries receive about $173.076[2]/year for staffing and professional activities.

Many libraries receive funding of $231.000/year or more, such as libraries in Hanoi, Bac Giang, Vinh Phuc, Bac Ninh, Thanh Hoa, Thua Thien Hue, Da Nang, Binh Duong, Dong Nai, An Giang, etc. An exception is the General Science of Ho Chi Minh City Library which receives more than $846.153/year. However, many libraries still face difficulties in operations because their allocated funding is relatively small, under $115.384/year in average, such as those in Kon Tum, Dak Nong, Ha Nam, Lai Chau, Hoa Binh, Son La, etc. (Ministry of Culture, Sports, and Tourism, 2024). In terms of human resources, the average number of staff and workers in provincial-level public libraries is 25 people per library (National Library of Vietnam, 2024). The allocated budget is mainly spent on personnel, with percentages ranging from 50% to 100%.

Table 1: Human cost ratio for provincial/cities libraries in 2024

Unit	Budget amount/Regular expenditure (USD)	Human cost in the year (USD)	Proportion (%)
Ha Noi City Library	270.153	270.153	100

[2] Rate: 1 USD = 26,000 VND

Dien Bien Provincial Library	238.885	154.846	64
Phu Yen Provincial Library	154.769	85.923	55
Dak Nong Provincial Library	112.538	80.576	71

Some examples of provincial-level library budgets for 2024 (Table 1) show that these funds are very limited, with 50 to 70% of the budget having been allocated to staff salaries. In particular, the Hanoi Library, with two branches operating, reported that 100% of its regular expenditure is used for the staff.

The NLV is the central library of the country. It has unique and specialized functions as stipulated by the Library Law, including: receiving, preserving, and permanently archiving publications and press releases, doctoral dissertations published in Vietnam; acquiring and disseminating materials about Vietnam and notable foreign publications; developing the national bibliographic information system and the Vietnamese National Union Catalog; conducting research in library and information science; providing professional guidance to other libraries; carrying out centralized cataloging; building and developing full-text databases and digital libraries; cooperating and exchanging information resources; and participating in forums and professional library associations.

It can be observed that, although the operational budget allocated to the NLV is significantly higher than that of provincial libraries, the personnel expenses also account for the highest proportion. In 2024, the budget allocated has increased, but correspondingly, the costs for staff have also risen due to the government's policy of increasing the basic salary. With the numerous specialized tasks of the central library, the allocated budget is stretched thin, making it extremely challenging to fully meet all responsibilities of the NLV.

Public sector libraries organize and carry out non-commercial service activities, so they have little or no revenue from profits during their operations. The state budget funding primarily ensures essential activities, such as paying wages for employees, covering the operational costs of the system, maintaining the building’s facility, and supporting some basic functions. In reality, the financial resource needs for public libraries have never been fully met. As a result, the investment in the public library system has not yet reached the expectations of the libraries

themselves. This has driven efforts to seek cooperation, attract investments, and promote socialization.

In 2024, NLV allocated the following operational budget:

Table 2: Proportion of personnel expenses at the National Library of Vietnam (2022–2024)

Year	Budget amount/Regular expenditure (USD)	Human cost in the year (USD)[3]	Proportion (%)
2022	745.000	545.258	73
2023	725.462	572.615	79
2024	900,707	741.013	82.2

Enterprise

Enterprises are one of three entities that determine national economic development. For Vietnam's economic development the force of enterprises plays an extremely important role. Enterprises are an important force that creates a large amount of GDP, jobs for workers, participates in solving social security, promotes development and creates major growth for the economy (Lam, 2023).

Recently, the Communist Party and the State of Vietnam have issued many policies to support and promote the development of businesses. Specifically, in 2023, many fiscal and monetary policies aimed at overcoming difficulties, addressing obstacles, and boosting economic growth were enacted across various sectors, such as: healthcare, capital markets, land, real estate, tourism, etc. Among these, some policies have had a significant and positive impact, such as tax deferral, land lease payment postponement, reduction of certain taxes and fees, a 2% reduction in Value Added Tax (VAT), interest rate cuts for loans, debt restructuring, and debt postponement. According to the Ministry of Planning and Investment (Department of Business Registration Management), the number of newly registered businesses in 2023 reached a record high with nearly 160,000 businesses, 1.2 times the average of the 2018 to 2022 period.

[3] Including salary fees, insurances, hazard pay (goods and money), overtime pay for personnel, payments from last year are draped and can only be paid in the following year.

The number of businesses entering and re-entering the market increased by 4.5% compared to the same period in 2022, 1.3 times the number of businesses existing in 2023. This result shows that the business sector is restructuring, and confidence in the business prospects of the business community is still being strengthened (Do, 2024).

In a market economy, the value of a business is no longer solely based on achieving the highest profit or the lowest cost. This value is also reflected in community-oriented activities, which many businesses are consistently carrying out as an essential part of their business culture of contributing to a better community. Corporate social responsibility (CSR) helps create a distinct image, making the public and customers more favorable toward the brand, building affection, trust, and ultimately leading to loyalty toward the brand. According to a study by the Reputation Institute (2017), 91.4% of customers make purchasing decisions based on brand's association with CSR, and 84.3% of customers said they would continue to trust businesses with CSR even during a crisis (P.V., 2021). For this reason, many community action programs and welfare funds have been implemented by businesses.

It is fair to say that with the limited budget allocated to the operations of public library systems in general and NLV in particular, it is the active participation, advocacy, and proactive and cooperation orientation of the library has opened up development directions for the NLV.

Cooperation Development in National Library of Vietnam

The NLV's international cooperation truly began after 1954. Over the years, the NLV has become an essential and important bridge for activities, sharing information, and exchanging publications with around 150 libraries and information-library centers in over 40 countries worldwide. The NLV has also received and distributed dozens of projects, machinery, library equipment, and particularly publications worth hundreds of thousands of US dollars annually to libraries in Vietnam. Through the NLV, many publications, books, and materials from Vietnam have also been sent to the world. Some major and significant programs and projects that the NLV has participated in and showed success and efficiency include: the 20-year "Books for Asia" project, funded by the Asia Foundation (USA), which provided over 660,000 English-language books worth nearly $30 million, "Enhancing Computer Usage and Public Internet Access" project in 40 provinces and cities, funded by the Bill & Melinda Gates Foundation (USA), financial support project of over $100,000 from the Atlantic Philanthropies (USA) Foundation through RMIT University to help the NLV implement the DDC 14 Classification Table Research, applied in Vietnam, and $40,000 to translate the DDC 23 version into

Vietnamese (2013). To date, the use of this classification system has reached 100% in public libraries and over 89% in university libraries (NLV., 2024).

In collaboration with the French Ambassador in Hanoi, the NLV has processed and created a database of around 20,000 book titles from the Indochina collection in the Indochina Digital Library project, the Han-Nom Document Digitization Project (2006-2009); the development of village/community library collections in Vietnam; the Bibliographic Project for publications (2009-2011); the French Book Space Project sponsored by the International Organization of the Francophone, providing French books for the National Library and eight provincial/municipal libraries: Hai Phong, Quang Ninh, Nghe An, Khanh Hoa, Lam Dong, Binh Duong, Ben Tre, Can Tho; and the sponsorship of books and artifacts from embassies and international organizations in Hanoi for schools and libraries nationwide (2022).

In addition, the NLV has organized exhibitions, cultural exchanges, conferences, seminars, training, and workshops. The NLV mobilizes and receives overseas training support for librarians nationwide to participate in the Master's Program in Information - Library in India; Lee Kong Chian Research Scholarship in Singapore; Internship Program in France; program to improve foreign language and information technology skills in India; and training program for librarians serving children in ASEAN countries in Korea, The International Network of Emerging Library Reformers Project of Southeast Asian countries has supported scholarships for National Library officials and libraries in provinces/cities such as Binh Dinh, Nghe An, Hau Giang, Dong Thap, Hai Phong, City. Ho Chi Minh, Binh Duong, Khanh Hoa, Hanoi University of Culture.

To date, NLV is a member of the International Federation of Library Associations and Institutions (IFLA), the Conference of Directors of National Libraries (CDNL), the Conference of Directors of National Libraries in the Asia-Pacific region (CDNL-AO), the ASEAN Librarians' Conference (CONSAL), the Francophone Digital Network (RFN), and the World Digital Library (WDL), among others.

This cooperation has brought practical results, promoting the development of not only the NLV but also of libraries across Vietnam. In its efforts to seek and expand cooperation, NLV has also opened new directions, looking for and selecting key partners, including businesses, which bring tangible results. Notably, there are two projects, Building the S.hub Sharing Space and the Children's Cultural Library.

NOTABLE PROJECTS AND RESULTS

The "S.hub Sharing Space" Project

The "S.hub Sharing Space" project (2016-2018, 2024) was developed with funding from Samsung Vina Electronics Co., Ltd. (Samsung).

Objective:

To build a Smart Library 2.0 model, organizing a modern space that combines high-tech equipment and library resources in one learning environment. The project aims to use technology as a tool to harness the library's knowledge resources and offer activities that are guiding, inspiring, and conducive to creating a learning and knowledge-sharing space for library users, especially young people.

Phase 1 Investment (2016-2018):

- Reading Room Renovation: The reading room on the second floor of building D was renovated to create functional areas such as the Audio-Visual Room, a research area, personal study spaces, group discussion areas, thematic discussions, and small-to-medium-sized workshops.
- Lobby Research Space (Building E): The space was organized for events, exhibitions, information retrieval, large-scale exchanges, and thematic activities.
- Infrastructure: Walls and floors were renovated, electrical systems updated, new furniture (tables, chairs, shelves), book display racks, lockers, and internet connections were installed.
- Equipment: LFD (Large Format Display) projectors, information retrieval boards, computers for searches at the E Lobby, tablets, and desktop computers for individual research areas on the second floor, interactive screens, and specialized audio systems for the Audio-Visual Room.
- Total Renovated Area: 1,200 m^2
- Total Budget: 269.231 USD.

On November 24, 2016, the NLV officially inaugurated the S.hub Sharing Space at the location of NLV, 31 Trang Thi - Hanoi. The S.hub Sharing Space is a complete model that integrates high-tech equipment with the library's knowledge resources and activities aimed at providing

direction and inspiration, creating a space for learning and knowledge-sharing for the youth of Vietnam, especially for young people in Hanoi. In completed, this space meets three key elements:

- Modern Facilities and Equipment: The space is equipped with modern facilities, including high-tech electronic devices such as projection screens, computers, interactive smart screens, tablets, personal research computers, interactive screens, and specialized audio systems for the multimedia room.
- Online Interaction Space: It uses the website www.s-hub.vn, which serves as a communication portal between library users and the S.hub Sharing Space. The website allows users to book meeting rooms, reserve event spaces, or register to participate in events hosted at S.hub.
- Reading and Activity Organization: The NLV regularly organizes themed activities and clubs on various topics in different formats such as discussions, presentations, and more.

Phase 2 Renovation Investment (July 2024)

Renovation of the S.hub Reading Room Area: Renovation of the S.hub room, including refurbishing and updating the space, replacing damaged equipment, and equipping the room with new devices. This includes the renovation of functional areas such as the Audio-Visual Room, the research area, personal study spaces, group discussion areas, and small-to-medium-sized thematic workshops.

Total Renovated Area: 258 m^2

Total Budget: 42.308 USD.

A newly introduced S.hub space has a more environmentally friendly design; the group study space can be easily transformed to become more attractive and increase the appeal of user experience and discovery. Once the S.hub spaces were brought into use in this phase, they quickly attracted many readers throughout the year. In 2024, despite the temporary out-of-use period due to renovation and repairing works the number of readers quickly grew again immediately after the reopening of the S.hub reading room. The number of readers currently reaches 120 to 150 people per day, corresponding to the maximum service capacity of the space.

Table 3: Number of reader visits per year at the S.hub Space

Year	12/2026-2017	2018	2019	2020 COVID	2021 COVID	2022 COVID	2023	2024	Mar 2025
Number of visit	17.403	38.178	34.020	28.299	17.388	15.810	18.945	28.611	13.572

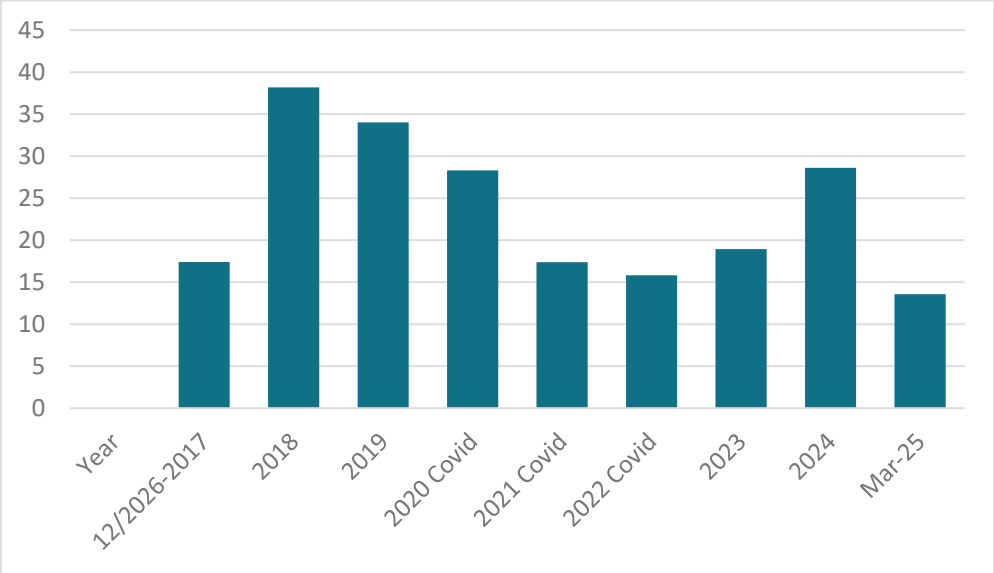


Figure 1: Number of reader visits per year at the S.hub Space

With statistics for the first three months of 2025, the number of readers for the whole year is expected to increase dramatically. That also shows that the need of young people for a modern learning space, with the opportunity to access information resources, media, technology and to be able to communicate, is very urgent. The survey on user satisfaction with the current S.hub space (March 2025) was conducted through direct interviews in the S.hub room, using a rating system (scale of 10). We received a satisfaction rate of 90%.

The S.hub Sharing Space project has helped the NLV implement a complete service model that integrates technology with the library's knowledge resources, along with activities that provide direction and inspiration, creating a learning and knowledge-sharing space for young people in Vietnam, especially for the youth in Hanoi. The project has also been successfully implemented at the Ho Chi Minh City General Library and the Da Nang City Library.

Children's Cultural Library at the National Library of Vietnam

The project to establish the Children's Cultural Library at the NLV (2017-2018) was funded by the International Cultural Cooperation Fund (ICF) of South Korea.

Objective:

To create a new library model combining reading with cultural activities for children, starting from age 3. Here, children receive not only the opportunity to read books but also to enrich their knowledge through interesting cultural experiences in spaces dedicated to music, games, and a movie theater. This approach encourages creativity, curiosity, and helps build a love for learning while forming the habit of reading.

Phase Investment:

- Placement: Renovation of the old cafeteria area on the first floor of Building K1 into the Children's Cultural Library, with a total area of 240m².
- Renovation and New Items: Repainting and repairing of wall and floor, adjustment of electrical systems, internet connection, air conditioning, fans, tables, chairs, bookshelves, and storage cabinets; Interior equipment, computers, interactive reading screens, movie theater, typical traditional Vietnamese and Korean musical instruments, and safe toys for children.
- Design Items: Information counter, book display area, musical instrument and toy display area, reading and play area, multifunctional S-shaped counter, cultural experience room, mini-stage, and movie theater.
- Information Resources: Over 4,000 books in Vietnamese, English, and Korean for children, as well as reference books for parents.
- Operational Support: ICF assisted the NLV in implementing thematic activities to attract young library users during the first year of operation.
- Total Investment Cost: Over 269.231 USD.

Table 4: Number of library cards issued, library usage, and document circulation

Time period	Criteria	Total	Average
16/11/2017-End of 2024	Number of cards issued	19.327 reading cards[4]	2.761 reading cards/year
	Number of document circulation	805.000 rounds	115.000 rounds/year
	Number of library visit	161.000 visits	23.000 visits/year 70-80 visits/day

In November 2017, for the first time since its establishment in 1917, the NLV opened the Children's Cultural Library. The project was launched at a time when the NLV was introducing new library service models. For the first time, the NLV organized services for children in a modern, innovative space, not only for libraries in Vietnam but also in the region and around the globe. The satisfaction rate of users regarding the facilities of the Children's Library, rated as Good and Satisfactory, reached 83% (Do, 2021).

Table 5: Organizing thematic activities

Time period	Number of activities	Number of attendance
2017-2021	45 (in average 14 activities/year)	2,925 children (50 schools)[5]
2022-2024	46 (in average 15 activities/year)	2,990 children

This is a complex library space model, combining reading activities with cultural experiences and talent development for young children, helping the NLV fulfill its role as an information, learning, and entertainment center for young library users. The NLV has organized and

[4] Due to impact of the Sars-CoV2 pandemic, in 2020 the number of issued cards decreased by 1/3 compared to 2019.

[5] Including public, private, and international kindergartens; clubs; primary and secondary schools.

maintained dynamic and engaging thematic activities at the Children's Library. Additionally, there have been reading campaigns that effectively attract and guide children to read, such as the "Read a Book for Your Child" campaign, which uses the yellow apron as the symbol of the "storyteller." The campaign was expanded and attracted participation of provincial libraries and kindergartens nationwide. For this reason, the Children's Cultural Library has always been an attractive destination for families and young library users in Hanoi, especially during the summer holidays and on weekends.

PROJECT IMPLEMENT, ADVANTAGES, CHALLENGES AND SHARED LESSONS

Cooperation in the field of libraries is extremely necessary as it involves mutual support between libraries and their partners, with the ultimate benefit directed toward users. Achieving this is a process that requires extensive experience, skills, and carefully planned and meticulous steps which are carried out systematically.

Project Implement

- **Understanding and sensitivity to the reality of resources and potential partners:** As discussed in the overview section, the NLV has identified resources from organizations and businesses that are willing to cooperate and invest in the library. It is crucial to research capable, reputable partners with many community-oriented activities related to culture and education. For example, Samsung Vina in Vietnam has carried out many socially responsible projects with significant educational benefits, such as the Samsung Innovation Campus (SIC), the Mobile Smart Library, and the S.hub Kids Technology Space (Samsung, April 2025).

- **Detailed proposal documentation:** A comprehensive proposal needs to be created, describing the plans, intentions, desires, and objectives of the NLV regarding investment in the library. The NLV identifies its goals as improving infrastructure, modernizing facilities, enriching informational resources, and focusing on applying technology to optimize service for users. This will create a comfortable and modern reading and learning environment, attracting more users, enhancing reading culture, and expanding knowledge. The target audience for the project includes library users, particularly students, who can benefit without additional costs, providing them with opportunities to experience the services. The proposal must be clear, feasible, convincing, and meet both the NLV's needs and the partner's investment criteria. The investment focuses on enhancing information resources, educational development, and human capital.

- **Technology application and user experience:** Identifying the direction for applying technology to bring real experiences to users, such as experiences that enhance reading culture, improve library services, and guide users toward experiential products, which also support promoting the businesses.
- **Legal compliance and process management:** For activities that have legal implications, it is essential to ensure that implementation follows the law and complies with governmental procedures. Proposals should be presented to the management authority of the NLV - the Ministry of Culture, Sports, and Tourism - and all related documents, plans, and proposals must be submitted and reviewed by relevant departments, such as the International Cooperation Department and the Office. The plan must be clear, feasible, and outline the benefits. The cooperation agreements between the parties should be well defined, and the terms of mutual contribution clarified. For the NLV, this involves providing the location, human resources to organize activities, and maintaining the reading space, while the partners are responsible for infrastructure investment, equipment, resources, and possible training and human resources guidance.
- **Special requirements for equipment:** Specific requirements for equipment must be discussed and agreed upon. The NLV has surveyed user needs and researched real-life conditions to propose appropriate equipment for reading and learning activities. Partners must ensure that materials and equipment are suitable for educational environments, fire safety, and appropriate for the target users. Both parties should agree on the design layout and the proposed cost estimate to meet the requirements of both sides. For cases related to construction, demolition, or structural changes, procedures must comply with construction regulations, with reports and supervision from the relevant parties.
- **Ensuring commitment fulfillment:** Activities should be carried out according to the commitments made between the parties. This is done by developing detailed short- and medium-term activity plans. The NLV has leveraged its advantage as a long-established institution with a large number of users, having created many successful programs that attract users.

Advantages

The NLV has many basic favorable factors that contribute to building successful projects, including the following factors:

- **The NLV has established effective and long-term cooperative relationships with partners,** frequently collaborating on many programs and projects responsibly,

achieving high effectiveness. The NLV acts as a liaison to help partners implement nationwide projects, thus building credibility and trust with partners.

- **Support from unit leadership and energetic, diligent librarians of the NLV.** The librarians have played a key role in establishing and consistently maintaining various events, especially in the Children's Cultural Library space. As a result, the NLV has initiated many activities to encourage the development of a reading culture and the promotion of reading inside and outside the library.
- **Initial success in attracting library users to collaborate:** At the S.hub Sharing Space, a reading club has been actively engaged. The club has helped promote the library's image, connecting with student readers, participating in the Fanpage, and contributing to events organized at the NLV.
- **Opportunity for businesses to engage more closely with potential customers**: By participating in library projects, businesses can effectively fulfill their CSR objectives while also contributing to the development of a young, sustainable workforce equipped with knowledge and real-life experience.

Difficulties And Challenges

Besides the advantages, reality shows that there are many difficulties and challenges that NLV must face.

- **Barriers related to mechanisms, policies, procedures, and regulations for conducting activities:** It is essential to always stay informed and have a clear understanding of government regulations related to investments, finances, construction, and the legal frameworks in the library field.
- **Choosing partners and balancing interests among all parties**: The primary priority should always be the benefit of users. The goals, benefits, and conditions proposed by all parties need to be discussed, explained, and appropriately aligned. Legal, economic, and cultural values must be carefully considered, and challenges must be addressed in order to reach a mutual agreement.
- **Maintaining modern spaces and equipment** is challenging due to natural conditions, climate, and the rapid development of architecture and technology. The library space is still limited, such as in the Children's Library, which is not suitable for hosting multiple activities or accommodating a large number of children simultaneously.
- **Equipment and many structural elements have deteriorated after a period of use** and are difficult to repair; the technology infrastructure does not meet actual usage

demands. Additionally, although the library operates in an open-stack format, there are no security systems to help manage library materials during service hours.

- **For the Children's library:** The model is complex, catering to a diverse age range and various purposes, so it does not fully meet the needs of all users. The staff working with children still lack the necessary knowledge and skills to understand and engage with the psychological needs of young children.
- **Although the library is funded for infrastructure,** the annual budget allocated for professional activities is still very limited. There are no funds for large-scale activities, recurring events, or for purchasing additional equipment and maintaining existing assets.
- **Library staff have not received training or participated in workshops on skills and knowledge related to child and youth psychology**, which somewhat affects the effectiveness of library services for this target group.

Lessons Learned

To successfully implement the two projects mentioned above, as well as many other projects at the NLV, the following mandatory criteria must always be monitored:

- **Carefully research potential partners,** ensuring that partners are reputable, high-quality entities backed by competent authorities. Interested partners are the corporation and business that have been operating for a long time in Vietnam. They are reputable in their business field, truly interested in reputation, business quality, customers as well as the contribution for many meaningful activities for the community.
- **Thoroughly understand government regulations**, general laws, and specific laws related to libraries. The regulations of the Nation and the Ministry in charge are always the top concern for the implementation of projects, especially public-private partnership projects. This requires the implement departments to have good understanding and coordination with each other. Only after passing this step, can we ensure that the project is implemented in a systematic, formal manner, and is licensed for implementation.
- **Ensure the fulfillment of commitments in partnerships**, creating a good reputation not only for library users but also for the library's collaborative partners in all activities and areas of cooperation. This is one of the NLV's advantages/strengths, because the planning process must calculate the level of feasibility, the ability to maintain the

project and, most importantly, the efforts of the staff when receiving the results and putting the project into practical operation.

- **Projects should have a detailed plan**, with consultation from relevant units, preliminary evaluations of effectiveness, and safeguards during the construction process. A team should also be in place to consult and design programs when the project is operational.
- **Prepare human resources from the planning phase to the project implementation stage**. Ensure that staff have the necessary capabilities and qualities to perform their roles when the project becomes operational. A training and development plan for the workforce is also required.
- **The ability to evaluate the project's development** and be ready to share knowledge and experiences to potentially expand the project to other localities. With a successful project, the opportunity to share and replicate the project is essential. Successor projects will overcome existing weaknesses, maximize effectiveness to achieve success.

CONCLUSION

It can be said that public-private partnerships play an important role in promoting the development and modernization of libraries at the NLV. Cooperation in investing in infrastructure, information resources, and supporting the development of library activities has become a guiding direction for the NLV and its partners in promoting the reading culture, enhancing public knowledge, and fostering sustainable development in Vietnam. This activity not only brings positive results for library operations, providing direct benefits to library users, but also contributes to building a strong brand for partners, creating positive symbols in development, and harmonizing the interests of businesses to effectively support community development.

REFERENCES

Do, P. T. (2024). The Development of Vietnamese Enterprises: Current Status and Solutions. *Economic and Forecasting Journal, 03*, February 2024. https://kinhtevadubao.vn/su-phat-trien-doanh-nghiep-viet-nam-thuc-trang-va-giai-phap-30380.html.

Do, T. T. H. (2021). Enhancing the Effectiveness of Library Services for Children at the Children's Cultural Library, National Library of Vietnam: A research thesis for basic-level scientific research (Đỗ Thị Thu Hiền, Trần Thị Phương Lan, Đặng Thị Quỳnh, & Nguyễn Thị Phương Nhung, Eds.), 94.

Kieu, T. N., & Bui, T. T. (2018). The Children's Cultural Library - The first multimedia library complex model for children in Vietnam. *Vietnam Library Journal*, *1*, 41–44.

Lam, T. D. (2023). The Current Status of Enterprise Development and Its Contribution to Economic Development in Vietnam. *Economic and Forecasting Journal*, *34*, December 2023. https://kinhtevadubao.vn/hien-trang-phat-trien-doanh-nghiep-va-dong-gop-cua-doanh-nghiep-doi-voi-phat-trien-kinh-te-o-viet-nam-29357.html.

Vietnam,. (2019). Law No. 46/2019/QH14 of the National Assembly: Library Law.

Ministry of Culture, Sports, and Tourism (2024). Report on the 5-year Preliminary Review of the Implementation of the Library Law. *Proceedings of the Conference on the 5-year preliminary review of the implementation of Library Law*.

National Library of Vietnam. (2024). Final Report on the Application of the Dewey Decimal Classification System, 23rd Edition in Vietnamese Libraries (2014-2023). *Proceedings of the Conference - Seminar on the application of the Dewey Decimal Classification system*, *23rd edition in Vietnamese libraries (2014-2023).*

P.V. (2021). Businesses for the Community. *Tiền Phong*. https://tienphong.vn/doanh-nghiep-vi-cong-dong-post1395933.tpo.

Samsung. (n.d.). Supporting Education, Accompanying the Youth Generation. *Samsung CSR*. https://csr.samsung.com/vi-vn/localMain.do

Tran, T.P. L & Bui, T.T (2022). Training Materials on Communication and Social Mobilization, 33.

Public Libraries as Catalysts for Health Literacy: How Public Libraries Can Collaborate with Stakeholders for Community Health and Well-Being

Zhou Hongli, Noorhidawati Abdullah, Ali Fauzi Ahmad Khan

Department of Library and Information Science, Universiti Malaya, Kuala Lumpur, Malaysia

Corresponding email: noorhidawati@um.edu.my

ABSTRACT

Public libraries promote community health and well-being by ensuring equitable access to essential health information, regardless of socioeconomic background. However, challenges in defining their roles and collaborating with stakeholders hinder their full potential. This systematic literature review examines how public libraries engage with stakeholders to advance this mission. Literature was collected from Web of Science, Scopus, PubMed, and CNKI, with a PRISMA flowchart detailing the selection of 30 studies published between 2020 and 2024. Public libraries collaborate with healthcare educational institutions, nonprofit organizations, experienced individuals, and government departments to promote community health and well-being by direct actions, such as providing safe environments, organizing lectures, and hosting training courses, and indirect influences, like training healthcare professionals and fostering community connections. By adopting multiple collaborations, including environmental and resource providers, information facilitators, and researchers, libraries contribute significantly to community health initiatives. It is worth noting that more studies and practices are needed in developing countries. However, regardless of whether in developed or developing countries, staffing and resource limitations, financial constraints, and sociocultural barriers that may affect program implementation and community engagement must be considered. Public libraries can serve as catalysts for community health and well-being through building partnerships with outreach stakeholders and diverse pathways. The study fills the gap of how public libraries engage with stakeholders for community health by offering evidence-based insights to guide public libraries' future strategies, methods, and concrete pathways for community health services practice.

Keywords: Public Library; Librarian; Community Health; Well-Being; Health Literacy

INTRODUCTION

In an increasingly complex healthcare environment, health literacy has become a critical factor influencing individual and community well-being. As health-related challenges grow more intricate, enhancing health literacy is essential for enabling individuals to make informed health decisions, navigate healthcare systems effectively, and manage chronic conditions. A growing body of research highlights the rapidly expanding role of public libraries in health promotion. Ansari et al. (2019) argue that, like healthcare institutions, public libraries serve as effective platforms for disseminating health information. Research has increasingly acknowledged the contributions of libraries and librarians in combating health information inequities (Jean et al., 2020). As primary providers of health-related content, public libraries are indispensable in fostering community health literacy. Cigarini et al. (2021) suggest that public libraries can take the lead in promoting citizen science and serve as local hubs for disseminating health information. By incorporating citizen science initiatives into library programming, public libraries can engage community members in research and health-related activities, thereby fostering public engagement and a sense of collective responsibility.

Lenstra and Oguz (2020) emphasize that public libraries are increasingly recognized as key facilitators of health literacy, particularly in serving underserved populations. Through reliable health information, educational resources, and digital tools, libraries play a vital role in supporting individuals in making informed health choices and improving their overall well-being. For example, public libraries can offer health information workshops and technology training programs specifically designed for older adults with chronic conditions. These initiatives help older adults develop essential skills such as accessing trustworthy online health information, evaluating the credibility of health websites, acquiring practical medical knowledge, and managing their health more effectively (Pirialam et al., 2019). In addition, public libraries can provide various types of health literacy services. Naccarella and Horwood (2021) highlight the growing importance of public libraries as multifunctional health-literate spaces, emphasizing their role in promoting community engagement, building resilience, supporting mental health, and reducing social isolation. These studies collectively underscore the importance of recognizing the untapped potential of public libraries, which can contribute significantly to building healthier communities and improving population well-being.

Given these trends, the opportunity to strengthen the role of public libraries in public health efforts is more critical than ever. Libraries can uniquely contribute as health-literate spaces

where diverse community members can access educational resources, connect with health professionals, and participate in health promotion activities. Lenstra and Oguz (2020) assert that collaboration among various stakeholders, including healthcare providers, government agencies, nonprofit organizations, and community leaders, can effectively promote health literacy. Public libraries are critical intermediaries in this process, bridging the gap between health information and community-specific needs. Through strategic partnerships, libraries can expand their outreach, deliver tailored health programs, and address disparities in health education. Rose et al. (2024) support that such collaborations can help libraries overcome resource constraints and offer more effective pathways for enhancing health literacy. A recent study showed links among health information-seeking behavior, health literacy, and the functions of libraries and community resources (Hadler et al., 2024). Public libraries can thus serve as essential civic agents for promoting evidence-based health information (Ma, Wang & Lun, 2024).

However, the theoretical framework linking health literacy and public libraries is still evolving, and more research is needed to support this growing trend (Lenstra & Oguz, 2020). Zhou and Yu (2022) argue that libraries need to re-examine the role of public health and recognize themselves as key institutions in promoting public health at the societal level. Providing services and resources for the community remains challenging for public and academic libraries (Hall & McAlister, 2021). Public awareness of the range and nature of services offered remains lower than desired (Cole & Stenström, 2021). Moreover, various factors hinder an effective reading culture (Wema & Kabagambe, 2024). This study explores and addresses the gap by understanding various stakeholders and examining how public libraries collaborate with these stakeholders. Through a detailed analysis of successful initiatives and best practices, it highlights how public libraries, by building partnerships with outside and providing their unique resources, can significantly contribute to improving health literacy, promoting healthier behaviors, and achieving better health outcomes within the community.

Accordingly, the research questions proposed in the study are as follows.

RQ1: Which stakeholders do public libraries engage with to enhance health literacy and promote community health and well-being?

RQ2: In what ways do public libraries collaborate with these stakeholders to strengthen health literacy and support community health and well-being?

METHOD

A systematic literature review was conducted according to Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). The analysis involves four steps: identification, screening, eligibility, and inclusion (Steinmetz et al., 2021). The articles were gathered from WOS (Web of Science), Scopus, ScienceDirect, and PubMed. Using the following search terms ("public libraries" OR "public librarians" OR "public library services") AND ("health literacy" OR "health education" OR "health information literacy" OR "patient education" OR "eHealth literacy") AND ("collaboration" OR "partnerships" OR "alliances" OR "cooperation" OR "interdisciplinary collaboration") AND ("stakeholders" OR "health professionals" OR "healthcare providers" OR "community organizations" OR "nonprofit organizations" OR "government agencies") AND ("community health" OR "public health" OR "health promotion" OR "wellness programs" OR "health equity") used to screen the most relevant studies.

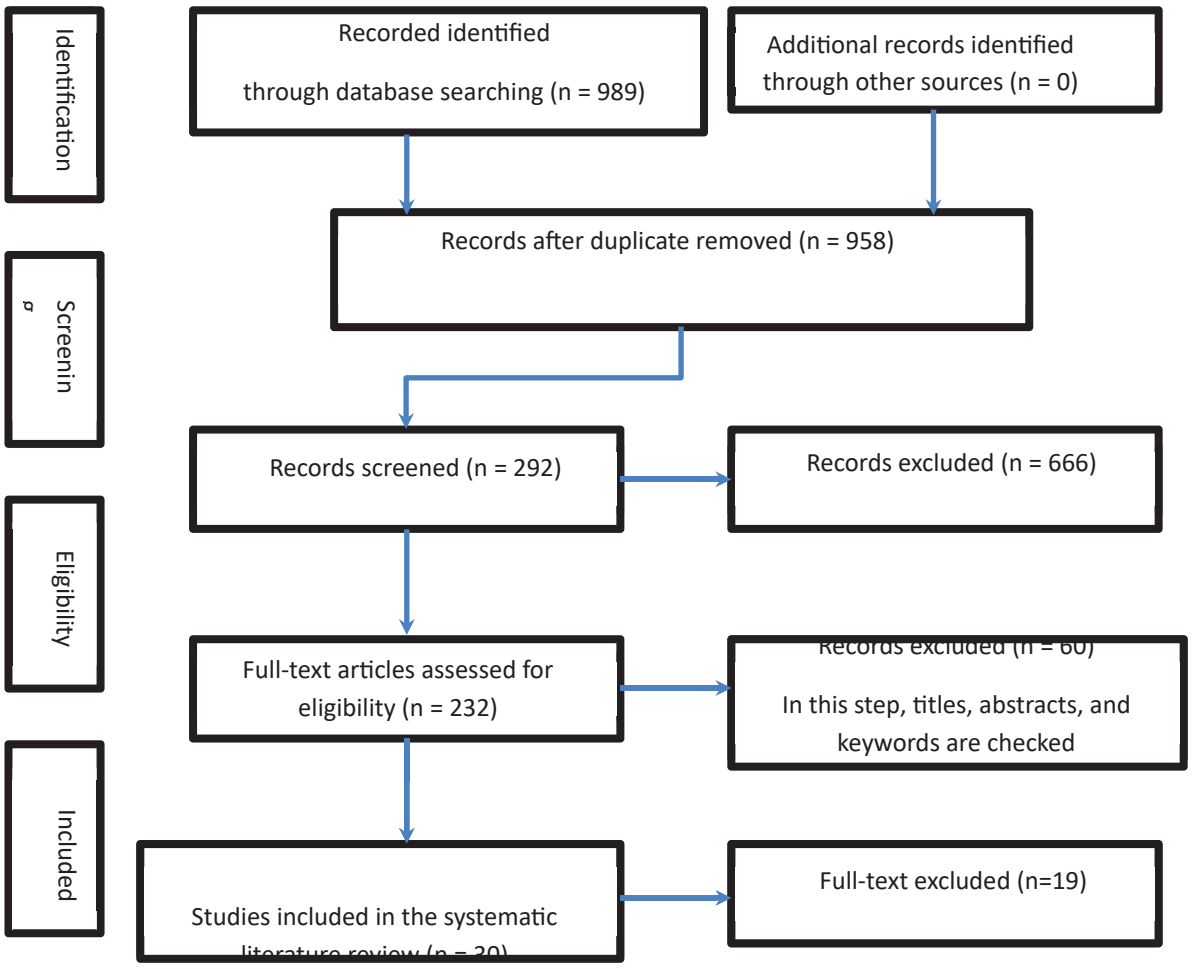
A total of 989 articles were gathered: 836 from WOS, 74 from Scopus, 25 from PubMed, and 54 from ScienceDirect. Nine hundred fifty-eight documents remained after removing duplicates. In the second step (screening), 666 were excluded for not belonging to Library and Information Science, and the titles and abstracts of 292 documents were reviewed. In the third step (evaluation), the full texts of the remaining 232 documents were assessed, with 60 excluded for not being accessible. In the fourth step (inclusion), after applying strict inclusion and exclusion criteria, 49 documents met the primary selection standards. After critically evaluating their relevance to the research topic, 19 were excluded, leaving 30 documents for inclusion. Details are shown in Figure 1.

Inclusion Criteria

For the purpose of this study, the inclusion criteria for the review articles are:

- The study must have been published between 2020 and 2024;
- The research area of articles belongs to the field of Library and Information Science;
- The article content involves public libraries or public librarians collaborating with other stakeholders to promote community health and well-being;

Figure 1. The PRISMA literature data processing process



FINDINGS

RQ1. Which stakeholders do public libraries engage with to enhance health literacy and promote community health and well-being?

Over the past five years, beyond their traditional roles, libraries have served as interdisciplinary contact points capable of coordinating collaborative networks among healthcare professionals, policymakers, educators, science communicators, and other relevant stakeholders (Fadda et al., 2022). These networks enable libraries to function as dynamic hubs for evidence-based practice, academic knowledge integration, and science communication, then disseminate health information to the community by embracing digital transformation and adapting to emerging modes. In the networks, establishing effective partnerships with diverse stakeholders is a key pathway for public libraries to fulfill this mission. The three levels include organizations and institutions, individuals with expertise in health-related fields, and government health and related departments, which are robust collaborators.

First, organizations and institutions, such as hospitals (Driscoll et al., 2021; Hammock et al., 2023), academic and medical institutions (Ladd & Wright, 2023; AHIP et al., 2022), as well as community organizations (Kociubuk & Willett, 2023; Stanifer et al., 2024), are indispensable partners. Through collaboration with these stakeholders, public libraries act as crucial connectors, aligning users' health information needs with reliable information, knowledge, and technology sources and advancing user-centered health literacy education. These collaborative efforts enhance the quality and reach of library-based health services and ensure cultural responsiveness and local relevance. Table 1 summarizes the range of stakeholders identified by researchers as essential partners in advancing community health through public libraries. Scholars have emphasized that organizations with expertise in health information, human resources, or technical capacity play indispensable roles in enabling public libraries to support community health and well-being. For example, hospitals, academic medical center libraries, and health libraries have proven to be strong collaborators in implementing patient empowerment workshops (Irish et al., 2022). In the United States, with support from the Network of the National Library of Medicine (NNLM) Community Outreach Grant, rural public libraries have been able to plan, develop, promote, and implement a variety of programs, including training workshops, speaker events, and book discussions (Ladd & Wright, 2023).

Additionally, educational institutions are important partners for public libraries (Hassan & Shehata, 2024). Developmental scientists at universities play a key role in maximizing the effectiveness of health education programs, making partnerships between public libraries and universities necessary (Kranich, 2021). Moreover, due to the open nature of university education, a diverse range of participants, such as families, can be engaged (Morgan-Daniel, 2023). As a result, library-family partnerships may also improve family health (Taylor et al., 2021), thus expanding the scope and meaning of education in this context. Second, healthcare professionals, health information experts (Kitzie et al., 2022; DeRosa, 2021), and health librarians (Reid & Mesjar, 2023) are necessary because they are practitioners. These individuals with expertise in health-related fields are valuable partners for public libraries in promoting community health, particularly when serving special populations such as individuals with dementia (Jasmin, 2024). Medical librarians, faculty and staff from public and medical universities, medical students (AHIP et al., 2022), health nurses (Driscoll et al., 2021), and professional librarians and specialists (Kitzie et al., 2022) all constitute important collaborators in this effort.

Furthermore, government representatives, which include public health departments, policymakers, community management bodies, and government health and related departments, partly guarantee collaboration for public libraries with stakeholders effectively

(Fisher & Singh, 2022; KM Alpi et al., 2024). The community is one of the most critical partners (Kitzie et al., 2022). For example, community outreach offices and grassroots organizations (Irish et al., 2022) can actively participate in library-led health initiatives. Ilo et al. (2021) found that public libraries can provide reproductive health information for rural women through collaboration with community organizations and health agencies. Public libraries can develop, implement, and continuously evaluate health education programs tailored to their users by partnering with stakeholders.

Table 1. Public Library's collaborators for community health and well-being

	Public Library's Collaborators for Community health and well-being										
Study ID	**Hospital / Health experts**	**Specialized staff / specialists**	**Medical/ Health/ academic / library**	**Librarians**	**Community organizations**	**University/ School**	**Government/ Health Bureau**	**Policymakers**	**Medical students**	**Consumer**	**Country**
Shi & Luo, 2020	√	×	×	×	×	×	×	×	×	×	China
Lenstra & Oguz, 2020	×	√	×	×	×	×	×	×	×	×	USA
Tracey A, 2020	×	×	×	×	×	√	√	×	×	×	USA
DeRosa, 2021	√	√	√	√	×	×	×	×	×	×	USA
Naccarella & Horwood, 2021	×	√	×	×	×	×	×	×	×	√	Australia

Driscoll et al., 2021	√	√	×	×	×	×	×	×	×	×	USA
Ilo et al., 2021	×	×	×	×	√	×	√	×	×	×	Nigeria
Taylor et al., 2021	×	×	×	×	×	√	×	×	×	×	USA
Kranich, 2021	×	×	×	×	√	√	×	×	×	×	USA
Griffin, 2021	×	×	×	×	√	×	×	×	×	×	Canada
Lin et al , 2021	×	×	×	×	√	×	√	×	×	×	China
Ruth et al.,2022	√	√	×	×	×	×	√	×	×	×	Scotland
Kitzie et al., 2022	×	√	×	√	√	×	×	×	×	×	USA
AHIP et al., 2022	√	√	√	×	×	×	×	×	√	×	USA
Zhou &Yu, 2022	√	√	√	×	√	×	√	×	×	×	China
Irish et al., 2022	×	×	√	×	√	×	√	×	×	×	USA
Fisher & Singh, 2022	×	×	×	×	×	×	√	×	×	×	USA
Morgan-Daniel, 2023	×	×	×	×	×	√	×	×	×	×	USA

Reid & Mesjar, (2023)	×	×	×	√	×	×	×	×	×	×	Scotland
Ladd & Wright, 2023	√	√	√	×	×	×	×	×	×	√	USA
Hammock et al., 2023	√	√	×	×	√	×	√	×	×	×	USA
Kociubuk, & Willett, 2023	×	√	×	×	√	×	×	×	×	×	USA
Stanifer, et al., 2024	×	√	×	√	√	×	×	×	×	×	USA
Austin et al., 2024	×	×	×	×	×	×	√	×	×	×	USA
KM Alpi et al., 2024	×	×	×	×	×	×	√	×	×	×	USA
Jasmin, 2024	√	√	×	√	×	×	×	×	×	×	USA
Intahchomphoo & Vellino, 2024	×	×	×	×	×	√	×	×	×	×	Canada
Karki et al., 2024	×	√	×	×	×	×	×	×	×	×	UK
Halder et al, 2024	×	√	×	√	√	×	√	√	×	√	Indian

Hassan & Shehata, 2024	×	×	×	×	√	√	×	×	×	×	Egypt

*(√ : article involves this point, × :article does not involve this point)

Q2. In what ways do public libraries collaborate with these stakeholders to strengthen health literacy and support community health and well-being?

In response to this issue, the following two cases provide strong evidence. In Croatia, between 2008 and 2018, 73 Health Tips Under Library Parasols sessions were held in collaboration with health professionals from various medical and allied disciplines, including epidemiology, psychology, and psychiatry (Krajina, 2020). Similarly, in the United States, a strength-training program was implemented across 49 public libraries primarily located in rural and small-town settings, engaging more than 535 older adults over 12 weeks. The evaluation of this program revealed positive outcomes, with health improvements categorized into three interrelated dimensions: physical health, mental well-being, and social engagement (Lenstra & Oguz, 2020). These two cases demonstrate the capacity of public libraries to serve as platforms for community-based health education and highlight their important role in promoting community health and well-being.

Despite such encouraging examples, public libraries face numerous structural and operational challenges, such as limited physical space, tight budgets, and insufficient staffing. Moreover, library staff often struggle to address patrons' diverse and sometimes conflicting needs, particularly when dealing with complex health and social issues (Griffin et al., 2021). Outreach collaboration has proven to be a practical approach to overcoming these challenges. Hammock et al. (2023) note that although most library staff have received only limited formal training in public health, they can respond to intersecting health and social needs to a certain extent. This capacity is primarily attributed to implementing strategic outreach collaborations, including direct partnerships with health institutions, education-focused indirect collaborations, and intergenerational health promotion initiatives that engage people of all ages. These collaborative approaches significantly enhance the library’s ability to provide accessible and inclusive health literacy interventions. The specific types of collaborations and their implementation strategies are further detailed in Table 3.

Direct Collaboration to Connect

First, public libraries can provide online or digital health information resources to the community through librarians. This approach proved particularly effective during the COVID-19 lockdown, demonstrating the unique advantage of public libraries in disseminating information during public health emergencies (Reid & Mesjar, 2023). In Canada, public libraries have been committed to promoting equitable access to computers, the Internet, and digital literacy training to enhance preparedness for future public health crises (Intahchomphoo & Vellino, 2024).

Second, the development, implementation, and continuous evaluation of various health education programs in collaboration with relevant stakeholders represent an effective strategy for public libraries to promote community health and well-being, primarily through tailored programs for specific populations such as adults, children, and families (AHIP et al., 2022). In the United States, a video-based fitness program was conducted across 49 public libraries in rural and small-town areas, involving 535 older adults. Participants reported engaging in physical activity by following the libraries' guidance and video instructions, and their physical and mental health improvements were observed after completing the program (Lenstra & Oguz, 2020). In the United Kingdom, the public health team and the National Health Service (NHS) Knowledge and Library Services team collaboratively developed a tailored health literacy intervention training. The training targeted public health professionals, NHS staff, and the general public (Ruth et al., 2022). Public libraries effectively deliver health services to the community through their websites, workshops, and educational videos (Irish et al., 2022).

Zhou and Yu (2022), through an analysis of 218 health service projects conducted by 166 public libraries funded by the Network of the National Library of Medicine (NNLM), confirmed the effectiveness of public libraries working with community medical institutions and other partners to implement online health outreach initiatives. For example, public libraries collaborated with healthcare providers to offer online programs and themed book bundles to the public (Kociubuk & Willett, 2023). In another case, a public-private partnership between a managed care organization and four local public libraries implemented a program that combined a cooking demonstration with health information training. The program included a 30-minute cooking session and training on accessing and navigating the MedlinePlus website. Participants widely reported that the program was informative and beneficial (Austin et al., 2024).

Indirect Collaboration to Touch

In addition to direct collaboration, indirect collaboration presents a viable and strategic approach for public libraries to engage educators, trainers, and health professionals in contributing to community health promotion. These indirect methods help expand outreach, reduce barriers to access, and create inclusive environments where health-related learning can naturally occur within other educational or social contexts. For example, a novel initiative implemented in the United States through a partnership involving academic teams, community stakeholders, and public library systems in four rural counties, libraries began offering digital radon detectors for public checkout. This program significantly increased community access to free radon testing and demonstrates how libraries can play a vital role in reducing lung cancer risk through passive but impactful health interventions (Stanifer et al., 2024). Similarly, Suzanne et al. (2022) found that immigrant patrons in a major U.S. cities were more likely to access health-related services indirectly, such as through English language learning programs, rather than through targeted health programs. This suggests that integrating health literacy components into broader educational offerings may be more effective in reaching marginalized populations.

Furthermore, a public library in Montreal, Canada, demonstrated how libraries can create intentional and supportive environments for vulnerable populations. By partnering with professionals experienced in dementia care, the library became a welcoming and inclusive space, offering specially designed programs for patrons living with dementia (Jasmin, 2024). Beyond offering various programs, public libraries also promote health by providing resources and infrastructure. As Zhou and Yu (2022) noted, libraries can support public health by distributing health kits, establishing health information centers in partnership with national health initiatives, and installing interactive health information kiosks that serve as touchpoints for community health engagement. These examples highlight the multifaceted role of indirect collaboration in leveraging public libraries as community health assets. By embedding health information and services within diverse programs and partnerships, libraries can effectively support health literacy and promote overall health and well-being across varied populations and contexts.

Intergenerational Collaboration Learning Program

For individuals with limited capacity to independently access and evaluate information, such as children and older adults, intergenerational collaboration constitutes an effective strategy for fostering meaningful engagement with public libraries. Public libraries can be inclusive spaces where knowledge and support are shared among family members and community networks by facilitating interactions across age groups. Taylor et al. (2021) noted that public

libraries can enhance early learning opportunities by partnering with universities to offer targeted programs for children and their families. Such collaborations enrich the content and quality of early learning environments and actively promote family engagement in the educational process. Moreover, Griffin et al. (2021) emphasized public librarians' critical role in promoting intergenerational and peer social connections. Through establishing community partnerships and implementing staff training programs, libraries are empowered to design and deliver health literacy initiatives that are responsive to the diverse needs of their patrons. These programs support acquiring essential health knowledge and foster social inclusion, emotional well-being, and mutual learning across generations. In this context, intergenerational collaboration is not merely a programmatic tool but a transformative approach that enables public libraries to bridge generational gaps and expand the reach of their health literacy services to more vulnerable and underserved populations.

In summary, as knowledge centers and community hubs, public libraries can reach out to communities to promote health literacy by promoting engagement through multiple initiatives. In response to the first research question, the findings indicate that public libraries actively engage with various stakeholders, including hospitals, educational institutions, nonprofit organizations, academic libraries, medical experts, specialists, education professionals, and government departments. These collaborations are essential for expanding the reach, accessibility, and impact of health literacy initiatives. Addressing the second research question, the study reveals that libraries support community health through various forms of collaboration, such as co-developing health education programs, organizing health-related lectures and workshops, integrating health resources into existing services, and utilizing digital tools to disseminate reliable health information. This ensures that public libraries continue to play an important role in promoting the health and well-being of their communities as equitable, accessible, and impactful platforms.

Table 2. How public library collaborates with stakeholders for community health and well-being

Study ID	Health education activities /workshop	Virtual /online resources or programs	Intergenerational Learning Program	Provide Space and	Provide Consult/equip	Educational Video	Health kits	Health information cente

				resource	ment			r/ kiosks
Shi & Luo, 2020	√	×	×	×	×	×	×	×
Lenstra & Oguz, 2020	√	×	×	×	×	√	×	×
DeRosa, 2021	√	√	√	√	×	×	×	×
Naccarella & Horwood, 2021	×	√	×	×	√	×	×	×
Griffin, 2021	√	√	√	√	×	×	×	×
Driscoll et al., 2021	√	×	×	√	×	×	×	×
Llo et al., 2021	√	×	×	×	×	×	×	×
M.Taylor et al., 2021	√	×	√	×	×	×	×	×

Griffin, 2021	×	×	×	×	×	×	√	×
Lin et al, 2021	×	×	×	×	×	×	√	√
Zhou & Yu, 2022	√	√	×	√	×	×	√	√
Fisher & Singh, 2022	×	×	×	√	×	×	×	×
Irish et al., 2022	√	√	×	×	×	√	×	×
Suzanne et al., 2022	√	×	×	×	×	×	×	×
Ruth et al.,2022	√	√	×	×	×	×	×	×
AHIP et al., 2022	√	√	×	×	×	×	×	×
TL Golden et al., 2022	√	×	×	×	×	×	×	×
Ladd &	√	×	×	×	×	×	×	×

Wright, 2023								
Hammock et al., 2023	×	×	×	√	√	×	×	×
Reid, P. H., & Mesjar, (2023)	×	√	×	×	×	×	×	×
Kociubuk, & Willett, 2023	√	√	×	×	×	×	√	√
Morgan-Daniel, 2023(UsA)	×	√	×	×	×	×	×	√
Intahchomphoo & Vellino, 2024	√	√	×	×	×	×	×	×
KM Alpi et al., 2024	√	×	×	√	×	×	×	×

Stanifer, et al., 2024	√	×	×	×	√	×	×	×
Jasmin, 2024	×	×	×	√	×	×	×	×
Austin et al., 2024	√	√	×	×	×	×	×	×
Karki et al.,2024	×	√	×	×	×	×	×	×
Halder et al , 2024	×	√	×	√	√	√	√	√

*(√ : article involves this point, × :article does not involve this point)

DISCUSSION

Currently, most of the effective collaboration occurs in developed countries, such as the USA (Kranich, 2021; Morgan-Daniel, 2023) and Canada (Intahchomphoo & Vellino, 2024), especially in serving diverse populations and providing health information to different or vulnerable groups (Narang, 2020). Moreover, in the USA, the research intends to emphasize physical activity and food skills programs(Lenstra & Oguz, 2020; Tracey, 2020; Charbonneau, et al., 2024). In developing countries, the initiative to meet the healthcare needs of large populations remains inadequate, and resource distribution at the community level is often uneven. For example, although libraries recognize their potential to promote community health in Bangladesh, a substantial proportion (72.8%) do not provide specific services for tribal communities (Yesmin et al., 2023). Ilo et al. (2024) recommended that public libraries in Nigeria collaborate with community organizations and relevant agencies to disseminate reproductive health information to women in rural areas. Challenges such as limited community awareness, insufficient funding, staffing issues, and inadequate services pose significant barriers to promoting health and well-being at the community level (Karki et al.,

2024). These findings highlight the importance of prioritizing vulnerable populations, particularly in developing countries and rural regions. While most studies affirm the effectiveness of public libraries in promoting community health and well-being, counterexamples also exist. However, in developing or developed countries, public libraries still face challenges in implementing community health programs (Charbonneau, D'Arpa, & Belz, 2024). The regional mapping of the literature is detailed in Figure 1.



Figure 1: The regional mapping of the literature

Partnerships with medical organizations and academic institutions, such as hospitals (Jasmin, 2024), medical libraries (Zhou & Yu, 2022; Ladd & Wright, 2023), and universities (Intahchomphoo & Vellino, 2024), are increasingly recognized by researchers. Collaboration with other types of libraries, including health and medical libraries (DeRosa, 2021; Halder et al., 2024), as well as with their staff members (Kitzie et al., 2022; Reid & Mesjar, 2023), has also gained attention to a certain extent. However, collaboration involving consumers, policymakers, and medical students is rare. Only three studies mention collaboration with consumers (Naccarella & Horwood, 2021; Ladd & Wright, 2023; Halder et al., 2024), while just one study refers to policymakers (Halder et al., 2024) and one to medical students (AHIP et al., 2022). The frequency with which these collaborators appear in the literature is detailed in Figure 2.

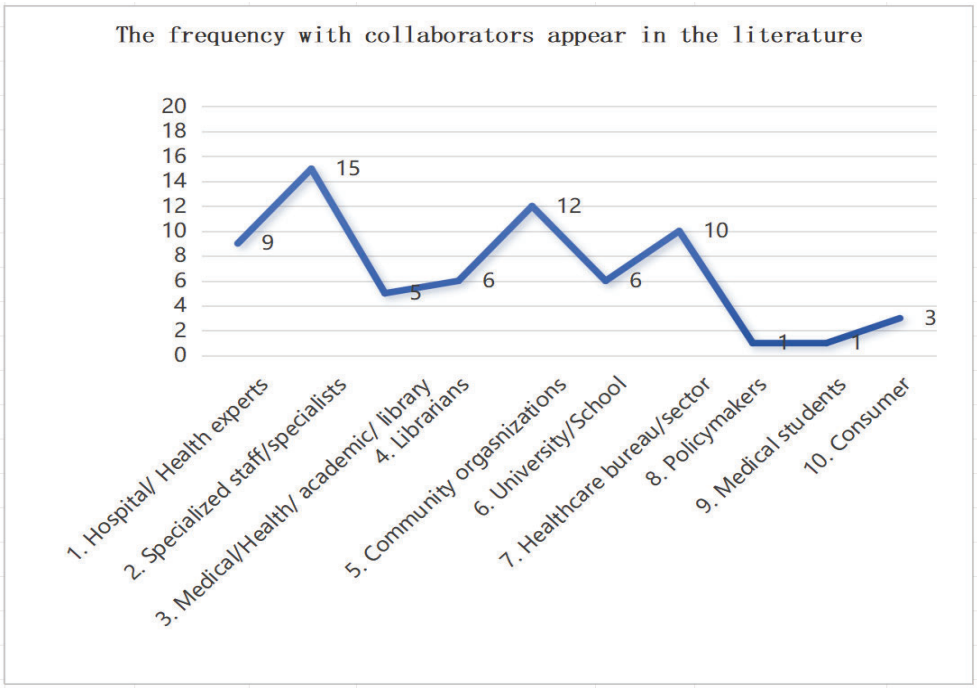


Figure 2: Frequency of collaborators appearing in the literature

Regarding collaborative approaches, conducting health education workshops or virtual/online programs jointly has emerged as one of the most common strategies to serve community health needs (KM Alpi et al., 2024; Intahchomphoo & Vellino, 2024). Another prevalent form of collaboration involves providing Space and resources to other stakeholders to deliver health education initiatives (Driscoll et al., 2021; Hammock et al., 2023). Several studies also highlight partnerships in the development of health kits (Kociubuk & Willett, 2023), the establishment of health information centers or kiosks (Morgan-Daniel, 2023), and the provision of health consultations or equipment (Stanifer et al., 2024). However, only a few studies report on less common collaborative practices, such as implementing intergenerational learning programs (DeRosa, 2021) and producing educational videos (Halder et al., 2024). The frequency of these collaborative approaches, as reported in the literature, is summarized in Figure 3.

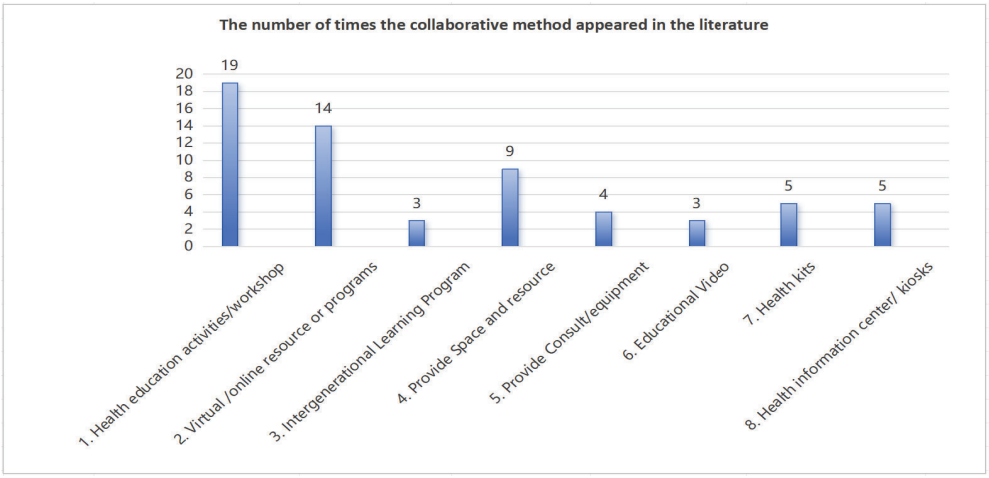


Figure 3: The frequency of collaborative approaches in literature

Regarding health promotion outcomes, while most studies affirm the effectiveness of public libraries in promoting community health and well-being, counterexamples also exist. For instance, a study reported no statistically significant improvement in participants' ability to access information after attending training programs co-organized by four public libraries and a medical institution. Researchers deemed that the outcome may be attributed to the limited number of programs and low participation rates (Austin et al., 2021). Therefore, future research should carefully consider the continuity and frequency of training initiatives. Moreover, although the value of public library partnerships in enhancing community well-being has been widely recognized, ongoing attention must be directed toward addressing the persistent challenges they face. These include staffing and resource limitations, financial constraints, and sociocultural barriers that may affect program implementation and community engagement (Elgamal et al., 2024). For example, librarians frequently cite a lack of training on teaching diverse populations health information literacy skills as they feel they lack the required training to effectively assist individuals with their health questions (Danhoundo et al., 2019). Furthermore, librarians often lack familiarity with health literacy concepts and models, leading to low utilization rates of health information resources (Grant et al., 2023).

LIMITATION

While this study explores various approaches through which public libraries collaborate with stakeholders to enhance health literacy and promote community health and well-being, several limitations should be acknowledged. First, the research relies on literature reviews and case analyses, which may not comprehensively reflect practices across diverse regions or socioeconomic contexts. Consequently, the generalizability and representativeness of the findings may be constrained. Second, notable variations exist in the forms and depth of

collaboration among stakeholders, healthcare institutions, government agencies, nonprofit organizations, and educational institutions. However, this study does not provide a detailed comparative analysis of how these differences influence the effectiveness of health literacy interventions. Moreover, the absence of longitudinal data limits the ability to assess the sustained impact of library-led health literacy programs on public health behaviors and outcomes. Lastly, due to limitations in data availability and geographic scope, public engagement with and satisfaction with library-based health services were not systematically evaluated. Future research should consider employing field studies, mixed-method research designs, and cross-cultural comparisons to enrich and validate the findings.

CONCLUSION

The study fills the gap in how public libraries engage with stakeholders for community health by offering evidence-based insights to guide public libraries' future strategies, methods, and concrete pathways for community health information services/education practice. The findings highlight that libraries can serve as catalysts for community health by establishing partnerships with organizations, individuals or experts, and government entities. Diverse practical strategies, such as direct action, indirect participation, and intergenerational educational activities, are effective paths based on the specific contexts of their regions. The study also found that more diverse collaborators, sustained partnerships, and constant conducting of education/services are key elements for public libraries to disseminate health information to serve as effective catalysts. Besides, practical effectiveness in developing countries and vulnerable groups must be focused. Also, constant program implementation and participation rate assurance are key factors in public libraries' effective community health promotion and well-being.

REFERENCES

Alpi, K. M., Del Biondo, K. M., & Rethlefsen, M. L. (2024). Evolving from public health libraries as a place to focus on public health librarian expertise. *Journal of the Medical Library Association: JMLA, 112*(2), 95.

Austin, S., Hughes, E., & Qu, H. (2024). A community engagement program to improve awareness of credible online health information. *Journal of the Medical Library Association: JMLA*, *121* (4), 341.

Asojo, A., Vo, H., Fisher, T., & Singh, V. (2022). Shaping health and well-being in a COVID era: the role of design. *Archnet-IJAR: International Journal of Architectural Research*, *16*(3), 473-494.

Baluk, K. W., Griffin, M., & Gillett, J. (2021). Mitigating the challenges and capitalizing on opportunities: A qualitative investigation of the public library's response to an aging population. *Canadian Journal on Aging/La Revue canadienne du vieillissement*, *40*(3), 475-488.

Carlyle, R., Thain, A., & James, S. (2022). Development and spread of health literacy eLearning: A partnership across Scotland and England. *Health Information & Libraries Journal, 39*(3), 299-303.

Charbonneau, D. H., D'Arpa, C., & Belz, S. (2024). Community health programs and partnerships: Perspectives from public library directors. *Journal of Library Administration, 64*(4), 481-494.

Cigarini, A., Bonhoure, I., Vicens, J., & Perelló, J. (2021). Public libraries embrace citizen science: Strengths and challenges. *Library & Information Science Research*, *43*(2), 101090.

Cole, N., & Stenström, C. (2021). The value of California's public libraries. *Public Library Quarterly*, *40*(6), 481-503.

Danhoundo G, Whistance-Smith D, Lemoine D, et al. (2019) Provision of consumer health information in Albertas rural public libraries. *Health Information and Libraries Journal, 36*(1): 41–59.

Driscoll, D., Mathew, L., Engelhardt, D., Moran-Peters, J., & Eckardt, S. (2021). Evaluating mental illness–substance abuse stigmatic perceptions through education: A library–nursing initiative. *Public Health Nursing*, *38*(5), 850-855.

Elgamal, R., La Rose, T., Detlor, B., Julien, H., & Serenko, A. (2024). A community partnership approach to digital literacy training for older adults between public libraries and seniors' organizations. *The Canadian Journal of Information and Library Science*, *47*(1), 3-17.

Grant, M. J. (2023). Librarians as health information intermediaries: Challenges in understanding and utilizing health literacy models. *Journal of Information Science*, *49*(2), 203-218.

Grossman, S., Erwin, L. J., Martinez-Donate, A., Agosto, D. E., Winston, M., Epstein, N., & Klassen, A. C. (2022). Provision of health-related information for immigrant patrons in public libraries in a large US city. *International Journal of Migration, Health And Social Care*, *18*(3), 286-300.

Hall, K., & McAlister, S. (2021). Library services and resources in support of mental health: A survey of initiatives in public and academic libraries. *Journal of Library Administration*, *61*(8), 936-946.

Halder, S., et al. (2024). Bridging the digital divide: Libraries and health literacy in the digital age. *Global Library and Information Science Research*, *15*(3), 298-316.

Hammock, A., Pandolfelli, G., Samuel, T., Fils-Aimé, P., Grande, M., D'Ambrosion, M., ... & Scott, L. B. (2023). Understanding how suburban public librarians respond to the health and social needs of communities. *Library & Information Science Research*, *45*(1), 101217.

Hassan, A. H. F., & Shehata, A. (2024). The contribution of public libraries in strengthening digital citizenship in Egyptian society–an exploratory study. *Global Knowledge, Memory, and Communication.* https://doi.org/10.1108/GKMC-06-2024-0382

Irish, E., Burke, K., Geyer, E., & Allard, I. (2022). Patient empowerment: A partnership for community engagement in three phases. *Journal of Consumer Health on the Internet*, *26*(1), 109-118. https://doi.org/10.1080/15398285.2022.2030143

Intahchomphoo, C., & Vellino, A. (2024). Canadian public library pandemic response: bridging the digital divide and preparing for future pandemics. *The Canadian Journal of Information and Library Science, 47*(1), 37-51.

Jasmin, H. (2024). Public libraries may facilitate more inclusive programming with the collaboration of trained partners for patrons with dementia. *Evidence Based Library and Information Practice, 19*(3), 91-93.

Jean, N., et al. (2020). Libraries as agents of health equity: Addressing health information injustices. *Journal of Library Science*, *56*(3), 234-250.

Karki, M., El Asmar, M. L., Sasco, E. R., & El-Osta, A. (2024). Public libraries to promote public health and well-being: a cross-sectional study of community-dwelling adults. *BMC Public Health*, *24*(1), 1226.

Kitzie, V. L., Pettigrew, J., Wagner, T. L., & Vera, A. N. (2020). Using the World Café Methodology to support community-centric research and practice in library and information science. *Library & Information Science Research*, *42*(4), 101050.

Kociubuk, J., & Willett, R. (2023). "Youth service librarians… are not just providers of books": Caregivers' perceptions of the value of public library services during the COVID-19 pandemic. *Library & Information Science Research*, *45*(3), 101256.

Kranich, N. (2021). Health literacy in diverse communities: The strength of weak ties—an exploration between academic researchers and public libraries in central New Jersey. *Library Trends*, *69*(4), 725-751.

Ladd, D. L., & Wright, J. C. (2023). Promoting rural residents' participation in clinical trials: clinical trials basics programming and training for rural public librarians. *Journal of the Medical Library Association: JMLA*, *111*(3), 722.

Lenstra, N., & Oguz, F. (2020). Enhancing health outcomes through library-hosted programs: A case study. *Health Literacy and Libraries Quarterly*, *12(*1), 45-60.

Ilo, P., Ifijeh, G., Segun-Adeniran, C., Michael-Onuoha, H. C., & Ekwueme, L. (2021). Providing reproductive health information to rural women: The potentials of public libraries. *African Journal of Reproductive Health*, *25*(5s), 210-218.

Ma, J., Wang, T., & Lund, B. (2024). Analyzing public libraries as civic agents in advocating for COVID-19 vaccine uptake. *Public Library Quarterly*, *43*(4), 464-475.

Marta, Fadda., Brian, Galvin., Dari, Alhuwail., Sinéad, O. (2022). How Can Libraries Improve Health Literacy in the Middle East Region? doi: 10.5339/qproc.2022.ehil2021.11

Masoumeh, A., Mehrdad, K., Maryam, P. (2019). Health literacy level of adults referring to public libraries institution of public libraries of the country. *Journal of Health Information and Informatics, 6*(1):28–35.

Morgan-Daniel, J., Adkins, L. E., Ansell, M., Harnett, S., & Rethlefsen, M. L. (2023). Facilitating rural access to quality health information through Little Free Libraries. *Journal of the Medical Library Association*: JMLA, 111(4), 811.

Naccarella, L., & Horwood, J. (2021). Public libraries as health literate multi-purpose workspaces for improving health literacy. *Health Promotion Journal of Australia*, 32, 29–32.

Narang, S. (2020). Positioning libraries in meeting public health challenges in India: Key strategies. *Journal of Scientometric Research, 9*(2), 219-225.

Overbey, T. A. (2020). Food deserts, libraries, and urban communities: What is the connection? *Public Library Quarterly*, 39(1), 37-49.

Pirialam, H., Kazerani, M., Shekofteh, M., & Razzaghi, Z. (2019). The importance of public libraries in education for health literacy: A case study on diabetic patients. *IFLA Journal*. https://doi.org/10.1177/0340035219857445.

Reid, P. H., & Mesjar, L. (2023). “Bloody amazing really”: voices from Scotland’s public libraries in lockdown. *Journal of Documentation*, 79(2), 301-319.

Stanifer, S. R., Rademacher, K., Beckett, W., Simpson, K., Rayens, M. K., Thaxton-Wiggins, A., & Hahn, E. J. (2024). Public library lending programs increase radon testing in rural communities*: library & information science research*, *46*(1), 101283.

Steinmetz, H., Isidor, R. & Bauer, C. (2021). Gender differences in the intention to start a business an updated and extended meta-analysis, *Zeitschrift fur Psychologie, 229*(1), 70-84.

Swanberg, S. M., Bulgarelli, N., Jayakumar, M., Look, E., Shubitowski, T. B., Wedemeyer, R., ... & Lucia, V. C. (2022). A health education outreach partnership between an academic medical library and the public library: lessons learned before and during a pandemic. *Journal of the Medical Library Association110*(2), 212.

Taylor, M., Pratt, M. E., & Whelan, M. (2021). Exploring the untapped potential of library-university partnerships: A focus on early learning. *Public Library Quarterly*, *42*(1), 53-70. https://doi.org/10.1080/01616846.2021.2002095.

Kabagambe, J.-C., & Kayinka, M. E. (2023). The contribution of the public library in promoting reading culture among library users in Rwanda. *Library Philosophy and Practice (e-journal),* 7769.

Yanxia, Shi., Lili, Luo. (2020). Meeting Chinese Older adults' health information needs: The role of public libraries. *The Library Quarterly*, *90*(1),332-348. https://doi.org/10.1086/708961.

Yesmin, S., Abdul Karim, M., & Atikuzzaman, M. (2023). Community engagement of public libraries is needed to ensure tribal women's health literacy in Bangladesh. *IFLA Journal*, *49*(4), 678-693.

Zhou, X. Y., & Yu, X. N. (2022). Value cognition and practice exploration of public library health service. *Journal of Library Science in China*, *48*(4), 90-103.

The Role of Library in the Development of Social Capital in Local Communities: A Case Study in Bukit Village Library, Karangasem, Bali, Indonesia

Woro Titi Haryanti, Dian Novita Fitriani

National Library of Indonesia, Indonesia

Corresponding email: dian.novita.f@gmail.com

ABSTRACT

The purpose of this study is to present the roles of Bukit Village Library (BVL) in the development of social capital in local community. The method used in this study is qualitative research with a case study approach. Data was collected through interviews and documentation. Interviews were conducted with librarians, related stakeholders, and local communities. Libraries have great opportunities to develop their social capital for their communities. The social capital owned by libraries can include various things, such as giving access to resources (information, knowledge, and skills), building social networks for the community and-stakeholders, trust from the local community, and helping to promote social norms. The BVL can develop its social capital by connecting local communities with stakeholders. The BVL has five women's communities: coconut oil makers, virgin coconut oil (VCO) makers, traditional cake and cookies makers, bamboo skewers for satay makers, and ate (*Lygodium circinnatum*) makers. In developing the community, the library has successfully advocated and established cooperation with various stakeholders from the local up to the national levels. These stakeholders provide coaching, mentoring, and financial assistance. Further research is needed to explore the other various library services that can develop social capital. In addition, further research is needed to identify other capitals that libraries can develop.

Keywords: Libraries; Village Libraries; Social Capital; Local Communities; Community Development

INTRODUCTION

In many countries, public libraries are a vital and ubiquitous part of society (Svendsen, 2013; White, 2007). In small towns across North America, libraries are also ubiquitous (Johnson & Griffis, 2014). In Indonesia, as of 2023, there were 13,353 public libraries. This number comprises public libraries at the provincial, district/city, sub-district, and village/sub-district levels. The number of public libraries at the provincial level is 1,239, at the district/city level is 4,085, at the sub-district level is 236 and at the village/sub-district level is 7,793 (Perpustakaan Nasional RI, 2025). From this number, it can be seen that libraries in Indonesia are accessible to all regions, ranging from the provincial level to the village or sub-district level.

Public libraries play a vital role in a community. In small towns, libraries symbolise strong community values and connections and are an important source of local identity (Johnson & Griffis, 2014). Since the mid-19th century, American public libraries have played a vital role in communities. Often, public libraries also serve as symbols of community maturity and civic pride. Libraries are viewed as safe havens for children, public information and internet access centres, and places where adults can read for education and recreation (Public Agenda, 2006). Libraries are viewed as important community institutions alongside schools, houses of worship, and shopping centres (Johnson, 2010; Manjarrez, Cigna, & Bajaj, 2007, p.24)

Libraries are often the only public places widely used by people in small and remote locations, such as villages. In villages, there are still a few people who have the same interests, so it is important for a place to gather them according to their interests. The library is the only place that can accommodate this. Libraries can accommodate people to tell stories, listen, move their imaginations and share stories. Libraries are not only able to act as centres for exchanging knowledge, but also as centres for social ties. To enable libraries to become the foundation of social capital, especially in rural areas where trust levels are still low (Hejda et al., 2010; Wojciechowska, 2021).

The President of the American Library Association (ALA) stated that libraries are institutions rich in social capital, but citizens and officials often ignore these assets. Social capital in the study of library and information science reveals that libraries serve as open meeting places that both individuals and groups within local communities can utilise. The benefits obtained are in the form of independent learning, social interaction and networking (Svendsen, 2013). Wiegand (2005) stated that public libraries play an important role in providing a space for people to meet, both formally and informally. Citizens need public spaces where they can

speak freely, share their concerns, and advocate for their interests. Libraries should be able to transform into public spaces that can accommodate all these needs (Kranich, 2001).

Research on public libraries and social capital has been widely conducted. The research conducted has explored the concrete social capital provided by libraries in greater detail. Johnson (2010) found, based on his research, that there is a strong relationship between public libraries and social capital; however, further research is still needed. This study is a preliminary investigation into the relationship between public libraries and social capital indicators. Johnson and Griffis (2014) conducted a study investigating the relationship between social capital and public library use in small towns in Ontario, Canada. The results of their study showed that participants from small towns had higher levels of social capital than those from urban areas. Small town libraries maintain their social capital through citizen participation in various community activities and organisations.

Social capital theory is closely related to the field of sociology. This term was written and popularized by James Coleman, Pierre-Felix Bourdieu, and Robert Putnam (Kranich, 2001; Wojciechowska, 2021). They introduced the concept into scientific discourse. Today, the concept is popular and used to analyze various research contexts and approaches. Harvard Professor Robert Putnam popularised the concept of social capital and considered it important in revitalising communities (Kranich, 2001). Specifically, Putnam also analysed the role of libraries in building social capital in his publications. Even in one of Putnam's books (Putnam et al., 2003), one chapter is devoted to discussing the impact of libraries on developing social capital. The title of the chapter is *Branch Libraries: The Heartbeat of the Community*. In the chapter, Putnam discusses the various ways libraries can be involved in community development and integration, as well as in creating shared public spaces that are comfortable for community members to build social relationships and engage in discussions (Wojciechowska, 2021).

There is no single definition of social capital. Coleman (1926-1995), a sociologist and social policy expert, defines social capital as including social aspects that support individuals or institutions in their structure. Bourdieu (1930-2002), an anthropological sociologist, defines social capital as a set of actual and potential resources owned by individuals or groups, obtained from a network of relationships, contacts, and reciprocal exchanges that are permanent or institutionalized. While Putnam (1941-), a political scientist, defines social capital as comprising elements of social life, such as networks, norms, and trust, that enable members of society to achieve their goals more effectively (Wojciechowska, 2021). From these

three definitions, it can be concluded that social capital can be owned by individuals, groups, or institutions, which are obtained from networks, norms, and trust, and can be used to achieve goals more effectively.

Social capital can help alleviate economic inequality, prevent poverty, reduce social exclusion, foster social development, cultivate citizenship attitudes and social engagement, and promote civil society and local identity (Wojciechowska, 2021). Libraries can carry out these tasks. In addition to providing access to information, libraries also offer a range of services addressing social needs. Libraries can integrate, enliven and involve local communities. This requires a specific approach to develop social capital through libraries.

The Bukit Village Library (BVL) is a village library situated in Bukit Village, Karangasem, Bali. The library is located within the area of the Library and Archives Service of Karangasem Regency and serves as a public library. BVL is one of the libraries that received assistance from the National Library of Indonesia through the Social Inclusion-Based Library Transformation program in 2019. Various programs have been implemented for the Bukit village community, including free internet services, assistance in accessing information, support for women's communities, storytelling, free health checks, and facilitation of cooperation between women's Micro, Small, and Medium Enterprises (MSMEs) actors, Village-Owned Enterprise (VOE), and the Rahayu Huluning Bali cooperative. From these activities, the BVL has several fostered women's communities that run businesses. These various fostered communities show the success of the BVL in building social capital for local communities. Therefore, the purpose of this study is to investigate the role of the BVL in fostering social capital within local communities, particularly among women's communities.

METHODS

This study uses a qualitative research method with a case study approach. Case study research is conducted where researchers explore one or more cases over time in a particular context, through detailed and in-depth data collection involving various sources of information (such as observations, interviews, audiovisual materials, documents, and reports), and report their findings (J. Cresswell, 2007). This study focuses solely on the BVL, without comparing it to other cases, and therefore constitutes a single-case study. The selected cases are based on their uniqueness, rather than representativeness or comparability with other cases.

Data collection in this study was through interviews, observations and document studies. Interviews were conducted with six informants using purposive sampling techniques. Researchers selected individuals with knowledge and experience relevant to the development of social capital at the BVL. Informants included library managers, cooperation partners, library users, and community leaders. The data analysis technique in this study involved organising data, reducing it into themes, and then presenting the data (J. Cresswell, 2007).

RESULTS AND DISCUSSION

Results

The BVL received assistance from the National Library of Indonesia through the Social Inclusion-Based Library Transformation Program in 2019. The assistance provided consisted of 1,000 copies of reading materials, along with bookshelves, three computers for library management and information search services, one printer, and one modem connected to an internet connection.

The objectives of the social inclusion-based transformation program are to:

- Increase the role and function of the library as a means of lifelong learning to improve community welfare,
- Improve the quality of library services to improve the quality of life of the community,
- Increase the use of ICT-based services by the community according to their needs inclusively,
- Build commitment and support from stakeholders to implement and replicate the library transformation based on social inclusion (TPBIS) program, and
- Improve the literacy skills of library users so that they become knowledgeable and independent library users.

Various excellent services from the BVL include:

- Providing free internet services through computers available in the library
- Reading books on the spot
- Assisting the community in accessing information online
- Assisting the community, especially the women's community

- Storytelling and reading aloud activities
- Free health check activities every six months
- Socialization using information from the library collection
- Facilitating cooperation between female micro, small, and medium enterprises (MSMES) actors and village-owned enterprise.

BVL has five women's communities under its guidance, namely: women's communities of coconut oil makers, VCO makers, traditional cake and cookies makers, bamboo skewers for satay makers, and ate makers. The BVL has successfully established cooperation with various parties. In addition to the National Library of Indonesia as an institution that assists with the TPBIS program, the BVL also collaborates with the Indonesian Women's PIMTI Association. The Indonesian Women's PIMTI Association is an organization comprising echelon 1 women from various ministries, central institutions, and local governments. This collaboration has resulted in various collaborations. The various collaborations that have been successfully established include PT Pertamina, which provided assistance valued at IDR 251,000,000.00. While PT Bank Mandiri assisted IDR 246,585,500.

With this assistance, the BVL has successfully renovated the production room, marketing room, raw material storage room, toilets, and waste disposal area. The BVL has also succeeded in obtaining SNI for VCO products in 2024. The BVL women's community also received training in product packaging from the Ministry of Trade, which also collaborates with the Cooperatives, Small and Medium Enterprises, Industry and Trade Service of Karangasem Regency for follow-up coaching.

DISCUSSION

The study's results indicate that libraries have significant opportunities to enhance their social capital within their communities. Libraries provide a welcoming space to meet, learn, and cultivate one's interests. Thus, libraries can become a place to build communities for people with similar interests, fostering networks with fellow library users and external parties.

“The fact that libraries offer their public space to the local community stimulates the development of relationships and social capital. This is a place to build communities of people with a common desire to be in contact with others, with a specific intellectual reflection [...],

to build an environment. [...] The sense of such actions is to find individuals who do not want to be consumers but rather conscious social entities in the library [...]" (Materska, 2017; Wojciechowska, 2021)

Currently, libraries are required to be involved in active collaboration with local communities. One example is the library development program in Poland funded by the Bill and Melinda Gates Foundation. This program aims to transform society by utilizing information and devices that facilitate collaboration. Indonesia is also one of the countries that has received a library transformation program from the Bill and Melinda Gates Foundation since 2011. The Bill and Melinda Gates Foundation collaborated with the Coca-Cola Foundation to implement the program, called the Perpuseru program.

The Bill and Melinda Gates Foundation program ended in 2017 and was then replicated by the National Library of Indonesia under the name Library Transformation Based on Social Inclusion in 2018. The government supports this program through the APBN (State Budget) and the National Development Planning Agency (Bappenas). This program is designed to revitalize public libraries at both the district and village levels as learning centres that promote social inclusion. It is hoped that libraries can become a place to improve the quality of life and welfare of the community (Mahdi et al., 2020; Pratiwi & Heriyanto, 2022; Woro Titi Haryanti, 2019).

The BVL is one of the libraries that received a social inclusion-based library transformation program in 2019. The library offers a space for the surrounding community, particularly women, to meet, discuss, and engage in various activities. In addition to providing space, the library also provides various special activity programs for women. Women were chosen as the target of the program because they have great potential as agents of change in a family. In addition, women also have great potential in disseminating information and promoting literacy, both within their own families and to the broader community. By acquiring skills through various activity programs, women will have the opportunity to become entrepreneurs, thereby supporting their family's economy.

Developing social capital is not an easy and instant process. If libraries want to build social capital, they need to allocate human, physical, financial and time resources (Wojciechowska, 2021). Some areas that can be utilised to build social capital and its implementation in the BVL are:

1) Social capital as a resource

The library provides various resources of knowledge, skills and information. The sources of information provided by the BVL include printed books in various fields such as health, parenting, religion, home economics and life skills. Other sources of information provided by the BVL include internet access, which allows users to search the digital collections of the National Library of Indonesia and other digital collections. In addition, the BVL provides sources of information and knowledge through book discussions, religious studies, and health and parenting consultation services.

The library also provides resources for developing skills through various training programs. In addition to training, various social assistance programs are also available to support the development of skills obtained from training. Training is focused on women in the library environment by enhancing the area's potential. Some of the training for skills provided are cooking, handicrafts, making VCO/coconut oil, make-up and digital business or online-based MSMEs.

2) Social capital in social networks

The library participates in building social networks. The BVL can establish social networks with various stakeholders, as well as the surrounding community. The BVL has five fostered women's communities, namely: the women's community of coconut oil makers, VCO makers, traditional cake and cookies makers, bamboo skewers for satay makers and ate makers. The reason women were chosen as the target of library activities is that women are agents of change in the family, and as role models, they have great potential in disseminating information to both families and the community, and can become entrepreneurs who support the family economy.

In addition to the surrounding community network, the library also collaborates with various stakeholders such as the National Library of Indonesia, the Indonesian Women's PIMTI Association, PT Pertamina, PT Bank Mandiri, the Ministry of Trade which also collaborates with the Cooperatives, Small and Medium Enterprises, Industry and Trade Office of Karangasem Regency.

3) Social capital and social trust

The library has a high level of social trust, enabling it to carry out certain social functions, such as serving as a safe meeting place and a venue that prevents social exclusion of certain groups. The BVL has successfully earned the trust of the surrounding community, particularly among women. The community feels comfortable participating in activities in the library because it is a comfortable, clean, quiet, and child-friendly space. So that women can bring their children to participate in activities in the library. The library atmosphere is also considered to be supportive for learning and gathering. In addition, the library facilities are also considered quite adequate, including tables, chairs, books, mats, and computers.

The strategies implemented by BVL to build community trust, especially among women, are as follows:

- Involving community leaders or women activists as literacy ambassadors;
- Providing a child-friendly space so that women can bring their children when doing activities in the library;
- Creating an inclusive and safe atmosphere for all library visitors;
- Providing and consistently implementing various activity programs that align with the needs and desires of the surrounding community.

The BVL also has five fostered women's communities. The reasons why women are willing to join the community are diverse, including a desire to learn new things, make friends, and fill their free time with useful and productive activities. In building this community, the library involves the participation of women, who are the target community. The communities formed are based on the results of a survey assessing community interests and needs, such as determining the products to be produced by the community based on the demands and potential of the area. To attract women's interest, the BVL starts with small and fun activities. The BVL also provides space for women to express their opinions and propose activities. To maintain consistency in activities, the BVL continually seeks support from policymakers and relevant stakeholders.

Some of the benefits felt by the surrounding community, especially women, from various activities provided by the BVL are; 1) with training activities in making VCO and coconut oil, they can increase their family's income because the training produces products to sell, 2) with makeup training, they can save money on going to the salon; 3) with health classes for

pregnant women and the elderly, they can increase their insight and strengthen relationships; 4) with internet access and book collections, they can help children when studying.

In addition to the trust of the surrounding community, the BVL has also successfully built trust among stakeholders. Some strategies used to build trust with stakeholders include demonstrating the real impact of library programs, maintaining regular communication and reporting the results achieved, and involving stakeholders in planning programs and activities that benefit both parties.

4) Social capital and social norms

Libraries help promote certain social and cultural norms. The BVL, through its various activity programs, also helps promote Balinese culture. Some of the activities carried out include training in traditional Kepura costume makeup, cooking traditional Balinese food, local crafts such as ates, making skewers, Balinese writing classes, and speeches in Balinese. Bourke (2005) in his research, he also found that library managers must seek local opportunities to build networks and partnerships.

All types of activities carried out by the library to foster relationships must be conducted continuously. The social relationships that are built will die if not maintained. This also requires intense communication. As expressed by Coleman, “Like physical capital and human capital, social capital disappears, if it is not renewed. Social relationships die, if they are not maintained, expectations and obligations loose importance over time and norms depend on frequent communication” (Coleman, 1990, p. 321). The BVL management has realised the importance of consistency in implementing program activities to gain the community's trust.

In addition to consistency, program activities are also tailored to the community's needs, making them more targeted. In addition to consistency in implementing program activities, library management also strives to maintain consistency in communicating with stakeholders, both formally and informally, who have established a cooperative relationship. One of the things that is done is to provide periodic reports on the progress of the BVL program activities.

Essentially, social capital can be formed naturally through various community involvement programs at the library. However, to strengthen social capital, it is necessary to build

cooperation with various parties. Wojciechowska (2021) explains that social capital can be developed and strengthened through:

a. State and local actors. The state plays a role in recognising and strengthening bottom-up initiatives that are in accordance with certain legal system standards. The BVL involves various government institutions at both the national and regional levels. Several national government institutions, such as the National Library of Indonesia, the Indonesian Women's PIMTI Association, and the Ministry of Trade. At the same time, regional institutions involve the Cooperatives, Small and Medium Enterprises, Industry and Trade Service of Karangasem Regency. These institutions advocate for the needs of the BVL program activities in accordance with their respective duties and functions.

b. Cooperation with local actors that enables the creation of social networks through involvement in bottom-up initiatives with non-governmental organisations, which allocate various resources. The BVL also involves various local community leaders. This helps strengthen the local community's initiative, contributing to the success of the planned program activities.

c. Power that originates from the bottom up, from the local community, without ruling out the possibility of influence from external experts. The BVL also involves women figures as target communities as literacy ambassadors. Involving targeted community members can also serve as a symbol of the community's enthusiasm for the program's success.

Bourdieu considers social capital to be largely hereditary and cannot be acquired by individuals or groups outside of certain circles that provide access to intangible resources, such as education and knowledge (Wojciechowska, 2021). This can lead to the deepening of social inequality, where groups with greater resources will pass them on to their children. Meanwhile, groups that lack access to resources must attempt to secure the capital themselves, which is certainly not an easy process. Libraries are basically not institutions that have hereditary access to resources. However, the BVL can demonstrate that, with its diverse resources and services, it can accumulate social capital that can be leveraged to enhance the welfare of the surrounding community.

CONCLUSION

The case of BVL demonstrates how public libraries can play a transformative role in fostering social capital in rural communities. By providing access to information, facilitating skills training, and supporting women-led community groups, the library has become a catalyst for economic empowerment, trust-building, and cultural preservation. Strategic collaborations with stakeholders have strengthened its capacity to respond to local needs, highlighting the library's function as a social connector and agent of change. This study affirms the evolving role of libraries as inclusive community hubs. Future research should examine other forms of capital libraries can develop and how such initiatives can be replicated in diverse socio-cultural contexts.

ACKNOWLEDGEMENTS

The authors would like to express their sincere gratitude to the National Library of Indonesia for their continuous support, guidance, and facilitation throughout the research process.

REFERENCES

Bourke, C. (2005). Public libraries: Building social capital through networking. *Australasian Public Libraries and Information Services, 18*(2), 71-75.

Creswell, J. W. (2007). Qualitative inquiry and research design: Choosing among five approaches. SAGE Publications.

Haryanti, W. T. (2019). Perpustakaan berbasis inklusi sosial. *Talenta Conference Series: Local Wisdom, Social, and Arts (LWSA), 2*(2). https://doi.org/10.32734/lwsa.v2i2.728.

Hejda, A., Szcześny, P., & Habis, A. (2010). *Multimedia i nowoczesna komunikacja*. Fundacja Rozwoju Społeczeństwa Informacyjnego.

Johnson, C. A. (2010). Do public libraries contribute to social capital? A preliminary investigation into the relationship. *Library and Information Science Research, 32*(2), 147-155. https://doi.org/10.1016/j.lisr.2009.12.006.

Johnson, C. A., & Griffis, M. R. (2014). The effect of public library use on the social capital of rural communities. *Journal of Librarianship and Information Science, 46*(3), 179-190. https://doi.org/10.1177/0961000612470278.

Kranich, N. (2001). Libraries create social capital. *Library Journal, 126*(19), 40-41. https://www.proquest.com/docview/196784295.

Mahdi, R., Hasanah, M., & Asari, A. (2020). Social inclusion-based library transformation: A National Library of Indonesia's role to support Sustainable Development Goals (SDGs).

Library Philosophy and Practice (e-Journal), Article 6028. https://digitalcommons.unl.edu/libphilprac/6028/.

Materska, K. (2017). Społeczna przestrzeń bibliotek publicznych drugiej dekady XXI wieku. In *Biblioteka publiczna w przestrzeni społecznej* (pp. 69-85). Wojewódzka Biblioteka Publiczna im. Marszałka Józefa Piłsudskiego.

Pratiwi, E., & Heriyanto, H. (2022). Social inclusion-based library transformation program. *Library Philosophy and Practice.* https://digitalcommons.unl.edu/libphilprac/6028/.

Public Agenda. (2006). Long overdue: A fresh look at public and leadership attitudes about libraries in the 21st century. http://www.publicagenda.org/reports/long-overdue.

Putnam, R. D., Feldstein, L. M., & Cohen, D. (2003). *Better together: Restoring the American community*. Simon & Schuster.

Svendsen, G. L. H. (2013). Public libraries as breeding grounds for bonding, bridging and institutional social capital: The case of branch libraries in rural Denmark. *Sociologia Ruralis, 53*(1), 52-73. https://doi.org/10.1111/soru.12002.

Wojciechowska, M. D. (2021). The role of public libraries in the development of social capital in local communities – A theoretical study. *Library Management, 42*(3), 184-196. https://doi.org/10.1108/LM-10-2020-0139

Cultural Connections in Action: Collaborative Partnerships for Sarawak Cultural Heritage Preservation

Nur Amanina binti Mastani[1], Lilian Baun Pulo[2], Izaruddin bin Moss[3]

[1] Pustaka Negeri Sarawak, Sibu, Sarawak, Malaysia

[2] Pustaka Negeri Sarawak, Miri, Sarawak, Malaysia

[3] Pustaka Negeri Sarawak, Sarawak, Malaysia

Corresponding email: nuraman@sarawak.gov.my

ABSTRACT

The importance of collaboration efforts between Pustaka Negeri Sarawak and local councils has been a key point in promoting and preserving Sarawak's cultural heritage. By integrating Pustaka's special collections and expertise in cultural heritage with the influx of local festival's audience, these efforts slowly increases public interest in Sarawak's history, ensuring passive preservation through engagement. Curated exhibitions and interactive activities during local festivals offer visitors with experiences that cultivates pride in Sarawak's cultural heritage. However, challenges such as resource constraints, authority issues, and the sustainability of activity modules pose risks to the success of such collaboration. Proposed strategies to address these challenges includes partnerships through memoranda of understanding which clarifies roles and creates mutual benefits. Expanding the scope to include digital engagement and profit-sharing opportunities for local artisans and cultural practitioners can also further enhance impact. These efforts not only support cultural preservation but also further enrich Pustaka's special collections, providing valuable documentation of heritage for future generations. This initiative demonstrates Pustaka's commitment to cultural empowerment and its role as a proactive partner in fostering community development through the celebration of Sarawak's unique cultural identity.

Keywords: Cultural Heritage Preservation; Collaborative Partnerships; Digital Engagement Strategies; Sarawak

INTRODUCTION

Sarawak, a Malaysian state renowned for its rich cultural diversity and abundant heritage, offers much more than its internationally recognized nature tourism. Beyond its rainforests and wildlife, Sarawak boasts a vibrant tapestry of ethnicities, food traditions, and cultural practices. With a population of over 2.5 million (Economic Planning Unit, Department of the Premier of Sarawak, 2023) and more than 27 distinct ethnic groups, Sarawak is home to an extraordinary wealth of cultural heritage and local knowledge, much of which has been passed down through generations. This diversity is a longstanding source of pride for Sarawakians and represents not only a vital component of state identity but also a key attraction for tourism and cultural exchange.

In today's technologically driven world, the preservation of cultural heritage and indigenous knowledge faces growing challenges. Many intangible elements such as oral traditions, performing arts, and traditional craftsmanship are at risk of fading away as older generations pass on. Issues of sensitivity and authenticity also arise, as some elders are reluctant to share their knowledge unless they perceive genuine interest and respect from the younger generation.

Preserving and promoting Sarawak's cultural heritage demands the combined efforts of trained professionals, passionate community members, cultural practitioners, and relevant agencies. Although local councils and state organizations are actively engaged in various preservation activities, the sheer number of programs and initiatives sometimes dilutes the core objective: to safeguard heritage for future generations while ensuring public access and sustained interest.

In this context, Pustaka Negeri Sarawak plays a critical role as a custodian of Sarawak's intellectual and cultural heritage. This paper explores Pustaka's collaborative initiatives with local councils and communities in the preservation of Sarawak's rich cultural landscape.

PUSTAKA NEGERI SARAWAK AND ITS ROLE IN CULTURAL HERITAGE PRESERVATION

Pustaka Negeri Sarawak, as the state library, stands at the forefront of the cultural preservation mission. Guided by its vision, "To be the reservoir and fountain of information and knowledge to the State," and its mission, "To provide access to information resources and to preserve

Sarawak's intellectual heritage," Pustaka strives to inclusively document and promote the state's diverse cultural contents (Pustaka Negeri Sarawak, 2025).

A central pillar of this effort is the maintenance of the Sarawakiana Special Collections; a dedicated repository housing a wide variety of cultural heritage materials (Sarawakiana Portal, 2025). The collection encompasses paintings by local artists, historical artifacts, personal collections, manuscripts, photographs, and publications that reflect Sarawak's multi-ethnic history, traditions, and literature. Now entering its 25th year, the Sarawakiana collection continues to grow, providing resources for researchers, educators, and the wider public.

Beyond its role as a repository, Pustaka actively fosters public engagement and access to the resources. One of the prominent strategy is the establishment of collaborative partnerships with local councils, cultural practitioners, and ethnic associations. Through these collaborations, Pustaka has diversified its programs to include talks, exhibitions, workshops, publications, oral history recordings and cultural festivals.

Sarawakiana Talks, Exhibitions, And Workshops

The Sarawakiana Series encompasses talks, exhibitions, and workshops which highlights various aspects of Sarawak's cultural heritage. These programs invite third-party collaborators which includes researchers, cultural practitioners or ethnic association to share knowledge on ethnic customs, traditional practices or historical narratives.

Interactive elements, such as Q&A sessions with speakers, hands-on skills-sharing workshops, and exhibitions of locally produced handicrafts and artworks, create immersive experiences for audiences. These activities not only promote understanding but also encourage community participation and pride in Sarawak's diverse cultural traditions.

Sarawakiana Series Publications

Since its establishment, Pustaka has been actively involved in documenting Sarawak's cultural heritage through a range of publications. Early efforts included booklets accompanied by CDs that explored the traditions of ethnic groups such as the Melanaus, Ibans, Kayans and more. Over time, these initiatives have evolved into the production of comprehensive coffee table books that present Sarawak's cultural narratives in an accessible and visually engaging format.

Recently, Pustaka has expanded the Sarawakiana Series to support local writers, encouraging the transformation of traditional folktales into fiction suitable for a broader readership. This initiative not only preserves oral traditions but also promotes contemporary reinterpretations of Sarawak's folklores.

Oral History Collection

Pustaka's Oral History Collection features audiovisual recordings of interviews with prominent Sarawakian leaders, community elders, and cultural practitioners. These interviews capture personal stories, important historical events, and detailed descriptions of customs and traditions across the state. By preserving these voices, Pustaka ensures that future generations have access to first-hand accounts of Sarawak's rich and evolving heritage.

Sarawakiana Festival

In celebration of Sarawak's cultural richness, Pustaka launched the Sarawakiana Festival in 2010, commemorating its 10th anniversary (Pustaka Negeri Sarawak, 2025). Initially known as the Sarawakiana Carnival, the event has since become a biannual celebration of Sarawak's heritage, featuring a wide array of talks, exhibitions, workshops, cultural competitions, and vendor markets.

The festival, often ending in a grand dinner recognizing outstanding cultural contributors, serves as a vibrant platform for showcasing Sarawak's traditions. Notably, collaboration with local councils has helped broaden community participation, ensuring a greater sense of inclusivity among the attendees.

THE ROLE OF LOCAL COUNCILS AND COMMUNITY FESTIVALS

Local councils across Sarawak, such as Sibu Municipal Council (SMC) hold responsibilities not only in governance and urban management but have also factored in the cultural development within their jurisdictions. Local festivals, notably the Borneo Cultural Festival have been a long standing local celebration of different cultures in the melting pot of the Swan City. Showcasing traditional music, dance, crafts, culinary experiences and more, the festival ensures opportunities for both cultural exchange as well as public participation. These festivals however, can sometime be met with criticism from the public as they are more susceptible to issues such as authenticity, cost-effectiveness and cultural importance.

Despite being faced with many challenges, it is often these kinds of festivals that gathers the collaboration and active cooperation from the different members of the community and truly showcases harmony among the chaos. As a boost for tourism, these festivals also are needed to appeal to international tourists as a thing to look forward to when visiting the state of Sarawak and make them stay longer to explore the beautiful cultures the state has to offer.

COLLABORATIVE MODELS BETWEEN PUSTAKA AND LOCAL COUNCILS

Pustaka Negeri Sarawak, notably the Sibu campus have put in efforts to leverage local festivals such as Borneo Cultural Festival to showcase its cultural initiatives and to avoid redundancy in programs. By partnering with Sibu Municipal Council, Pustaka integrates exhibitions, demonstrations, and performances into the festival program, aligning its mission of cultural documentation and dissemination with the public appeal of these events.

Some examples of Pustaka's collaborative contributions to Borneo Cultural Festival include curated exhibitions highlighting local Sibu artists' artwork, garnering positive feedbacks from visitors. Pustaka have also curated an exhibition consisting of the history of Kampung Nyabor and Kampung Pulo, two settlements that have ceased to exist today yet contained the colourful history of Sibu. With the exhibition, visitors were treated to before and after photos of the area as they reminisce the olden days of Sibu.

Activities such as batik painting demonstrations, keringkam weaving demonstrations, *bergendang* (traditional Sarawak drum) and *tandak* (traditional Sarawak Malay dance) demonstrations as well as traditional game and cooking sessions provide immersive experiences that link festival-goers with Sarawak's cultural heritage. Additionally, Pustaka's approach in providing these experiences free-of-charge encourages the participation from local communities and attract them to interact directly with carefully curated cultural experiences.

Pushing forward with the lifelong learning agenda, activities such as Learn Local Dialect has facilitated the agenda by having face-to-face session with a facilitator who teaches basic local dialect to participants in a fun and engaging session. These light-hearted yet informative session was done as a satellite event by using Pustaka's facilities at their own building, further cementing the importance of having joint collaborations between agencies.

Through these efforts, Pustaka and local councils are able to cultivate public pride and passive preservation whereby the community members can absorb and appreciate heritage informally through enjoyable activities rather than formal education. Passive preservation strengthens cultural continuity by normalizing heritage practices within everyday life experiences and incorporate the core memory of engaging in these cultural heritage activities. These may eventually be oral traditions passed on to generations to come.

Pustaka and local councils also actively engages artisans, performers and cultural practitioners by providing them platforms to showcase their talents during these festivals. By collaborating with local artists, musicians, and craftspeople, Pustaka and local councils can help to encourage the growth of the orange economy and ensures representation of Sarawak's diverse traditions.

CHALLENGES IN CULTURAL HERITAGE COLLABORATIONS

Despite all of the above, collaboration between Pustaka and local councils may face several challenges. Resource constraints, including limited funding and lack of material resources, often stunts the ability to execute large-scale initiatives. Many councils operate within tight budgets, prioritizing essential services over cultural activities. As for Pustaka - a state library with non-profit business model, Pustaka may also bear too much of the costs which may result in the state government seeing them as dispensable bodies.

Authority and decision-making issues can also sometimes make collaborations tricky. Different priorities, red tape, and unclear responsibilities between Pustaka, local councils, and other collaborating partners can cause delays or even lead to some misunderstandings. But with open communication and a clear division of tasks and responsibilities, these problems can usually be sorted out without too much trouble.

Keeping activity modules sustainable is another big challenge. While public interest might be strong at the start, keeping people engaged over time means constantly coming up with fresh ideas and adapting to what the community wants and needs. If programs stay the same for too long or feel repetitive, there is a real risk of losing their appeal. The effect can be seen from the feedbacks by the public at the end of Borneo Cultural Festival with many lamenting their personal experience and at the same time, nitpicking and criticising what they feel needs improvement. These comments may either kill or rekindle the spirit to provide an effective experience for both organizer and attendees.

Another thing to watch out for is handling cultural sensitivities and protecting intellectual property. If heritage elements are misrepresented or used without an ethnic or community's consent, it can lead to misunderstandings, disputes, or even cause parts of the culture to be lost. It is highly important to consider and approach everything with respect and make sure the communities are fully involved. With the right connections and proper networking, this could be worked out and avoid misunderstanding in the long run.

PROPOSED STRATEGIES AND SOLUTIONS

One way to tackle these challenges is by setting up formal partnerships through Memorandum of Understanding (MoUs). MoUs help by clearly defining and laying out every involved party's definitive roles, realistic expectations, distribution of resources and problem handling, ensuring the collaboration to run smoother and more transparent. This could lead to more effective handling of the event and keep the stress of collaborations to a minimal level.

Another key step is to expand digital engagement. Experiences like virtual exhibitions, live-streamed performances, and social media campaigns can help reach a wider and younger audience, keeping heritage alive in fresh, dynamic ways. In the modern world, digital content and influencers have such an effect that it is almost impossible to promote an event without co-opting of them. Providing online options may also enhance the experience further and bring the festival closer to the end-user.

Offering profit-sharing opportunities can also make a big difference. By sharing festival earnings or providing paid exhibition slots, Pustaka and the councils can encourage artisans, performers, and cultural practitioners to stay actively involved and make sure they benefit financially while keeping traditions alive thus contributing to the growth of orange economy. This can be seen emphasized in Post Covid Development Strategy 2030 by the Sarawak State Government where one of the main goals is to become a high-income society (Government of Sarawak, 2021).

On top of that, running capacity-building programs for local councils, community groups, and cultural practitioners is crucial. Additional and continuous training in areas like event management, digital documentation and heritage marketing can help them become more independent and improve the quality of projects. Equipped with the proper training, the work task can elevate the event to a better level and give the event a touch of sophistication.

Lastly, making sure that all the work such as photos and recordings gets added to Pustaka's Special Collections means every collaboration leaves a lasting contribution to Sarawak's documentary heritage. Proper documentation is significant to keeping a footprint of what has been done and become a witness for future references.

CONCLUSION

Collaborative partnerships between Pustaka Negeri Sarawak and local councils show just how powerful working together can be for preserving culture. By combining expertise, resources, and platforms for community involvement, these efforts have sparked cultural pride, safeguarded traditions at risk of being lost, and even created socio-economic benefits. Pustaka's active role in these partnerships highlights its dedication to empowering communities, supporting development, and preserving heritage. With strategic solutions in place to overcome challenges, these collaborations are setting the stage for sustainable ways to protect Sarawak's unique cultural identity. Bringing together culture, community, and documentation is not just about preserving Sarawak's heritage today but it is also about building a strong foundation for future generations to continue celebrating and embracing its cultural richness.

REFERENCES

Department of Statistics Malaysia. (n.d.). *Census dashboard*.
https://tableau.dosm.gov.my/t/BPPD-BahagianperangkaanpendudukdanDemografi/views/MyCenDashEnglish/STATE?%3Adisplay_count=n&%3Aembed=y&%3AisGuestRedirectFromVizportal=y&%3Aorigin=viz_share_link&%3AshowAppBanner=false&%3AshowVizHome=n.

Economic Planning Unit, Department of the Premier of Sarawak. (2023). *Sarawak facts & figures*. https://premierdept.sarawak.gov.my/web/attachment/show/?docid=ODJtVEEwd0VKWCt3NElWU1hTakFNQT09OjpB4K2lH33lp5C5_OupdQaS.

Pustaka Negeri Sarawak. (2022, July 15). Pustaka Sibu to hold various activities during BCF. *Borneo Post* https://www.pressreader.com/malaysia/the-borneo-post/20220715/281814287584457?srsltid=AfmBOooKufVxU3xasPiSZY8eFgW52WTpiCwO6gGic5uQ1gfGM1G3Sd.

Pustaka Negeri Sarawak. (2023, July 10). MPS anjur acara budaya sempena BCF 2023. *Utusan Borneo Online* https://www.utusanborneo.com.my/2023/07/10/pustaka-negeri-sarawak-mps-anjur-acara-budaya-sempena-bcf-2023.

Pustaka Negeri Sarawak. (2024, August 12). Pustaka Sibu anjur pelbagai program menarik sempena BCF. *Utusan Borneo Online*. https://www.utusanborneo.com.my/2024/08/12/pustaka-sibu-anjur-pelbagai-program-menarik-sempena-bcf

Sarawak Tourism Board. (2022). *Heritage & historical places in Sarawak*. https://pustaka.librarynet.com.my/Angka.sa2/pustaka/OpacBibDetail.htm?bibId=783116.

Setyagung, Estav & Hani, Ummu & Azzadina, Irna & Sianipar, Corinthias P. M. & Ishii, Tomohisa. (2013). Preserving cultural heritage: The harmony between art idealism, commercialization, and triple-helix collaboration. *American Journal of Tourism Management, 2*(1), 22-28. DOI: 10.5923/j.tourism.20130201.03.

Sulaiman, S. Bin, Halamy, S. B., & Kamaruddin, N. B. (2025). Guardians of Heritage: The Pivotal Role of Sarawak Museum Department in Enhancing Local Content for Sarawak Islamic Heritage Museum. *International Journal of Academic Research in Business and Social Sciences, 15*(3), 857-863.

Ugong, Nur & Bala, Bilcher & Bee, Baszley & Jusoff, Kamaruzaman. (2022). The Community Involvement in Sustaining an Archaeological Site: The Case of Sarawak, Malaysia. *International Journal of Conservation Science, 10*(3), 441-448.

Nurturing Artistic Embryos in Libraries: The Creative Residency Programme in the National Library of Singapore

Luke Chua

National Library and Archives Board, Singapore

Corresponding email: luke_chua@nlb.gov.sg

ABSTRACT

Artistic creation is often associated with studio spaces, but its genesis and inspiration may be traced to libraries and archives, which contain a wealth of stories waiting to be uncovered. To enable a multi-faceted engagement with materials in the National Library and the National Archives of Singapore, the National Library of Singapore started a Creative Residency programme in 2021 to invite creatives from all artistic disciplines to reinterpret the collections in ways that provide new perspectives for a wide community of audiences. Since then, 16 groups of artists have conceptualised a diverse collection of artistic projects such as videos, tabletop games, scripts, paintings, installations, and poetry. Distinct from other artistic residencies in Singapore, this programme offers the opportunity for librarians to partner with artists to showcase collection gems in ways that invite audience participation and discovery. Topics include how the perception of happiness has changed over the generations, our response to pandemic outbreaks throughout history, and the teenage culture of the 1990s. This paper will discuss the artistic processes of the Residents, the collaborative role between librarians and artists in developing the local artistic community, and the ways in which library and archival materials have been enlivened through this programme.

Keywords: Residency; Artists; Artworks; Creativity

INTRODUCTION

In 2021, the National Library and Archives Board of Singapore (NLB) started the National Library Creative Residency (NLCR) programme to invite applicants from all artistic disciplines to reinterpret collections in the National Library and the National Archives through creative projects such as artwork, videos, games, and scripts. This paper consolidates the observations gleaned from the program, thus far, and suggests that libraries and archives are uniquely positioned for incubating artistic projects, especially in their embryonic stage. The library and the creative communities benefit from such residency programmes, which can become an essential part of all artistic ecosystems.

BACKGROUND

Art Residencies in Libraries

Artists have always been working at and with archives and libraries in their creative practice, as studied by scholars such as Osthoff (2009), Van Alphen (2014), Enwezor (2008), and Carbone (2017). This comes as no surprise as such institutions contain many collections that can inspire a variety of projects. In recent years, there has been a shift in how libraries position themselves to such activation of materials. Recognising that this mutually beneficial arrangement transforms both artistic practice and library collections, libraries and archives have increasingly been hosting art residenceies. Examples include the University of California San Francisco Library Artist in Residence Programme, the University of the Arts London Decolonising Arts Institute residency programmes, and the Asia Art Archive's Residency programme.

Existing research on such programmes is limited, especially in the Asian context. However, some observations from these studies remain relevant. For instance, Klotz (2025) contemplated the extent to which a library can accommodate artistic expression and how much "creative friction" can be embraced, while Zilinskas (2021) characterises the library as a site for serendipity and expertise for artists. While these studies were conducted in very different contexts, there are resonances with the NLCR, as shall be elaborated in this paper.

Art Residencies In Singapore

Art residencies in Singapore are generally offered by museums, arts groups, and schools. Some examples include the Singapore Art Museum, Objectif, and the Nanyang Technological University (NTU) Centre for Contemporary Art. Support from these programmes come in various forms, with monetary stipends and studio space being the most common. Residents

are usually also expected to engage with the public through programmes or exhibitions. Programmes such as the International Artist Residency by NTU often focus on the artistic process rather than production, placing less emphasis on tangible works to be produced by the end of the residency term.

Art residencies offered by libraries are relatively new in Singapore and the NLCR is one of the first in the country. Other library-based residencies include the Singapore Management University's Libraries Artist-in-Residence (AiR) Programme, which focuses on the artist's interaction with the university community in fostering critical thinking and creativity.

Fellowships in the NLB

The NLCR is the latest addition to an existing ecosystem of fellowships within the National Library. Others are the Lee Kong Chian Research Fellowship and the National Library Digital Fellowship. While the main outputs for the other fellowships are academic reports or digital humanities projects, respectively, the NLCR differs in prioritising the research, discovery, and incubation process of a creative project, without the need to bring it to full completion.

The library@orchard also started an artist-in-residence programme, RESIDENT, in 2015 where a practising artist or designer is invited to create and exhibit their work at the library and transform library spaces into their makeshift studio. Focusing on artistic creation instead of the research process, this programme has supported over 20 Residents with unique crafts including millinery, calligraphy, woodworking, bookbinding, printmaking, rattan weaving and paper sculpting.

Singapore Storytellers

The NLCR was first conceptualised as part of NLB's Libraries and Archives Blueprint 2025 (LAB 2025), a five-year plan reimagining the future of libraries and archives. One of the key roles of the library and archives identified under this plan was "inspiring Singapore Storytellers," where the library goes beyond collecting content relating to the Singapore experience and history, and invites participation and re-interpretation. The NLCR contributes to this objective by providing opportunities for artists to engage with and retell the stories within the collections in their unique ways.

METHODOLOGY

A total of 16 recipients (including individuals and art collectives) have been awarded the NLCR since its inception in 2021, 11 of whom have completed their six-month terms. As this low number may not yield statistically significant results, this paper has not taken on a quantitative approach. In addition, at the point of writing this paper, five Residencies are still ongoing and quantitative analysis may inaccurately reflect the evolving experiences of the Residents.

As such, the findings of this paper have been distilled mainly from the qualitative reports and formal feedback submitted by the Residents. This is supplemented by the anecdotes and informal feedback gathered from the conversations and events that happen throughout their terms. While the current Residents have not submitted their reports or feedback yet, their informal feedback has also been taken into consideration for this paper.

Even though the data collected is not suitable for statistical analysis, reflecting on the NLCR's first four cycles at this point is opportune, as there is enough information to critically examine the programme's impact on the arts community and its role in developing artistic projects. It is also hoped that this analysis will highlight growth areas for the NLCR and, more generally, for incubation initiatives based in libraries and archives.

DETAILS OF THE RESIDENCY

Terms of the NLCR

The NLCR is a six-month programme where Residents are paid a monthly stipend of SGD3,500 and up to SGD6,000 (on a reimbursement basis, for the whole term) to acquire materials and services needed for their project. Each Resident is also paired with a librarian with expertise in the collections that are relevant to the project.

Residents are required to submit a written report and feedback at the end of their term. In addition, they should give two presentations: an internal sharing for librarians and archivists on the use of the collections; and a public presentation. The latter is meant to be a showcase of the creative project and can be a work-in-progress presentation. Although this Residency does not mandate the full production of a project, either at the end of the term or within a stipulated timeframe, the project should reach a level of completion suitable for this public presentation. This could take the form of a prototype, draft, or conceptualisation. Full

production is not required by the NLCR as creative projects sometimes take more than six months to germinate and longer to produce, depending on its scale and scope.

Selection Process

The Residency has an application call every year, which opens for around two months via NLB's platforms. The applications are reviewed by an Evaluation Committee made up of external members from various segments of the artistic community, including visual, literary, and performing arts. NLB representatives also participate in the evaluation meetings to provide feedback on the use of collections, but the final awarding decisions lie entirely with the Evaluation Committee. In addition, shortlisted applicants are invited to an interview with the Evaluation Committee, where they can elaborate on their proposals. Once the decisions have been made, the successful candidates would be notified and suitable starting dates for the Residency would be agreed upon with them.

Recipients of the NLCR

The Residency has been awarded to a total of 16 recipients to date, and brief descriptions of their projects are given in Table 1.

Table 1: List of NLCR Recipients

S/N	Year of Award	Name	Artform	Brief description of Project
1.	2021	Jean Tay	Theatre	An examination of the history of Singapore's approach in the containment of contagious diseases through the histories of quarantine sites, bringing these histories to life through theatre.
2.	2021	Khairulddin Wahab	Painting	An investigation into the historical process of disenchantment in the natural world through Singapore's environmental history.
3.	2021	A Stubborn Bloom	Video	A video piece that revolves around a fictional character Elizabeth who resides in early 1990s Singapore, reimagining life in Singapore through the eyes of the teenage protagonist.
4.	2021	Tan Shao Han	Tabletop game	A tabletop role-playing game that allows players to explore the quotidian desperations and banal

				excesses of wartime Singapore's upheavals and changing social orders.
5.	2022	Chrystal Ho	Poetry	An eco-poetry project that explores the relationships between human and nature in Singapore, using the garden as a key motif.
6.	2022	Fyerool Darma	Installation	Research aspiring to provide an index of the various factories to extend further into the formation of The Malayan Textile Mills Limited in 1952 and the motivations for its dissolution in 1960s.
7.	2022	Kaylene Tan	Theatre	A fictional audio-drama set during Singapore's 1964 communal riots. Inspired by historical events and characters, the action takes place over four nights when the island was in lockdown.
8.	2022	Saleem Hadi	Theatre	A project to heighten awareness on Singapore's horror literature.
9.	2023	Eva Tang	Theatre	A project celebrating the legacy and art of the late Kuo Pao Kun and his influence on Singapore Chinese Theatre.
10.	2023	Myra Loke, Tan Wei Ting, and Han Xuemei	Theatre	An artistic research project about the relationship between happiness and the prevailing economic system at different points of time.
11.	2023	Shayus and Weiqin	Installation	A project investigating Pop Yeh Yeh and the intermixing of local and global trends shaping popular music, fashion and youth subculture from the 1960s to early 1970s in Singapore.
12.	2024	Alfian Sa'at	Theatre	A work of documentary theatre about a refugee camp in Singapore that had hosted Vietnamese refugees between 1978 and 1996.
13.	2024	Felix Cheong	Graphic Novel	A graphic novel inspired by the real-life riot between Hokkiens and Teochews in 1854 that killed more than 500 people and destroyed 300 homes.
14.	2024	Green Zeng	Installation	A research-based art project that explores issues related to the Chinese school

				student movement, communism, and identity.
15.	2024	ila	Installation	A project tracing the instrumental shifts of our relationship with mangroves throughout history.
16.	2024	Lai Chee Kien and Koh Hong Teng	Graphic Novel	A graphic novel project comprising several stories each with the tiger as the central protagonist, based on historical narratives or tales.

Activities of the NLCR

Some Residents have gone beyond their obligations by conducting extra sessions as part of their creative process. For example, in addition to her public presentation, Jean Tay organised a public reading of a work-in-progress script based on her project on quarantine sites in Singapore. Similarly, Eva Tang used her public session to conduct a script reading by theatre veterans. Myra Loke, Tan Wei Ting, and Han Xuemei took a different approach by creating installations in an external black box space. They invited members of the public to interact with these installations in small groups and participate in focus group discussions. Residents of the 2024 batch are currently planning for their public engagement to be held later in 2025 or in 2026, and some of the initial ideas include writing and research workshops, mentorship programmes, and film screenings.



Figure 1: View of installation by Myra Loke, Tan Wei Ting, and Han Xuemei

Other than the programmes mentioned above, efforts have been made to bring the Residents together in conversation. In 2024, eight Residents from the 2021 and the 2022 batches participated in "From the Vaults: Creating Art in the Library and Archives," a panel discussion organised as part of the Singapore Art Week. During this event, the Residents spoke about their experiences re-interpreting library and archival material as creative projects. It was also a chance for them to have conversations about one another's artwork. Library and archival material which had been the creative inspiration for the Residents were also displayed here.



Figure 2: Picture from "From the Vaults: Creating Art in the Library and Archives"

In early 2025, an informal networking session was organised for the Residents from all batches, including those currently in their terms. This was a chance for them to interact with one other, possibly creating opportunities for collaboration. The Residents have also been highlighted through library platforms such as NLB's YouTube channel *The Library Report*[6] and featured in Singapore's newspapers and magazines.

[6]This is NLB's long-running steady state video series that covers all library and archives content.



Figure 3: Khairulddin Wahab being featured in The Library Report

THE RESIDENCY AS AN EMBRYONIC STAGE

Many residencies offered by museums, galleries, or arts organisations provide dedicated studio spaces, networking opportunities, or technical support. On the other hand, many research fellowships offered by institutes of higher learning, libraries, or archives provide support for awardees to further the scholarship in an academic field through papers, articles, bibliographies, or presentations.

The NLCR situates itself in the intersection of an art residency and a research fellowship. It focuses primarily on the research phase that forms the foundation of artistic projects, a developmental stage that takes place behind the scenes and is sometimes forgotten or given little attention. It affirms the importance of supporting in-depth research towards an artistic project, recognising that research can enrich an artwork in this embryonic stage, even before actual creation takes place. At the same time, it sees possibilities for academic research to be presented in unconventional formats such as artworks to provide access to a wider audience and to suggest different ways of understanding the materials that cannot be achieved through traditional academic formats.

Headspace And Freedom

Artists often agree on the importance of such research processes as it can radically shape a work's direction and sensitivity to socio-historical issues. However, the practicalities of delivering projects within the constraints of deadlines, such as exhibitions, may force them to shorten or prematurely end ongoing research. Limitations of time, resources, and access may

also create situations where they cannot dedicate extended and uninterrupted periods to go through the primary material related to their projects.

The NLCR addresses such limitations by contributing to the Residents' livelihood via a modest stipend, thereby creating an environment where they can dedicate time for research. This is especially helpful for artists who may juggle several freelance projects at the same time and find it hard to spend time on research. Saleem Hadi explains:

"The time taken to produce an original work in Singapore, especially if they are supported under government schemes, is little and at many times, rushed. Artists need time to research and develop their concepts. That's exactly what this residency gave me and I'm very thankful for that" (Saleem Hadi).

Having time to go through research material brings the added benefit of letting artistic projects grow organically. Unlike traditional research papers where findings should be presented in an objective manner structured by conventions such as "methodologies," "findings," or "conclusion," artistic projects birthed from research can take many shapes, all of which should retain the unique, personal voice of the artist. This would not be possible if artists were siphoned of the time to let the research grow organically. For instance, by prioritising research, Myra Loke, Tan Wei Ting, and Han Xuemei were able to allow "the development of the work to unfold naturally in response to the findings, rather than being constrained by deadlines or pre-determined goals." Similarly, the Residency gave Tan Shao Han the time and space to "grow [his] voice and vision for [his] game."

Organic growth cannot be rushed, but it also cannot be manufactured. One recurring feedback from Residents is the freedom and flexibility given for them to develop their projects in a way that does justice to the materials and their artistic vision. Jean Tay explains:

"I also really appreciated the independence NLB gave me in pursuing my research and coming up with the script, so that I could focus on the research process rather than worry about hitting certain KPIs. This allowed the research to shape my work, rather than having it be driven by pre-imposed agendas from the sponsoring agency, which can limit creativity and constrain the piece. This was one of the most valuable aspects of this Residency" (Jean Tay).

While it may be understandable for an institution to take an invested approach in the creative projects it sponsors, this can stifle creative growth and inadvertently corner artists into certain trajectories so that they can remain answerable to the institution. The feedback shared by most Residents suggests that they had previously encountered such pressures, whether at local or international residencies. As such, the NLCR has become a breath of fresh air that empowers free creative exploration.

Discoveries And Encounters

In such embryonic stages of artistic creation, input from various sources is crucial, as they can shape the direction and health of the project. The library and archives are poised to provide unique opportunities for such encounters as the collections are replete with stories that can inspire endless creation. However, artists may not always be as familiar in navigating the stacks as other researchers. This is where the NLCR can help to develop their research skills.

During their term, each Resident is paired with a librarian from the NLB who has some content knowledge related to the Resident's project. Other than facilitating collection access, the librarian will also recommend relevant resources which the Resident may not have considered. From the basic skills of navigating the library's system and requesting for closed stack items to the meticulous detective work in unearthing gems from the collections, every Resident benefits from the librarian's assistance, even if they are regular users of the library.

For example, the art collective A Stubborn Bloom was already familiar with the library's collection from previous projects, but for their Residency project investigating the teenage culture of the 1990s, they discovered special collections such as theatre manuscripts and drafts from a local author, which greatly informed their thought processes and direction. They explained that they "wouldn't have been able to develop this project in the way that it has been done without this residency. [They] have also learnt a lot about Singapore's social and art education history."

Faced with an overwhelming volume of materials, Jean Tay was also able to get a start on her project as her liaison librarian took the initiative to provide an initial set of references, from which she started to track other related resources. Such collaboration took place throughout the entire process for some Residents. Reflecting on the use of library materials and his liaison librarian's assistance, Khairulddin Wahab wrote:

"I was able to develop my conceptual concern to a degree and direction that I did not entirely anticipate in the beginning. This experience enabled me to expand the scope of my research and establish the conceptual foundation for my new series of artworks" (Khairuddin Wahab).

Khairulddin's feedback illuminates a key objective for the NLCR, which is to empower creatives to be able to conduct deep research in the library and archives in ways that will expand the residency project, and to extend such practices into their future projects.

Even though libraries may not have black box theatres, rehearsal spaces, or art studios, it can leverage its strength in providing expertise for artistic research. This is true for all libraries, even if they are not situated in museums and art schools, or have a substantial art collection. Artistic research extends beyond art-specific collections, and all libraries have collections which can contribute to creative projects. This makes the library unique in the ecosystem of art residencies, since no other institution can provide the depth of expertise relating to the research phase of a creative project. This is arguably more important than providing studio spaces or monetary support since content and concept, both informed by research, form the foundation of a successful artwork.

Conversations And Community

The strength of the library lies not only in its librarians and collections, but also in the people it serves. Art residencies in libraries provide exposure to a different set of audiences that creatives may not encounter in their communities or in residencies based in museums or art spaces. For some Residents, engagement with varied audiences is an important part of their creative process. For instance, Tan Shao Han was able to test-play his tabletop roleplaying game developed as part of the Residency, thereby refining the game for future iteration. For him, such sessions are important for feedback gathering and he looks forward to working with the library to conduct more play sessions.



Figure 4: Tan Shao Han at a test-play session of his game

Audience engagement is also an important component for Myra Loke, Tan Wei Ting, and Han Xuemei's project investigating how the meaning of happiness shifted over the years. For their public sessions, installations were presented in a black box theatre space. Small groups of participants (up to 10 per group) were invited to interact with the items, after which dialogue sessions were held with these participants. Even though the team had started with the materials in the National Library and the National Archives, such as newspaper articles, books, and oral history interviews, dialogue with audiences helped to provide varied perspectives and nuanced their approach to the research question.



Figure 5: Myra Loke, Tan Wei Ting, and Han Xuemei (right) interacting with audiences

In planning the marketing and publicity for this engagement, the team expressed their intention to rely mainly on the channels used by the library instead of spreading the news

through their network in the theatre community. In this way, they can reach out to audiences that they have not encountered before, especially if these participants do not attend arts events regularly. The results of this approach were encouraging, as they met different groups of people, including a mother who shared about her son's shift in behaviour after going to a mainstream school when speaking of the younger generation and their perception of happiness. Similarly, Jean Tay and Eva Tang also conducted separate script readings attended by members from the theatre community as well as other library users. These were the first occasions that their work-in-progress scripts were being read out in front of an audience and formed crucial steps in the development of their projects.



Figure 6: Audiences watching performers read out Eva Tang's work-in-progress script

Other than librarians and library users, conversations among the Residents form the basis of a community that can continue to thrive even after they finish their terms at the library. To encourage this, opportunities were created via the panel discussion in 2024 and the networking session in 2025, where Residents were able to meet with other Residents in their own and other batches. The feedback has been positive and future cycles of the NLCR would likely incorporate both initiatives as regular programmes.

THE RESIDENCY AS ACTIVATOR OF MATERIALS

The focus of this paper has thus far been on how the NLCR contributes to the development of creative projects by enabling and enriching research. However, the library community has also benefited from its engagement with the artists, all of whom bring unique perspectives in mobilising library and archival materials through acts of visualising, uncovering, humanising,

and regenerating. This in turn creates more points of entry for the wider community of library users to discover the wealth of materials and stories in the collection.

Visualising

For users unfamiliar with research, the idea of approaching large amounts of textual materials usually associated with libraries and archives can come across as intimidating. They may also not know where to start discovering these stories. However, there are collections in the library which are not textual in nature, such as photographs and maps, many of which are visually inviting and ideal for artistic exploration. For example, Khairulddin Wahab examined visual representations of Singapore in the 1800s and 1900s through colonial maps. He was interested not just in their visual aspects but also the implicit power structures built into the creation of such maps. As such, the paintings which resulted from the residency are not merely visual reinterpretations of colonial maps, they seek to recover the unheard voices of the natives which have been suppressed by such representations.

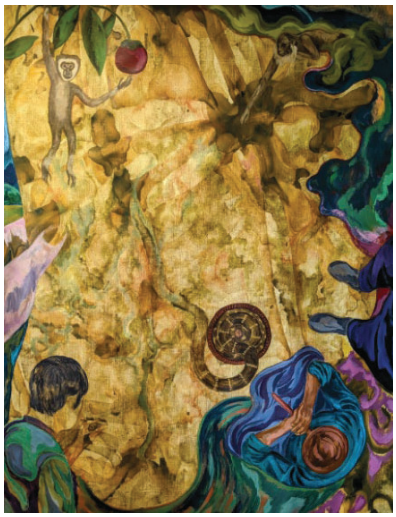


Figure 7: Khairulddin Wahab, Serpentine Prison, 2022, Acrylic on canvas

The reverse is also possible, as visual material can inspire textual creation. Based on her research into human encounters with the garden within the context of urban Singapore, Chrystal Ho was inspired by both textual and visual materials in the library's collection, such as

the drawings of French naturalists Pierre-Médard Diard and Alfred Duvaucel.[7] Weaving personal stories into her exploration of such materials, she created ekphrastic poems contemplating the experiences of the often-unnamed artists who had initially painted these natural history drawings.

Uncovering

This reimagination is a shared impetus for other Residents as they uncover or reframe untold stories in Singapore's history. During her residency, Eva Tang looked through archival material deposited by theatre companies in order to document the processes of veteran performers who had worked closely with the late Singapore theatre doyen Kuo Pao Kun. In doing so, she uncovered the story of how Kuo invited a Taiwanese director to conduct workshops for performers in Singapore in the 1980s. Although this was briefly covered in the newspapers, the importance of these workshops is largely under-researched. During the Residency period, Eva Tang was able to contact the Taiwanese director and spoke to performers who had participated in the workshops. As part of her public engagement, she showed video clips and invited some of these performers to take part in a reading of her work-in-progress script.

Similarly, Kaylene Tan wanted to uncover the personal stories related to the 1964 riots in Singapore.[8] In her project, she went beyond the accounts detailed in the newspapers and other official documents. Instead, she focused on the oral history interviews of various individuals such as a gardener, a teenager, and a midwife who had experienced the riots firsthand. Such accounts provided nuanced perspectives not easily available through official records and highlighted the importance of the experiences of the everyday person during the riots.

[7]The original drawings of Pierre-Médard Diard and Alfred Duvaucel are currently in the collection of the Muséum national d'Histoire naturelle in Paris. Through the Singapore Digital Resource project, digital copies are made available on NLB's websites, compliments of the museum.

[8]These refer to race riots involving clashes between Malays and Chinese that occurred in Singapore when it was part of the Federation of Malaysia.

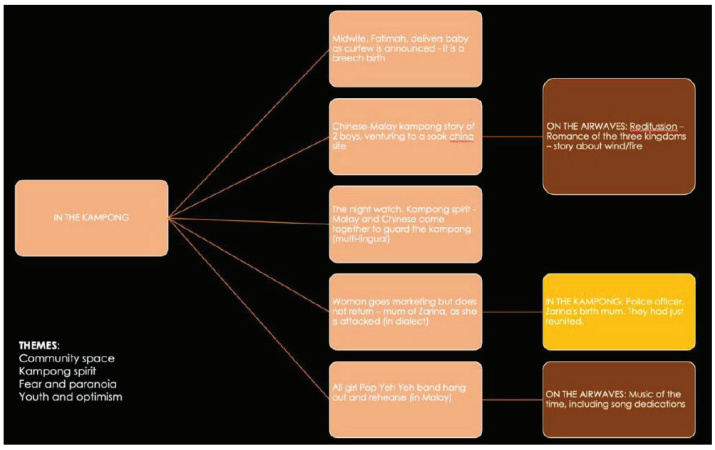


Figure 8: One of Kaylene Tan's story maps for her audio play

Humanising

One benefit of retelling such personal stories is that large events which are often understood through official narratives are humanised. This is apparent especially in Jean Tay's project on the quarantine sites of Singapore. Personal anecdotes of resilience have been widely celebrated during the recent COVID-19 pandemic, but we may not have heard similar stories relating to the polio, leprosy, or the AIDS epidemic if we did not live through those times. As a result, our perception of these events may be restricted to macro-narratives and impersonal statistics of deaths and casualties. Jean Tay's project addresses this by giving voice to individuals such as a young polio patient in the 1950s and an AIDS patient and his nurse in the 1980s. Through this project, she discovers the common theme of "family" running through the stories, whether it is the dissolution of families due to diseases or the forging of new ones among strangers.



Figure 9: Workshop conducted in Hanoi by Alfian Sa'at as part of the Residency

Another project is current Resident Alfian Sa'at's research on the refugee camp in Singapore which hosted Vietnamese refugees between 1978 and 1996. Through the project, he hopes to revisit and materialise some of the refugees' personal stories, as the Singapore camp held many memories as a transit stop before a new life in a foreign country. By focusing on these personal stories, which include a refugee falling in love with a Norwegian teacher in the camp, Alfian seeks to bring a personal touch to these refugees, so that they are not forgotten in the larger narrative of the Vietnam War and its resulting diaspora.

Regenerating

One of the affordances of the NLCR is artistic freedom to interpolate from library materials, something not always suitable in traditional formats of research fellowships. For instance, Fyerool Darma's project centred on the formation of The Malayan Textile Mills Limited in 1952 and the motivations for its dissolution in the 1960s. Informed by research from the history of this textile mill, Fyerool collaborated with other creatives to speculate on the patterns that may have been designed by the mill. Rather than a factual representation of the actual historical patterns, these are extrapolations which have been made contemporary, all the while being anchored in historical research.



Figure 10: Patterns speculated and predicted by cinotiUHD for 'L4NDf33lz' (2023) by Fyerool Darma, featuring Aleezon, Jalee, Taufiq Rahman dan rawanXberdenyut

In their project investigating the Pop Yeh Yeh[9] phenomenon, Residents Chay Weiqin and Shayus Sharif delved deep into the musicological, visual, and material culture of that time. Part of their process included a songwriting camp where four original songs were penned in the

[9]Pop Yeh Yeh is a musical movement in the 1960s and 1970s in Singapore and Malaysia, especially popular among the Malay community.

style of Pop Yeh Yeh. The duo also got in touch with veteran Pop Yeh Yeh musicians who recorded an original song which they had written some time ago but not recorded yet.



Figure 11: Still from a video produced by Chay Weiqin and Shayus Sharif, inspired by the fashion, music, and locations related to the Pop Yeh Yeh culture

Aspects of the lyrics from the new songs might also be used by these musicians in future creations. The generative aspects of this project have revitalised the Pop Yeh Yeh community, and hopefully sparked interest from new audiences through the NLCR.

CHALLENGES

Space remains an important aspect of residencies, and this became apparent from the feedback given by Residents who suggested for a dedicated place to do their research. This is especially useful during peak periods when seating in the reading rooms is limited. Relatedly, the absence of a common working space meant that there were limited occasions for serendipitous conversations to take place. Many Residents expressed their interest to meet one another, since interaction among creatives from different artistic disciplines can spur collaboration.

While it is difficult for the library to provide studio or rehearsal spaces catering to all artistic disciplines, it was recognised that spaces reserved for consultation for material would be useful to the artists. For the recent batches, Residents were given access to the Special Collections Reading Room for their research. Since access to this room is restricted, Residents can have a space to work even during the library's busier hours. In addition, opportunities for the Residents to interact with one another have been created with the recent panel discussion and the networking session.



Figure 12: The inaugural networking session (2025) for Residents across the four batches.

Another challenge lies in managing the freedom given to the Residents and the library's expectations of them. It was mentioned earlier in this paper that Residents appreciated the freedom given to them during their terms to develop ideas which may not have been fully formed when they applied for the programme. Those who remain skeptical of this approach may point to the possibility of artists remaining unfocused throughout the entire period, paralysed by the volume of material and multitude of directions to take. Additionally, freedom also allows individuals to create undesirable works, such as those with racially or religiously denigratory content.

However, this remains a possibility even for projects closely monitored by the host institution. The selection process thus becomes critical for the NLCR. During the first round of selection, projects which are unfocused and show limited potential would be passed by in favour of other proposals which demonstrate research rigour and critical thinking. The interview process then provides opportunities for the Evaluation Committee to learn more about the creative process of the applicants and how they plan to approach the Residency. This is something which may not be apparent through written documents. The final decisions would be made based on

careful consideration of the proposals and conversations with the applicants. Throughout their terms, Residents also check in with their liaison librarians or the Residency secretariat if they need guidance. Results from the past years have shown that this approach remains fruitful and marks the NLCR as an attractive programme to artists.

Ultimately, the NLCR is cognisant of its objective to nurture a stage of artistic development that is nascent. This is a stage which benefits from artistic freedom rather than structured development. While a focus on intensive research may not yield a mature and refined project at the end of their terms, the skills and knowledge gained from this Residency will continue to germinate within the Residents' practices in future projects.

FUTURE RESEARCH

The NLCR is still evolving as more Residents in future cycles provide feedback on the programme and how it can better support the development of the artistic community in Singapore. The scope of this paper has been limited to the experiences of the Residents and their transformation of library materials. There are related topics which have been briefly discussed and deserve in-depth study to be covered in future research. Examples include artist-librarian collaborations and the role of a librarian in artistic creation, the artist's navigation of copyright in adapting material for creative projects, as well as a theorisation of how artistic intervention into the library and archives may differ across artistic disciplines, such as visual arts, literature, music, theatre, or dance.

CONCLUSION

Residencies are an important part of any artist's career, as they provide space and time for them to work closely with the host institution in developing creative projects. Sometimes there is an expectation that artists participate in residencies with a concept or direction in mind, which can be taken further during their terms. However, a period of exploration and research may be needed before such conceptualisation can take place. Libraries and archives are uniquely positioned to nurture artistic projects at this stage by offering their collections, expertise, and communities. In turn, the library and its users benefit from the artists activating collections in creative ways. This symbiotic relationship, as evidenced from the experience of the NLCR, augurs well for continued and more in-depth collaboration between the artistic community and the library.

ACKNOWLEDGEMENTS

The author wishes to thank the Residents for bringing refreshing perspectives on library and archival material, as well as for their feedback which will contribute towards making the programme better for the artistic community in Singapore.

REFERENCES

Asia Art Archive. (n.d.). Residency programme. https://aaa.org.hk/en/programmes/programmes/residency-programme.

Bracha, R. (2013). Artists and the film archive: Re-creation-or archival replay. Archival Science, 13(2/3), 133–141. https://doi.org/10.1007/s10502-012-9181-6.

Carbone, K. (2015). Artists in the archive: An exploratory study of the artist-in-residence program at the City of Portland Archives & Records Center. Archivaria, 79, 27-52.

Carbone, K. (2017). Artists and records: moving history and memory. Archives and Records, 38(1), 100-118. https://doi.org/10.1080/23257962.2016.1260446.

Chong, T. (Ed.). (2018). The state and the arts in Singapore: Policies and institutions. World Scientific Publishing.

Donnelly, S. (2008). Art in the archives: An artist's residency in the archives of the London School of Economics. Tate Papers, 9.

Enwezor, O. (2008). Archive fever: Uses of the document in contemporary art. New York, N.Y: International Center of Photography.

Klotz, J. M. (2025). Promoting creativity in libraries: Consider the artist residency. College & Research Libraries News. Retrieved April 10, 2025, from https://crln.acrl.org/index.php/crlnews/article/view/26637/34557.

National Library and Archives Board. (n.d.). Creative Residency. https://www.nlb.gov.sg/main/about-us/careers/research-fellowships/Creative-Residency.

National Library and Archives Board. (n.d.). LAB25: Libraries and Archives Blueprint 2025. Retrieved April 10, 2025, from https://www.nlb.gov.sg/main/about-us/About-NLB/lab25-libraries-and-archives-blueprint-2025.

NTU Centre for Contemporary Art Singapore. (n.d.). Residencies. https://ntu.ccasingapore.org/residencies/.

Objectifs. (n.d.). Residencies. https://www.objectifs.com.sg/residencies/.

Osthoff, S. (2009). Performing the archive: The transformation of the archive in contemporary art from repository of documents to art medium. Atropos Press.

Singapore Art Museum. (n.d.). Residencies. Retrieved April 10, 2025, from https://www.singaporeartmuseum.sg/Residencies.

Singapore Management University. (n.d.). AiR 2024: jo+kapi. https://artcollections.smu.edu.sg/programmes/news-announcements/air-2024-jokapi.

University of California, San Francisco Library. (n.d.). Artist in residence program. Retrieved April 10, 2025, from https://www.library.ucsf.edu/about/art/artist-in-residence-program/.

University of the Arts London. (n.d.). Decolonising Arts Institute welcomes researchers on 3 collaborative residency projects. Retrieved April 10, 2025, from https://www.arts.ac.uk/about-ual/press-office/stories/decolonising-arts-institute-welcomes-researchers-on-3-collaborative-residency-projects.

Van Alphen, E. (2014). Staging the archive: Art and photography in the age of new media. Reaktion Books.

Vis, D. (2021). Research for people who (think they) would rather create. Onomatopee.

Zilinskas, L. (2021). Interpreting desires: The experiences of artists in archives [Unpublished Master's paper]. University of North Carolina at Chapel Hill.

Beyond Book Clubs: Seeding and Sustaining 130 Learning Communities in Singapore

Tong Jia Han Chloe, Lim Jia Ying Melissa

National Library Board, Singapore

Corresponding email: Chloe_TONG@nlb.gov.sg

ABSTRACT

In 2020, the National Library Board (NLB) embarked on a roadmap to proliferate learning communities within its library ecosystem beyond the traditional reading clubs. The LearnX Communities project was introduced – a comprehensive effort to create a structured framework to support book clubs that met within its network of libraries, and to seed new interest groups and learning communities beyond the topic of reading. The objective of the project is to transform libraries into places of social learning – spaces where people deepened their knowledge and interests not just from library resources, but also through interaction, co-creation and play with like-minded learners. Since the start of the project, the number of active learning communities supported by NLB has swelled to more than 130, in areas like art, technology, literature, sustainability, career, wellness and more. Referred to as LearnX Communities, these groups are offered opportunities at NLB events to showcase their skills and collaborate with each other. More recently, the project has also expanded to incorporate independent and established interest groups that meet outside library spaces. This paper outlines the background of the LearnX Communities project and details strategies taken to attract, engage and sustain learning communities. It also discusses the challenges of on-the-ground community engagement and shares best practices for library workers looking to try similar approaches.

Keywords: Learning Communities; Community Development; Social Learning

INTRODUCTION

The LearnX Communities project was introduced as part of LAB25 (Libraries and Archives Blueprint 2025), NLB's strategic plans to reimagine Singapore's libraries and archives through innovation and experimentation. LAB25 envisions the library as a Learning Marketplace - one of four fundamental pillars outlined in the Blueprint - which aims to provide a wide variety of learning opportunities for library visitors to explore. The Learning Marketplace is where our 130 learning communities play a crucial role in creating a sustainable and alternative format of learning.

What Is a Learning Community?

In a learning community, members meet regularly to practice their craft, exchange knowledge and explore ideas based on their shared interests. These communities are characterised by peer-to-peer teaching and self-motivated participants. Unlike our regular programme offerings of talks and workshops, where learning flows one-way from an expert instructor, learning communities encourage multi-directional knowledge sharing among members.

Our network of learning communities is branded under the name of LearnX Communities, which specifically refers to NLB's project of creating and supporting these groups as part of our libraries learning ecosystem. The LearnX Communities project aspires to foster lifelong learning among Singaporeans and to create a modern kampong (villages) of communal learning, where help is readily offered and ideas freely exchanged.

WHY DO WE NEED LEARNING COMMUNITIES?

Enhancing Learning Engagement

First, our learning communities offer an alternative to rote learning. During reviews of our programme offerings, the Programmes and Services team found that traditional talks and workshops provided limited engagement. We observed that attendees would passively listen to speakers and leave immediately after sessions, rarely engaging with the content or asking questions. Most would simply request for the presentation slides afterwards.

While strong attendance at these sessions demonstrated the public's curiosity and appetite for learning, we wanted to deepen their engagement. Learning communities was one of the solutions - creating safe spaces where knowledge levels are more balanced, and where no single person dominates the discussions.

Unlike the usual formats above, these communities expect active participation from everyone, as members themselves generate the learning content of the session rather than relying on an expert. The exchange of rich tacit knowledge happens frequently during learning community sessions where members interact with one another. This is something that is difficult to achieve in rote learning.

Learning communities were introduced alongside other innovative learning initiatives. These included the Great Makeover Project, a hackathon-style programme where participants co-create solutions to transform spaces for sustainable living. NLB also established LAUNCH, a Business Resource Centre offering specialist consultations and mentorship opportunities. All these efforts worked towards building a more robust and diverse Learning Marketplace.

Addressing Social Isolation

Next, in building more learning communities, we address the growing need for social connections. Adult loneliness has become a global concern, and making friends becomes increasingly challenging as we age. This is especially true for seniors, whose social circles naturally shrink over time, putting them at high risk of social isolation. Learning communities create settings where people can naturally connect through shared interests, allowing friendships to develop through regular interactions. In the long term, these communities strive to foster a lasting sense of belonging and identity among participants.

Singapore does offer numerous pathways for community engagement. Government-supported initiatives include the People's Association's interest groups at community centres and NParks's Community in Bloom programme, which supports neighbourhood gardens island-wide. NLB's learning communities distinguish themselves through their educational focus, leveraging our expertise in curating and providing library resources. Beyond government initiatives, many ground-up community groups and initiatives have also emerged organically.

This diverse ecosystem gives Singaporeans multiple ways to connect and build meaningful relationships. Established learning communities go above and beyond sharing knowledge within their own members, to extend it to the community at large through talks, workshops, community projects and co-solutioning, often working closely with other learning communities and agencies that can support them in their cause.

Fostering Library Ownership

Lastly, facilitating and tending to learning communities can help Singaporeans to develop a deeper sense of ownership of our libraries. Unlike the talks and workshops arranged by our Programmes and Services department, learning communities are powered by volunteer facilitators from the public. When people invest their time and commitment into creating and running such communities, we believe they forge stronger emotional connections to both the group and the library space.

Through this co-creation process, participants discover they can be active contributors rather than passive consumers of our library services. The goal is for them to harness library resources to bring their ideas to life, fostering a culture of lifelong learning and encouraging them to give back to society.

SEEDING AND SUSTAINING LEARNING COMMUNITIES

When we embarked on the LearnX Communities project, the team did not start from scratch. Librarians from the Mother Tongue Languages department and individual public library branches were already managing various book clubs and children's reading clubs across our libraries. The Literary Arts department, which oversaw English language book clubs, had also developed its own guide for starting book clubs. However, the decentralised approach meant that each club operated differently, with limited support available for both facilitators and librarians.

The LearnX Communities project team was established to consolidate book clubs across NLB and strengthen the ecosystem of communities across our libraries. Several strategies were adopted to develop a strong network of learning communities, with each strategy complementing and building on each other. Broadly, we used three pillars to guide our planning: attracting, engaging and sustaining communities.

Attracting Learning Communities by Identifying Unique Selling Points

To attract potential learning communities, we drew on experiences from existing book clubs that met in the libraries to understand the value that partnering NLB offered these groups.

The first and clearest value offering we identified was the free use of spaces in NLB’s network of more than 20 libraries. Hosting book clubs at the libraries ensured a conducive and

accessible space for their sessions at no cost. With island-wide locations to choose from, leaders and members of book clubs could meet at venues close to their homes and workplaces. This remains a strong reason NLB continues to attract communities, and a key selling point that the team highlights in its marketing and pitches to potential groups and community leaders.

The second value offering lay in the quality and breadth of NLB's collections. With its extensive collections across Singapore's four official languages, NLB's libraries are well-suited to support the activities of a wide variety of book clubs, from the language-based to the genre-focused. Since NLB's Programmes and Services department had already been successfully curating programmes and events for subjects beyond reading, it was not a stretch for us to see that our libraries had the potential to attract other interest groups that wanted to utilise our collections to enhance their members' learning.

A third value offering emerged from observations of book clubs in NLB at the time, which was the guidance and support of librarians in organising book club sessions. As was standard practice in NLB, every book club had an assigned librarian taking on the role of account manager. Their role was not limited to managing administrative tasks such as venue bookings and registrations, but also recommending titles for discussion, procuring additional copies of the book of the month, and in some cases tapping into their professional networks to invite authors to discuss their work. In the case of the Singapore Literature Book Club, sessions featuring authors drew larger crowds, and served as opportunities for local authors to expand their readership.

On occasion, librarians also stepped in to manage friction between members, using their expertise in customer service to de-escalate conflict. Book club members often expressed their appreciation for librarians' contributions, serving as further evidence that our staff played an integral role in the development of learning communities.

To attract new learning communities, we harnessed these three value offerings as the LearnX Communities project's Unique Selling Points (USP) – a marketing term referring to features of a product that make it stand out among competitors. While the LearnX Communities project is not a business in the traditional sense, we saw it as a product to be marketed to potential communities.

A dedicated marketing sub-team was formed to execute awareness campaigns introducing LearnX Communities to the public. Digital and physical posters, videos, and social media posts highlighted the USPs strongly, with clear and direct calls to action that led interested parties to online application pages where they could submit their communities for NLB's consideration. This streamlined application process allowed NLB to quickly evaluate potential learning communities before passing them on to relevant internal service teams for their follow-up.



Figure 1: LearnX Communities Infographic featuring USPs

Within NLB, staff were also encouraged to identify interest groups or community-led programmes that fit into the definition of LearnX Communities, as outlined below:

Learning communities are "ground up" initiatives that bring people with common interests together to interact, learn, and bond regularly (at least 2 times a year) through sharing of knowledge by participants, facilitated by a partner, librarians or volunteer. In general, learning communities should be open to the public and free-of-charge.

With this spacious definition, LearnX Communities was able to onboard partners NLB was already working with, such as hobby and craft clubs, professional networks, parenting groups and more. Since these partners already had an ongoing working relationship with NLB, it was simply a matter of communicating that they were part of the LearnX Communities project and what it entailed. See Figure 1 for the LearnX Communities infographics.

While most learning communities are championed by volunteers from the public, there were also a handful of communities led by passionate NLB staff and librarians, who used the LearnX Communities project as an opportunity to pursue their interests at the libraries. Examples of staff-led communities include a sewing club, a hobby group for enthusiasts of Gundam action figures, a cozy get-together for scrapbook-style journalling, a Tableau user group, and a scam awareness group co-created with CheckMate.sg, a volunteer-based factchecking platform.

These staff provide important insights from the point of view of our learning communities. Their dual perspective as both NLB staff and community facilitator is a major asset to the project, as it allows us to better understand issues on the ground and implement strategies that are empathetic to our communities.

The multi-pronged approach of attracting communities outside the library, co-opting eligible partners already affiliated to NLB, and enabling staff to seed their own communities proved effective, and over the years, we established a steady stream of diverse groups under the LearnX Communities branding.

Engaging Learning Communities as Active Stakeholders

Crucial to the LearnX Communities project is our ongoing engagement of the communities. In addition to being a catalyst and enabler for ground-up learning communities, we strive to play an active role in community development, since many of the groups we onboarded were in a fledgling state when they came to NLB. Besides the close support of each community's overseeing librarian as mentioned in the previous section, we found that giving the communities a stake in NLB's physical and digital spaces has been a mutually beneficial endeavour for learning communities and our libraries.

Across NLB's network of public libraries, there are small to medium exhibition and display spaces located at different areas of each branch. Library officers and librarians are responsible for putting up book displays at these smaller areas throughout the year, with some choosing to do festival or genre-themed showcases. The LearnX Communities project team saw the potential for our communities to contribute to these spaces as well, so that the members would strengthen their sense of belonging to the branches they met at. The library staff also assisted learning communities by curating related books to accompany their displays, further fortifying the connection between the community and library collections.

One example is the Crochet Club at Bishan Public Library. On invitation from the branch staff, the club put up two displays in 2024 – one featuring various craft projects by its members, and another for Christmas, showcasing a crochet Christmas tree and decorations (see Figure 2). Both displays were placed at prominent and high-traffic areas of the library. The showcases were so successful that the club quickly reached its capacity, and the overseeing librarian had to put up a waiting list for interested members.



Figure 2: Christmas display by Crochet Club at Bishan Public Library

Concurrently, NLB engages LearnX Communities by programming relevant groups into high-key events, referred to internally as Blockbusters. Blockbusters are festivals, roadshows and signature events that attract thousands of participants. They are typically aimed at one or more of NLB's target age groups, and feature a line-up of events, talks and workshops that appeal to that demographic. For the THRIVE@Libraries roadshow at Paya Lebar Quarter in 2024, which was aimed at adults aged 18 to 50, the organising team wanted to position NLB as a place for working adults to equip themselves professionally while indulging in opportunities to learn outside of work. Three communities were invited to conduct taster sessions at the roadshow, enabling them to connect with audiences outside their usual membership. The annual Time of Your Life Celebration for senior citizens also regularly

features performances by NLB's senior LearnX Communities, such as a dancing group and ukulele hobby groups.

The engagement of LearnX Communities extends beyond involving them in physical programming. As most adults now receive information digitally, we thought it essential to make details about our LearnX Communities readily available online. In 2023, we launched a digital platform called the Library of Communities – a directory within NLB's corporate website that allows users to search and filter LearnX Communities according to subject, location, age group and language. The Library of Communities serves as a one-stop place for members of the public to find out more about individual communities and get information on upcoming sessions. The project team designed digital bulletin boards (Figure 3) for each community's page, making them more dynamic and representative of the groups.

As a result of these engagements and showcase opportunities, members of communities reported feeling more motivated to improve their craft. As Sunny Ang, co-founder of the Toy Photography LearnX Community shared, one of his reasons for starting his community was to create awareness of this niche area of photography. He treasures every chance he gets to share his passion with a larger audience, and every showcase is an opportunity for him to "outdo the last (photo)" and "elevate it to art … something that someone is proud to hang in their house".

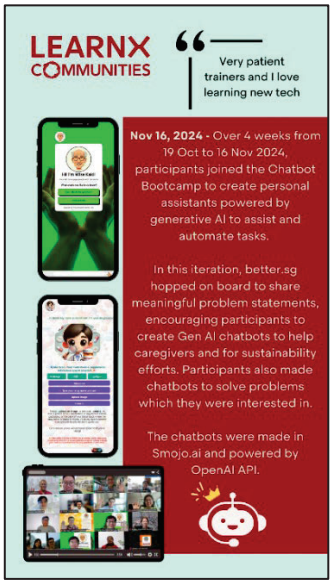


Figure 3: LearnX Communities Digital Bulletin Board

By integrating LearnX Communities into the wider NLB ecosystem of libraries, programmes and digital systems, we sent out the strong message that NLB was committed to supporting and grooming communities under our care. We wanted communities to feel like they had a stake in NLB's mission of transforming the library into a Learning Marketplace. More importantly, we wanted them to recognise that they were contributing to something larger than themselves.

Fostering Sustainable Learning Communities

The final pillar of our project is sustainability, referring both to the longevity of our communities and the viability of the LearnX Communities initiative in the future. The total number of active learning communities supported by NLB has doubled since the initiation of the project, and we are aware there are limits to the number of communities we can support, given our current manpower and resources.

When considering how to extend the lifespan of communities, the team noticed some communities closed when facilitators burnt out or had to stop running their groups due to life changes such as travel, health and family commitments. We then sought to find commonalities among groups that had been running for at least a year, so that their best practices could be shared with other communities. Our team found that successful groups usually had a core group of three to five active and motivated facilitators, with clear delegation of roles among members.

An example of such a group is Life Communication Skills Toastmasters that meets at the Toa Payoh and Bishan Public Libraries. The local Toastmasters chapter has maintained steady core membership over the last few years, with new members gradually stepping into leadership roles. This ensures that the learning community is not dependent on a sole facilitator and the leaders of the group pass down their knowledge to other members. Now, when the LearnX Communities project team assesses applications from interested communities, we look out for those with at least two facilitators or encourage solo facilitators to form a core group so they can share responsibilities and step in for each other when needed.

The LearnX Communities project team also supports community longevity by offering annual reimbursements of up to S$350 for community-related purchases. This initiative emerged as our growing number of communities increasingly requested support for their expenses. Recognising these as legitimate needs and wanting to position NLB as a preferred community partner, we established a reimbursement process. To claim reimbursements, each

community's overseeing librarian must first submit a purchase proposal to our team. Eligible items must serve the learning needs of group leaders or members and cannot duplicate resources already available in libraries, such as stationery. We maintain flexible criteria for eligible expenses, acknowledging the diverse nature of our communities. Successful claims have included metronomes, tabletop role-playing game figures, and festival passes to local literary festivals.

Over the course of reaching out to and interacting with various communities, we discovered many valuable potential partners whose operating models differed from our LearnX Communities requirements. These included groups that preferred meeting at external venues, those that held sessions more frequently than our libraries could accommodate, or communities that wished to maintain their independence rather than adopt our LearnX Communities guidelines.

In order to extend our partnership to them, our team created a new framework for established communities that meet at non-library spaces. Referred to as External LearnX Communities, these groups do not require as much guidance from our librarians and are allowed to meet at library spaces up to twice a year. They were also invited to our networking sessions, which further expanded the world for our current learning communities, as they were able to learn from the external groups.

At the same time, our hypothesis was that this framework would allow us to address limitations in manpower and venue availability within NLB while scaling the number of LearnX Communities in a more viable way. Table 1 shows the difference between internal and external LearnX Communities.

Table 1: Differences between internal and external LearnX communities

Internal LearnX Communities	External LearnX Communities
Launched in NLB, with our support and guidance.	Founded independently.
Required to follow NLB’s programme and content guidelines.	More autonomy in curating their content.
Mostly conducted at NLB venues.	Able to book NLB venues twice a year.

Initially, the team actively contacted other government and non-profit agencies to onboard their community groups and initiatives under the LearnX Communities umbrella. However, this endeavour was met with several challenges, mainly the alignment of agendas across agencies. Like NLB, they also had their own operating models, which made it difficult for NLB to incorporate their groups into LearnX Communities.

Our previously identified USPs for attracting communities were also less effective with these communities since they were already well-resourced by their parent organisations. Furthermore, the larger the parent organisation, the more approval was required to incorporate the communities. While we successfully onboarded some External Communities via this channel, there were more obstacles than initially anticipated.

Instead, we experienced greater traction with independent communities, since they also benefited tangibly from NLB's partnership. Examples of External LearnX Communities that were successfully onboarded include We Are HEAR, a ground-up community that equips participants with skills for empathetic communication, and PEREKA, a collective of Malay and Muslim designers in Singapore. These groups had been established before they approached NLB for support. Under the External LearnX Communities framework, they have the flexibility of working with other venues and partners while staying affiliated to NLB. They are also listed on our Library of Communities directory.

The LearnX Communities team is still refining our strategy to attract more External LearnX Communities. Despite the initial challenges, we see the potential of this direction, as it allows the LearnX Communities project to support an expanded range of groups in Singapore. However, we are tackling these processes incrementally to prevent putting excessive strain on our staff and systems.

IMPACT AND OUTCOMES

The LearnX Communities project has demonstrated strong growth across both internal and external partnerships. Our internal communities grew by 83% from 63 groups in 2020 to 115 in 2024. The external communities, launched in late 2022, has attracted 19 partners to date. This expansion has significantly increased our reach, with participant numbers rising from 16,277 in 2021 to 24,319 in 2024 - a 49.4% increase that reflects the growing appetite for community-led learning in Singapore's libraries (Figure 4).

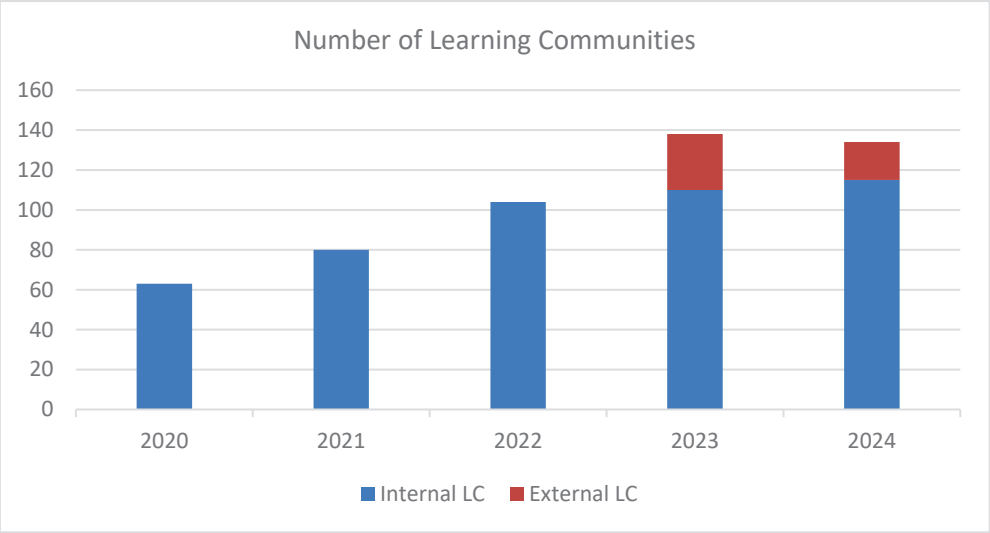


Figure 4: Growth in number of learning communities (2021 to 2024)

The growth numbers, while significant, only tell part of the story. Learning communities naturally evolve over time - some conclude as members' life circumstances change, while others wind down as interests shift. Yet for every community that ends its journey with us, new facilitators step forward, ready to start fresh initiatives or join existing ones. This ongoing cycle means that the actual number of communities we've supported over the years extends beyond the figures shown above, which reflect the number of learning communities currently active with NLB.

Community Impact

The impact of learning communities extends far beyond knowledge sharing, creating meaningful social connections and support networks. A participant from the Seniors-Meet-Seniors (SMS) Knowledge Café captures this sentiment: "*It's like a family where we can interact with each other... we have shared a lot of ideas from all aspects and we agree to disagree and it's very enriching.*"

These communities also foster lasting relationships through shared experiences. The Learning Day's facilitator Louis Puah notes that their participants "*form friendships over the shared desire to learn, with the group celebrating birthdays and sharing meals together beyond their regular sessions*." Both experiences reveal a key insight: social connection, rather than learning, often drives community engagement. When people come together to connect,

learning happens organically through their interactions, fulfilling both our educational goals and community-building mission.

Perhaps most significantly, our regular networking sessions have transformed what could be a solitary leadership role into a collaborative movement. For many facilitators who run their communities single-handedly or in small groups, these sessions provide crucial peer support and inspiration. They discover shared challenges and solutions, leading to innovative cross-community collaborations. For example, the Video Creators Club's facilitator Philip Au shared his expertise with the Storytelling Association (Singapore) to enhance their online storytelling sessions. Through such connections, facilitators have expanded their world of possibilities, creating their own community of practice and strengthening the entire learning communities ecosystem.

CONCLUSION

In this paper, we have outlined the motivations behind the LearnX Communities project and the measures taken to develop a vibrant and diverse networking of learning communities within NLB's libraries. While we are in the nascent stages of expanding our offerings to external learning communities, there is much to be excited for, and we look forward to furthering our community building efforts in the years to come.

While we have provided best practices that have worked well in the Singapore context, we recommend library workers conduct their own interviews, observations and research with the public and frontline staff to gain a holistic understanding of the communities they wish to work with. In deepening our knowledge of local communities, we can design more impactful solutions and show up more effectively as institutions in the community building space. We also urge library workers to consider which strategies are sustainable for their institutions, given the available resources. The LearnX Communities project team deeply believes that community building happens on many levels, and scale is not the only means of determining success.

At the heart of community building is interpersonal relationships – not just between library and public, but between individuals. While structures and procedures are useful, the LearnX Communities project's success should be credited to the dedication of library staff and the willing facilitators who show up month after month, year after year. After all, behind all our

LearnX Communities lies a simple, yet powerful truth: every community begins with a person who cares enough to share something, and a librarian who believes in that sharing.

ACKNOWLEDGEMENTS

We would like to thank Catherine Lau, Raneetha Rajaratnam, Lai Poi Shan and Zulkifli Amin for their expertise, wisdom and support since the conception of the LearnX Communities project. To past and present members of the LearnX Communities project team, we are grateful also for your trust, creativity and tireless work. Finally, to the NLB staff and community facilitators who make LearnX Communities a reality: we would not have made it here without you – thank you for coming along for the ride.

Leveraging Knowledge Management, Innovative Technology, and Public-Private Partnerships for Sustainable Community Development

Sarifah Abdullah[1], Rashidah Othman[2], Geeta Albert[3]

[1]KM Practioner and Retired Chief Librarian of IIUM

[2]Senior Manager, Business Information Centre, MATRADE

[3]KM Consultant

Corresponding email: sarifahabd20@gmail.com

ABSTRACT

This paper examines how libraries, through the implementation of knowledge management (KM), become key partners in public-private collaborations, fostering sustainable community development. It discusses challenges in the KM setup phase, identifies success factors, and suggests action plans for sustaining KM initiatives. Using case study research, the paper showcases how librarians utilise collaborative technologies to enhance library services, boost knowledge dissemination, and contribute to sustainable communities via public-private partnerships. It explores the tools and strategies that improve knowledge sharing, learning, and operational efficiency. Findings reveal that librarians play a crucial role in leading KM initiatives, nurturing individual expertise, and enhancing collective knowledge. Through partnerships with private entities and community stakeholders, libraries significantly impact community development and sustainability. The article recommends equipping librarians with the skills to lead as Knowledge Managers. By optimising operations, fostering collaboration, and engaging in public-private partnerships, librarians can drive transformational change in organisations and communities. These initiatives position libraries as vital catalysts for sustainable development and essential contributors to public-private collaborations.

Keywords: Knowledge Management; KM Best Practices; Communities of Practice

INTRODUCTION

Knowledge is inherently dynamic—constantly evolving, expanding and being reshaped by new experiences and discoveries. In today's complex organisational environment, the ability to renew and make that knowledge readily accessible has become central to competitiveness and long-term sustainability (Mia & Chowdhury, 2021).

The rapid shift to remote and hybrid working arrangements has further intensified the demand for robust Knowledge Management (KM) systems that deliver virtual access to expertise and facilitate seamless collaboration across time zones and geographical boundaries (Twum, 2021).

Within this context, the concept of collective intelligence assumes pivotal importance. Defined as the capacity of a group to solve problems more effectively than individuals working in isolation (Malone et al., 2008; Leimeister, 2010), collective intelligence emerges when diverse perspectives and skills are pooled through collaborative KM practices. The vital public-private partnerships (PPP) between MATRADERs and the Malaysian exporters is key in capturing valuable lessons-learned, transforming individual insights into collective intelligences, key in driving organisational capabilities.

Malaysia's national agenda has long recognised the strategic value of knowledge. From Vision 2020's call to evolve from a production-based to a knowledge-based economy, to subsequent policies promoting digital innovation, public and private institutions have invested increasingly in KM initiatives. As Malaysia's lead trade-promotion agency, MATRADE faces acute pressures: complex global projects, rapid market shifts and the imperative to deliver exceptional service. In this setting, tacit knowledge, those experiential insights residing in the PPP, can prove especially critical for ensuring operational excellence and continuous learning (Milton & Lambe, 2020)

.Yet many KM programmes falter, often because organisations struggle to identify their most critical knowledge, fail to capture it systematically, or under-utilise collaborative technologies (Stewart, 2002; Alharbi, 2023). The result is wasted effort, repeated mistakes and missed opportunities for innovation. By harnessing collective intelligence through structured KM platforms, organisations can ensure that both documented and tacit knowledge assets are shared, contextualised and applied across teams and functions.

This case study examines MATRADE's KM implementation through the lens of collective intelligence. It explores how the MATRADE Business Information Centre (BIC) and its professional staff have fostered knowledge sharing communities , enhanced digital knowledge portals and redefined librarian roles as knowledge facilitators. Drawing on a KM Capability Assessment model, the study identifies key challenges encountered during the

implementation phases, highlights critical success factors and proposes action plans to sustain KM initiatives in alignment with Malaysia's broader development goals and community-building agenda.

LITERATURE REVIEW

Sustainable community development requires integrating resources, expertise, and innovative approaches. Three critical levers for achieving sustainable outcomes are knowledge management (KM), innovative technology (IT), and public-private partnerships (PPP) via the communities of practice technique. This literature review explores how these elements interact and contribute to sustainable development, with a focus on community-level impact.

Knowledge Management

The strategic importance of knowledge is widely acknowledged, especially since it is a key asset for employee development, innovation, creativity, and organisational competitiveness (Bolisani, & Scarso, 2016; Gao et al., 2018). The access to knowledge allows the organisation to generate value from their intellectual and knowledge-based assets and makes it possible to get the right information into the hands of the appropriate people at the time they need it to make decisions (Sharafat, 2017).

Having discovered that the real value in managing knowledge is in sharing ideas and insights that are not documented and hard to articulate, which is referred to as tacit knowledge, the challenge is sharing and compiling this knowledge in a usable way (Wenger & Snyder, 2002). Some researchers have identified knowledge sharing as a way for organisations to expand intellectually (Dodla, & Jones, 2023). Because knowledge sharing is an essential organisational activity, research on knowledge-sharing types has increased in the 21st century (Ahmad & Karim, 2019).

The concept of "collective intelligence" is defined as the ability of a community to carry out a task or solve a problem more effectively and efficiently than individuals working alone, through collaboration and knowledge sharing (Leimeister, 2010; Malone et al., 2008). In the context of KM, collective intelligence represents the convergence of tacit and explicit knowledge, often captured, curated, and amplified through face-to-face as well as digital platforms, capturing both explicit and tacit knowledge.

Hence, the area of focus that the authors considered is – how can organisations adopt the knowledge management system (KMS) to capture and share knowledge and implement this system effectively to deliver value to the organisation.

KM Definition

Knowledge Management refers to the process of capturing, distributing, and effectively using knowledge within organisation. KM as an enabler of informed decision-making: Scholars like Nonaka & Takeuchi (1995) and Davenport & Prusak (1998) emphasize the strategic value of

KM in complex problem-solving, which aligns closely with the integrated and interdependent nature of the sustainable community development. It encompasses the creation, sharing, utilization and management of knowledge and information within organisation. This includes the strategies and methods employed to identify, acquire, organize, evaluate, and leverage the intellectual asset of the organisation in enhance productivity and competitiveness.

Planning for KM Techniques or Approaches

Steward, (2002) mentions,"... so knowledge management must begin by selecting the knowledge to be managed. It is not good assembling a library full of everything, as not one person could conceivably want to know about everything." In other words, to embark into KM, an organisation must clearly plan and decide what knowledge assets they have and what should be captured to ensure preservation of valuable knowledge that belongs to the organisation.

In relation to that, because tacit knowledge has become a central part of KM implementation (Mooradian, 2005), he is of opinion that distinguishing between tacit and explicit knowledge will provide better guidance to knowledge managers. According to him capturing tacit knowledge is so challenging because it applies to the thinking process of individual, just like an 'oil reserve' hidden deep within the ground that needs to be detected and then pumped out.

Therefore, to capture it is to convert it. Organisations need to explore tools and techniques to ensure knowledge is retained in the organisation. There are different approaches to KM and organisational learning (De Laat & Broer 2004). According to Yon and Albert (2013), CoP can be a good investment for developing a knowledge sharing culture in organisations, discovering best practices as well as creating a collaborative learning environment.

Similarly, the purpose of large private companies adopting CoPs are usually to promote a knowledge sharing culture across divisions and to boost innovativeness among staff members (Bolisani et al., 2016). However, different types of organisations may want to take different approaches or techniques in implementing KM and CoP.

De Laat and Broer (2004) summarized the different approaches based on Mintzberg's (1989) classification of organisations. Mintzberg (1989) divided them into three, machine, professional and entrepreneurial organisations. i) For machine organisations, since they normally have a strong hierarchy and works are standardized and repetitive, KM should focus on explicit knowledge such as manual and procedures. Learning in this type is more to acquire organisational knowledge required to do the job. ii) Then the professional organisations, even though are as bureaucratic as in machine organisations, there is power decentralization. So, their different divisions work autonomously. KM therefore is to focus on both explicit and tacit knowledge, establishing an interactive knowledgebase for staff members to be able to share

and exchange individual knowledge. iii) Lastly the entrepreneurial organisations, have simple and flexible structures, controlled through direct supervision of the director. This type is more responsive to external demands which always results them to be innovative. So KM should focus on tacit knowledge, with intense networking inside and outside the organisations**.**

Challenges Faced In Implementing KM In Organisation

Pandey (2024) listed 10 challenges that may arise when implementing KM.

- Resistance to change: Organisations frequently stick to traditional methods and systems, causing staff members to be reluctant to adopt new technologies or methodology.
- Lack of resources: Budget constraints. Implementing KM involves investing in technology, staff training and infrastructure,
- Technological infrastructure : Lack of technological framework to support KM efforts.
- Quality data and accessibility: Organisation frequently contain extensive data collections, yet maintaining high standard of quality, relevance and accessibility can present significant challenges.
- Staff skills and training: Personnel might not have the essential expertise and training required to efficiently execute KM techniques.
- Cultural shift: KM necessitates a cultural transformation that emphasizes collaboration, sharing and continuous learning.
- User engagement: Engaging users in knowledge management initiatives, such as contributing content, providing feedback or using new tools, can be challenging. Without user participation, KM efforts may not be sustainable.
- Privacy and security concerns: compliance with the strict privacy and security standards that govern the management of user data and sensitive information.
- Measuring success: Evaluating the effectiveness of KM …
- Sustainability: Sustaining KM initiatives over the long term can be challenging without dedicated support and resources.

The Key Role of a Knowledge Management System (KMS) in an Organisation

Jain (2025) defined knowledge management system (KMS) as a cloud-based platform that stores and organizes information to improve efficiency, understanding, and alignment. Companies use knowledge management systems to consolidate information in one central source. They cater to multiple types of knowledge and information and how they are stored,

including documents, videos, presentations, frequently asked questions (FAQs), audio files, and more.

Knowledge management systems can be categorized into the following types: internal knowledge base, external knowledge base, document management system, content management system, collaboration platform, learning management system, expert system, and intranets or enterprise social network (Jain, 2025).

Some examples of using a KMS are establishing internal search engines, creating online community forums, implementing enterprise LMS, leveraging customer service knowledge bases, building research and insight libraries, and operating company-wide KMS. are diverse tools and platforms that capture, organize, and distribute knowledge within an organisation or to its customers. These systems range from internal repositories to collaborative platforms that facilitate the sharing of tacit knowledge through communication and teamwork. KMS play a strategic role on the following way:

- Onboarding employees – organisation can significantly speed up onboarding by providing new hires with immediate access to all necessary resources about the company, its product, and its policy
- Enhancing internal communications - Knowledge management systems can centralize companies' communications, ensuring that important updates are not lost in transit.
- Streamlining customer service - Customer service teams can use a knowledge management system to put answers to customers' questions at their agent's fingertips.
- Facilitating on-demand training - Knowledge management systems offer versatile platforms that enable employees to access training materials at their convenience, providing a seamless integration of learning into the daily workflow.

Knowledge Management Capability Level Assessment (KM-CAST)

As knowledge is considered as one of the key resources of production, a source of sustainable competitive advantage, value and wealth creation for organisations, scholars believe that it should be efficiently managed. (Demchig, 2015). Enkhbaigali (2004) defines knowledge management as "deliberate activities taken to handle organisation's resources more efficiently in order to improve its performance." Knowledge management helps companies to stimulate innovation, improve customer services, and achieve business excellence through the accumulation, improvement of availability and accessibility, and effective use of knowledge.

In order to improve knowledge management, the first of all, organisations must understand what constitutes knowledge what they should manage. Then they should evaluate the current situation of knowledge management and should be considered it a starting point. As Kulkarni

& St. Louis (2003) highlighted "Assessment is the first step towards improvement: one can't improve what one can't measure – formally or informally".

To be more effectively manage knowledge creation and application, organisations need to determine categories of knowledge assets (Nonaka et al, 2000). Because the success or failure of the organisation depends very much on knowing which of these types of knowledge organisation need, which organisation is accumulating now, and what organisations can or cannot do with them.

Kulkarni and St. Louis (2003) have categorised organisational knowledge as below:

i. Expertise – Knowledge that is available in people heads. This knowledge may be gained through experience.

ii. Lessons Learned – They are "successes and failures from similar past projects.

iii. Knowledge Documents – They are "explicit knowledge codified for future use.

iv. Data – Facts and figures obtained from operations, experiments or surveys, stored in database and data warehouses.

Kulkarni and St. Louis (2003) named the knowledge categories as knowledge capabilities area (KCA). These KCAs are representative of the knowledge found in most organisations. According to Kulkarni and Freeze (2004), every organisation possesses different levels of capability or maturity in accumulation and use of the four KMAs. This differentiation leads to different organisational performance and quality.

Kulkarni and Freeze (2004) developed a knowledge management capability/maturity assessment (KMCA) model which is empirically tested for validity. The model based on Capability Maturity Model (CMM) of software development industry. Their maturity assessment instrument consists of 102 questions grouped by knowledge sharing culture, expertise, lessons learned, knowledge documents and data. It measures an organisation's five level KM capabilities of: 1. Possible, 2. Encourage, 3. Enabled/Practiced, 4. Managed, 5. Continuously Improved.

In the influential book *Learning to Fly*, Collison and Parcel (2001) describe five key organisational competencies, namely strategy development, management techniques, collaboration mechanisms, knowledge sharing and learning processes and knowledge capture and storage. As technology plays a key enabler in managing knowledge (Jain, 2025), the researchers had added the 'technology' element to this competency framework and had been adopted by different teams to work out how well they are performing against organisationally established criteria for knowledge and learning, and to identify goals and priorities for

improvement. The updated competency framework works on the principle that effective knowledge and learning is based on improving performance in six important competency areas:

- Strategy development
- Management techniques
- Collaboration mechanisms
- Knowledge sharing and learning processes
- Knowledge capture and storage and
- Knowledge management system

Adopting the above elements, the researchers had renamed their framework as a KM Capability Assessment Tool (KM-CAST). KM-CAST was used to discover how well teams or groups believe they are performing against the pre-established criteria, and where they most wish to improve.

MATRADE's Public-Private Partnerships (PPP) Through Communities of Practice (Cop)

MATRADE has actively leveraged Public-Private Partnerships (PPP) to enhance its trade promotion efforts by adopting the Communities of Practice (CoP) model as a strategic knowledge-sharing mechanism. It has been observed that employees in a CoP collectively learn to achieve their knowledge seeking objectives (Frank et al. 2017). More recent interest has tended to introduce the CoP as structures – tools to be deliberately created by policymakers and organisations for the instrumental purpose of targeted knowledge dissemination (de Carvalho-Filho et al., 2020; Zamboni et al., 2020). It's the collective intelligence that is able to bring together exporters, industry experts, government agencies, and trade facilitators to engage in structured dialogue, exchange experiences, and co-create solutions for market access and export challenges. By fostering a collaborative environment, MATRADE enables continuous knowledge flow between the public sector and private industry players, enhancing the relevance and responsiveness of trade initiatives.

Through its virtual CoP platform, MATRADE facilitates ongoing discussions around export strategies, regulatory updates, and sectoral trends. Participants are encouraged to share case studies, success stories, and lessons learned, which are then captured in the Knowledge Management Portal (KMP) for wider dissemination. This approach supports collective problem-solving, promotes innovation, and ensures that valuable insights from the private sector inform MATRADE's policy recommendations and trade promotion programs. By institutionalizing CoPs within its PPP framework, MATRADE has successfully cultivated a learning ecosystem that strengthens Malaysia's export capabilities. These partnerships not

only build trust between stakeholders but also ensure that both strategic decisions and ground-level operations are shaped by shared expertise and real-world experience.

RESEARCH METHOD

This case study examines the design and rollout of a robust Knowledge Management (KM) infrastructure at Malaysia External Trade Development Corporation (MATRADE), Malaysia's **National Trade Promotion Organisation** under Ministry of Investment, Trade and Industry (**MITI)**, plays a pivotal role in expanding Malaysia's global trade presence.

Established in March 1993, MATRADE enhances the export ecosystem by providing real-time trade insights, strategic guidance, and global connections, ensuring businesses remain competitive. Its core functions—exporter development, export promotion, trade information dissemination, and advisory support—are deeply rooted in KM principles, facilitating informed decision-making, market adaptability, and enhanced export performance. This proactive approach not only strengthens Malaysian businesses but also reinforces the nation's standing in the global trade arena. MATRADE employs over 450 staff which also include 49 international offices and 6 regional offices. In February 2017, MATRADE designed and implemented a KM strategic framework to preserve institutional know-how, accelerate access to critical knowledge assets and foster collective learning among its exporter community.

A cross-functional KM Implementation Task Force, chaired by the CEO himself, mapped MATRADE's core processes, identified key knowledge assets and spearheaded development of the "MATRADE KM Portal (MKP)." The MKP provides 24/7 web access to explicit assets—market intelligence reports, technical reports, research papers, presentation slides, speeches and policy guide—enabling internal staff to acquire new knowledge on demand. The portal features various modules including MyDocument, MyGateway (WebOPAC), MyForum, MyWiKi, MyBlog, MyExpertise, MyPoll and MyEvent Calendar. To capture tacit insights; draft proposals now recommend embedding this step within compliance and audit workflows to ensure systematic capture of frontline fixes and workarounds (Scarso et al., 2016).

MATRADE's virtual Community of Practice—hosted on a Yammer-style platform—serves as the "people-to-people" complement to MKP's "people-to-content" repository. Employees post questions, tag discussions, sharing experiences and story-telling and link to MKP resources; subject-matter experts then evaluate, rate and promote the highest-value contributions. These combined mechanisms have driven over 10,000 portal visits by April 2025. To reinforce habitual use, MATRADE runs ongoing "stickiness" campaigns, KM News infographics, Knowledge Hunt quizzes and quarterly KM Exchange roundtables, that consistently channel users back into the MKP, yielding monthly traffic spikes of 250 to 300 views. Finally, a formal

remuneration model to reward top contributors is pending executive approval, promising to sustain engagement and elevate MATRADE's KM maturity to full institutionalization.

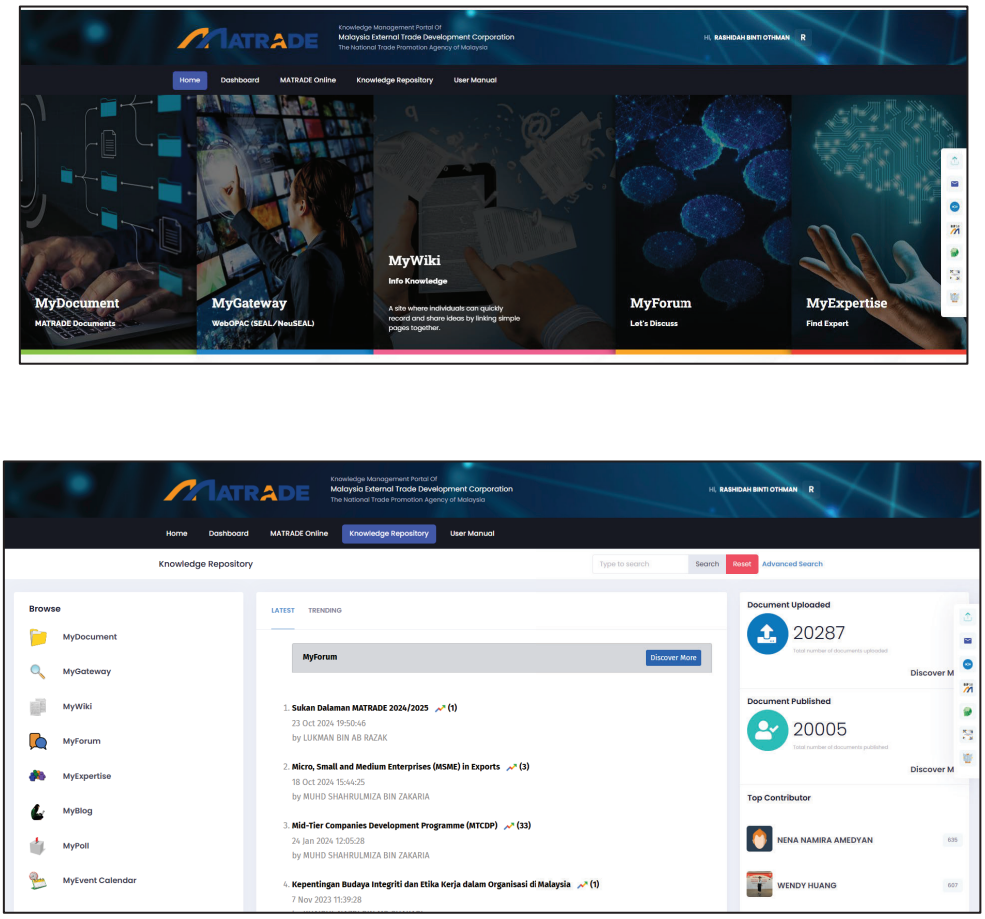


Figure 1: MATRADE's Knowledge Portal Interface provides a seamless and intuitive platform for accessing, sharing, and managing valuable trade-related insights, fostering collaboration and empowering users with actionable intelligence.

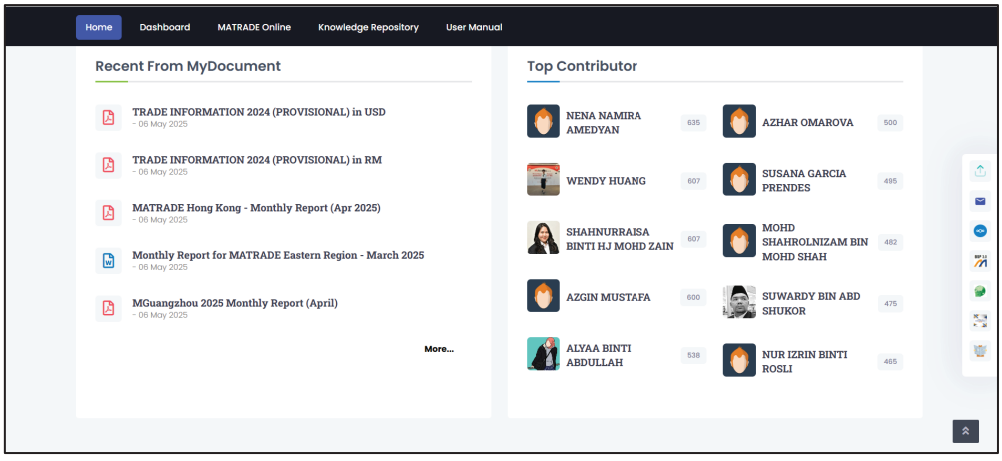


Figure 2: The top contributor to the KM Portal is automatically featured on the main page, highlighting their contributions and recognizing their impact within the knowledge management community.

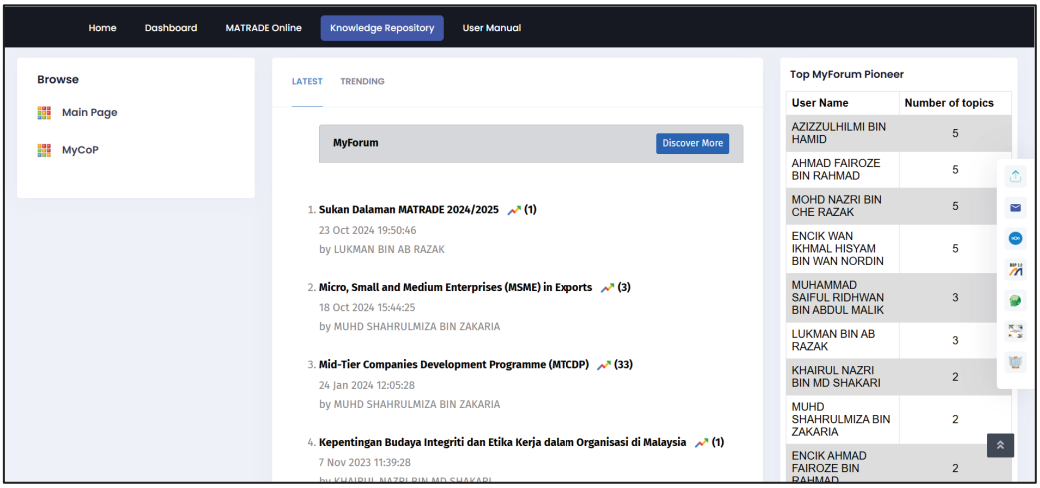


Figure 3: MyForum fosters meaningful and dynamic online discussions across a wide range of topics, providing a collaborative space for insightful exchanges and informed dialogue.

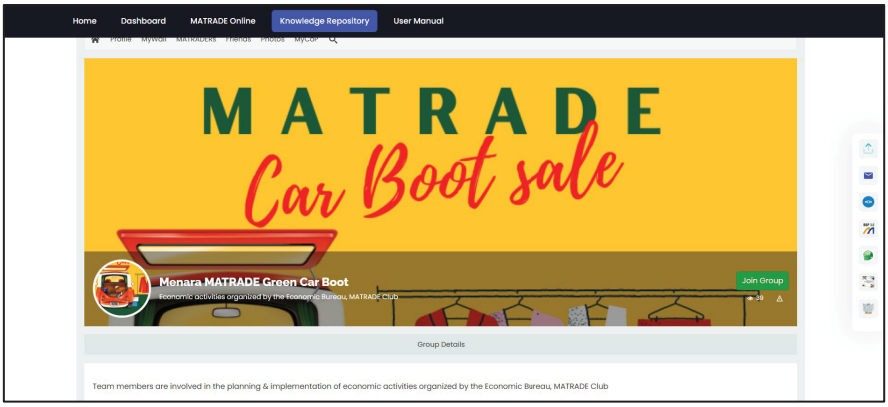


Figure 4: MyCoP cultivates engaging and insightful online discussions among individuals who share common interests, fostering collaboration, knowledge exchange, and impactful dialogue.

Data Collection and Analysis

This study employs a case-study methodology (Yin, 2003) to achieve its descriptive and exploratory aims. A case-study approach is particularly suited to developing an in-depth,

holistic understanding of MATRADE's eight-year journey in Knowledge Management (KM). We combined established maturity-assessment frameworks with direct observation and participative workshop sessions. Our primary units of analysis were the KM portal (KMP), governance structures, and the active community of KM professionals.

To gauge MATRADE's KM maturity, we adopted the KM Capability Assessment Tool (KMCAST), which examines six key dimensions: management techniques, KM strategy, collaboration mechanisms, technology enablers, content management, and knowledge-sharing & learning processes. Beginning in 2023, KMCAST was applied annually to identify strengths, reveal gaps, and guide refinements to existing KM strategies and action plans. Data were gathered through facilitated post-mortem sessions, brainstorming sessions, task force discussions, etc with the KM Task Force, comprised of Business Information Centre officers, KM stewards, and subject-matter experts, and through direct involvement in ongoing KM implementation activities. During these sessions, participants reviewed real-world case studies for each of the six KMCAST dimensions and rated the "As-Is" state of the KMP, the content, governance and related processes. Feedback was captured on their experiences with KM tools, governance practices, and community engagement.



Figure 6: 15 April 2025 Bestari Meeting Room, Level 2, Menara MATRADE

The inaugural 2025 Exporters Training Programmes (ETPs) Task Force Meeting served as a strategic forum for planning and coordination. Task force members, alongside representatives from TDTD and BPEAP, collaborated to define roles, address critical considerations, and refine programme structures to maximize effectiveness and alignment with overarching goals.

FINDINGS

KM Maturity: Management Technique

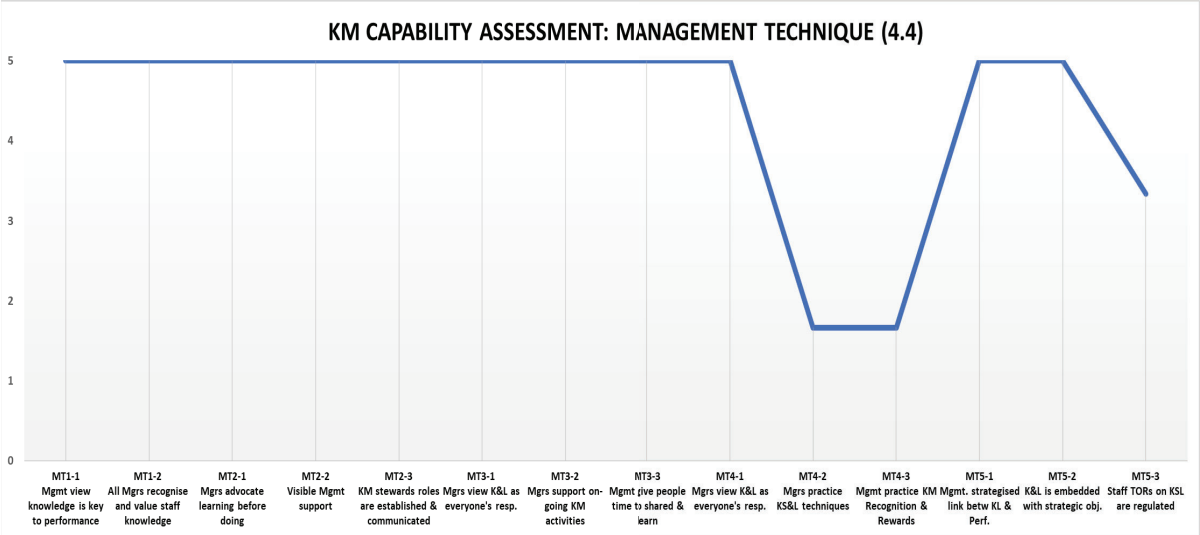


Figure 7: KM Capability Assessment: Management Technique

MATRADE's KM CAST assessment indicated strong leadership support, strategic alignment, and shared responsibility for knowledge management. It was stated that senior leaders understand the importance of accessing knowledge for decision-making.

They actively support KM activities and have assigned steward roles with clear guidelines. Across the organisation, departments view knowledge sharing as a shared responsibility. Hence, managers allocate time and resources for KM workshops and tools. KM is included in strategic goals, and links are being made between knowledge, learning, and performance at the executive level.

It was however, observed that not all managers consistently lead by example in using KM tools. Recognition of KM efforts remains informal. While there are plans to include KM in performance indicators, this is not implemented yet, across all departments. This lack of consistent measurement and accountability, if not addressed, may affect the long-term success of KM.

To improve this, it was suggested that MATRADE offer coaching for managers, create a formal incentivising system, and speed up the rollout of KM-related KPIs. Suggestions include quarterly KM reports, success stories, and refresher sessions for KM stewards. These steps aim to strengthen KM behaviours and ensure long-term benefits by protecting critical knowledge.

MATRADE's Current Strategy Development Initiatives

With a KM Capability Assessment of 3.8, findings show that MATRADE has created strong KM strategies that support learning. Staff understand the value of sharing knowledge, and the organisation provides tools and time to do so. Policies for content management are being developed, and the KM strategy is available and accessible. Important knowledge, from procedures to lessons learned, is collected, organised, and shared, helping break down silos.

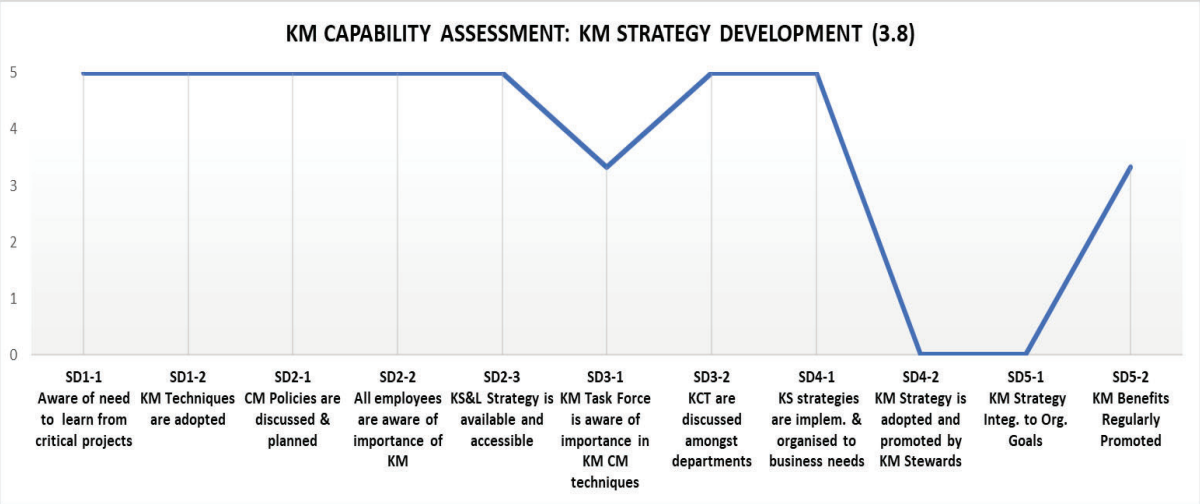


Figure 8: KM Capability Assessment: Strategy Development

Departments take part in change management programs like awareness labs and workshops. Communities of Practice (CoPs) are forming, supported by governance documents and interactive sessions and it was mentioned that KM Stewards help promote KM tools and encourage staff to use shared knowledge.

Two key issues remain. First, KM Stewards have not yet officially adopted the KM strategy, making its promotion informal. Second, KM-related KPIs are not yet part of the wider performance system, making it hard to measure progress.

To fix this, BIC was tasked with recommending to senior leaders that the KM strategy be formally endorsed and KM KPIs added to performance reviews. Annual reviews of these steps are suggested in management meetings, to ensure that KM becomes a fully embedded part of MATRADE's operations.

MATRADE's Current Collaboration Activities

With a KM Capability Assessment of 5.0, findings indicates MATRADE has an excellent and active culture of collaboration, especially when it comes to managing knowledge. Everyone understands how important knowledge is and values easy access to it. This shared awareness

helps build a sense of collective responsibility, where staff are more willing to share and learn from one another.

Collaboration is part of daily work life. People often use face-to-face discussions, WhatsApp groups, emails, and online forums to exchange knowledge and solve problems. These informal methods are supported by formal activities such as training by Subject Matter Experts (SMEs), structured knowledge-sharing sessions, and cross-departmental learning programmes. This mix of approaches allows fast communication while also promoting deeper learning and teamwork.

Knowledge sharing is not limited to internal staff. External stakeholders are included in discussions, and the outcomes are saved in a central repository for wider use. Communities of Practice (CoPs) and working groups also support this process by providing platforms for people with common interests to learn, share, and co-create solutions.

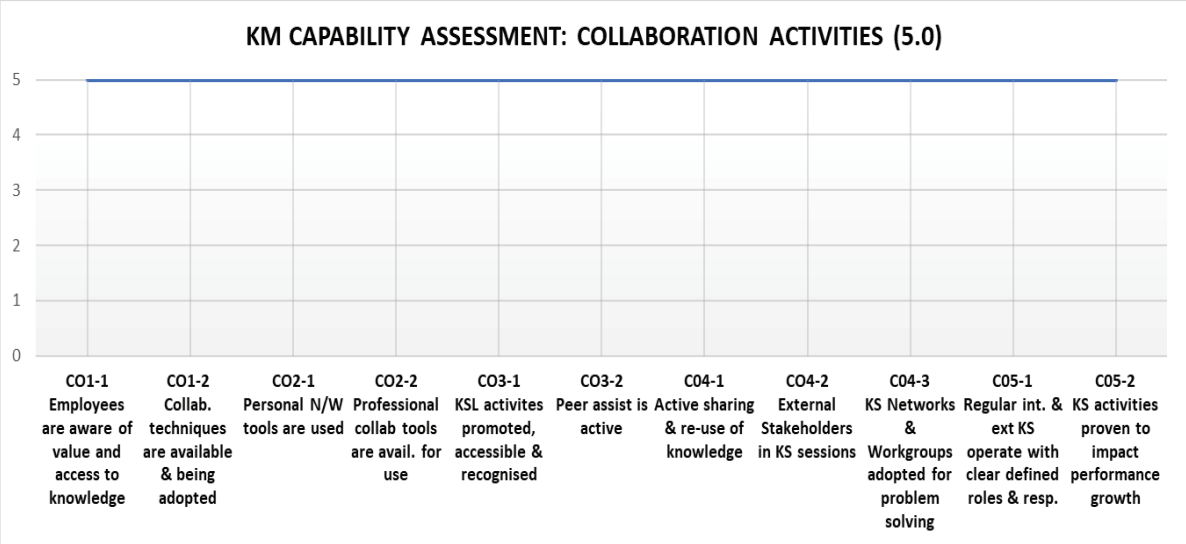


Figure 9: KM Capability Assessment: Collaboration Activities

An example of this is MATRADE, which uses Public-Private Partnerships (PPP) and virtual CoPs to connect exporters, experts, and government bodies. These platforms help share insights, success stories, and export strategies, which are recorded in the Knowledge Management Portal (KMP) for future use.

Surveys and group discussions confirm that these collaborative practices improve performance and encourage innovation. Overall, the organisation shows a well-integrated, people-focused approach to collaboration that supports learning and continuous improvement.

MATRADE's Current Content Management Capabilities

MATRADE has made solid progress in creating a central content management system. All documents have been organised and stored in a single repository, making it easier for staff to find information. This was evident in MATRADE's KM Capabilities Assessment of 4.3. Although some older silos still exist, management has supported efforts to dismantle them. Workshops are being used to identify and extract important knowledge for wider use.

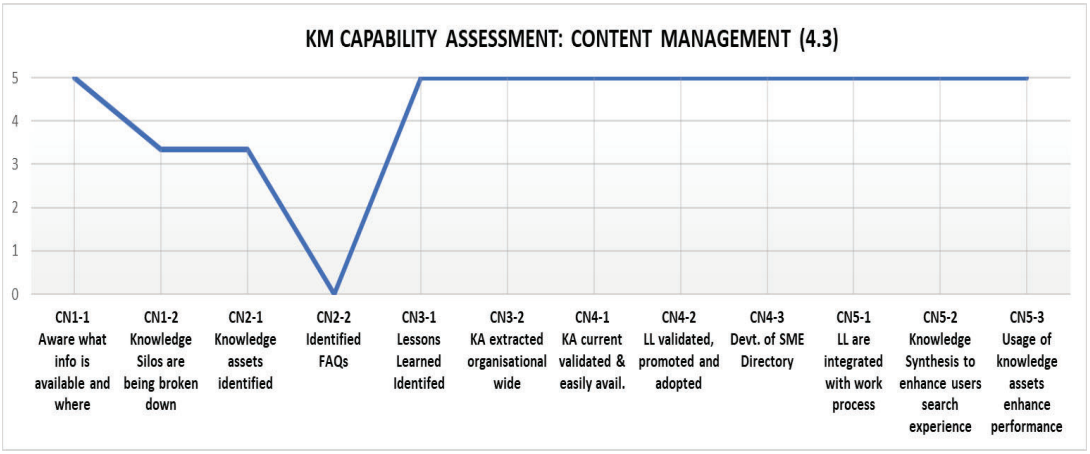


Figure 10: KM Capability Assessment: Content Management

Plans are in place to start a KM pilot by selecting departments to gather key documents, lessons learned, and digital assets. However, FAQs are still missing, a gap that, if addressed, could help staff find information even faster.

On the positive side, MATRADE is strong in capturing and reviewing lessons learned. Departments share insights after projects or during exit interviews, and a committee validates and promotes this content. Staff also contribute articles, policies, and other resources, and content is kept up to date by assigned owners. A directory of Subject Matter Experts helps MATRADERs find quick answers and supports MATRADE's engagement activities in the PPP initiatives. Overall, content is well captured and used. The main improvement needed is the development of a structured FAQ system to assist AI harvesting tools to boost searchability.

MATRADE's Current KM Technology Infrastructure

MATRADE's KM technology is well developed and supports easy access to critical information. A central repository allows staff to store and retrieve knowledge from anywhere. The KM Portal (KMP) is being upgraded to include smart search tools and personalised content delivery based on user preferences.

The KMP provides access to documents, lessons learned, forums, and expert directories. New staff are guided through KM tools with AI-enhanced visual aids, helping them get started quickly. The portal also connects to external sources, offering a wider range of information.

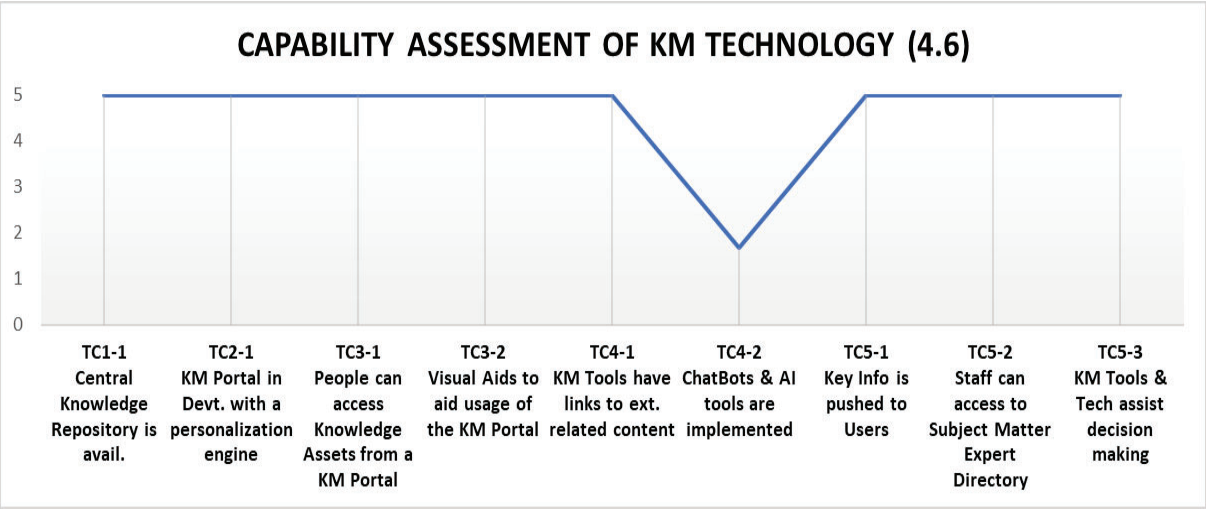
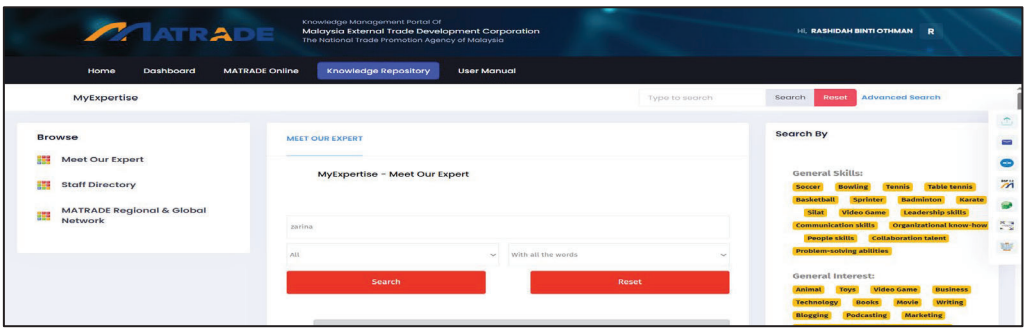


Figure 11: KM Capability Assessment: KM Technology

With a KM Capabilities assessment of 4.6 due to AI features like chatbots still in planning stage, the current personalisation engine is effective in tailoring content delivery to interested MATRADERs. The Expert Directory allows quick consultation with internal experts, helping staff solve problems faster. Major KM features are actively used for decision-making, proving that the system plays a central role in MATRADE's daily work.

Overall, the technology framework already performs strongly in centralisation, access, and relevance.



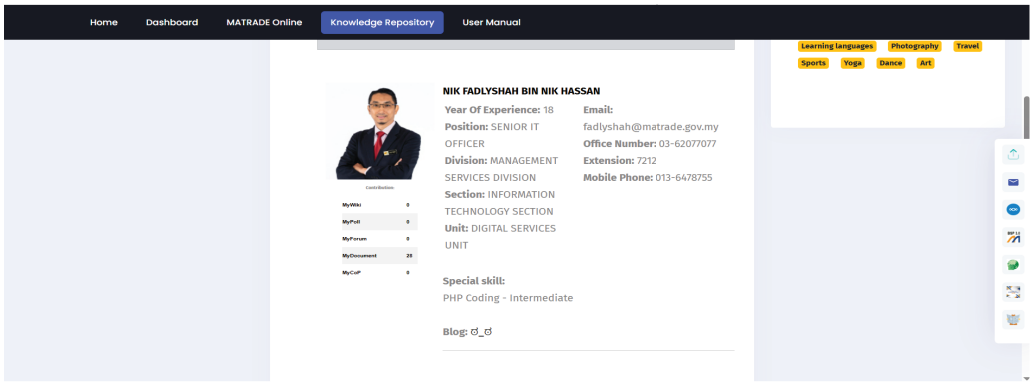


Figure 12: MyExpertise highlights subject matter experts within the organization, showcasing their specialized knowledge and contributions while fostering collaboration and knowledge-sharing across teams.

MATRADE's Current Learning Practices

MATRADE shows a positive and growing culture of knowledge sharing and learning across departments. This was evident in the KM CAST findings, where staff regularly capture lessons learned and share them with peers to prevent repeated mistakes. There is a strong habit of searching for relevant information from the knowledge repository before starting new projects, reflecting a proactive approach to learning.

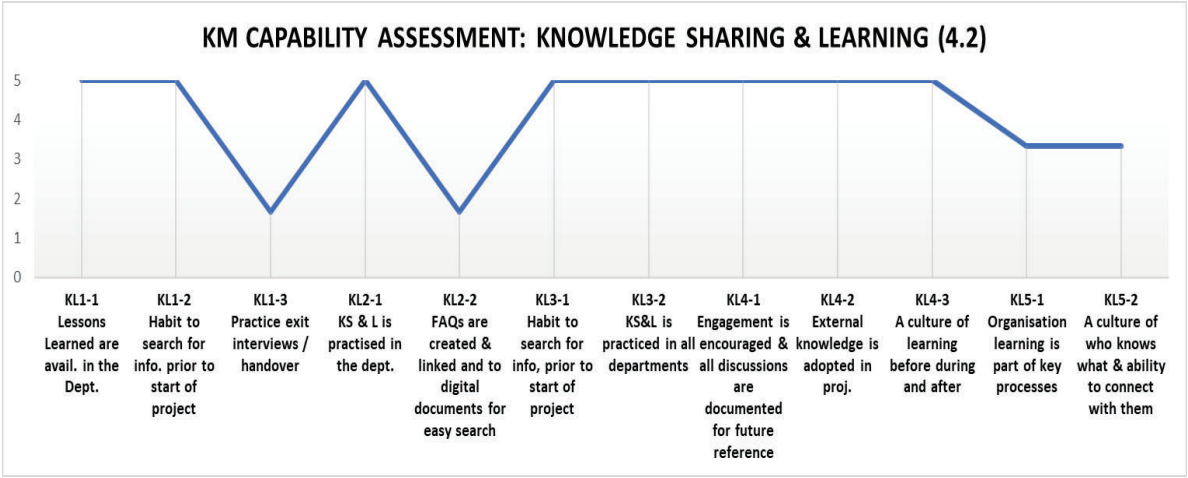


Figure 13: KM Capability Assessment: KM Technology

Most departments actively practise knowledge sharing through online forums and documented lessons learned. Department heads play a key role in encouraging regular sharing of best practices. Employees are also expected to document what they have learned after

completing tasks, making this a standard operating procedure. This promotes continuous improvement and organisational memory.

While some departments conduct exit interviews and handover processes, this practice is inconsistent across the organisation. FAQs are being created to accompany lessons learned and digital documents; however, a searchable FAQ system is not yet in place. External knowledge is valued and regularly brought in through exchange programmes with industry experts. This ensures that the organisation benefits from a wide range of perspectives. Leadership plays an important role by promoting learning before, during, and after key activities, embedding it as part of the organisational culture.

Efforts are underway to introduce nano-learning techniques to support learning at key process points. Staff are well-equipped to identify and connect with internal and external experts. The use of standard templates, guidelines, and MATRADE's online CoP platform supports effective and consistent knowledge sharing.

CONCLUSION

This study aimed to gain a clearer understanding of what makes a successful knowledge-sharing community. MATRADE has made substantial progress in building a solid Knowledge Management (KM) foundation, supported by leadership, strategic alignment, and compelling content and technology systems. The role of librarians in MATRADE is especially important, as they serve as the KM Secretariat and are key members of the KM Task Force. They ensure quality knowledge is collected, validated, and made available across the organisation. By managing knowledge assets, supporting Communities of Practice, and maintaining content standards, the MATRADE librarians were seen to play a central role in promoting knowledge sharing and contributing to broader organisational learning. It was observed that their efforts also exemplify how libraries can be catalysts for collaboration and sustainable development. While KM practices are widely promoted, areas like consistent role modelling, formal performance measures, and the development of FAQs still need improvement. This study contributes to KM literature by highlighting the determinants of effective virtual knowledge-sharing communities and the transformative potential of librarians in fostering sustainable, knowledge-driven environments.

REFERENCES

Abdullah, S. et al. (2019). Cultivating knowledge sharing and learning communities in a Malaysian academic environment: Our implementation pitfalls, lessons learnt and the emergence of our KM Kit. In *Proceedings of IFLA WLIC, 2019*.

Albert, G., Md. Khuzaimah, K. H., Othman, R., & Goh, S. K. (2019). Adopting a maturity model for communities of practice in an engineering industries. In *Proceedings of 16th*

International Conference on Intellectual Capital, Knowledge Management & Organizational Learning (ICICKM), 2019.

Ali Imran Zakaria, Sharifah Nur Izma & Geeta Albert (2017). Fostering a virtual knowledge sharing community in a Malaysian financial institution, In *Proceedings of ECKM, 2023*.

Akinbo, T. F., Fagbenle, O. I., & Amusan, L. M. (2024). Assessment of knowledge management barriers and improvement strategies on public-private partnership projects in Nigeria. *International Journal of Construction Management*, *24*(9), 1018-1028.

Bolisani, E. & Scarso, E. (2016). Factors affecting the use of wiki to manage knowledge in a small company. *Journal of Knowledge Management*, *20*(3), 423-443.

Bougoulia, E. & Glykas, M. (2022). Knowledge management maturity assessment frameworks : A proposed holistic approach. *Knowledge and Process Management*, doi: 10.1002/kpm.1731.

Demchig, B. (2014). Knowledge management capability level assessment of the higher education institutions : Case study from Mongolia. *Procedia – Social and Behavioral Sciences*, 174 (2015), 3633-3640. doi : 10.1016/j.sbspro.2015.1082.

Dlamini, L. E. (2017). The role of librarians in knowledge management (KM) : an exploratory study of academic libraries for public/state owned colleges in Swaziland. *Proceedings of IFLA WLIC, 2017*.

De Laat, M. & Broer, W. (2004), CoPs for Cops: managing and creating knowledge through networked expertise. In *Knowledge Networks: Innovations through Communities of Practice* (pp. 58-69). Hershey, PA USA : IGI Global, 2004.

Dodla, T. R. & Jones, L. (2023), Identifying knowledge management strategies for knowledge management systems. *Science, Business, Innovation in Digital Economy, 4*(2), 261-277.

Gao, T., Chai, Y. & Liu, Y. (2018). A review of knowledge management about theoretical conception and designing approaches. *International Journal of Crowd Science, 2*(1), 42-51.

Gorbani, M. (2023), Green knowledge management and innovation for sustainable development: A comprehensive framework. In *Proceedings of the 24th European Conference on Knowledge Management, ECKM, 2023*.

Hassan, Basri et al. (2018). Knowledge management librarians : Evolving competencies in knowledge capture and dissemination in an academic environment. *Proceedings of IFLA WLIC, 2018*.

Hercout, P & Witte, A. (2021). Knowledge management capacity assessment: A tool for self-assessment. In *KM Capacity assessment Knowhow3000*, 2021.

Huotari, M-L., & Livonen, M. (2004). Knowledge processes: A strategic foundation for the partnership between the university and its library. *Library Management, 26*(67), 2005. DOI 10.1108/01435120410609743.

Jain, S. (2025). Knowledge management strategies in 2025: Value, key components and development. https://bloomfire.com/blog/knowledge-management-strategy/.

Kulkarni U. & St. Louis, R.(2003), Organizational self assessment of knowledge management maturity. *9th Americas Conference on Information Systems*, pp. 2542-2551).

Kulkarni, U. & Freeze, R. (2004), Development and validation of a knowledge management capability of assessment model". *25th International Conference on Information Systems,* pp. 647-670.

Mooradian, N. (2005), Tacit knowledge: Philosophical roots and role in KM. *Journal of Knowledge Management*, *9*(6), 104-113.

Onifade, A. B. & Akinwade & Kazeem A. (2019). Knowledge management system and tools required for effective KM take-up and activities in organisations in Nigeria. *Library Philosophy and Practice (e-journal*). 4271. https://digitalcommons.unl.edu/libphilprac/4271.

Pandey, A. K. (2024). Exploring the role of knowledge management in enhancing library services. *ICAL 2024*, Akal University, Punjab, India, 2024, pp 245-251.

Scarso, E., Bolisani, E., Albert, G., Othman, R. & Kwong, G.S. (2016). Comparing communities of practice of Private and Public Organisations. *ECKM 2016,* Belfast, Ireland.

Sharafat, F. D. (2018). Examining the factors influencing knowledge management system (KMS) adoption in small and medium enterprises SMEs. *Business Process Management Journal*, *24*(1), 234 -265.

Steward, T. A. (2002), The case against knowledge management. *Business 2.0 (February).*

Verma, M. K. (2012), Application of knowledge management in libraries: A management approach. In Monnawwer Eqbal and Simmi Khurana (Eds.). *Knowledge Management: Issues and Challenges* : World Education, New Delhi, 2012.

Yon, S. & Albert, G. (2013), Developing library professionals: The influence of community of practice. *Proceedings of IFLA WLIC, 2013*.

Redefining Library Roles: A Case Study of Mobile Makerspaces for Community Empowerment and Inclusivity

Maria Hani Mustaffa, Zaidah Mahmud, Noor Affendy M. Ali

Information Resource Centre, Universiti Teknologi PETRONAS, Perak, Malaysia

Corresponding email: mariahani.mustaffa@utp.edu.my

ABSTRACT

This case study explores the 'Mobile Makerspace: Empowering Creativity' initiative as a model for transforming academic libraries into community-focused hubs of empowerment and inclusivity. Guided by Experiential Learning Theory (ELT), the project mobilized Information Resource Centre (IRC)'s resources to deliver hands-on STEM learning at Perak secondary schools, engaging over 50 students through robotics challenges, maker projects, and digital literacy workshops. Using qualitative methods, including observations, interviews, and focus group discussions, the study highlights how mobile makerspaces address barriers such as limited access to resources and structured guidance in underserved communities. Key findings underscore the potential of academic libraries to extend beyond traditional roles, fostering creativity, collaboration, and innovation through mobile, community-centered initiatives. The findings advocate for libraries to adopt mobile makerspaces as a sustainable strategy to promote inclusivity, enrich learning opportunities, and support lifelong innovation and creativity across diverse communities. Through these initiatives, academic libraries can play a pivotal role in shaping the next generation of innovators and creative thinkers, offering them the tools and spaces needed to bring their ideas to life.

Keywords: Academic Libraries; Makerspace; Educational Innovation; STEM

INTRODUCTION

Makerspaces have emerged as a powerful global movement, transforming learning and innovation through accessible, hands-on environments. Designed initially as collaborative do-it-yourself (DIY) hubs, makerspaces provide access to tools, technologies, and materials that

empower individuals to develop skills, experiment, and create tangible solutions (Okpala, 2016). These spaces, often known as hackerspaces, fab labs, digital studios, or shared machine shops (Braybrooke & Smith, 2020), may differ in form. Still, they share a common philosophy of openness, inclusivity, and community-driven learning.

As they expand into schools, universities, libraries, and community centers, makerspaces reflect a global shift toward experiential, project-based education. They foster exploration, innovation, and collaboration across diverse backgrounds. Equipped with resources like 3D printers, CNC machines, laser cutters, and electronics kits (Prato & Britton, 2015), these spaces enable users to prototype their ideas, encouraging creativity and problem-solving in real-world contexts.

In education, makerspaces redefine how students learn, especially in science, technology, engineering, and mathematics (STEM). By merging informal, hands-on learning with formal curricula, they enhance critical thinking, technical skills, and interdisciplinary collaboration (Douglass, 2023; Salisbury & Nichols, 2020; Soomro et al., 2023;). This model supports deeper engagement and nurtures future-ready competencies increasingly essential in today's innovation-driven world.

In Malaysia, the rise of makerspaces aligns with strategic national goals to strengthen innovation, digital literacy, and human capital development. Policy frameworks like the Malaysia Education Blueprint 2015–2025 and the Transdisciplinary Makerspace Blueprint 2021 (MoHE, 2021) promote student-centered education that cultivates creativity, entrepreneurship, and 21st-century skills. Consequently, higher education institutions have begun embedding makerspaces in engineering and design programs to bridge skill gaps and support curriculum transformation (Robinson et al., 2019; Wilczynski, 2016).

Building on this momentum, the concept of the Mobile Makerspace emerges as a low-cost, scalable solution to extend makerspace benefits beyond institutional walls and into the wider community (Maceli, 2022). These mobile units bring tools, learning kits, and creative experiences directly to underserved schools, rural areas, and public spaces, eliminating access barriers while promoting inclusivity (Hester, 2020). As an innovative outreach initiative, the Mobile Makerspace fosters grassroots creativity, digital empowerment, and community-based problem-solving. It embodies the core ethos of makerspaces, democratizing innovation while serving as a practical, sustainable model for educational equity and socio-economic development (Letnikova and Xu, 2017).

LITERATURE REVIEW

Mobile Makerspace

Mobile makerspaces represent a transformative evolution of the low-cost makerspace model, designed to extend access to hands-on learning, experimentation, and innovation to broader,

often underserved communities. Similar to traditional low-cost makerspaces, mobile versions are cooperative workspaces that provide individuals with access to tools, resources, and collaborative support, but with the added advantage of mobility, bringing these opportunities directly to schools, rural areas, and public venues (Maceli, 2022).

Characterized by affordability and inclusivity, mobile makerspaces align with the core mission of democratizing innovation and creativity across various demographics (Garcia-Grimau et al., 2015). These mobile units leverage cost-effective strategies and alternatives such as donated materials, volunteer expertise, and compact, transportable setups. This enables them to operate at significantly lower costs than the ready-to-use commercial or institutionalized makerspaces. This makes them ideal for students, hobbyists, young entrepreneurs, and communities with limited infrastructure or financial means (Gomes de Mello et al., 2021).

By harnessing community engagement and collaborative networks, mobile makerspaces offer accessible, experiential learning platforms that promote critical thinking, problem-solving, and digital literacy without burdening users with high costs (Hester, 2020). Their mobility removes not only geographical and financial barriers but also enhances educational equity by reaching learners where they are especially in areas lacking permanent makerspace infrastructure (Taylor et al., 2016).

The Malaysian Communications and Multimedia Commission (MCMC, 2021) has highlighted that low-cost makerspaces can be initiated with a minimal investment of RM3,000 for a 250 sq. ft. setup, supporting up to five users. Mobile makerspaces can apply similar models using modular, compact designs and leveraging community resources to create portable, scalable versions. These can be further supported through local partnerships, industry donations, community volunteers, and targeted grants (Barrett et al., 2018; Koh et al., 2018).

As emphasized by Letnikova and Xu (2017), success depends not only on affordability but also on effective planning, management, and the strategic introduction of innovative tools and services. These aspects are critical to mobile makerspaces, which must be adaptive, resourceful, and community-oriented to maximize impact. Examples such as the Penang Science Cluster @ Makers Garage (established through state government and corporate collaboration) illustrate how collaborative, low-cost makerspace models can thrive. Other initiatives, including Petrosains Maker Studio, MakerLab @ Monash, and MCMC Maker Space, demonstrate the growing momentum and potential for such spaces across Malaysia. Mobile makerspaces build upon this legacy by extending similar opportunities directly into communities, amplifying outreach, strengthening engagement, and fostering a culture of innovation on the move.

Community Empowerment Through Mobile Makerspace

Mobile makerspaces, movable, technology-equipped units designed to deliver hands-on learning opportunities, have emerged as vital tools in extending the reach and impact of maker education, particularly in underserved or remote communities. Unlike static makerspaces in universities or urban centers, mobile units bring the maker experience directly to communities, democratizing access to resources and expertise (Braybrooke & Smith, 2020; Ensign & Leupold, 2018). These platforms are increasingly recognized for empowering communities by fostering skills development, enhancing problem-solving capabilities, and stimulating local innovation ecosystems.

Mobile makerspaces empower individuals by providing access to digital fabrication tools and creative technologies such as 3D printers and microcontrollers, and nurturing a sense of agency and ownership over the learning process. Studies have shown that when community members, including youth and marginalized populations, can create, prototype, and iterate using these tools, they become active participants in shaping their futures (Cattabriga, 2020; Okpala, 2016). This empowerment translates into improved self-efficacy, greater entrepreneurial interest, and increased civic participation.

In the Malaysian context, makerspaces align with national initiatives such as the Malaysia Education Blueprint 2015–2025, which emphasizes creativity, innovation, and practical competencies to meet the evolving demands of the job market (Idris & Bacotang, 2023). Programs like STEM Mobile Makerspace: Creativity Loading 1.0 exemplify efforts to bridge educational gaps by delivering skill-building experiences to rural and semi-urban schools. These initiatives support academic and technical development and cultivate local innovation by embedding maker culture in everyday community life.

Moreover, makerspaces contribute to broader sustainable development goals by equipping communities with the tools to solve localized problems. The emphasis on hands-on learning and collaborative experimentation fosters resilience, adaptability, and a culture of continuous improvement, which are critical for community transformation (Galaleldin et al., 2017; Hepp & Schmitz, 2021).

Inclusivity In Mobile Makerspace

Inclusivity is a defining feature of mobile makerspaces, positioning them as vehicles for social equity and educational justice. These spaces intentionally reach out to communities traditionally excluded from access to emerging technologies and creative learning environments, including rural populations, lower-income groups, and schools without STEM infrastructure (Douglass, 2023; Peppler, 2022).

Mobile makerspaces disrupt structural barriers by embedding themselves within their communities, reducing geographic, financial, and institutional obstacles. This mobile model enables broader participation by bringing maker education to the doorsteps of those who may

otherwise be excluded due to systemic inequities. In doing so, they foster inclusive participation and amplify diverse voices within the maker movement (Almajali et al., 2022; Fagbemiro et al., 2023).

In Malaysia, the emphasis on inclusivity through mobile makerspaces is supported by the Transdisciplinary Makerspace Blueprint 2021, which promotes holistic, community-oriented, and transdisciplinary approaches to maker education. The blueprint calls for co-creating learning experiences that are context-sensitive, culturally relevant, and accessible to all learners, regardless of background or ability (MoHE, 2021). By leveraging local knowledge and prioritizing inclusive design, mobile makerspaces create spaces where diverse learners can meaningfully engage, experiment, and thrive. These initiatives ensure that students from various socio-economic backgrounds, including those in under-resourced schools, can engage in creative, hands-on activities that enhance digital literacy, critical thinking, and collaboration (Hira & Hynes, 2018; Zakoth et al., 2023).

Furthermore, mobile makerspaces have shown the potential to foster intergenerational and intercultural learning. These spaces encourage knowledge exchange and collective capacity-building by involving parents, teachers, and community members alongside students, strengthening social cohesion and mutual respect (Reynaga-Peña et al., 2020; Santos & Benneworth, 2019).

METHODOLOGY

This study adopts a qualitative research design to explore the impact of a mobile makerspace-based robotics workshop on student engagement and learning, with a specific focus on experiential learning outcomes. The study is grounded in Kolb's Experiential Learning Theory (ELT), which emphasizes the importance of concrete experience, reflective observation, abstract conceptualization, and active experimentation in learning.

Project Setting And Participants

The study was conducted on 12th November 2024 at Sekolah Menengah Kebangsaan Iskandar Shah, Parit, Perak, involving 50 Form Three students as participants. The project was part of the STEM Mobile Makerspace: Creativity Loading 1.0 initiative, a collaborative program organized by the Information Resource Centre (IRC), Universiti Teknologi PETRONAS (UTP) Robotic Club (PETROBOT), and supported by the Perak State Education, Higher Education, Youth & Sports Exco. The program aimed to promote interest among secondary school students through engaging, hands-on learning experiences using robotics kits and structured mentorship.

Project Design and Data Collection

The robotics workshop was designed using the principles of ELT to foster deep learning through direct experience. Students were grouped into small teams and guided through the complete experiential learning cycle:

i. Concrete experience: Participants engaged in building and programming a basic mobile robot using microcontrollers, sensors, and visual programming interfaces.

ii. Reflective observation: During debriefing sessions, students discussed their observations, challenges, and group dynamics.

iii. Abstract conceptualization: Mentors facilitated discussions to help students connect their experience to STEM principles such as mechanics, electronics, and coding logic.

iv. Active experimentation: Students tested and refined their robots through problem-solving and obstacle-based tasks.

This hands-on structure was designed to enhance critical thinking, creativity, and collaborative problem-solving skills, key components of STEM competence. Data were collected using semi-structured group interviews, participant observations, and student reflection notes at the end of the session. Interviews focused on student perceptions of their learning experience, engagement, and perceived program value. Observations captured student interactions, collaboration, and emotional responses during various phases of the activity.

RESULTS AND FINDINGS

The findings are categorized into key themes aligned with the research objectives and literature.

Increased Interest in STEM

One of the primaries aims of the program was to stimulate interest in STEM subjects, particularly robotics, among students. The findings reveal a noticeable shift in students' attitudes and interest toward STEM following the mobile makerspace experience.

Table 1: Increased interest in STEM theme

Theme 1: Increased Interest in STEM	
Pre-Program Findings	**Post-Program Findings**
Limited knowledge of robotics.	85% of students showed increased enthusiasm for STEM, especially robotics.
Small proportion of students showed prior interest in STEM subjects.	Students were interested in pursuing STEM fields such as engineering and computer science.

Students noted that;

"Before, I thought robotics was too complicated. But after trying it out, building something real that moves is fun and exciting."

“This workshop made me want to learn more about how robots work. I didn’t know STEM could be this interesting.”

Enhanced Engagement Through Hands-on Learning

The mobile makerspace environment, which included practical activities such as building and programming simple robots, significantly enhanced student engagement.

Table 2: Enhanced engagement through hands-on learning theme

Theme 2: Enhanced Engagement Through Hands-on Learning	
Pre-Program Findings	**Post-Program Findings**
Limited hands-on experience with STEM in school settings.	High levels of collaboration, with students actively participating in building and programming robots.
Few students expressed enthusiasm for learning STEM in theory-based settings.	High levels of collaboration, with students actively participating in building and programming robots.

The hands-on nature of the program facilitated deeper learning, as students could immediately apply their knowledge and see the results of their actions.

One student noted that;

“*When we saw our robot move, we got so excited—we wanted to keep trying new things.”*

Fostering Inclusivity Through Equal Access

A key goal of the mobile makerspace initiative was to promote inclusivity by ensuring that all students, regardless of their academic background, had equal access to STEM learning opportunities. The findings show that the program successfully reached a diverse group of students, encouraging participation across gender, socio-economic, and academic divides.

Table 3: Fostering inclusivity through equal access theme

Theme 3: Fostering Inclusivity Through Equal Access	
Pre-Program Findings	**Post-Program Findings**
Students from diverse academic backgrounds had varying levels of confidence.	Regardless of academic background, all students felt empowered to explore STEM topics.
Limited access to STEM resources for certain students.	Less confident students felt encouraged to continue exploring STEM fields.

A student from a non-STEM background stated;

"I thought robotics was only for smart people, but after today, I realize anyone can learn it."

“Our school doesn’t have this kind of program. I’m happy we got this chance—it feels like we’re not left behind.”

This finding suggests that the program created a more inclusive learning environment, making STEM subjects more accessible to a broader range of students.

Positive Impact on Community Empowerment

The Perak State Education, Higher Education, Youth & Sports Exco's involvement and collaboration with PETROBOT and IRC played a critical role in fostering a sense of community empowerment. The students felt the program was a valuable opportunity to collaborate with professionals and peers.

Table 4: Positive impact on community empowerment theme

Theme 4: Positive Impact on Community Empowerment	
Pre-Program Findings	**Post-Program Findings**
Limited exposure to STEM professionals and facilitators.	Students felt empowered by the collaboration with UTP Robotic Club facilitators and their peers.
Some students expressed a lack of support in pursuing STEM-related activities.	Students felt a sense of belonging and support during the workshop, contributing to community empowerment.

One facilitator noted;

"It was inspiring to see students who didn’t think they could do robotics realizing they had the potential to contribute just like anyone else in the group."

One student noted;

"It was cool to see how the UTP students helped us. They didn’t make us feel bad if we made mistakes; they showed us how to fix them."

This collaborative approach helped students feel part of a supportive community, reinforcing that learning is a collective endeavor.

The Role of the Mobile Makerspace in Building Future STEM Interest

The mobile maker space was an effective platform for engaging students in STEM activities. Its flexibility allowed it to be set up in the school’s environment, where students could easily access the equipment and resources necessary for the workshop. The workshop's success in

increasing STEM interest suggests that the mobile maker space model could be expanded to other schools.

Table 5: Impact on future STEM interest theme

Theme 5: Impact on Future STEM Interest	
Pre-Program Findings	**Post-Program Findings**
Students had little or no exposure to advanced STEM activities.	Many students expressed interest in further workshops on robotics, coding, and other STEM topics.

One student noted that;

"Now I want to be an engineer. I didn't know we could do this at school."

This suggests the program sparked immediate interest and planted seeds for future engagement in STEM pathways.

DISCUSSION AND INTERPRETATION

The Mobile Makerspace initiative with the Perak State Executive Council for Education, Higher Education, Youth & Sports, PETROBOT, and the IRC demonstrated significant potential in empowering underserved communities through experiential, hands-on learning in STEM.

The results support five central outcomes:

- STEM interest amplification: Students with limited exposure to STEM reported increased curiosity and motivation to pursue STEM education. This aligns with studies showing that early, enjoyable science and technology experiences can shape long-term academic interests.
- Engagement through experiential learning: The workshop confirmed that hands-on learning enhances cognitive and emotional engagement, especially for students in low-resource environments.
- Inclusivity and equity: The mobile makerspace model provided equitable access to quality education by delivering advanced STEM resources to a rural school, supporting national goals for inclusive STEM participation.
- Community empowerment: The program empowered students, teachers, and local stakeholders by fostering collaborative, self-directed learning. The program modeled how institutions of higher education and libraries can serve as active community partners.

- Future-oriented impact: Students expressed a clearer vision of their educational and career aspirations post-event, indicating a shift from passive recipients to active STEM learners and future contributors.

CONCLUSION

The Mobile Makerspace program proved to be an effective model for increasing STEM awareness, interest, and participation among secondary school students when paired with experiential learning and strategic collaborations, which are powerful tools for fostering inclusivity, enhancing engagement, and empowering communities. The intervention has provided rural students with STEM exposure and contributed meaningfully to their personal growth and aspirations. The initiative successfully promoted inclusivity through collaborative engagement, hands-on robotics training, and exposure to real-world STEM facilitators. It empowered students to see themselves as future contributors to the STEM field. In moving forward, similar models can be scaled and adapted to other regional schools, ensuring broader reach and sustained impact. In addition, continued collaboration with educational stakeholders and universities will be essential to integrate such hands-on learning into mainstream curricula, supporting Malaysia's national STEM goals.

ETHICAL CONSIDERATIONS

Ethical approval will be sought from the relevant institutional review board. Informed consent will be obtained from the participants and their parents/guardians, ensuring that students understand their voluntary participation and the confidentiality of the data collected. All personal information will be anonymized, and the findings will be presented in aggregate form to protect participant privacy.

REFERENCES

Almajali, M., Al Afif, R., & Maaith, O. (2022). Makerspace, higher education and technical institutions. *Industry and Higher Education, 37*(2), 155-164. https://doi.org/10.1177/09504222221114058

Barretto, H., & Sawant Dessai, P. (2021). Challenges faced by academic libraries due to resource sharing and networking models.

Braybrooke, K. K., & Smith, A. (2021). Makerspaces and peer production: Spaces of possibility, tension, post-automation, or liberation? https://doi.org/10.1002/9781119537151.ch26

Cattabriga, A. (2020). A makerspace network as part of a regional innovation ecosystem: The case of Emilia-Romagna (in-press), 2(86). https://doi.org/10.6092/issn.2612-0496/9536

dos Santos, E. F., & Benneworth, P. (2019). Makerspace for skills development in the industry 4.0 era. *Brazilian Journal of Operations & Production Management, 16*(2), 303-315. https://doi.org/10.14488/BJOPM.2019.v16.n2.a11

Douglass, H. (2023, May 24). Makerspaces and making data: Learning from pre-service teachers' STEM experiences in a community makerspace*. Education Sciences, 13*(6), 538. https://doi.org/10.3390/educsci13060538

Eke-Okpala, H. (2016). Making a makerspace case for academic libraries in Nigeria. *New Library World, 117*. https://doi.org/10.1108/NLW-05-2016-0038

Fagbemiro, A. O., Akinola, A. O., & Mrs, A. N. O. (n.d.). Makerspaces realities in Nigerian academic libraries. *Digital Commons@University of Nebraska - Lincoln.* https://digitalcommons.unl.edu/libphilprac/7729/

Galaleldin, M., Anis, H., Lague, D., & Bouchard, F. (2016). *The impact of makerspaces on engineering education.*

García-Hermoso, A., Hormazábal-Aguayo, I., González-Calderón, N., Russell-Guzmán, J., Vicencio-Rojas, F., Chacana-Cañas, C., Urrutia-Reyes, I., Ramírez-Vélez, R., Martínez, A. M., Izquierdo, M., & Fernández-Vergara, O. (2020). Exercise program and blood pressure in children: The moderating role of sedentary time. *Journal of Science and Medicine in Sport, 23*(9), 854-859.

Gomes de Mello, A. (2021). Librarians' perspectives on implementing maker technologies outside of makerspaces: Low-cost, flexible, and creative tools for digital signage, catalog stations, and 3-D printing statistics monitoring. *Journal of Library Technology Integration, 44(1*), 45-58.

Hepp, A., & Schmitz, A. (2021). The limits of the maker ideology: Local makerspaces, experimental practices, and COVID-19. *Continuum, 36*, 1-15*.* https://doi.org/10.1080/10304312.2021.2003755

Hester, A. (2020). The evolution of makerspaces in academic libraries: A cooperative workspace for creation and learning. *Journal of Library Innovation.*

Hira, A., & Hynes, M. M. (2018, June 3). People, means, and activities: A conceptual framework for realizing the educational potential of makerspaces. *Education Research International, 2018, 1-10.*

Idris, R., & Bacotang, J. (2023). Exploring STEM education trends in Malaysia: Building a talent pool for Industrial Revolution 4.0 and Society 5.0. *International Journal of Academic Research in Progressive Education and Development, 11,* 381-393. https://doi.org/10.6007/IJARPED/v12-i2/16825

Koh, K., Abbas, J., & Willett, R. (2018, August 15). Makerspaces in libraries. In *Reconceptualizing Libraries, 17–36*. https://doi.org/10.4324/9781315143422-3

Letnikova, G., & Xu, N. (2017, June 13). Academic library innovation through 3D printing services. *Library Management, 38(4/5),* 208-218. https://doi.org/10.1108/lm-12-2016-0094

Maceli, M. (2022). Unlocking innovation in library makerspaces: Exploring the potential of low-cost hardware components and open-source software. *Journal of Library Innovation and Technology, 45*(3), 211-225.

Malaysian Communications and Multimedia Commission. (2021). Guidelines of makerspace. https://www.mcmc.gov.my/

Ministry of Higher Education Malaysia. (2021). Transdisciplinary of Makerspace 2021. Kuala Lumpur: Ministry of Higher Education Malaysia.

Peppler, K. (2022). Makerspaces. In Routledge eBooks (pp. 265-274). https://doi.org/10.4324/9781003233923-22

Prenair, C., Ensign, P., & Leupold, P. (2018). Grassroots opportunities for innovation, technology, and entrepreneurship: Makerspaces in non-urban communities. https://doi.org/10.23919/PICMET.2018.8481850

Prato, S. C., & Britton, L. (2015). Digital fabrication technology in the library: Where we are and where we are going. *Bulletin of the Association for Information Science and Technology, 42*(1), 12-15. https://doi.org/10.1002/bul2.2015.1720420106

Reynaga-Peña, C., Myers, C., Fernández-Cárdenas, J. M., Capetillo, A., Glasserman-Morales, L., & Paulos, E. (2020). *Makerspaces for inclusive education*. https://doi.org/10.1007/978-3-030-49108-6_18

Robinson, B. S., Hawkins, N., Lewis, J. E., & Foreman, J. C. (2019, June 15). Creation, development, and delivery of a new interactive first-year introduction to engineering course. *2019 ASEE Annual Conference & xposition*. https://peer.asee.org/creation-development-and-delivery-of-a-new-interactive-first-year-introduction-to-engineering-course

Salisbury, K., & Nichols, T. P. (2020). School makerspaces: Beyond the hype. *Phi Delta Kappan, 101(8), 49-53*. https://doi.org/10.1177/0031721720923792

Sohail, A., Soomro, H., Casakin, H., Nanjappan, V., & Georgiev, G. V. (2023). Makerspaces fostering creativity: A systematic literature review. *Journal of Science Education and Technology, 32*, 530-548. https://doi.org/10.1007/s10956-023-10

Taylor, N., Hurley, U., & Connolly, P. (2016, May 7). Making community. *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems*, pp. 1415-1425 https://doi.org/10.1145/2858036.2858073

Wilczynski, J. (2016). Academic makerspaces on university campuses: A significant advancement in the teaching of engineering design. *Journal of Engineering Education, 29*(4), 301-315.

Zakoth, D., Mauroner, O., & Emes, J. (2023). The role of makerspaces in innovation processes: An exploratory study. *R&D Management, 54*, 398-428. https://doi.org/10.1111/radm.12594

The Children's Biodiversity Library by S.E.A. Aquarium: A Public-Private Partnership

Christabel Sim, Melissa Kawasoe

National Library Board Singapore, Singapore

Corresponding email: christabel_sim@nlb.gov.sg

ABSTRACT

The National Library Board (NLB) Singapore's Children's Biodiversity Library by S.E.A. Aquarium (CBLSEAA), in Central Public Library, is Singapore's first-ever marine biodiversity-themed library space for children aged 0 to 12 years. CBLSEAA, which opened in January 2024, emerged from a community partnership between NLB, a government agency, and Resorts World Sentosa (RWS), a private company. Aiming to promote discovery and learning in an attractive family destination, CBLSEAA has raised awareness of marine biodiversity and sustainability for children through its programmes and design. This paper will explore the synergistic NLB-RWS partnership model and how NLB actively sought out community partnerships under its Libraries and Archives Blueprint 2025 to develop innovative library spaces of the future. This paper will also provide insights into how the two organizations managed expectations, consulted key stakeholders and tapped on partner networks to design and build the space and curate programmes for CBLSEAA. Finally, the paper will cover how NLB and RWS collaborate on key milestones such as CBLSEAA's first-year anniversary and the upcoming Singapore Oceanarium, and review learning points gained from CBLSEAA's first year.

Keywords: Public-Private Partnership; Library Spaces of the Future; Discovery and Learning; Community Development

INTRODUCTION

The National Library Board (NLB) Singapore, with its vision to nurture Readers for Life, Learning Communities and a Knowledgeable Nation[i], promotes reading, learning, information literacy and Singapore history and heritage through its network of 28 public libraries across Singapore, the National Library and the National Archives of Singapore. In 2024, NLB reached 7 in 10

Singapore residents, encouraged its members to borrow 38.8 million physical and digital items, engaged 2.86 million participants via its programmes and exhibitions, and attracted 20.8 million visitors to its libraries[ii].

NLB's flagship public library, the Central Public Library (CTPL), occupies the basement of the main National Library Building in the civic district of Singapore. CTPL is one of NLB's most recently revamped libraries, re-opening its doors over a year ago on 12 January 2024. The library is free-to-use and the programmes are offered free-of-charge. Given its central location, CTPL attracts Singapore residents from all over Singapore and tourists from overseas.

The Children's Biodiversity Library by S.E.A. Aquarium (CBLSEAA) for children aged 0 to 12 years can be found in CTPL and is prominently placed next to the main library entrance. It was designed and built in collaboration with Resorts World Sentosa's (RWS) S.E.A. Aquarium and is Singapore's first-ever marine biodiversity-themed library for children. It took slightly over a year for NLB, a government agency, and RWS, a private company, to work out in detail the extent of the partnership that would eventually result in CBLSEAA.

LAB25

When NLB emerged from the pandemic in 2020, it realized that it would have to be prepared to adapt and ride the possibilities that were presented in an era of increasing uncertainty. In response, NLB developed a five-year plan known as the Libraries and Archives Blueprint 2025 (LAB25)[iii], which was in essence an invitation to partners and communities to join NLB on its journey to reimagine libraries and archives of the future.

With LAB25, NLB developed an omnichannel network of library and archive services to support Singaporeans from all walks of life in keeping pace with societal, sociocultural and economic changes. NLB identified and took on four key roles – Building a Learning Marketplace, Nurturing an Informed Citizenry, Inspiring Singapore Storytellers and Being an Equaliser. NLB ensured that its revamped libraries would offer services that reflected these roles and actively sought out partners. A new team – the Partnership Division (PD) – was created and tasked to seek out such strategic partnerships to enhance NLB's LAB25 roles.

Thus, when RWS approached NLB to explore a possible collaboration, NLB welcomed the initiative greatly and PD set about realizing the partnership.

PARTNERING RESORTS WORLD SENTOSA

RWS, an integrated resort located on Sentosa Island, is home to hotels, lifestyle experiences and family-friendly attractions including the S.E.A. Aquarium[iv]. The S.E.A. Aquarium, one of the world's largest aquariums and home to more than 1,000 species of marine animals, offers education programmes such as the Fun Academy on marine conservation for preschool and primary school children[v]. In 2022, RWS approached NLB to consider collaborating on children programmes and a longer-term partnership that would bring the educational content that S.E.A. Aquarium had to where the community was.

RWS's approach was timely as NLB was revamping CTPL and was seeking to refresh the children's section that had last been overhauled in 2013. NLB wanted the children's library to be relevant and raise environmental awareness among children. The children's section would also have to be attractive and engaging for children and their families. NLB saw that partnering RWS would yield a novel and refreshing concept that could become a strong signature for a flagship public library. And so, the public-private partnership between NLB and RWS began.

WORKING TOGETHER IN PARTNERSHIP

The early discussions revolved around the responsibilities of each party – NLB and RWS – in the partnership, ensuring that the scope of work and accountability were clearly outlined in the sponsorship agreement. The outcome of the discussions was that RWS would sponsor NLB with SGD 1 million to design and build CBLSEAA and provide CBLSEAA programming for 10 years, while in return, NLB would acknowledge the sponsorship from RWS by according them 10-year naming rights to the children's sectionvi.

After the agreement was signed, NLB and RWS set about to design and build CBLSEAA to reflect its goal of promoting marine biodiversity. The process was complex, requiring adept coordination among multiple stakeholders and vendors within and without the two organizations. NLB's Planning & Development team and CTPL library staff worked closely with RWS's Projects team, architects and contractors to incorporate marine-themed designs into a practical library space for children. NLB librarians collaborated with the Education, Research and Conservation team from the S.E.A. Aquarium to curate an exciting suite of CBLSEAA programmes while NLB's Corporate Communications team coordinated with RWS's Brand Management team on the publicity for CBLSEAA.

The inter-agency communications continue to this day as both agencies continue to deliver quality programmes in CBLSEAA. It remains crucial for NLB to maintain its partnership mentality and collaborative approach towards enhancing its libraries with partners.

The Space

CBLSEAA, with its focus on biodiversity, was constructed using infrastructure with sustainable attributes, where old furniture was upcycled and green office indoor principles were adopted. Old bookshelves originally used to hold the adult's collection were refurnished and retrofitted as children's shelves, energy-saving lights that emit less heat and consume less energy were installed and environmentally-friendly materials were used for the flooring and paints.

Designed and built over a year, CBLSEAA has a programme room, multimedia zones for interactive learnings, reading areas and gamification kiosks to promote NLB's reading initiatives. It also has a nursing room and a designated stroller parking zone. CBLSEAA holds over 100,000 books, AV materials and other items in the children's collection.

Children visiting CBLSEAA would be able to move across the three main immersive zones of the library on a journey from seashore to deep sea. The Intertidal Zone, nearest to the entrance, is for children aged 4 to 6 years, with seagull mobiles suspended overhead, infographics on intertidal creatures, and TumbleBook stations where children can watch animated stories.



Figure 1: Children reading with their parents in the Intertidal Zone

The second zone is the Coral Zone for children aged 0 to 3 years. This zone functions as the heart of CBLSEAA with a magnificent floor-to-ceiling coral column and colourful fish mobiles

hanging overhead, replete with atmospheric sound and gobo lighting for an underwater effect. Parents and children can lounge on fish-shaped seats and read together books from the low, front-facing shelves.



Figure 2: Books for babies and young children surrounding the coral column in the Coral Zone

The third and deepest zone is the Sea Jellies Zone, which holds the collection for children aged 7 to 12 years. There, they can enjoy a calming video projection of sea jellies and other ocean creatures, explore a marine specimens showcase of shells, coral skeletons and shark jaws, and learn about the dangers of pollution from a model of an albatross with plastic waste in its abdomen.



Figure 3: A boy and his mother viewing the items on display at the marine specimens showcase



Figure 4: Children customising their avatars at KidSpot gamification kiosks

Children will also find gamification kiosks, called KidSpot, in the Sea Jellies Zone. KidSpot features NLB's popular children's reading initiative Book Bugs. Children can use the kiosks to customise their individual Book Bugs avatars and send their designs up onto a large screen featuring an underwater universe of avatars belonging to different children.

There is also a programme room called The Submarine. It is designed to resemble a submarine and is equipped with a whiteboard and a projector for different types of programmes. The bright and cheerful space hosts storytelling sessions, craft workshops, biodiversity-related programmes curated by the S.E.A. Aquarium and regular children library programmes. The Submarine, strategically located in the furthest corner of CBLSEAA, encourages programme participants to explore the library before and after each session. Participants who sign up online and attend in-person programmes get to discover the

library and can turn into active users of the library.



Figure 5: Children and parents participating in a workshop in The Submarine

The Courtyard is adjacent to CBLSEAA and accessible via the children's section. As CTPL is in the basement of the building, the Courtyard is a refreshing space where natural light and greenery can flow into the library, thus blurring the lines between indoors and outdoors. The Courtyard houses mangrove saplings that will grow to a certain height before being transplanted to Singapore's mangrove forests on Sentosa Island.

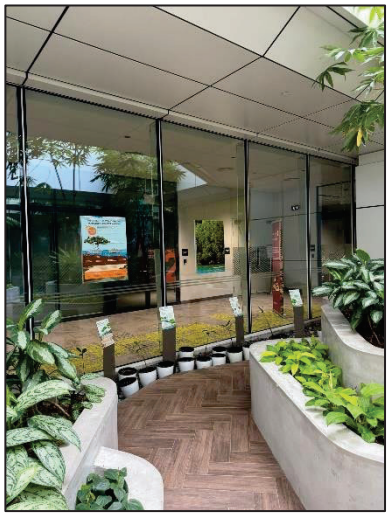


Figure 6: Mangrove saplings in the Courtyard

With its intricately designed and carefully planned zones, CBLSEAA was envisioned to be an educational and immersive platform for children aged 0 to 12 years to learn about marine biodiversity and sustainability with the aim to inspire action.

Programmes and Services

The teams from NLB and the S.E.A. Aquarium meet regularly to plan programmes for each year and to facilitate programmes and review participant feedback. From January 2024 to March 2025, CBLSEAA has hosted 196 children's programme sessions for 27,578 participants.

Table 1: Selected CBLSEAA Programmes in 2024

Programme Focus	Programme Title	No. of Participants	Date
Marine Biodiversity	A Day in the Life: Aquarium Edition	62	14 Jan 2024
	Ocean Art-Venture	58	17 Feb 2024
	"Adventures of Bini the Horseshoe Crab": Storytelling | Green Market	73	9 Jun 2024
	[Earth Heroes] What's in Our Sea?	655	19 & 20 Nov 2024
Sustainability	Tinkerworks: Create Your Own Cardboard Whale	160	13 Jan 2024
	Magnificent Mangroves!	74	13 Apr 2024
	Water Wally & Sally Club: Little Water Sleuths	65	16 Mar 2024
	[Earth Heroes] Paper, Plastic, Metal: What to Recycle	378	14 July 2024

Here are some highlights:

1) **A Day in the Life: Aquarium Edition:** This is a series led by aquarists and divers from the S.E.A. Aquarium where they talk about the importance of marine biodiversity and share interesting snippets of their work at the aquarium. Children and parents are fascinated by the unusual occupations featured and welcome the different perspectives shared.



Figure 7: A Day in the Lift: Aquarium Edition

2) **Magnificent Mangroves:** In this workshop conducted during the school holidays, children get to learn about the benefits of mangrove ecosystems. Participants discover how mangroves prevent coastal erosion and act as nurseries for plant life. Conducted in collaboration with the S.E.A. Aquarium, this workshop includes hands-on elements where children get to re-pot mangrove saplings to be transplanted into the wild on Sentosa Island.




Figures 8 and 9: Magnificent Mangroves

3) **Ocean Tales:** Ocean-themed storytelling sessions take place at CBLSEAA, with the aim of raising awareness on marine pollution and the importance of recycling. RWS Senior Management have strongly supported these sessions with RWS CEO Mr Tan Hee Teck and RWS President Ms Lee Shi Ruh telling stories to the children in separate sessions. Participants have praised the well- organized activities, interactive elements, and educational value that have made learning fun for children and adults alike.





Figures 10 and 11: Ocean Tales by RWS Senior Management

Tapping on Extended Networks

NLB worked closely with partners to bring in children and biodiversity-related programming throughout the year. One such programme was the Green Market, an NLB event that celebrated sustainable living and connected the community to green groups and initiatives they could support. Singapore author Sophia Huang launched her book, Ms Jug Finds a Home, in a storytelling session for children, where participants also created their own toys with recycled materials.



Figure 12: Children participating in the Green Market



Figure 13: Children and parents creating their own toys from recycled materials in Sophia Huang's storytelling session

RWS reached out to their partners too. School of the Arts, Singapore (SOTA) produced informational content for CBLSEAA such as the infographics and the video projection of sea jellies and deep sea creatures. RWS also connected NLB with Sentosa Development Corporation for the Magnificent Mangroves programme.

THE FIRST YEAR

On 12 January 2024, CBLSEAA was opened together with the newly revamped Central Public Library. The opening ceremony was attended by local and international partners, key internal and external stakeholders, patrons and library staff.



Figure 14: Preschoolers participating in a colouring session in The Submarine on Launch Day



Figure 15: A crowded CBLSEAA full of happy families reading together

Since then, CBLSEAA has seen a steady increase in visits, welcoming nearly 488,876 visitors in its inaugural year from January to December 2024. This contributes to 58% of overall visitors to the Central Public Library.

In its first month, CBLSEAA received prominent and positive media coverage and was featured on 28 mainstream channels and online platforms. Generally, the media commented that CBLSEAA was a great free indoor space for children of all ages and highlighted the different things to do there.

- **ByKido** listed CBLSEAA located in CTPL in a list of things to do with kids in Singapore[vii].

- **HoneyKids Asia** included images of CBLSEAA at CTPL as part of its listing on best public libraries for kids in Singapore[viii].
- **Sassy Mama** listed heading to a kid-friendly public library as a fun thing to do with kids in Singapore. Public libraries in Singapore featured kids reading corners, colourful and vibrant decor, educational corners and more, making visiting libraries a great free indoor activity for kids of all ages. Images of the CBLSEAA at CTPL were included in the article[ix].



Figure 16: Snapshots of mainstream media coverage

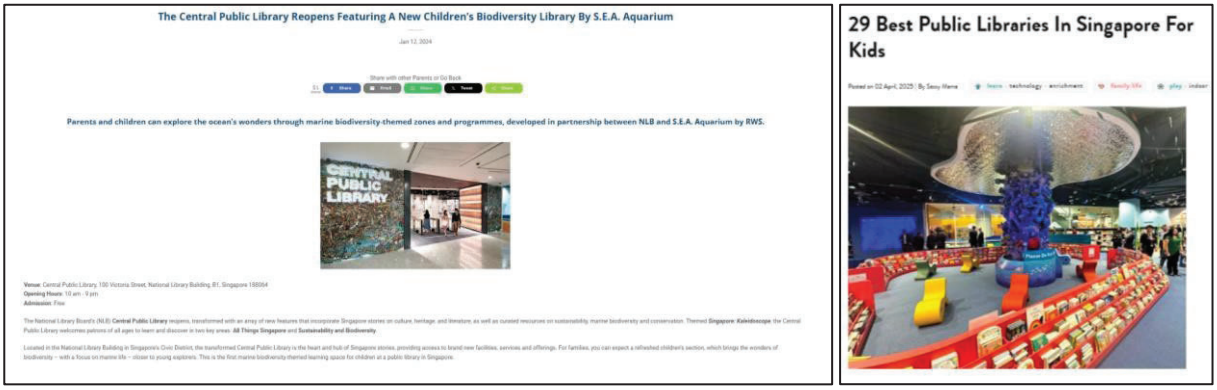


Figure 17: Screenshots of online media coverage

CBLSEAA has also been featured internationally and in publications, with the various articles exploring how marine biodiversity and sustainability themes have been integrated into library space, collection and programming for children. For example, librarian Aida Abdul Rahim's

article, "Sustainability Starts Young in Singapore Public Libraries", was included in the June 2024 newsletter by the Environment, Sustainability and Libraries Section for the International Federation of Library Associations and Institutions[x]. Librarians Eugenia Tan and Lim Shan wrote for the BBC Earth Magazine's 4th Issue of 2024 and highlighted CBLSEAA's transformation[xi]. Their article detailed the newly revamped space and highlighted its unique features and design.

Future

As CBLSEAA continues to inspire children in its second year, it will eventually be rebranded into the Children's Biodiversity Library by the Singapore Oceanarium. This is because RWS is transforming the S.E.A. Aquarium into the Singapore Oceanarium (SGO), a first-class institution that champions marine education and protection of the environment. SGO will be three times the size of the current S.E.A. Aquarium and will showcase more content on a larger scale than before, brought to life through state-of-the-art digital innovation and interactive technology. It will also offer fresh, new enriching educational experiences and programmes that inspire positive mindset change and drive action to protect the oceans[xii].

CBLSGO will align with the educational experiences offered by SGO. This will ensure that the content offered in the library space remains current and fresh for library visitors as partnering with SGO unlocks new programming possibilities for the future.

CONCLUSION

CBLSEAA illustrates how establishing private-public partnerships can transform the library experience and at the same time address important issues at hand. Through CBLSEAA, NLB seeks to encourage a new generation of children to contemplate global challenges that they will grow up facing. In a socioeconomic climate of uncertainty, such a partnership underpins NLB's commitment to adapting and riding on possibilities that present themselves on its journey of innovation and experimentation to reimagine libraries and archives in Singapore.

REFERENCES

National Library Board. (n.d.). *About Us*. https://www.nlb.gov.sg/main/about-us.

National Library Board.(n.d.). *2024 Year-in-Review*. https://www.nlb.gov.sg/main/-/media/NLBMedia/Documents/About-Us/Press-Room-Publication/Facts-and-Figures/A4 Infographic_v3_20250402.pdf.

National Library Board. (n.d.). *LAB25 (Libraries and Archives Blueprint 2025)*. https://www.nlb.gov.sg/main/about-us/About-NLB/lab25-libraries-and-archives-blueprint-2025.

Resorts World Sentosa. (n.d.). *About Resorts World Sentosa*. https://www.rwsentosa.com/en/about-resorts-world-sentosa.

Resorts World Sentosa. (n.d.). *S.E.A. Aquarium*. https://www.rwsentosa.com/en/play/sea-aquarium.

National Library Board. (n.d.). *New Children's Biodiversity Library to Open in January 2024*. https://www.nlb.gov.sg/main/about-us/press-room-and-publications/media-releases/2023/New- Childrens-Biodiversity-Library-to-Open-in-January-2024.

Quek, L. (2024, January 12). *The Central Public Library Reopens Featuring A New Children's Biodiversity Library By S.E.A. Aquarium.* ByKido. https://www.bykido.com/blogs/playgrounds-and-more/central- public-library-childrens-biodiversity-library-by-s-e-a-aquarium.

HoneyKids Editorial. (2024, August 7). *HoneyKids*. https://honeykidsasia.com/the-best-libraries-for- kids-in-singapore/.

Sassy Mama. (2025, April 2). *29 Best Public Libraries In Singapore For Kids*. https://www.sassymamasg.com/best-libraries-for-kids-singapore/.

Rahim, A. A. (2024, June). Singapore: Sustainability starts young in Singapore Public Libraries. *ENSULIB Newsletter, 4*(1), 15-16. https://repository.ifla.org/handle/20.500.14598/3458.

Tan, E. & Lim, S. (2024). Dive into the New Children's Biodiversity Library by S.E.A. Aquarium at Singapore's Central Public Library. *BBC Earth Magazine*, *16*(4), 58-59.

Resorts World Sentosa. (2022, 17 February). *Resorts World Sentosa's Expansion to Lead the Recovery of Singapore's Tourism*. https://www.rwsentosa.com/en/about-resorts-world-sentosa/press-room.

Collaborating for Impact: The Power of Volunteering

Grace Sim, Nurulhuda Subahan

Volunteers Management, Partnership Division, National Library Board, Singapore

Corresponding email: Grace_Sim@nlb.gov.sg

ABSTRACT

The National Library Board (NLB) plays a key role in reimagining libraries and archives as dynamic hubs for community engagement and bringing about impactful changes. This paper explores NLB's efforts to cultivate community engagement through volunteerism and strategic partnerships with individuals, private organisations and the social service sector to enhance its reach, impact and support community development. One such example is through its Externship programme where NLB incorporates volunteers with disabilities and special needs outside their accustomed environment with activities that support the library operations while acquiring new skills in preparation for their transition to the workforce. Through a range of other initiatives illustrating the varied and effective involvement of volunteers and the implementation of inclusive volunteering programmes, the paper demonstrates the importance of leveraging the unique skills, experiences, and perspectives of volunteers in driving successful library initiatives and amplifying efforts in lifelong learning.

Keywords: Public-Private Sector Partnership; Corporate Volunteering; Inclusive Volunteering; Volunteers; Inclusivity

INTRODUCTION

Established in 1995, The National Library Board (NLB) is a statutory board under the Ministry of Digital Development and Information (MDDI). It aims to promote reading, learning, information literacy, and a greater appreciation of Singapore's history and heritage through its network of public libraries, the National Library and the National Archives of Singapore. Since NLB's inception, volunteers have always played a pivotal role in enhancing the delivery of NLB's programmes and services. Not only do they help reach out and provide additional support to the communities, but many also bring with them diverse experiences and skillsets, which can be shared with other patrons to enhance their reading, learning and discovery at NLB's libraries

and archives. From long-standing roles such as storytellers for our signature *kidsREAD* reading programme, to newer ones such as library guides for newly developed library spaces, the dedication of NLB's volunteers in delivering these initiatives to the communities over the years has been instrumental to NLB's continuous success.

LIBRARIES AND ARCHIVES BLUEPRINT 2025

Such a partnership has become even more integral with the introduction of NLB's Libraries and Archives Blueprint 2025 (LAB25)[10] in 2021, to reimagine and transform the future of libraries and archives. Under LAB25, NLB focuses its efforts on four key roles: (a) Building a

Learning Marketplace (b) Nurturing an Informed Citizenry (c) Inspiring Singapore Storytellers, and (d) Being an Equaliser.

With these, NLB has also introduced new and enhanced volunteer roles to support its new focus, including volunteering opportunities to support the disability community.

This paper aims to highlight how volunteers – individuals, corporates and social sector volunteers – have supported various initiatives under each LAB25 pillar over the past few years. It is also key to highlight that these examples, whilst illustrative, are not exhaustive. The volunteers support NLB's mission in many other meaningful ways, beyond those covered in this paper. In addition, challenges and learning points, which are useful to inform future volunteer management strategies, will be shared as well.

PILLAR 1: BUILDING A LEARNING MARKETPLACE

To enable NLB's patrons to enjoy a diverse suite of content and services to support their lifelong learning journey, NLB welcomes collaborations and initiatives which contribute to learning and discovery. One such notable initiative that has proliferated in recent years and is driven primarily by volunteers is NLB's very own Learning Communities.

---

[10] National Library Board. (2023). LAB25: Libraries and Archives Blueprint 2025. https://www.nlb.gov.sg/main/about-us/About-NLB/lab25-libraries-and-archives-blueprint-2025

Learning Communities

Led by dedicated volunteer facilitators, NLB's Learning Communities[11], also known as LearnX Communities, are ground-up initiatives formed by individuals or groups who are passionate about sharing their knowledge, interest and skills on a specific topic with like-minded people in the community. Volunteer facilitators of each LearnX Community take the initiative to organise regular meet-ups, and are empowered to determine the content for each session with their members; NLB supports these sessions by providing conducive meet-up venues within NLB premises, and supplementary resources to enrich their learning experiences.

There are, at present, more than 130 LearnX Communities, spanning across a diverse range of topics such as Reading, Wellness, Arts, Career, Digital, Science, Singapore, and Sustainability – creating a vibrant learning marketplace where learners now have expanded access to learning opportunities that can spark their interests.

For instance, the increased interest in emerging technologies has prompted the formation of the Chatbot LearnX Community, which brings together people keen to learn more about chatbot building using Generative Artificial Intelligence (AI) technology. Led by AI4IMPACT, the Chatbot LearnX Community is run by a group of passionate volunteers who serve as EXCO members, with over 200 subscribers on Telegram. The community has also organised a series of public bootcamps aimed at chatbot-building skills for social good. The Zentanglers LearnX Community is another volunteer-driven LearnX Community that has emerged recently. Led by a certified Zentangle® teacher keen to share this therapeutic art form with active agers, the community has flourished into a regular meet-up of art enthusiasts. During the sessions, participants learn how to use lines to create artworks. The volunteer facilitator's dedication has transformed these sessions into a cosy gathering where seniors can not only pick up a new hobby in a relaxed environment but also freely share experiences and find joy in meeting new peers.

PILLAR 2: NURTURING AN INFORMED CITIZENRY

The digital age has brought much access to digital information, making it even more critical for people from all walks of life to navigate multiple sources of information effectively. Under LAB25, NLB aspires to develop a more discerning community by promoting information literacy

[11] National Library Board. (2025). LearnX: Explore communities. https://www.nlb.gov.sg/main/site/learnx/explore-communities

and critical thinking through its programmes – NLB's S.U.R.E (Source, Understand, Research, Evaluate)[12] initiative is one such example of how NLB has worked with volunteer community advocates to support this cause.

Community Champions For S.U.R.E

NLB's S.U.R.E. initiative is an information literacy initiative that educates the public on how to discern and obtain information from reliable sources. Through multiple roadshows organised across Singapore, S.U.R.E actively engages with various community segments, with volunteers from different groups each bringing a unique value to its outreach efforts.

For instance, student volunteers, serving as S.U.R.E. champions through school collaborations, have proven particularly effective in creating authentic connections with young participants. This engagement is especially valuable given their high exposure to varied information sources across different media platforms. During the 2024 *Be S.U.R.E Together* roadshow, youth student volunteers demonstrated their ability to relate naturally to younger audiences, making complex concepts accessible through interactive activities and quizzes. Their approachable demeanour and peer-to-peer communication style helped create a more relaxed learning environment, encouraging greater participation from both children and their families. At the same time, senior volunteers value-add to these outreaches by sharing relatable examples that resonate strongly with older participants, particularly when discussing topics like online scams and misinformation.

The S.U.R.E initiative has also engaged corporate volunteers, such as policy officers from Singapore's government agencies, in its roadshows. This collaboration offers mutual benefits – beyond contributing to, and supporting a meaningful volunteering cause, their participation also provides them with valuable and authentic ground-level insights into public sentiments regarding online threats and scams which can better inform future policy directions.

PILLAR 3: INSPIRING SINGAPORE STORYTELLERS

As custodians of Singapore's history and heritage, NLB preserves and make accessible valuable resources through the National Library and the National Archives of Singapore. Under LAB25,

[12] National Library Board. (2024). About S.U.R.E. https://www.nlb.gov.sg/main/site/sure-elevated/about-us

NLB hopes to nurture a stronger appreciation and understanding of Singapore's experience. This is achieved through initiatives that tap into the community's collective expertise and wisdom.

Bringing Stories to Life: Docents and Library Guides for NLB's Exhibitions and Galleries

Over the years, NLB has developed a dedicated team of experienced and knowledgeable docents who bring exhibition and gallery content at the National Library and the National Archives to life through engaging guided tours. These volunteers, many of whom are professionals from diverse backgrounds (e.g. former educators), play a vital role in deepening the public appreciation of NLB's collections while creating memorable experiences for visitors.

In one example, a long-time docent at the Former Ford Factory – which houses a permanent World War II exhibition on the war and its legacies – pioneered Mandarin-language tours, as he recognised a need within the community. Going above and beyond his role, he meticulously translated the English tour script into Mandarin, creating a valuable resource that other Mandarin-speaking docents continue to use today. As a result, the gallery now offers both English and Mandarin tours, making Singapore's wartime history accessible to a broader audience. His commitment to sharing the nation's heritage exemplifies the spirit of NLB's Singapore Storytellers and serves as a striking illustration of how NLB has benefited from the wisdom of volunteers who help bridge the past with the present.

More recently, NLB has introduced "Library Guides" as a volunteering opportunity in its newly developed libraries. These guides, many of whom enjoy interacting with the community, play an instrumental role in introducing visitors to the library's facilities, services and unique features. Each library guide undergoes comprehensive training (including in-depth tours) to become well-versed with the library spaces that they will showcase. This also includes being proficient in content relating to the permanent exhibits curated within the library and fascinating stories about the vicinity around the library. For example, library guides at NLB's revamped Central Public Library learnt about the content of the "Lepak Landscapes: Life and Leisure in Singapore" a digital interactive exhibition showcasing content relating to the evolution of leisure in Singapore, and also works of local illustrator, Ah Guo, whose murals depicting iconic landmarks in Singapore, were displayed within the library. To better support them, all library guides were equipped with a tour script and flash cards, and paired with a fellow library guide for added support.

Transcribing and Conservation

Volunteers have also contributed their language abilities to support the promotion of archival materials. In a recently launched exhibition, "Untold Stories: Four Singapore Artists' Quest for Inspiration in Bali", volunteers were sought to summarise Chinese archival materials in English. The materials comprise numerous Chinese articles, written mainly in traditional Chinese. As a result, the National Library now has a more easily accessible set of reference materials that are not only useful for the exhibition, but also as future reference for staff. Volunteers have also embraced new roles such as volunteering at the Archives Conservation Lab where a small team of volunteers provide valuable support in the preservation and conservation of Singapore's published heritage. This includes implementing preventive measures such as surface cleaning, crafting supports, and utilising archival grade materials to house paper-based records that help make the collection more accessible.

PILLAR 4: EQUALISER

Under LAB25's Equaliser pillar, NLB aims to bridge divides and empower more in this digital age. This includes supporting an inclusive library environment for the community, extending outreach to children from lower-income families to share the joy of learning, and equipping Singaporeans with digital literacy skills. Volunteers have been instrumental in such initiatives, as demonstrated by the following efforts that create meaningful impact in the community.

Inclusive Volunteering: Externships for Persons with Disabilities

NLB's Externship Programme, which began in 2010, is designed to empower Persons with Disabilities (PWDs) to contribute to the community by volunteering at the libraries. Through collaborations with Special Education (SPED) schools and organisations that support PWDs, NLB works with job coaches to identify and tailor suitable volunteering opportunities based on their clients' profiles and abilities. The following are some examples of roles that NLB has co-designed for these volunteers over the last three years.

For instance, NLB has worked with several externship partners in Singapore – ABLE (Abilities Beyond Limitations and Expectations), APSN, APEX Harmony Lodge, Cerebral Palsy Alliance Singapore (CPAS), Grace Orchard School, Metta School, SPD and National Neuroscience Institute (NNI), etc. – to design volunteering roles to support library operations such as the maintenance of library collection at volunteer-run spaces at the libraries. For this role, individuals help to keep the collection at designated areas of the libraries tidy by straightening, sorting and shelving books. For artistically inclined individuals, NLB offers them opportunities

to contribute their creative talents through art projects such as designing library displays and decorating tote bags that were gifted to library visitors as part of its loan promotion.

Other tasks include assisting with the processing of collections at NLB's library supply centre, such as the pasting of book spine labels on newly acquired books – a collaboration with the St. Andrew's Autism Centre (SAAC).

The creation of such inclusive opportunities aims to provide a conducive environment for PWDs to make an impact and, at the same time, cultivate skills that would be useful for future employment (e.g. being adept at interacting with the public). It also provides a platform to showcase the artistic talents of these individuals. To ensure success, NLB provides basic training to staff hosting these externships so that they are familiar and comfortable with engaging PWD volunteers; job coaches are required to be present at all times to ensure the well-being of these volunteers. This approach ensures that their well-being is always prioritised throughout the programme. Participating organisations have found the externship experience meaningful and have continued to volunteer with NLB over the years.

Promoting the Love for Reading Through kidsREAD

Volunteers have also been instrumental to NLB's signature kidsREAD programme[13] – a programme promoting the love for reading in children from low-income families since 2004. The kidsREAD programme requires individual volunteers to undergo a one-time Basic Reading Aloud and Storytelling training before they can be deployed to partner centres to conduct reading programmes. Following positive responses garnered from past and present participants and families of kidsREAD, the kidsREAD@Home last-mile initiative was piloted in 2023 as an expansion of the kidsREAD programme. Officially launched in August 2024, it aims to bring reading sessions directly to the homes of children who stay in rental flats. During the sessions, volunteers conduct storytelling and book-related activities for the children in their homes. With the support of volunteers for kidsREAD@Home, NLB hopes to reach even more children and create opportunities for them to also be inspired by the power of reading and learning.

[13] National Library Board. (2024). kidsREAD volunteer. https://www.nlb.gov.sg/main/partner-us/volunteer-with-us/KidsRead-Volunteer

Mega Events

NLB regularly organises events throughout the year, each designed with specific objectives and a strong community focus. These events present valuable opportunities for group volunteering, particularly for corporate teams and school groups.

One such initiative was Tech Bazaar, an event that introduced seniors to emerging technologies through hands-on workshops, showcases, and talks. Participants could experience innovations like virtual reality, robotics and artificial intelligence in an accessible and engaging environment, many for the first time. To support this event, NLB mobilised and collaborated with corporate volunteers from Hewlett Packard Enterprise (HPE), Dell Technologies Inc., Edelman Singapore Pte Ltd and Salesforce Inc. (Salesforce) who served as guides to help visitors navigate exhibits and provide information about the various innovations and technologies being showcased. They also assisted seniors who were less digitally savvy with their digital-related queries, such as guiding them on how to use the NLB Mobile app to access a variety of services like borrowing eBooks, accessing eNewspapers, signing up for programmes, or checking account details. Those who were well-versed in the vernacular languages and dialects also made it easier to share these messages with non-English speaking participants.

Another signature initiative is NLB's annual Big Book Giveaway (BBG), a community event where preloved library books are given to the public; it also serves as a platform to support beneficiaries and communities. In the lead-up to the event, volunteers transform empty spaces into welcoming environments by organising the collections to facilitate browsing. They also help to ensure a smooth and enjoyable experience for all, welcoming visitors and guiding them to the collections based on their preferences. Corporations that have participated in BBG include Deloitte & Touche LLP, Salesforce Inc (Salesforce), The Development Bank of Singapore Ltd (DBS), Standard Chartered Bank (Singapore) Limited and the Ministry for Digital Development and Information (MDDI).

SUPPORTING LIBRARY OPERATIONS

Beyond the four LAB25 pillars, volunteers have been crucial in supporting NLB's operations as well. Over the years, the roles of volunteers have expanded in this area, as libraries strive to become a more interactive social venue for the community, and the interests of volunteers become more varied.

Table 1: Volunteering roles that support library operations

Volunteer Roles	Description
Collection Maintenance	Supporting volunteer-run spaces through shelf reading, sorting and shelving books, and ensuring that collections are correctly placed for easy location by the public.
Crafting	Enhancing library displays and supporting inclusivity through the crafting of sensory toys and materials for storytelling sessions.
User Education	Assisting library patrons navigate library spaces and services, such as using the book borrowing stations, NLB's mobile app and accessing NLB's eResources.

By involving volunteers in library operations, volunteers feel that they have a stake in the library branch as they are entrusted and empowered to create a conducive environment for visitors. Volunteers can also better appreciate the efforts taken to ensure the smooth running of the library and key considerations to make libraries more inclusive. To this end, some volunteers have even stepped up to become "volunteer mentors" to train and guide new volunteers in their roles.

These volunteers are excellent ambassadors, effectively connecting with patrons to promote NLB's resources and new offerings. Their reliable support, particularly during weekends when libraries experience a higher footfall, has enhanced operational efficiency. This successful partnership between staff and volunteers has created a more dynamic and responsive library environment that better serves the community.

IN ACTION: HOW VOLUNTEERS SUPPORT LAB25 @ PUNGGOL REGIONAL LIBRARY

Punggol Regional Library (PRL) is the first library with many inclusive and accessible features for the community[14]. PRL exemplifies how volunteers from different backgrounds have come together in many diverse ways to support NLB's LAB25 pillars and library operations.

PRL has a volunteer-run space where volunteers help to sort and shelf books. Some of them also took on library guide roles, especially during the initial library opening stage, where they

[14] Teo, J. (2024, November 25). New Punggol library encourages tinkering and storytelling, including for children with disabilities. The Straits Times. https://www.straitstimes.com/singapore/new-punggol-library-encourages-tinkering-and-storytelling-including-for-children-with-disabilities

were trained to conduct tours to the public and share interesting new features of PRL and its vicinity.

The Toy Library, which is NLB's first dedicated toy library stocked with toys, educational aids, puppets and costumes to cater to different types of play — creative, dramatic or sensory – is maintained by students from the MINDS (Movement for the Intellectually Disabled of Singapore) Fernvale Gardens School. Their roles include sterilising toys, returning sterilised toys to the shelves and occasional ad-hoc tasks such as labelling toys, sorting and packing new toys. Corporations such as Salesforce have also volunteered to create a series of sensory toys needed for PRL's Calm Pod – a quiet and safe space for PWDs to retreat to when needed.

Volunteers are also instrumental to the programme offerings at PRL. For instance, Sew & Steady is a community of like-minded individuals with a passion for sewing and a shared vision of a more sustainable future. Through upcycling, repurposing, and refashioning, the LearnX Community aims to breathe new life into second-hand materials and to spread this love of crafting and upcycling to the masses.

Volunteers who enjoy interacting with children also contribute to the Spark!Lab facility – Spark!Lab offers a children's maker space for children aged 7 to 12 years old to explore STEAM learning concept through interactive play. In this space, volunteers act as facilitators to support learning by helping children and their caregivers through probing questions that help spark imagination, creativity to explore. Past corporate groups that have volunteered for Spark!Lab included Deloitte & Touche LLP. This opportunity not only provides volunteers a platform to hone their interpersonal skills, particularly those that involve interactions with children, but also provides interesting insights into how children indulge in creativity.

KEY SUCCESS FACTORS IN PARTNERSHIP STRATEGY

To ensure a successful partnership with volunteers, NLB works closely with them to understand their volunteering aspirations and how they can be meaningfully engaged to value-add and contribute to the libraries and archives. These can be summarised into the following principles/approaches:

- Understanding the values and goals of volunteers. In the case of corporates, this involves knowing their Corporate Social Responsibility (CSR) aspirations, as well as any operational considerations.

- Matching these to volunteering opportunities which fulfil these objectives. This ensures a strong win-win partnership where both parties achieve meaningful outcomes and make a difference to the community that NLB serves.
- Providing necessary resources to ensure a successful collaboration, such as on-the-job training, user education videos, flash cards, tour scripts, etc.
- Obtaining feedback from both internal stakeholders and volunteers on the volunteering experience to identify areas done well and for future improvements.
- Recognising and appreciating volunteers' contributions. Acknowledging their efforts reinforces a sense of purpose, fosters sustained engagement and strengthens commitment to NLB. NLB has recently updated its Rewards and Recognition Framework, which includes an expanded range of rewards at different levels of contributions, to enhance the appreciation and experience of NLB's volunteers.

CHALLENGES AND LEARNING POINTS

Managing a diverse volunteer group presents challenges that require careful consideration and strategic solutions. As seen from the examples provided, many of the volunteer-supported initiatives are spread across various divisions and locations within NLB to support varying causes. The Volunteer Management (VM) team, which comprises only five members, has to appoint colleagues from various divisions as Volunteer Management Officers (VMOs). The VMOs serve as the "eyes and ears" on the ground, enabling more frequent and direct interaction with volunteers. With the support of internal stakeholders, this approach not only enhances the quality and timeliness of engagement but also ensures that the volunteers receive immediate support and feedback in their respective areas of service on the ground.

Another challenge lies in matching volunteer opportunities with the diverse needs of corporate and community groups. For instance, some prefer once-off events that can accommodate large groups (20 or more participants simultaneously), or have specific dates, locations and/or timings in mind. However, NLB's events and services are distributed throughout the year, with limited capacity at any given time, and there will be instances when demand exceeds the volunteering opportunities available. While NLB offers flexible scheduling options and strives to provide a variety of options, the fundamental challenge of balancing large group requests with meaningful engagement opportunities remains.

CONCLUSION

As NLB's initiatives continue to evolve, they present new opportunities for volunteers of diverse interests, capabilities and backgrounds to contribute to NLB's community of learners. Ongoing feedback from volunteers will also be essential in helping NLB to refine roles, enhance the support provided, and strengthen ways to recognise and appreciate their invaluable commitment. Together, these efforts will enable a more effective and vibrant volunteering community within NLB.

REFERENCES

National Library Board. (2022). *LAB25: Libraries and Archives Blueprint 2025*. https://www.nlb.gov.sg/main/about-us/About-NLB/lab25-libraries-and-archives-blueprint-2025.

National Library Board. (2024a). *About S.U.R.E*. https://www.nlb.gov.sg/main/site/sure-elevated/about-us.

National Library Board. (2024b). *kidsREAD volunteer*. https://www.nlb.gov.sg/main/partner-us/volunteer-with-us/KidsRead-Volunteer.

National Library Board. (2025). *LearnX: Explore communities*. https://www.nlb.gov.sg/main/site/learnx/explore-communities.

Teo, J. (2024, November 25). New Punggol library encourages tinkering and storytelling, including for children with disabilities. *The Straits Times*. https://www.straitstimes.com/singapore/new-punggol-library-encourages-tinkering-and-storytelling-including-for-children-with-disabilities.

Developing Reading Habits Among University Students Through Collaboration with Book Club and Library: A Case Study at The University of Science, Vietnam National University in Ho Chi Minh City

Hoa Luong Minh[1], Toan Pham Ba[1], Bao Le Nguyen Gia[2], Nhi Nguyen Ngoc Trang[2], Lien Tran Le Tuyet[2]

[1]Vietnam National University in Ho Chi Minh, University of Science, Ho Chi Minh City, Vietnam
[2]HCMUS Book Club, Vietnam National University in Ho Chi Minh, University of Science, Ho Chi Minh City, Vietnam

Corresponding email: lmhoa@hcmus.edu.vn

ABSTRACT

This study examines the role of collaboration between the book club and the library in fostering reading habits among university students, focusing on a case study at the University of Science, Vietnam National University, Ho Chi Minh City. Based on the Community of Practice (CoP) framework model, the research explores how shared interests, social engagement, and collective practices support the cultivation of sustainable reading habits. The research aims to assess the current state of students' reading habits, analyze the effectiveness of activities organized by book clubs and libraries, and propose collaborative models to encourage reading culture within the university environment. Using a mixed-methods approach, the study includes surveys from 891 students to understand students' reading preferences, motivations, and participation in activities hosted by book clubs and libraries. Opened question interviews with student provide insights into their roles and challenges. Key findings highlight the potential of joint activities, such as book discussions, reading seminars, and digital platforms, in promoting reading habits. The study highlights that a strong domain of shared interest, an engaged community, and evolving practices—consistent with the CoP framework—can significantly develop students' reading habits. The study identifies barriers, including time constraints, limited resources, and competition from digital entertainment, while suggesting solutions such as enhanced library services, creative reading spaces, and integrated reading activities.

Keyword: Reading Habit; Collaboration with Book Club; Promoting Reading Culture; Community of Practices

INTRODUCTION

Reading is widely recognized as a fundamental skill essential for personal and academic development. It plays a vital role in fostering critical thinking and knowledge acquisition (Kong, 2024; Li, 2019; Rifai et al., 2023; Tuong, 2016). The formation of reading habits contributes not only to individual discipline and self-regulation but also to the development of a broader reading culture within educational institutions (Trần, 2018). Cultivating a reading culture encourages lifelong learning, creativity, and the capacity to independently explore new knowledge sources—skills that are increasingly crucial in a rapidly changing world. However, the formation of reading habits is not immediate; it requires consistent reinforcement and daily practice. When developed

over time, these habits become integral to both personal skill-building and intellectual growth (Erdem, 2015). Also, Erdem(2015) emphasizes that self-awareness and reflection on one's reading needs are key components in the gradual development of these habits, which serve as a foundation for lifelong learning.

Among contributing factors, the library plays a crucial role in encouraging the development of reading habits within the community, especially among university students. Beyond providing information resources, services, and physical space, the library also acts as a bridge that connects and facilitates learning activities. Specifically, Flodberg (2010) believes that participation in activities that foster essential skills can reshape students' self-value in the academic environment. Likewise, Rifai et al. (2023) emphasize that the development of reading habits is not solely the responsibility of one organization or individual—it requires the cooperation of multiple parties and surrounding factors. Engaging in reading activities not only encourages content sharing and deeper understanding of texts but also creates a space for social interaction among readers who share common interests and topics (Rifai et al., 2023).

In addition to libraries, book clubs also play an important role in encouraging and supporting the development of a reading culture. Through member meetups, guest speaker sessions, faculty involvement, and library staff participation, book clubs contribute significantly to this

effort (Hillery & Henkel, 2010; Jiang & Hou, 2022; Reister, 2020). Moreover, book clubs serve as a bridge to foster sharing and build strong interpersonal relationships among students, facilitating friendships and exchanges of ideas not only regarding academic books but also other genres that match personal interests (Alghamdi, 2013). The dialogues among student members help expand social networks, improve communication skills, and raise awareness about the importance of selecting appropriate reading materials and thinking strategies (Alghamdi, 2013; Jiang & Hou, 2022). Reister (2020) agrees that the purpose of a book club is to motivate and promote a reading culture for the entire student body.

Therefore, this study aims to highlight the value of collaboration between the library and book clubs, not only in enhancing students' reading habits but also in providing a space for social interaction, where individuals share ideas, interests, and themes. Additionally, the study proposes various activities and suggests new initiatives to strengthen the roles of libraries and book clubs in expanding access to reading culture development and diversifying approaches to cultivating reading habits within the student community.

The Collaboration Between HCMUS Book Club and HCMUS Library

The book club (HCMUS Book Club) is built on the foundation of a reading group at 6 am. During the period of social distancing, the group was built by Ms. Vo Thi Thu Suong based on understanding that situation and practising reading books every morning is necessary for students because getting used to this not only helps them avoid feeling bothered but also helps them have more time to relax to easily continue to collect knowledge while studying. The HCMUS target book series was born to create an environment to practice Reading Culture for students who have a passion for books.

In 2023, the library and the Book Club jointly organized a series of activities on World Book and Copyright Day. The cooperation stems from the similarity of goals, as well as the effective interaction between the activities of the club and the library. By creating conditions to reach more students, the library and the book club understand more clearly the expectations and needs for effective access to documents. In addition to cooperating in organizing the series of activities on Vietnam Book Day and World Copyright Day, the two also collaborated in "Afternoon Tea" activities, connecting and building effective media products such as the Podcast "College Success Guide" and Workshops on essential skills for university students. The community is gradually formed around how to develop effective reading habits, not only in competitions, but also in daily activities."



Figure 1: First Collaboration between HCMUS Library and HCMUS Book Club celebrating VietNam Book Day and World Copyright Day



Figure 2: First official Collaboration between HCMUS Library and Book Club in 2023

Through these collaborative efforts, a supportive and engaged community has gradually formed, centered around the development of effective reading habits. These initiatives extended beyond one-off competitions, becoming part of students' everyday academic and social routines.

Collaboration Between the Library and the Book Club As a Community of Practice

Community of Practice (CoPs) is one of the key theoretical frameworks used to analyze interactions within social groups and learning systems among individuals who share a common domain of interest or passion (Blackmore, 2010; Wenger, 1998). The CoPs model acts as a bridge between formal and informal learning, enabling collaborative knowledge building through shared experiences. As Uriate (Cited in Nazim & Mukherjee, 2016, p. 55) explains, it "consists of members exchanging knowledge and in the process they build relationships and develop a sense of belonging and mutual commitment." Betchoo further emphasizes the value of shared interest in identifying common themes and generating solutions to collective challenges (Singh et al., 2022). Wenger và Lave (1991) conceptualize the CoPs framework through three key fundamentals:

- Domain of Knowledge: the shared area of interest or knowledge where members engage around common topics, goals, or passions;
- Community: the social group formed by individuals with aligned perspectives or interests, providing emotional and intellectual support.
- Practice: the methods, activities, and strategies developed and applied by the group to reinforce its goals and promote collective engagement.

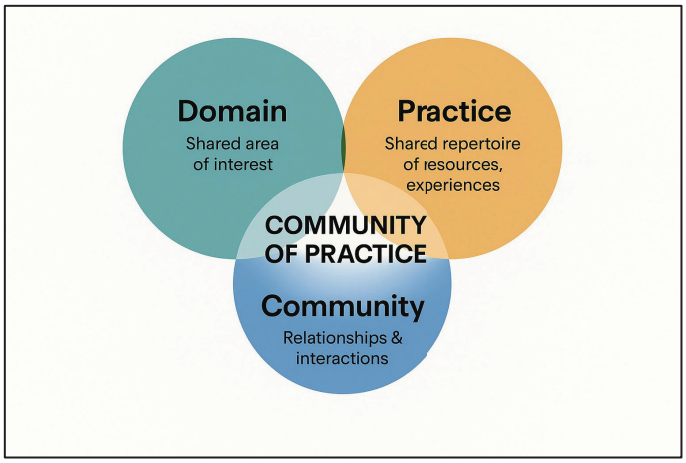


Figure 3: Three fundamentals of CoPs

In the context of collaboration between the university library and the student book club, the CoPs framework can be mapped across these three elements:

1) Domain: This refers to the shared interest in reading and specific genres of books, with a focus on building consistent reading habits. It also involves identifying how reading supports academic, research, and recreational needs, as well as recognizing the barriers that hinder students from developing such habits.

2) Community: This aspect emphasizes forming a community centered on knowledge and reading. Through joint activities and initiatives, the library and book club foster a sense of connection, mobilize participation, and promote the value of effective reading practices across the student population.

3) Practice: This includes the creation of events, campaigns, and media products that serve as bridges to engage community members. These efforts go beyond organizing prestigious competitions, they provide a social space and motivational environment that encourages students to explore books and cultivate personal reading habits.

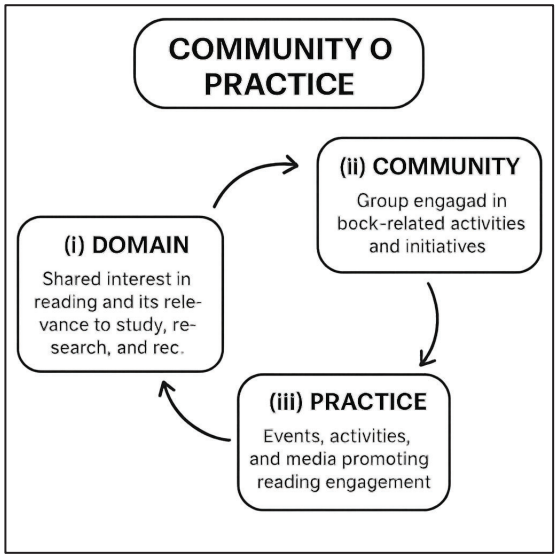


Figure 4: Research design framework based on the Community of Practice (CoP) Model

RESEARCH METHODOLOGY

Samples And Methods

This study employed a quantitative and qualitative research method to explore students' expectations regarding the development and availability of activities that support the cultivation of reading habits. Through a quantitative and qualitative research approach, this

study seeks to answer the following research questions: (1) What topics are of interest to students? (2) What are the barriers to developing reading habits? (3) Which events have influenced and promoted a reading culture through the collaboration between the HCMUS Book Club and the HCMUS Library

The survey was conducted using random sampling among students from 10 different faculties. A total of 935 responses were collected. After excluding 44 invalid responses, the study retained 891 valid samples for analysis.

Table 1: The number of students based on faculties

Faculty	N
Information Technology	227
Geology	10
Electronics & Telecommunication	73
Chemistry	133
Interdisciplinary	1
Material Science & Technology	36
Environment	58
Biology & Biotechnology	180
Mathematics & Computer Science	112
Physics & Physics Engineering	61

Among the respondents, four faculties had the highest participation rates: Faculty of Information Technology (24.8%), Faculty of Biology and Biotechnology (20.5%), Faculty of Chemistry (15%), and Faculty of Mathematics and Computer Science (13.3%).

Limitations

The study was constrained by a limited research timeframe, which prevented long-term tracking and in-depth analysis from the perspective of the Community of Practice (CoP) framework. Furthermore, the research only captures the initial phase of collaboration and the early efforts to promote reading habits through media, events, and workshops. Over the next year, the collaborative model between the Book Club and the Library is expected to be expanded. Future activities will be studied more thoroughly and tailored to different stages of development - particularly in response to the evolving landscape marked by the rise of artificial intelligence.

RESULT

The Reading Practices of Students at Vietnam National University in Ho Chi Minh, University of Science

According to the survey, 44.11% of students reported spending between 1 to 3 hours per week reading books outside of their academic textbooks. Only about 9% of students spent more than 6 hours on extracurricular reading, while nearly 36% devoted less than 1 hour to reading materials unrelated to their coursework. Regarding the types of books read, 35% of students preferred Literature and Novel works for personal interest or entertainment. Academic books accounted for 31%, as they support students' learning and research in their university courses. Books related to Religion and Healing received little attention, with only 3% of students selecting them.

The motivations for reading were diverse. "Personal interest or habit" and "stress relief" were the most common driving forces, accounting for 31.87% and 23.37% respectively. Online book reviews had a significant influence, affecting 65% of students' book choices. In contrast, books selected purely based on personal taste accounted for less than 1%. Random selections from libraries or bookstores, as well as recommendations from friends and family, were also notable factors, at 40.1% and 37% respectively. Other considerations, such as content relevance, appealing book covers, or personal impressions, had a very low impact, each below 1%.

Table 2: The amount of time spent reading books outside of studying course material (Hours per week)

The amount of time spent reading books outside of studying course materials (hours per week)	Number	Percentage
Below an hour	299	35.56
1-3 hours	393	44.11
3-6 hours	119	13.36
Above 6 hours	80	8.98

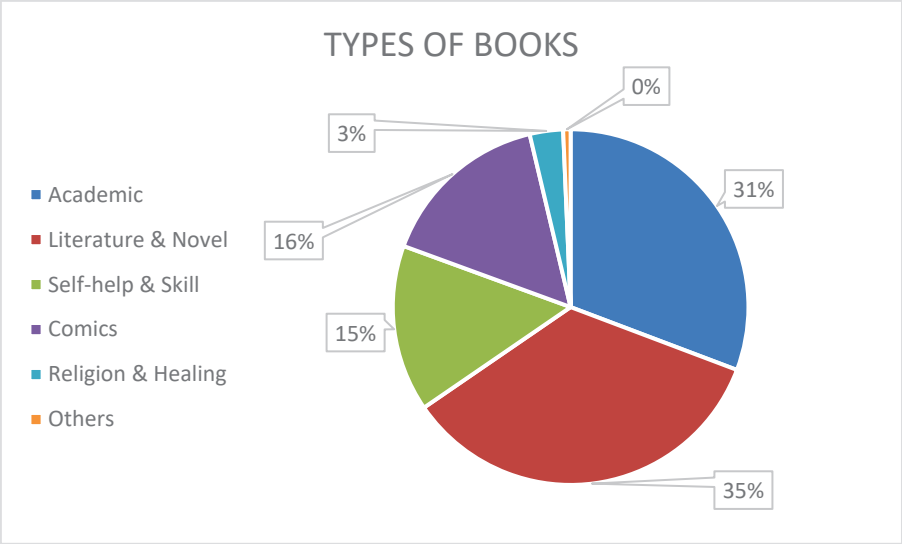


Figure 5: Types of books were selected by HCMUS students

However, the biggest barrier to regular reading among students was identified as a lack of time (45.12%). In addition to time constraints, a lack of motivation and interest (37.37%) was also cited as a key factor that directly affects the formation of reading habits among students at the University. Respondents also mentioned the lack of suitable reading spaces (9.43%) and insufficient access to reading materials (7.41%) as factors hindering their reading activities.

Overall, the average time students spent on reading per week was typically between 1 to 3 hours. The types of books most frequently read were primarily literary works and novels, chosen for personal enjoyment and entertainment. Furthermore, online reviews significantly influenced students' choice of reading materials, especially in the digital age where social media accelerates the spread of information. The lack of time and motivation remains the most critical challenge for students at the University of Science, Vietnam National University, Ho Chi Minh City, in developing sustainable reading habits.

Collaboration Between HCMUS Library and HCMUS Book Club

The participation in and awareness of Book Club activities play a crucial role in promoting and spreading a reading culture within the HCMUS student community. Specifically, 61.3% of students were aware of the Book Club but had not yet participated in its activities. When asked about the value they perceived in joining the Book Club, students selected various reasons, including: "Improving reading habits" (26.3%), "Taking advantage of free book resources" (21.5%), "Developing soft skills" (19.4%), and "Connecting with people who share similar interests" (13.6%).

In addition to these perceived values, a wide range of activities resulting from the collaboration between the HCMUS Library and the HCMUS Book Club were seen as effective in encouraging student reading habits. Activities such as "sharing from films/podcasts/articles about books" were highly rated, with over 40% of students selecting this option. Other popular activities included "sharing or recommending books among group members and friends" (32.8%) and "organizing events with guest speakers or authors" (29.8%). Moreover, activities like "book content discussions" (27.5%) and "reading challenges or group reading sessions" (21.6%) were also frequently mentioned.

Furthermore, when students were specifically asked about past events organized through the collaboration between the HCMUS Library and the HCMUS Book Club, Workshops/Seminars were the most chosen, accounting for 36.1%. Notable workshops that drew significant student participation included: "How to Create a Research Poster" with more than 40 participants, "Let Us Talk About the Reading Culture" with more than 50 participants, and "An Overview of the Development of Vietnamese Literature Through Different Periods" with more than 60 participants.

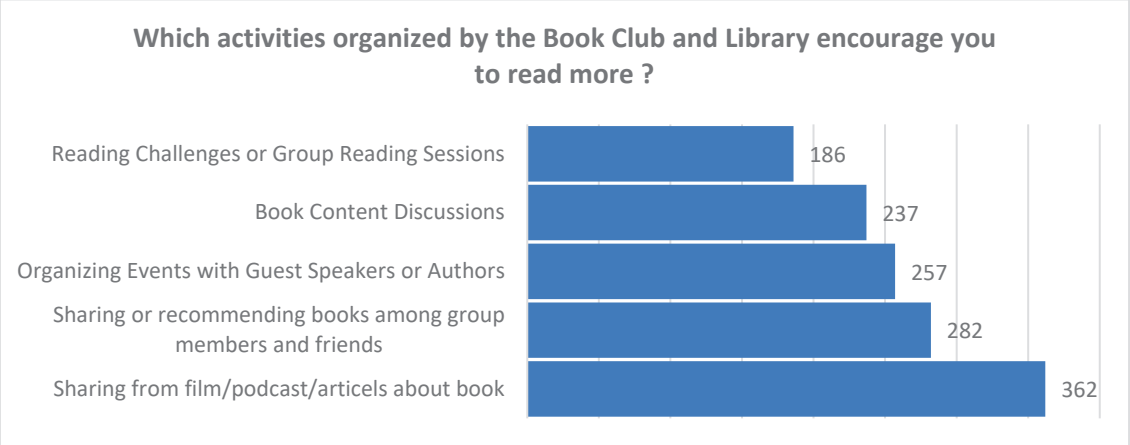


Figure 6: Activities organized by the Book Club and Library

Initiatives like creating podcasts, videos, and scripts, such as the "College Success Guide" podcast and casual "Podcast Radio Conversations", also supported the promotion of reading culture and were selected by about 21% of students. Additionally, the Book Club's signature "Afternoon Tea" sessions garnered the interest of 16.6% of students, with prominent topics including Tolerance; "The Journey Through Books" among others. These sessions have helped strengthen the bonds among community members.

Notably, when students were asked an open-ended question about the "shared values brought by activities promoting reading through the cooperation between the HCMUS Library and the HCMUS Book Club," several key insights emerged. Responses highlighted that promoting a reading culture, enhancing knowledge, developing critical thinking skills, and connecting the book-loving community" are fundamental responsibilities of both the Library and the Book Club. Some students also noted that "the initiatives to encourage reading provide fresh energy to students, making them more excited about reading." Others told "Weekly entertainment and exploring information about various good books, shared and discussed while listening to others read new books". Importantly, an interviewee fully answered, "In my opinion, encouraging reading is an extremely meaningful endeavor that not only enhances knowledge but also enriches life experience. Reading is a valuable habit, especially considering the current situation where students and young people are excessively and often harmfully consuming content on social media. Expanding the Book Club will further connect readers, creating a community of book enthusiasts who can interact, exchange books, and share the vast knowledge they have accumulated through reading—a priceless and inexhaustible resource of humanity.". These opinions emphasized not only the importance of collaboration and community building but also how these activities create an energizing and supportive environment for students.

Through these surveys and open-ended responses, the partnership between the HCMUS Library and the HCMUS Book Club demonstrates a leading role in influencing students' reading habits and in fostering the necessary skills for academic success. Moreover, the alignment of students’ feedback with the types of activities and events that have been implemented strengthens the bond between the two organizations. This partnership is crucial, especially for students who struggle with limited time for reading. Ongoing activities, competitions, and events have directly impacted students' engagement with reading, as reflected in their choices and feedback. All of this underlines the importance of continued collaboration between the library and the Book Club in promoting a widespread reading culture, specifically by cultivating sustainable reading habits among HCMUS students. The study clearly identifies a strong Domain where members (students, library staff, book club organizers) are united by their passion for and commitment to reading.



Figure 7: Workshop of "An Overview Of The Development Of Vietnamese Literature Through Different Periods" (left) and "Let Us Talk About The Reading Culture" (right)

DISCUSSION

Domain as Shared Interest and Purpose

The shared domain in this study is the promotion of reading habits and reading culture among HCMUS students. Especially, the shared goal between the HCMUS Library and the HCMUS Book Club is to jointly promote the development of reading habits, foster a culture of reading, and support lifelong learning. For example, survey responses affirm this, as students cited motivations such as "improving reading habits" (26.3%), "taking advantage of free book resources" (21.5%), and "developing soft skills" (19.4%) as primary reasons for their engagement. The study establishes that students, library staff, and book club organizers share a meaningful and valuable commitment to fostering lifelong reading habits. Besides, activities like workshops, book-sharing events, podcasts, and reading sessions focus on enhancing students' engagement with reading for academic, research, and leisure purposes. This shared domain not only defines the community's purpose but also ensures that activities remain focused on meaningful educational and personal development goals.

Community as Building Relationships and Social Learning Space

The community aspect focuses on fostering social connections, trust, and opportunities for shared learning. This collaboration has successfully cultivated a dynamic, interactive space where students, librarians, and book club members regularly engage in activities like Afternoon Tea sessions, workshops, book-sharing events, and digital projects such as podcasts. Practices such as "sharing book recommendations among peers" (32.8%) and "organizing events with guest speakers" (29.8%) help strengthen relationships and facilitate knowledge exchange. Students highlighted that meeting others with similar interests (13.6%) was a key benefit of participating. Additionally, open-ended survey responses emphasize how these activities brought "fresh energy" and made reading more engaging and communal. This sense of community reflects the successful creation of a learning and reading community. The study

clearly emphasizes collaborative learning and knowledge-sharing, both in formal settings (workshops, seminars) and informal ones (peer-sharing, podcasts). The community aspect thrives through regular events and media initiatives that promote interpersonal connections, peer support, and social interaction around reading. Through these interactions, students build peer relationships, share experiences, sense of belonging and learn socially — key factors in sustaining long-term reading habits.



Figure 8: Monthly activity " Afternoon Tea"

Practice as Shared Resources and Reading Motivation

The Practice component refers to the shared activities, routines, and knowledge resources developed within the community. The collaboration has produced a wide array of tangible practices, including book discussions, reading challenges, skill-building workshops (such as "How to Create a Research Poster"), and creative media projects like the "College Success Guide" podcast. These practices not only provide students with valuable resources but also offer them opportunities to co-create and exchange knowledge. The study indicates that media-based activities, such as sharing podcasts and book-related articles, were particularly effective, with over 40% of students preferring this format. Through repeated participation in these shared practices, students enhance their reading skills, academic competencies, and social networks, demonstrating a living and evolving practice within the community(Abimbola & Dr, 2023; Hillery & Henkel, 2010).

CONCLUSION

To sum up, the collaboration between the HCMUS Library and the HCMUS Book Club demonstrates a promising model for fostering reading habits among university students through the lens of the Community of Practice (CoP) framework. By aligning shared interests (Domain), building a supportive and interactive community (Community), and implementing

meaningful and engaging activities (Practice), the partnership successfully cultivates both academic and personal growth in reading. This case study highlights how such collaborative efforts not only address the individual challenges students face in forming reading habits but also establish a sustainable, socially enriched environment that promotes lifelong learning. The findings suggest that similar CoP-based models can be effectively applied in other academic contexts to enhance student engagement and strengthen reading culture across institutions.

REFERENCES

Abimbola, D. M. O., & Dr, A. A. K. (2023). Book club as collaborative intervention to reduce aliteracy among in-school adolescents in Nigeria: The roles of library school educators. *Library Philosophy and Practice (e-Journal)*, *7770*.

Alghamdi, D. J. (2013). The effect of using book clubs to improve literacy and build a learning community among under-performing elementary students. Library and Archives Canada = Bibliothèque et Archives Canada.

Blackmore, C. (Ed.). (2010). *Social Learning Systems and Communities of Practice*. Springer London. https://doi.org/10.1007/978-1-84996-133-2

Erdem, A. (2015). A Research on Reading Habits of University Students: (Sample of Ankara University and Erciyes University). *Procedia - Social and Behavioral Sciences*, *174*, 3983-3990. https://doi.org/10.1016/j.sbspro.2015.01.1145

Flodberg, C. (2010). Evidence Based Library and Information Practice. *Evidence Based Library and Information Practice*.

Hillery, L. B., & Henkel, H. L. (2010). Literature, Community and Cooperation: The Big Read at Regent University. *Public Services Quarterly*, *6*(4), 331-342. https://doi.org/10.1080/15228951003723796

Jiang, M., & Hou, J. (2022). Research on Innovations of the Service Mode of Reading Clubs in University Libraries. *Journal of Education, Humanities and Social Sciences*, *6*, 5-8. https://doi.org/10.54097/ehss.v6i.4033

Kong, J. (2024). Research on Reading Habits of College Students Based on Fuzzy Set Theory and Intelligent Transformation of Libraries. *Applied Mathematics and Nonlinear Sciences*, *9*(1), 20240480. https://doi.org/10.2478/amns-2024-0480

Lave, J., & Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation* (1st ed.). Cambridge University Press. https://doi.org/10.1017/CBO9780511815355

Li, J. (2019). Encouraging Reading Habit among Chinese University Students. *Journal of Contemporary Educational Research*, *3*(3). https://doi.org/10.26689/jcer.v3i3.702

Nazim, M., & Mukherjee, B. (2016). Knowledge management in libraries: Concepts, tools and approaches. Elsevier.

Reister, A. (2020). Influence of book clubs on reading motivation for third through fifth grade students. *Graduate Research Papers*, *1492*. https://scholarworks.uni.edu/grp/1492

Rifai, I., Esmerawati, A. B., Rusiana, R., Paradita, L. I., Anandari, C. L., & Pattiwael, A. S. (2023). Fostering the Love of Reading: Dynamics and Sustainability of Book Clubs in Indonesian Universities. *Lingua Cultura*, *17*(1), 85-91.

https://doi.org/10.21512/lc.v17i1.9735

Singh, U. G., Nair, C. S., Blewett, C., & Shea, T. (Eds.). (2022). *Academic voices: A conversation on new approaches to teaching and learning in the post-COVID world*. Chandos Publishing, an imprint of Elsevier.

Trần T. N. (2018). Văn hóa đọc của sinh viên tại trường Đại học Văn Lang và Đại học Hồng Bàng. *Tạp chí Khoa học Đại học Văn Lang*, *10*.

Tuong, H. (2016). *reading attitudes and reading habits of Vietnamese undergraduate students* [Flinders].https://flex.flinders.edu.au/file/c9641004-c5ed-4496-9719-79c48b690b92/1/ThesisHo2016.pdf

Wenger, E. (1998). *Communities of Practice: Learning, Meaning, and Identity* (1st ed.). Cambridge University Press. https://doi.org/10.1017/CBO9780511803932

Jepara Regency Library Stakeholder Synergy in Leveraging Library Transformation for Social Inclusion

Muhammad Irsyad Alfatih[1], Perwitasari Rengganingytastuti[2], Amelia Marihesya[3]

[1]Doctoral Candidate of Communication Sciences, Padjadjaran University, Indonesia

[2]National Library of the Republic of Indonesia

[3]Sekolah Ciputra Surabaya

Corresponding email: muhammad22274@mail.unpad.ac.id

ABSTRACT

The journey of library development in Jepara Regency, from the Perpuseru era to Social Inclusion-Based Transformation, shows the importance of collaboration with various parties to achieve inclusive and competitive library development. Through innovation, collaboration and commitment, Jepara has succeeded in transforming its library into a center for social inclusion that empowers its community. Jepara's regency, enthusiasm and innovations makes it an exemplary example of how libraries can improve literacy and community welfare. Jepara Regency has been successful in developing libraries at the local level by utilizing local resources, building cooperation between various parties, obtaining adequate budget support, having supportive regulations, and involving active community participation. Jepara's experience can be an inspiration for the central and other regional governments in efforts to improve the quality and accessibility of libraries throughout Indonesia.

Keywords: Library; Synergy; Transformation

INTRODUCTION

Libraries have long been seen as the repositories of knowledge, from which it is vital recognized as the place for knowledge organization, dissemination and preservation. By the traditional function, a library may just provide the service as a book depository for it users, but this time, the role of the library has been extending far into the development of society. By providing access to knowledge, promoting literacy, and encouraging social inclusion, libraries play a

crucial role in shaping informed, skilled, and connected communities. Through it diverse services and supporting initiatives, libraries help address inequities in access to information, strengthen the foundations of learning, and foster strong social connections. The mentioned roles of the library in building an inclusive and knowledgeable society is explored in depth in this article.

Nowadays, people with a smartphone can access data, information, and knowledge. Libraries are just one of many platforms that provide those inquiries, but it's undeniable that libraries have a number of advantages that have not been replaced. With collections of books, journals, magazines and digital resources, libraries provide access to a wide and varied range of curated information. This makes the library different from other platforms of knowledge gateways. Thus, the library is also a place for equal value of education by helping reduce the gap in access to information between individuals with different economic, social, and cultural backgrounds.

Extending the role as a knowledge gateway that is not limited to information gathering, library nowadays also offers services as knowledge exchange and lifelong learning portals. Such as guides understanding, evaluating, and using the information effectively. Through training programs and reference assistance, libraries help strengthen information literacy skills, which are an important aspect of modern life. The library is also a place where socio-cultural transformation occurs, to improve community welfare and beyond the information center, Haryanti (2019). When discussing community welfare and libraries as information centers, there are three aspects that need to be considered: Connectivity, Content, and Human. To achieve community welfare through libraries as a source of public information, it is important to explore the root cause of the problem, potential solutions, the resulting impact, and the expected outcomes of the *Connectivity, Content, and Human* approach.

One of the most valuable aspects of libraries is their role in creating social inclusion. Libraries are places where people from various social, cultural and economic backgrounds can meet and interact. This creates an inclusive environment and stimulates the exchange of ideas and experiences. In an increasingly fragmented society, libraries provide a safe space for intercultural dialogue and a deeper understanding of others. According to the World Bank's definition of social inclusion (Ra'is in Kurniasih and Saefullah, 2021), it is a process in which individuals or groups can participate in society.

Social inclusion aims to empower poor communities and encourage equal treatment for all elements of society. According to Fourie (Kurniasih & Saefullah, 2021), social inclusion refers to all efforts and policies aimed at promoting equality of opportunity for people from all excluded layers and social categories. This equality is reflected in regional libraries' service programs for all levels of society. Regional libraries contribute to community empowerment through the service programs they provide. In addition, the library also organizes various community events and activities that strengthen social ties.

In addition, the library also organizes various community events and activities that strengthen social ties. These could be discussion group meetings, skills workshops, or arts and culture events. Through participation in these activities, individuals feel more connected to their community and have a place in it. The library is not only a place to read books, but also a center for intellectual, social and cultural activities in society. By providing access to knowledge, promoting literacy, and encouraging social inclusion, libraries play a crucial role in shaping informed, skilled, and connected communities. Therefore, investing in libraries and supporting their programs is an investment in an inclusive and sustainable future.

In the early 2010s, Indonesia witnessed an extraordinary collaborative effort between the National Library, the Bill and Melinda Gates Foundation and the Coca-Cola Foundation Indonesia with the launch of an ambitious program called Perpuseru. This program has a noble aim: to develop libraries throughout Indonesia. Perpuseru’s inclusivity is a very valuable aspect. This program not only focuses on developing libraries in urban centers, but also in remote villages. This provides equal opportunities for all levels of society to access valuable literature and information resources. Not only that, the presence of a library in the village also allows the community to get involved in literacy activities, such as book discussion groups or reading programs for children. Perpuseru's positive impact can also be seen in increasing interest in reading among the people of Jepara. Previously, many may not have had adequate access to reading material that was varied and relevant to their needs.

Perpuseru also provides training and support for library managers, ensuring that the facilities can operate effectively and provide quality services to their visitors. This not only helps to maintain the sustainability of libraries but also strengthens their role as agents of change in increasing literacy in society. However, despite much progress, challenges remain ahead. One of the main challenges is ensuring the program's sustainability. Perpuseru may end at some point, but the library's existence and the spirit of literacy that has been instilled must be maintained. This requires continued commitment from regional governments, local

communities and the private sector to maintain and develop what has been achieved. Behind this success, various challenges arise, including limited financial resources, a lack of experts in library management, and low interest in reading among the public.

In an increasingly connected and rapidly changing global context, literacy is key to ensuring that individuals and communities can compete and adapt. Programs such as Perpuseru in Jepara Regency are a clear example of how collaboration between non-governmental organizations, government and the private sector can produce a significant impact in increasing community literacy and knowledge. Perpuseru has revitalized library development and enhanced literacy in Jepara Regency. Nevertheless, this endeavour program should not cease at this point. There needs to be some ongoing dedication to sustain and expand the accomplishments that have been attained, to ensure that the advantages of the program are experienced by future generations.

Jepara Regency, as one of the first beneficiaries of this program, experienced a significant impact due to recommendations from the National Library. Perpuseru is an important venture for Jepara Regency since it plays a crucial role in promoting library development both at the district and village levels. This project has led to the construction of multiple village libraries, which offer the community valuable chances to acquire knowledge and improve their reading skills. The significance of libraries in cultivating an informed and proficient society cannot be exaggerated. They transformed into hubs of study, research, and intellectual society culture, while also functioning as repositories for books. The introduction of an inexpensive and easily reachable library in Jepara Regency has provided the locals with a chance to delve deeper into their capabilities.

The Perpuseru program concluded in 2018, and in 2019, the Indonesian government, through the National Library, launched Library Transformation Based on Social Inclusion in response to shifting literacy patterns and growing community demands. This transition ushered in a new way of managing libraries in Jepara Regency. Libraries are not just regarded as places to store books, but also as centres of social inclusion that incorporate all sectors of society. Social inclusion programs such as "Libraries for All" were launched to ensure that no one is marginalized in access to literacy and knowledge.

The Jepara Regency Library has been influential in educating the community and promoting regional growth. One of the main reasons for the library's success is its strong collaboration

with numerous regional stakeholders. The Jepara Regency Library realises that it cannot fulfil its aims by striving alone. As a result, they rapidly cultivate relationships and engage with a variety of stakeholders, including the government, commercial sector, and society. The success of the library in Jepara Regency has captured the interest of many parties, making it a viable model for establishing libraries in the region.

Jepara has successfully created an inclusive and competitive library by leveraging local talent and fostering strong collaboration among many parties. The central government and other regions can benefit much from Jepara's expertise in creating libraries. Adequate financial support, supportive laws, and active community participation are the primary keys to establishing high-quality, competitive local libraries.

RESEARCH METHODS

This research uses a qualitative approach with descriptive methods involving in-depth interviews and observation as the main data collection strategy. The first step in this research is selecting relevant informants as research subjects. After that, a conceptual framework was prepared to guide the research process, including establishing objectives, research questions, and relevant theoretical foundations. In-depth interviews were carefully planned to produce open questions that allowed informants to provide in-depth information about the condition of libraries in Jepara Regency, the obstacles faced, and hopes for improvement. Meanwhile, observations were made to record directly the activities, facilities and interactions that occurred inside it. Data from these two methods was then analyzed to identify patterns, themes and main findings. From the results of this analysis, conclusions and recommendations are prepared in a comprehensive research report, providing a clear picture of the state of stakeholder synergy in the library sector in Jepara Regency as well as directions for further improvement and development. This qualitative method with a descriptive approach allows researchers to gain an in-depth understanding of library dynamics and the synergy practices carried out.

DISCUSSION

Findings: Synergy With Stakeholders

The Big Indonesian Dictionary (KBBI) defines synergy as the combination of activities or operations. This encompasses the establishment and maintenance of productive cooperative relationships and harmonious partnerships among stakeholders in order to generate high-quality and beneficial work. Synergy is a form of collaboration between the parties involved in

the context of cooperation, according to Hasran and Saleh (2019). Additionally, it encompasses initiatives to enhance each other's distinctive characteristics in order to achieve outcomes that exceed those that can be independently achieved. Consequently, synergy denotes the dynamic interaction between the parties concerned to accomplish communal goals.

Stephen Covey (1997) explains that synergy is a combination or blend of elements or parts that is capable of producing better and greater output than can be achieved individually. He also emphasized that the combination of several elements will produce superior and innovative products. Covey stated that synergy is more probable when all the relevant components possess the ability to think synergistically, share comparable perspectives, and demonstrate mutual respect for each other.

Synergy is something that is highly desired in various aspects of life, including library management. The Jepara Regency Library is an example that has succeeded in building strong synergy, which brings various benefits to the local community. Synergy with stakeholders is the main key to facing challenges and realizing library transformation in Jepara Regency, an area rich in culture and history. To achieve this goal, local governments, local communities, and non-governmental organizations (NGOs) have been actively involved in supporting library development, strengthening the foundation for the intellectual development of society.

Close collaboration between various parties is the main basis for designing and implementing initiatives aimed at improving access to and quality of library services. Among these efforts are literacy training, which aims to increase people's understanding and interest in reading; shared reading programs, which invite people to share experiences and knowledge; and providing relevant and varied book collections to meet learning and entertainment needs. Not only involving the public sector, collaboration with the private sector has also been proven to make a positive contribution to providing facilities and resources for libraries. The financial, infrastructure and technological support provided by local companies not only enhances the library's operational capabilities but also creates a welcoming and attractive environment for visitors.



Figure 1: 1CSR PLTU Tanjung Jati B mobile library service fleet

Nevertheless, library development initiatives are not without their challenges. Convincing stakeholders of the necessity of the library program in regional development plans is one of the primary challenges. In order to guarantee consistent policy support from relevant parties and adequate budget allocation, a comprehensive and persuasive strategy is required. Furthermore, it is crucial to engage with stakeholders to foster mutual support in the implementation of the program in the future.

Cross-sector collaboration and inter-*OPD* (in Indonesian is *Organisasi Perangkat Daerah* - Local Public Service Working Unit) policy integration will strengthen the effectiveness of library programs, ensuring that all aspects of local development are involved and integrated.

The success of libraries in Jepara is supported by strong synergy between various parties, including local government, educational institutions, community organizations and the private sector. The Jepara local government plays an important role in providing infrastructure and

resources to support library operations. They not only provide funds for the procurement of books and maintenance of library buildings, but also develop policies that support library sustainability, such as literacy policies and developing a reading culture.



Figure 2: Collaboration between Mobile Library Ship Services with the Jepara Police Polairud Unit to distribute reading books to fishing villages and coastal areas in Jepara.

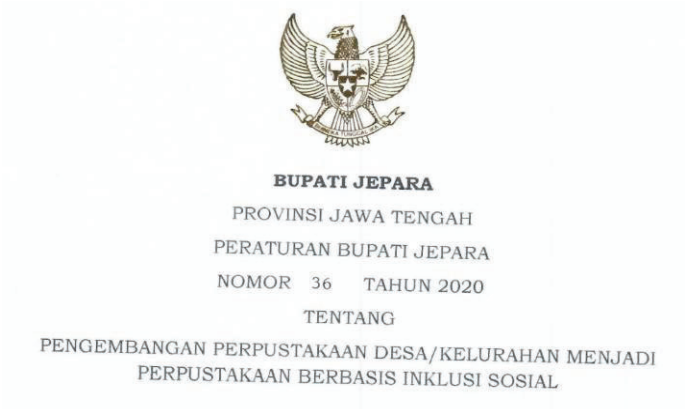
In addition, the connection with educational institutions is a crucial effort in the achievement of success for libraries in Jepara. The library engages in partnership with local schools to offer literacy programs, training in library use, and further educational activities. This not only enhances the enthusiasm for reading and literacy among children and teens, but also expands the library accessibility to diverse levels of society.



Figure 3: The Jepara Regency Regional Library became a photo spot for making "yearbooks" for Madrasah Aliyah Darul Hikmah Menganti students

Community organizations also play an important role in ensuring the sustainability of libraries in Jepara. Various communities, such as the book lover community, the cultural activist community, and the art lover community, are actively involved in library activities, both as volunteer managers and active participants. With active support from various communities, Jepara's library has evolved to be more inclusive and diversified in its provision of services and activities that are intended to meet community needs. Apart from utilizing local potential and building synergy between parties, adequate budget support and supportive regulations are also important factors in the success of libraries in Jepara. The Jepara regional government provides a sufficient budget to support library operations, including procurement of books, building maintenance, and payment of honorariums for library staff. With adequate financial support, Libraries can function effectively while providing exceptional services to the community. Supportive regulations are also necessary to ensure the long-term viability of Jepara libraries. Regional governments have adopted a variety of legislation to help libraries grow, including literacy programs, reading culture development, and copyright protection. Aside from that, regulations regarding library management, including governance and service standards, have also been designed to help ensure that libraries in Jepara perform in compliance with established standards.

.



BUPATI JEPARA

PROVINSI JAWA TENGAH

PERATURAN BUPATI JEPARA

NOMOR 36 TAHUN 2020

TENTANG

PENGEMBANGAN PERPUSTAKAAN DESA/KELURAHAN MENJADI PERPUSTAKAAN BERBASIS INKLUSI SOSIAL

Figure 4: Jepara Regent's Regulation Concerning Social Inclusion-Based Library Development

Active community participation is also key to the success of libraries in Jepara. A sense of belonging has been experienced by the people of Jepara concerning the libraries. They are actively involved in a variety of library activities, including the donation of books and participation in a variety of events and activities that are organized by the library. With active participation from the community, libraries become more alive and relevant to community needs. To increase community participation, libraries in Jepara also hold various programs and activities that are interesting and beneficial to the community. For example, they hold book discussions, writing workshops, art shows, and various other events that invite community participation.

This not only increases public interest and participation in library activities but also strengthens the bond between the library and the community. In 2020, the number of visitors to library services in Jepara experienced a significant decline of up to 75% during the COVID-19 pandemic. Nevertheless, this decline was not sustained indefinitely, as the subsequent year saw another substantial increase. In 2019, the number of visitors to the Jepara Regional Library services (Perpustakaan Daerah in Jepara Regency) reached 86,103 people. However, this figure decreased to approximately 20,965 people in 2020. Yet, the number of visitors increased once more in the subsequent year, reaching approximately 25,306 people, a 17% increase from the previous year.



Figure 5: The Besahabat Istri Preneur Community held an MSME bazaar in the courtyard of the Jepara Regency Regional Library

Analysis: The Key to Success

Strong leadership is one of the main foundations for building synergy in the Jepara Regency Library. Leadership involves a special dimension where the individual influences other people through bonds formed in the form of commitment to the influence they provide (Sunarso, 2023). This can include similarities in carrying out responsibilities, discipline, and other behaviors as an integral part of an organization. According to Robbins (2009), leadership refers to the activity of directing and influencing a group towards achieving goals, while McShane (2008) describes leadership as the influence exercised by a leader, who creates an environment to facilitate the achievement of goals by individuals or groups. These two experts focus on the role of leadership in an organizational or group context.

Library leaders who are visionary, inspiring, and have the capacity to cultivate positive relationships with a variety of stakeholders are essential for the successful advancement of this institution. A leader who has a clear vision of the role of libraries in society and who is capable of inspiring and motivating their team to accomplish mutual goals will be able to foster a positive energy and a sense of cooperation within the library. Apart from that, the ability to establish good relationships with various parties, including local governments, educational institutions and communities, is the key to expanding cooperation networks and building strong synergies. The success of this synergy cannot be separated from several key factors, which are the main foundation in the development and management of this library.

Effective communication is an important foundation in building synergy in the Jepara Regency Library. Every party involved needs to have the ability to communicate effectively. According to Deddy Mulyana (2008), effective communication is when the results of the communication

match the expectations of the parties involved, so that there is harmony of meaning between the sender and recipient of the message. Effective communication between library management and various stakeholders, such as local government, educational institutions, and the general public, is very important to ensure that all parties are actively involved in library development and management. Effective communication also enables a profound comprehension of the expectations and requirements of a variety of stakeholders, thereby enhancing the relevance and efficacy of the programs that are developed to address the needs of the community.

Openness and transparency in carrying out library programs are principles that are highly upheld in the Jepara Regency Library. The public is allowed to comprehend the openness and transparency policies that Jepara's government has implemented and will continue to implement. Additionally, this transparency enables the public to offer responses or outcomes regarding the government's policies (Astuti, 2013). By being an open and transparent institution, libraries provide opportunities for the public to participate in the decision-making process and provide constructive input for library development. This not only increases the community's sense of belonging to the library but also strengthens the relationship between the library and the community as a whole.

Successful synergy has been achieved at the Jepara Regency Library due to the perseverance and dedication of the entire team. Mulyono in Firmansyah (2009) states that to succeed in their field, an individual must possess tenacity, perseverance, and determination. All endeavours to establish synergy will be ineffective in the absence of a firm commitment to the effective functioning of library programs and persistence. The determination to continue to innovate and improve the quality of library services, as well as a commitment to constantly being focused on the interests of the community, are the primary foundations for maintaining the continuity and sustainability of the synergies that have been established.

Overall, the synergy that the Jepara Regency Library has created cannot be separated from these key elements. Strong leadership, excellent communication, openness and transparency, as well as persistence and commitment, are the primary pillars for establishing mutually beneficial partnerships between libraries and other stakeholders. By improving these variables, synergy at the Jepara Regency Library can continue to grow and serve the local community. Through joint efforts and strong commitment from all parties involved, library transformation in Jepara Regency will continue to develop and provide significant benefits for the community. Libraries are not only places for storing and accessing information, but also

centers for social, cultural and educational activities that enrich lives and advance local civilization. Libraries will persist in their capacity to inspire, enlighten, and connect communities more sustainably and profoundly, as a result of their distinct vision and strong synergy.

CONCLUSION

The journey of library development in Jepara Regency, from the Perpuseru era to Social Inclusion-Based Transformation, shows how important synergy with various stakeholders is in achieving the goal of inclusive and empowered library development. It illustrates the significance of collaboration with diverse stakeholders in attaining the objective of inclusive and empowered library advancement.

By employing innovation, teamwork, and dedication, Jepara has effectively converted its library into a multifunctional institution that not only serves as a repository for books but also functions as a hub for socialization and for empowering the local community. Jepara's excitement and innovative thinking make it a prime example of initiatives to enhance literacy and community welfare through libraries.

Jepara Regency has become a good example in developing libraries in the region. By utilizing local potential, building synergy between parties, obtaining adequate budget support, having supportive regulations, and involving active community participation, Jepara has succeeded in creating a library that is inclusive, competitive, and relevant to community needs. Jepara's experience can be an inspiration for the central and other regional governments in efforts to improve the quality and accessibility of libraries throughout Indonesia.

REFERENCES

Astuti, Muji Ratih. (2013). Pengaruh Akuntabilitas ,Transparansi dan Fungsi Pemeriksaan Intern Terhadap Kinerja Pemerintah Daerah (Studi Kasus Pada Dinas Pendapatan Pengelolaan Keuangan Dan Aset Daerah (DPPKAD) Kabupaten Grobogan). Naskah Publikasi. Fakultas Ekonomi Dan Bisnis Universitas Muhammadiyah Surakarta 2013.

Covey, S. R. (1997). The 7 habits of highly Effective People (7 kebiasaan manusia yang sangat efektif). Jakarta: Binarupa Aksara.

Firmansyah, D. (2009). Hubungan antara Self Efficacy Dengan Kegigihan Kerja Pada Guru (Doctoral dissertation, Universitas Muhammadiyah Surakarta).

Haryanti, W. T. (2019). Perpustakaan berbasis inklusi sosial. In Talenta Conference Series: Local Wisdom, Social, and Arts (LWSA), 2/2.

Jusman, M., Hasselman, H., & Saleh, H. A. (2017). Sinergitas Kebijakan Program "Makassar Ta'Tidak Rantasa" di Kota Makassar. Publik (Jurnal Ilmu Administrasi), 6(1), 23-29.

Kurniasih, R. I., & Saefullah, R. S. (2021). Inklusi Sosial Sebagai Transformasi Layanan di Perpustakaan Daerah Karanganyar. Lentera Pustaka: Jurnal Kajian Ilmu Perpustakaan, Informasi dan Kearsipan, 7(2), 149-160.

McShane, SL., & Von Glinow, MA. 2008. Organizational Behavior: Emerging Realistic for The Work Place Revolution.Boston: Mc Graw Hill. Irwin.

Mulyana, Deddy. (2008). Komunikasi efektif. Bandung: Remaja Rosdakarya.

Robbins, S., & Mary, Coulter. (2009). Management, 10th ed. New Jersey: Pearson Education, Prentice Hall.

Sunarso, D. B. (2023). Teori Kepemimpinan.

The General Sciences Library of Ho Chi Minh City is an Essential Partner in Community Development

Le Dinh Quoc Huy

General Sciences Library of Ho Chi Minh City, Vietnam

Corresponding email: quochuythuvien@gmail.com

ABSTRACT

This paper presents how the General Sciences Library of Ho Chi Minh City has collaborated with various organizations and stakeholders to create synergies that foster community development and growth, particularly in the field of reading culture. It delves into specific initiatives and programs implemented by the library, including partnerships to organize mobile library services and STEM education courses aimed at serving rural communities, schools, and local educational institutions. Notably, the paper highlights the library's efforts to support the visually impaired community through the production of specialized materials and the deployment of mobile services to shelters, open houses, and schools for the blind—not only in Ho Chi Minh City but also in other provinces—contributing to an improved quality of life and greater access to information for this underserved group. In addition, the library actively promotes a reading culture within the community through prominent initiatives in Ho Chi Minh City and large-scale national events such as the National Festival of Library Professionals for Book Promotion and Reading Culture, which exemplifies its pioneering role in connecting knowledge with the community. Finally, the paper offers recommendations for broader inclusion of other marginalized groups, supporting them in overcoming barriers and reintegrating into society, while expanding their access to information through meaningful and targeted activities—ultimately aiming to enhance information access and social inclusion for all.

Keywords: General Sciences Library Of Ho Chi Minh City; Public Library; Community Development; Community Service

OVERVIEW OF THE GENERALS SCIENCE LIBRARY OF HO CHI MINH CITY

The General Sciences Library of Ho Chi Minh City (GSLHCMC) has a particularly unique history of formation and development. Throughout various historical periods, the library has continuously expanded its scale and updated its information resources, evolving into a major cultural and scientific hub of the city. Located at 69 Ly Tu Trong Street, Ben Thanh Ward, District 1, Ho Chi Minh City, the library features a distinctive architectural style that harmoniously blends classical elegance with modern design. It spans a spacious and airy area of approximately 7,000 square meters.

The library boasts a rich and diverse collection of information resources, including nearly 700,000 books, rare documents, maps, and dissertations; approximately 2 million issues of newspapers and journals; various databases; and over 6 million digitized pages covering a wide range of fields such as science, engineering, social sciences, humanities, literature, and the arts. Each year, the library serves more than 1 million users, provides access to over 4 million physical materials, and records nearly 10 million visits to its digital portal and databases.

The library plays a vital role in enhancing public knowledge and fostering community development. It is not merely a place for storing and providing documents but also serves as a center for cultural and educational advancement and community engagement - a place where people from all walks of life can come to learn, relax, and connect.

THE GENERAL SCIENCES LIBRARY OF HO CHI MINH CITY: COLLABORATING FOR COMMUNITY DEVELOPMENT

This section explores in depth the specific collaborative initiatives and activities that the GSLHCMC has implemented to promote community development, as outlined in the abstract.

Collaborating To Expand Library Services to Suburban and Rural Communities

Fully aware of the uneven distribution of access to information between urban centers and suburban or rural areas, particularly in remote regions with limited educational infrastructure and economic resources, the GSLHCMC has implemented a wide range of initiatives to fulfill its mission as an essential partner in community development. Among the most prominent efforts is its close collaboration with organizations and district-level libraries to organize mobile library trips and science, technology, engineering, and mathematics (STEM) courses, bringing knowledge and technology closer to residents in rural areas, schools, and local educational

institutions. Through these activities, the library aims to raise awareness, inspire a passion for learning, and foster creativity within the community, especially among students.

The mobile library vehicles are fully equipped with books and materials on diverse topics, along with modern technological devices such as computers, tablets, smartphones, interactive boards, TVs, speakers, and other supportive tools. These resources help bring knowledge to peripheral areas where residents, particularly children, have limited access to educational materials. This mobile library model has become a vital bridge in narrowing the knowledge gap between urban and rural populations.

Alongside the mobile library services, GSLHCMC has also partnered with local schools and educational institutions to deliver STEM programs. These courses not only provide foundational knowledge but also create opportunities for students to engage in hands-on learning through fun scientific experiments. The STEM activities have attracted thousands of rural students, equipping them with technological skills, fostering creative thinking, and encouraging a lasting love of learning and scientific exploration. These programs are often designed under a "learn through play" approach, where students gain both knowledge and experience through experiments, logic games, and simple technology projects. Students directly participate in building and programming robots, solving real-life scenarios, and working in teams—developing critical thinking and problem-solving skills.

In 2016, the library received funding from the Singapore International Foundation (SIF) to launch the *Wheel of Knowledge* project, implemented periodically every two to three years at selected schools across the city. Again in 2016, the library collaborated with the Mekong Delta Library Association to operate the *Knowledge Bus*, which served communities in remote border communes and New Rural Development zones in the provinces of Dong Thap, Kien Giang, Ben Tre, and Long An.

From 2018 to 2020, the library implemented the *Mobile Smart Library* project, designed to engage children in applied science and technology activities that spark and nurture a passion for learning. The Smart Library included STEM content, sex education and body protection, reading activities, and interactive lessons such as WeDo 2 robotics, gender education through textbooks and short films, and hands-on exercises to help children understand their bodies. It also featured age-appropriate films and games. Four vehicles rotated among schools in Dong Thap, Tra Vinh, Tien Giang, Ben Tre, and districts within Ho Chi Minh City such as Tan Binh, Thu Duc, and Hoc Mon. GSLHCMC managed and directly carried out activities in schools selected for the project in Ho Chi Minh City, and partnered with libraries in neighboring provinces to

deliver mobile services locally. Each school received services weekly for a period of three to six months.

From 2021 to 2025, under the direction of the Department of Culture and Sports, GSLHCMC collaborated with various units and local educational institutions to deliver services to New Rural Development communes in five suburban districts (Nha Be, Cu Chi, Binh Chanh, Hoc Mon, Can Gio), contributing positively to grassroots cultural development. With a flexible, creative, and effective approach, the library's book-delivery efforts to remote areas have been highly praised by both local communities and authorities. Priority has been given to new rural communes and suburban reading rooms. Mobile services often include the creation of playgrounds for children. In addition to promoting reading through curated, age-appropriate materials, children also participate in educational games linked to reading such as book quizzes, reading-and-reflection contests, drawing, and storytelling. The library also organized events like the *"My New Countryside"* drawing contest, the *"Colors of My Homeland"* knowledge contest, and *STEM Discovery Days* to guide students through fun and engaging scientific practices.

Through close cooperation with district libraries, local units, educational institutions, international organizations, and civil society groups, GSLHCMC has provided children and residents in remote and suburban areas with access to modern and diverse learning resources. These efforts have also enabled the library to better understand community needs and refine its services to be more practical, relevant, and sustainable. Over the years, the mobile library model integrated with STEM education has empowered students in underserved areas to gain access to knowledge, develop self-study habits, and acquire skills in information literacy. GSLHCMC continues to expand its partnerships with local libraries and governments, bringing library services closer to the people and contributing to the promotion of reading culture and lifelong learning.



Figures 1 & 2: Mobile library vehicles serving children



Figure 3: Screening fun science films and interacting with children during a STEM course



Figures 4 & 5: Mobile Library and STEM services delivered in

New Rural Development communes across five suburban districts



Figures 6 & 7: Guiding children in robot assembly and conducting fun STEM science experiments



Figures 8 & 9: Students enjoying relaxing reading moments beside the Mobile Library vehicle

Libraries and Communities Joining Hands to Support the Visually Impaired

As one of the first two public libraries in Vietnam to provide services for the visually impaired, the GSLHCMC, with 25 years of experience and strong community support, has developed an effective reading culture model for visually impaired individuals. This has been achieved through a wide range of activities such as: producing accessible reading materials, utilizing specialized assistive devices and software, offering on-site services, operating dedicated mobile service trips, circulating materials to visually impaired communities, securing sponsorships from organizations and individuals, and mobilizing a network of volunteers.

In recent years, district libraries across Ho Chi Minh City, including those in Thu Duc City, District 6, District 10, Binh Thanh District, among others, have actively collaborated with GSLHCMC to serve visually impaired readers. These joint efforts include organizing competitions such as *"Reading Culture Ambassadors"*, drawing contests, online book presentations, and *"Reading Families"* campaigns; delivering books directly to the homes of visually impaired readers; and hosting reading sessions and community activities at open houses, shelters, and specialized schools for the blind. These services have received strong support from local authorities and the broader community, as evidenced by a growing number of sponsored projects, increasing volunteer participation, and a steady rise in invitations for outreach services.

Given the mobility challenges faced by many visually impaired readers, especially those living far from the library, GSLHCMC has strengthened its mobile services, delivering books and materials directly to individuals in need. At the same time, the library has invested in the production of accessible materials, including braille books, tactile illustrations, and audiobooks, enriching its information resources and helping visually impaired individuals integrate more fully into society.

Notably, in early 2024, the library launched a dedicated service space for visually impaired users on its ground floor, offering a range of community engagement activities tailored to this audience.

To date, the library's services for the visually impaired continue to operate effectively and have delivered tangible benefits. Looking ahead, GSLHCMC remains committed to further improving the quality of these services, not only for visually impaired readers but for all patrons, thereby advancing the reading culture and contributing meaningfully to community development.



Figures 10 & 11: Serving visually impaired children with accessible

reading materials and organizing interactive competitions



Figure 12: Providing services for the visually impaired on a specially equipped mobile library vehicle

General Sciences Library of Ho Chi Minh City Affirms Its Vital Role in Promoting A Reading Culture in the Community

To reaffirm its role in promoting a reading culture within the community, the GSL of HCMC has actively participated in a variety of initiatives, both through major local programs in Ho Chi Minh City and through nationwide campaigns. The key activities are descibed below.

Core activities of the library in promoting a "reading culture" in Ho Chi Minh City

a. Photo exhibition on reading culture

- Exhibition of maps and archival images titled *"The Sacred Seas and Islands"*
- Display of books and documentary images on the theme "Ho Chi Minh City: Peace, Integration, and Development"
- Showcase of photographs capturing reading culture activities across the city and in individual districts

b. Creation of reading culture spaces

- The reading spaces are creatively presented through engaging and vibrant mini-scenes and displays, including:
- Reading Space for the Visually Impaired: Featuring audiobooks, tactile illustrated books, raised graphics, and specialized learning and entertainment tools for visually impaired users.

- Family Reading Space: Introducing family-oriented reading culture models, including displays and activities that promote reading together at home.
- Children's Reading Space: Offering guided reading sessions; advising on book selection by age group; hosting storytime events and science experiments inspired by books; and encouraging interactive reading activities.
- Technology Space for Children: Introducing and allowing children to experience robotics, fun science experiments, hands-on activities, and educational games based on general knowledge themes.
- Free Reading Space: Featuring two mobile digital library vehicles equipped with over 3,000 physical and digital resources.



Figures 13 & 14: Community members experiencing the Smart Library booth and reading culture space

c. Activities to build and promote a reading culture

- Book Exchange Activities: This initiative serves as a vibrant platform for book lovers - a space for readers to connect, share, and exchange valuable, new, or favorite books. Participants can trade books with one another or with the organizing committee.
- Author and Celebrity Engagements: These include interactive sessions with authors and public figures, as well as book-themed competitions such as storytelling, reading comprehension, and sharing reflections on the benefits of reading.
- Reading and Book Display Booths: In collaboration with bookstores and publishers, these booths showcase and introduce a wide range of curated books to the public.

d. Engaging youth readers through competitions and community activities

- Book-Themed Drawing Contest (1998–2025): First launched in 1998, this competition - now known as *"Green Strokes"* (*Nét Vẽ Xanh*) - offers a creative space for students to engage with books and art during the summer. It has ignited endless creativity and provided an enriching, joyful experience for children.
- "Colorful Knowledge" Quiz Contest (2003–2025): This competition celebrates knowledge by offering children a fun and educational platform to reinforce their learning across various fields, connect with peers, and showcase their abilities. Through the contest, participants also learn more about public library services and are encouraged to explore meaningful reading materials to expand their knowledge.
- Reading Culture Ambassador Contest (2019–2025): Designed to promote the reading movement among youth, this contest fosters reading habits and skills - essential elements in cultivating a reading culture in schools and the wider community.
- Children's Drawing Contest "Ao Dai and Flowers" (2014–2025): This contest aims to inspire the community and help children reconnect with cultural life, engage with libraries, and participate in reading and recreational activities. It nurtures a love for Vietnamese traditions through decorating the " *Ao dai* " - Vietnam's traditional long dress - using artistic expression as a means of cultural appreciation and storytelling.



Figures 15 & 16: Children participating in the "Green Strokes" drawing contest



Figures 17 & 18: Children taking part in the "Colorful Knowledge" quiz contest



Figure 19: Exchange with Reading Culture Ambassadors on “Vietnam Book and Reading Culture Day”

e. Participation in national-level events to promote a reading culture in the community

The GSLHCMC has affirmed its significant role in fostering a reading culture by actively participating in the "National Festival of Library Staff, promoting and introducing books"—a large-scale event held periodically by the Ministry of Culture, Sports, and Tourism.

More than just a professional activity, this festival serves as a major platform for libraries across the country to connect, exchange experiences, and learn from one another. Gathering

thousands of library professionals, the event features four dynamic, stage-presented competition categories: team introduction, book promotion, presentation of effective reading culture development models, and a talent showcase. These segments allow libraries to demonstrate their professional expertise, creative communication skills, and unique cultural identities in spreading knowledge to the public. Notably, the festival also provides an opportunity for libraries to introduce rare publications and special book collections to a wider audience.

Participation in this national event enhances the image and standing of the GSLHCMC, reinforcing its role as one of Vietnam's leading and most influential public libraries. Furthermore, the event serves as a valuable chance for library staff to engage in professional networking, gain insights into innovative models from other regions, and bring new ideas back to improve services within their own institution. Through these opportunities, the GSL has gained valuable experience, strengthened the capacity of its staff, and continued to innovate - ensuring ever-improving service to the community.



Figures 20 & 21: Performance by GSL HCMC at the National Festival of Library Professionals for Book Promotion and Reading Culture

FUTURE RECOMMENDATIONS

Based on the achievements, the GSLHCMC must continue to affirm its role as an essential partner in community development by expanding its outreach to broader and more diverse populations. In the future, the library aims to place greater focus on supporting marginalized and disadvantaged groups in society. Specifically, the library plans to organize more mobile library trips to detention centers, temporary detention facilities, and drug rehabilitation centers.

Currently, in addition to following the prescribed treatment and rehabilitation phases for participants, drug rehabilitation centers are increasingly focusing on enhancing the mental and emotional well-being of their residents. In this regard, the *reading culture* is an essential spiritual nourishment for those in rehabilitation centers. Recognizing this urgent need, the GSLHCMC will actively promote mobile book circulation programs, exchanges, and thematic talks for residents in drug rehabilitation centers.

GSLHCMC will cooperate with youth drug rehabilitation centers to organize mobile book circulation programs, as well as exchanges and thematic talks for participants. Providing access to quality books and reading materials will significantly contribute to disseminating the policies, guidelines, and laws of the Party and the State, supporting the educational, training, and learning efforts of residents. Through lessons from books, residents will find valuable life teachings, regain hope, and cleanse their painful pasts. Along with book circulation, exchange programs have brought much joy and useful knowledge, inspiring participants with positive life values and determination to rebuild their lives.

To achieve this, the library can implement specific and impactful activities, including:

a. Research and survey information needs

- Conduct surveys, interviews, or focus group discussions to gain a deeper understanding of the information needs, barriers to access, and specific difficulties faced by residents in drug rehabilitation centers.

b. Strengthen collaboration with social organizations and authorities

- Expand the collaboration network with organizations, social welfare centers, special education institutions, prison authorities, drug rehabilitation centers, juvenile reformatories, and leprosy treatment facilities.

- Collaborate with social organizations to mobilize resources and support the library's activities.
- Organize training sessions and experience-sharing workshops for library staff and volunteers on how to work effectively with residents in drug rehabilitation.

c. Curate and provide appropriate books and materials

- Select and offer books, newspapers, and magazines that meet the interests and needs of drug rehabilitation participants.
- Prioritize materials on life skills, legal education, ethics, career orientation, and healthy entertainment and relaxation.

d. Design relevant programs and activities

- Organize cultural and artistic exchanges, reading sessions, storytelling, thematic talks, and talk shows.
- Design courses and programs to develop soft skills, vocational training, and community reintegration skills.
- Organize psychological counselling, legal advice, and career guidance activities to help participants address personal and social issues.

By strengthening these initiatives in the future, GSLHCMC will expand its service scope and create positive, sustainable impacts. This will not only provide opportunities for drug rehabilitation participants and other marginalized groups to access information and knowledge but also help them reintegrate into society and build better futures. Furthermore, this reflects the library's commitment to humanistic values and social responsibility, contributing to the development of a fairer and more civilized society. With continued efforts, the library will keep innovating, seeking effective solutions and operational models to meet the growing needs of the community and contribute to the overall development of society.

CONCLUSION

The GSLHCMC has affirmed its role as an essential partner in community development through diverse and effective collaborations. From expanding services to remote communities and supporting the visually impaired, to actively promoting reading culture within Ho Chi Minh City and nationwide, the library has proven its importance in bringing knowledge to all.

With the proposed future directions, it is hoped that the GSLHCMC will continue to grow and further its role as an information center and cultural space for the community. These efforts contribute to building a more civilized and progressive society.

REFERENCES

Anh, T.T.H (2012). *GSL and activities of organizing information for rual areas*. Mekong Delta Libraries Association Conference, Hau Giang.

Anh, T.T.H (2012). GSL and its activitieson improving reading habit in the community. *15th CONSAL*, Bali - Indonesia, 2012.

General Sciences Library. (2012). Project of Mobile Digital Library in Ho Chi Minh City.

General Sciences Library. (2025). *Website*. www.gslhcm.org.vn

General Sciences Library. (2025). *Introduction*. https://thuvientphcm.gov.vn/gioi-thieu

General Sciences Library. (2025). *GSL produces materials for the visually impaired*. https://thuvientphcm.gov.vn/nghiep-vu-thu-vien/san-xuat-tai-lieu-cho-nguoi-khiem-thi

Trang, N. T. (2020). Discussion GSL improves service quality for people with difficult conditions and circumstances in the area.

Trang, N. T. (2024). A presentation on fostering a reading culture within the community by the Ho Chi Minh City General Science Library.

Of Comics, Garfield, and the News: Innovating Library Services Through Public-Private Partnerships

Winnie Tan, Alex Foo

National Library Board, Singapore

Corresponding email: winnie_tan@nlb.gov.sg

ABSTRACT

The National Library Board Singapore (NLB) embarked on its Libraries and Archives Blueprint 2025, which invited partners and the community to collaborate on a journey of experimentation to reimagine libraries and archives in Singapore. This paper examines three case studies demonstrating how libraries can leverage partnerships to create attractive, relevant products and expand their reach. The first case study explores the pop-up Comics Library in partnership with a boutique shopping mall operator, transforming a conventional place of leisure into an unconventional artistic hub. The second analyses the Garfield x Mr Kiasu pop-up library, a collaboration with Mr Kiasu's co-creator and media and entertainment company Paramount Global to create a unique library experience. The third example centres on NLB's partnership with Singapore Press Holdings Media Trust, which not only allows us to provide electronic news access to the wider population but also co-create programmes that target young adults. These public-private partnerships demonstrate innovative approaches to expanding library services and engaging diverse audiences.

Keywords: Public-Private Partnerships; Comics; Innovation; News

INTRODUCTION

As public institutions face mounting pressures to optimise resources, partnerships have emerged as the cornerstone of innovation in service delivery. Like a master weaver working with threads of different colours and textures, successful partnerships intertwine diverse strengths, perspectives, and resources to create something far more compelling than what any single organisation could achieve alone. Libraries, as channels and custodians of knowledge and spaces for communities, are uniquely positioned to harness these collaborative

opportunities. When public institutions join forces with private enterprises, they do not just share resources – they create a multiplier effect that transforms traditional service models, reaches new audiences, and catalyses cultural innovation.

The National Library Board Singapore runs a network of 28 public libraries, the National Library and the National Archives of Singapore. When it launched LAB25, the Libraries and Archives Blueprint 2025, in October 2021, in the midst of the COVID-19 pandemic, we were cognisant that this road to transformation could not be a solitary one. LAB25 was framed as an invitation to partners and the community to collaborate on this journey of innovation and experimentation to reimagine libraries and archives.[15] LAB25 was focused on four key pillars:

1. Learning Marketplace that expands and integrates our physical and digital offerings; 2. Informed Citizenry that encourages deep reading and learning in an age of distraction and polarisation; 3. Singapore Storytellers that documents and tells diverse Singapore stories; and 4. the Equaliser where libraries can include and empower all in this digital age.

In this paper, we will use three examples of the National Library Board's LAB25 partnerships to exemplify how libraries can leverage partnerships to create attractive, relevant products and expand their reach. The first case study explores the pop-up Comics Library in partnership with a boutique shopping mall operator, transforming a conventional place of leisure into an unconventional artistic hub. The second analyses the Garfield x Mr Kiasu pop-up library, a collaboration with Mr Kiasu's co-creator and media and entertainment company Paramount Global to create a unique library experience. The third example centres on NLB's partnership with Singapore Press Holdings Media Trust, which not only allows us to provide electronic news access to the wider population but also co-create programmes that target young adults.

[15] National Library Board. (2021, October 21). *The National Library Board Announces Its Blueprint To Reimagine And Transform Libraries And Archives For The Future*. https://www.nlb.gov.sg/main/about-us/press-room-and-publications/media-releases/2021/the-nat-lib-board-announces-its-blueprint-to-reimagine-and-trans-lib-and-archives-for-the-future

Expanding Offerings Through the Learning Marketplace: Partnering with Malls and Creative Intellectual Property.

Libraries have historically been recognised as impressive monuments of centralised knowledge. Vast repositories of knowledge housed in a grand structure, like the Library of Alexandria or the Library of Congress, exemplify this traditional paradigm. However, contemporary urban environments demand a fundamental reimagining of this model. With their plethora of people and complex spatial distribution, modern cities require libraries to adopt a more modular and distributed presence to reach out to citizens in all corners. Yet, the transformation of the modern library system extends beyond mere geographical accessibility.

In an era of pervasive digital connectivity and competing entertainment options, a critical question emerges: Should libraries passively await visitors to walk through their doors, or actively court potential patrons where they naturally congregate?

Four years ago, this very shift in perspective catalysed a new strategy led by NLB's Planning & Development division. The *Nodes* strategy represented a deliberate departure from the traditional assumption that the public would seek out library services and highlighted the potential of collaborative approaches in library development. Hence, this strategy emphasised two critical components:

- Creating compact library experiences in high-traffic locations where people already congregate
- Bringing novel and themed content to the public

This strategic transformation expanded NLB's business model beyond traditional service delivery to include the creation of experiences beyond conventional library spaces. More ambitiously, it aimed to attract and engage individuals who traditionally did not visit libraries. Two notable implementations of this strategy demonstrate its success: the Comics Library, which leveraged mall partnerships to expand reach in high-traffic locations, and the Garfield X Mr Kiasu Library, which demonstrated how partnerships with global and local cultural properties can create unique spaces of cultural synthesis that appeal across generations.

Creating Compact Library Experiences in High-Traffic Locations: Comics Library

Mall libraries, i.e. libraries located in shopping malls, have long been a cornerstone of Singapore's public library network for decades, representing successful long-term partnerships between NLB and retail spaces. Traditional mall libraries operate on a simple but effective premise: libraries benefit from the mall's high footfall, while malls gain from the consistent visitorship that libraries attract. The Comics Library, however, represents an evolution of this established model, demonstrating how targeted, short-term library spaces can create new opportunities for both partners.



Figure 1: Comics Library

Unlike conventional mall libraries that occupy permanent, large spaces, the Comics Library pioneered a more agile approach by taking over a shopfront unit (size of unit 107 sqm) in Anchorpoint, a mall in Singapore's central-west Queenstown district.The mall's strategic location near Queensway Shopping Centre and IKEA, combined with its vision to attract surrounding residents through new experiential concepts, made it an ideal partner for this one-year initiative. As such, this shorter timeframe created an ideal testing ground for technological innovation, particularly in automated operations. The Comics Library was one of the first libraries in Singapore to implement unmanned operations through RFID (Radio Frequency Identification) gantries, allowing us to test the expansion of library services without a proportional increase in staffing resources. While exciting, operating unmanned for 12 hours daily presented technical challenges, such as the occasional gantry system error, that required prompt attention. Hence, this required a deeper level of partnership with Anchorpoint as mall security staff became key partners in the library's day-to-day operations, working closely with

NLB's Planning & Development team to resolve any technical issues and ensure smooth operations on-site.

The partnership's success stems from precise alignment between institutional and commercial objectives. Anchorpoint's demographic profile, characterised by young families and affluent professionals from the surrounding new residential developments, matched NLB's target audience for the Comics Library. The mall provided not only prime retail space and marketing support but also crucial operational support through its security team.

On the other hand, NLB contributed cultural capital through the Comics Library's specially curated collection of 11,000 titles spanning manga, comics, and graphic novels in all four national languages, which greatly enhanced the mall's lifestyle offerings. Despite its compact size, the Comics Library demonstrated a remarkable impact, drawing more than 60,000 visitors and generating over 78,000 loans in its year of operation. This public-private partnership demonstrates how short-term, focused library installations can effectively expand reach while serving as testbeds for innovative service models.

More broadly, the Comics Library case demonstrates how public-private partnerships in the library sector are evolving from simple space-sharing arrangements to strategic alliances that create new value propositions in public library services. Through this partnership model, NLB could experiment with innovative service delivery while sharing operational risks with Anchorpoint. The mall's market intelligence helped inform the library's location and timing, while the automated gantry systems optimised resource utilisation. Together, these elements create a more sustainable model for library evolution in urban spaces - one that balances innovation with practical constraints, and institutional missions with commercial viability.

Bringing Novel and Themed Content to the Public: Garfield x Mr Kiasu Library

While the Comics Library demonstrated how mall partnerships could extend physical reach, the Garfield x Mr Kiasu Library exemplifies how public-private partnerships can bring novel and themed content to the public in unexpected ways. Through strategic intellectual property collaborations, this initiative created cultural bridges between both local and global comic traditions. Launched in 2023 at The Centrepoint, located along Singapore's prime shopping belt, this unique crossover brought together Singapore's beloved Mr Kiasu with the globally recognised Garfield franchise, creating an unprecedented partnership that resonated across generations and cultures.



Figure 2: Garfield x Mr Kiasu Library

This partnership transcended traditional resource-sharing arrangements by bringing together multiple stakeholders with distinct cultural assets: Johnny Lau, the creator of Mr Kiasu, contributed both his intellectual property and creative direction; Paramount Global provided the Garfield franchise rights and content. The partnership's creative strength lies in how it brought these characters together in an entirely new narrative context. Johnny Lau's exclusive mural, depicting Mr Kiasu introducing Garfield to Singapore's signature dish laksa, created a whimsical 'what-if' moment that particularly resonated with Singaporeans – their beloved local comic character hosting a global icon in a uniquely Singaporean setting that had previously existed only in imagination.

This creative vision transformed 614 square feet of retail space into an immersive cultural experience. Modelled after Mr Kiasu's HDB flat, visitors could step into a space where local heritage meets global pop culture. What could have been a simple book display became an immersive environment for cultural exchange, where two beloved characters from different worlds could coexist in a distinctly Singaporean setting.

More significantly, this public-private partnership model demonstrates how libraries can progress beyond their traditional role as simply content repositories. The curated collection of

120 physical books and various e-titles, while important, served as just one component of a larger cultural narrative. The space naturally evolved into a unique platform for multi-generational engagement – grandparents who grew up with Mr Kiasu could share stories with grandchildren, discovering Garfield for the first time. Local media highlighted the initiative as an innovative solution to the perennial challenge of motivating children to visit libraries and develop reading habits, recognising how the familiar characters and immersive setting could transform routine library visits into exciting cultural experiences.[16] The initiative generated significant media interest across print, broadcast, radio, and online platforms, with 22 media features amounting to an estimated PR value of $372,000.



Garfield meets Mr Kiasu in NLB pop-up

Christie Chiu

The National Library Board (NLB) has launched on Monday its first character-themed pop-up library at The Centrepoint, featuring 1980s and 1990s comic book icons Garfield and Mr Kiasu.

The pop-up is a collaboration between Mr Kiasu's co-creator Johnny Lau, media and entertainment company Paramount Global – which owns the Garfield character – and Frasers Property Singapore, which runs The Centrepoint.

The pop-up is open to the public and will run until March, said NLB.

To create a unique and immersive experience, the 614 sq ft pop-up library – almost as big as a three-room Housing Board flat – is modelled after home-grown comic-book character Mr Kiasu's cosy HDB home.

Visitors can browse a specially curated collection of e-titles and about 120 physical comic books featuring the two characters.

The physical Mr Kiasu books were donated by Lau, while those of Garfield were donated by the global publishing arm of Paramount.

NLB said: "While the books are not for loan, patrons are invited to make themselves at home at the various seating areas around the pop-up library to enjoy the collection on site."

Aside from e-comics, e-books on topics such as cooking, leisure and wellness are available for loan via QR codes on the pop-up library's feature walls.

On one of the library's walls is a mural conceptualised and drawn by Lau exclusively for the pop-up.

The pop-up library is open to the public and will run until March. PHOTO: NATIONAL LIBRARY BOARD

The mural illustrates the friendship between Garfield and Mr Kiasu, showing Mr Kiasu inviting the famous feline to Singapore to try laksa.

The Garfield x Mr Kiasu pop-up library is part of NLB's ongoing efforts to bring the library experience and resources beyond its premises, NLB said.

Chief executive Ng Cher Pong said: "Our latest pop-up library brings together, for the first time, well-loved characters from Singapore and the United States. This pop-up library also shows the exciting possibilities in reading and learning that partnerships can bring to our patrons."

The pop-up library is also part of Paramount's year-round events in Asia celebrating the sassy lasagna-loving cat's 45th anniversary.

Fans of Garfield can expect to meet the orange cat at the pop-up library in the coming weeks. Details will be released through NLB's social media pages at a later time, NLB said.

图管局首次以漫画人物为主题

加菲猫约上怕输先生
齐齐现身快闪图书馆

Figure 3: Media Coverage on the Garfield x Mr Kiasu Library

The Garfield x Mr Kiasu case reveals how modern public-private partnerships in libraries are evolving to become platforms for cultural synthesis and community engagement. By combining commercial IP, local heritage, and innovative space design, these partnerships create unique "cultural bridges" that transform libraries from mere resource centres into dynamic spaces of cultural exchange. This represents a new model of library partnership where cultural value creation becomes central to the collaboration, rather than just operational considerations – one that enriches both the library experience and the communities they serve.

Building An Informed Citizenry: Partnering News Organisations

[16] Lee J. (2023). Garfield & Mr Kiasu Pop-Up Library Opens At The Centrepoint, Has 120 Comic Books. *MS News.* https://mustsharenews.com/garfield-mr-kiasu-library/

Both NLB and SPH Mediashare a common institutional goal of fostering a reading and informed society which has created the foundation for their longstanding partnership. Working closely with SPH Media was essential in advancing NLB's vision of developing a Learning Marketplace and nurturing an informed Citizenry – one where Singaporeans can easily access credible news sources in English and the vernacular languages. This case study illustrates how an enduring partnership can continue to evolve and innovate over time.

Providing Access to the News

SPH Media is one of Singapore's leading media organisations, with a legacy spanning 180 years through its flagship newspaper, *The Straits Times*. SPH Media runs various news titles in Singapore's four official languages of English, Chinese, Malay and Tamil, including *The Straits Times*, *Lianhe Zaobao*, *The Business Times*, *Berita Harian*, *Tamil Murasu and Shin Min Daily News*. Traditionally, NLB has provided physical access to these newspapers in its public libraries until 2020. However, in 2020, it transitioned to offering free digital access to the same titles for its members.[17] These digital versions were also made available via the NLB Mobile app, offering convenient access for patrons on the go.

NLB's partnership with SPH Media also transformed access to Singapore's print heritage through NewspaperSG, a groundbreaking digital archive launched in 2010. This collaboration has made Singapore's newspaper collections more accessible than ever, offering members free online access to both historical and contemporary publications that were previously available only on microfilm. The platform's sophisticated optical character recognition (OCR) technology has facilitated research, replacing the tedious process of going through microfilmed newspapers with efficient keyword searches.[18] This technological leap has particularly empowered researchers, students, and members of the public to delve deeper into Singapore's history. The website now attracts more than 900,000 page views per month, a testament to how this collaboration has greatly expanded the possibilities for both casual exploration and serious academic study of Singapore's rich historical narrative.

---

[17] Ong S.F. (2021). NLB chief wants to keep the joy of libraries while managing digital divide. *The Straits Times*.

https://www.straitstimes.com/life/arts/nlb-chief-wants-to-keep-the-joy-of-libraries-while-managing-digital-divide

[18] Ng, M., Ng. H.L. & Anuar, M (2011). NewspaperSG: From Press to Screen. *Biblioasia.* https://biblioasia.nlb.gov.sg/vol-7/issue-3/oct-dec-2011/newspaper-press-screen/

Partnership to Reach Out to New Audiences

NLB and SPH Media's partnership has evolved beyond traditional content sharing into a strategic alliance that meets modern information needs, particularly those of young working adults. This demographic focus is particularly crucial as young adults aged 21 to 35, immersed in career building and professional development, typically show lower engagement with library services. Moreover, the 2024 IFLA Trend Report noted that individuals were increasingly seeking meaningful community connections and authentic engagement opportunities to counter social isolation.[19] Recognising this, NLB sought to combine its programming outreach and learning resources with SPH Media's digital expertise and youth-focused content to create accessible touchpoints that fit into young adults' busy lifestyles while fulfilling their desire for genuine connection and practical knowledge sharing.

This evolution is exemplified in their joint involvement in THRIVE@Libraries, a 2024 initiative launched in partnership with SkillsFuture Singapore to enhance career development and lifelong learning opportunities. The collaboration leverages SPH Media's evolution into a multi-platform content provider, particularly through The Straits Times' youth-focused newsletter Headstart, which addresses contemporary concerns like career development, personal finance, and adult life skills.

This synergy is particularly evident in THRIVE's programming, where Headstart brings its expertise in youth engagement and authoritative journalism to curate relevant discussions, such as a panel exploring the FIRE (Financial Independence, Retire Early) movement, which attracted some 215 interested participants. Furthermore, NLB worked with the Malay-language newspaper Berita Harian's youth platform OMGxBH (Orang Muda Gitew) to organise an interactive session on strategies to balance professional goals and personal happiness. Not only could young adults be incentivised to subscribe to some of SPH Media's products and platforms, they also learned more about NLB's diverse offerings, including learning communities, business advisory services and programmes.

This partnership represents a unique model of "cross-pollination expertise" in the public information ecosystem to engineer win-win outcomes. The result is a more nuanced and

[19] Dezuanni, M. & Osman, K. (2024). *IFLA Trend Report 2024: Facing the future of information with confidence*. IFLA.

effective approach to reaching out to a young working crowd audience, moving beyond traditional library-media partnerships that typically focus solely on content access. As organisations evolve their services to better meet the needs of their customers, so too can long-term partnerships develop to take on new dimensions.

CONCLUSION

We conclude by taking a cue from William Shakespeare's Hamlet, who serenely reflects that "the readiness is all." This line, though spoken in a rather different context, captures something essential about the dance of institutional partnerships. While we do our best to plan carefully and strategically, some of the best partnerships are, in truth, often opportunistic, riding on the occasion of a particular anniversary, or a chance meeting between the heads of organisations. The question, then, is to cultivate this readiness. It means casting our sights beyond the shorelines of our institutions to distant horizons, keeping our networks broad, and staying abreast of developments within our own and adjacent industries. Most importantly, it means keeping the ever-evolving needs of our patrons in mind. When opportunity knocks, and it will, libraries can be ready at the door, prepared to transform these partnership dreams into reality.

Libraries and Art Studios: The Relationship of Libraries as Centers for Innovation and Creativity in Tampaksiring

Richard Togaranta Ginting[1], Salsabilla Woro Damayanti[2], Ni Ayu Ketut Nirmala Dewi[3]

[1, 2]Udayana University, Bali, Indonesia
[3]Sunan Kalijaga State Islamic University, Yogyakarta, Indonesia

Corresponding email: richardtogaranta@unud.ac.id

ABSTRACT

The low literacy rate in Tampaksiring, Gianyar, has become a pressing issue. This is evident in the inability of some 13 to 15-year-olds to read. With the lack of literacy skills, there is a need to improve them to optimize human resource quality and achieve national goals. Libraries play a vital role in enhancing the literacy of the nation's youth. In Gianyar Regency, particularly in Tampaksiring District, access to information and literacy development remains limited. Thus, the Suradiva Literature Library is a significant step toward optimizing the literacy skills of the younger generation in Tampaksiring, an area with limited access to information. The presence of a library in the Arts Center serves as a bridge of knowledge for children in Tampaksiring. This study aims to determine the benefits of the library located in the Suradiva Arts Center, and to measure the relevance and role of the library and the arts center existing side by side. This research employs a literature review and a qualitative method involving observation and interviews. It is hoped that this research can serve as an innovation for other communities to pay more attention to the literacy skills of their members.

Keywords: Library Innovation; Role of Library; Public Library; Collaboration; Art Studio

INTRODUCTION

Historically, knowledge preservation in Bali was closely linked to religious and royal institutions. Ancient lontar manuscripts were housed in temples and palaces, serving as the

foundation for Balinese literature and philosophy. As public libraries emerged in the 20th century, they initially served educational purposes, focusing on literacy and access to printed materials. Art studios, meanwhile, developed as informal spaces where traditional and contemporary art forms could thrive. Over time, both institutions began to intersect, especially as the need for creative education and community engagement grew. Libraries as information centers for the community must of course provide information that suits the community's needs. Libraries as institutions that play a vital role in society are facilitators and access for the nation's generation to open new doors to a wider world.

Apart from that, libraries can also be developed as a forum or access for the community to be creative in accordance with the innovations they want to develop, both academically and non-academicly. Just like the role of the Art Studio, which is a means for the community to carry out learning activities in the field of arts, be it dance, fine arts, and others like that. Bali, renowned for its rich artistic traditions and cultural heritage, has long been a cradle of creativity. In recent years, libraries on the island have begun to evolve beyond their conventional roles, becoming active players in the creative landscape. This transformation aligns with a broader global trend of redefining libraries as dynamic public spaces that encourage learning, collaboration, and artistic expression. This paper investigates how libraries in Bali interact with art studios and creative communities to become centers of innovation and creativity. The existence of a library in the art studio is one of the brilliant innovations developed by the Suradiva art studio community.

Libraries and art studios are rarely related, but have a relevant role in becoming facilitators for the community to develop their abilities in various fields. With this, I Ketut Gede Agus Adi Saputra, S.Sn harmonizes the roles of these two platforms for the community in the Tampak Siring District area, Gianyar Regency, so that they can become a place for the community, especially children aged 13 to 15 years, to be creative and innovate. Suradiva Art Studio is a community that operates in the field of dance. Dance is an art that depicts the expression of the soul through beautiful and meaningful body movements. Through the art of dance, children in the Tampaksiring area can channel their creativity and expression through traditional and modern dances.

This also plays a role in optimizing children's abilities in developing their cognitive abilities through good emotional channels. Through the art of dance and reading habits, it is intended to improve students' ability to express and channel their artistic spirit. The Suradiva Art Studio contains 143 children, 5 children from Kindergarten, 70 children from Elementary School level,

60 children from Middle School level, and 8 children from High School level. With a total of 143 children, the Suradiva Art Studio departed from Pojok Baca so that a library could be established which served many art collections, becoming a bridge for the community to develop their literacy skills and develop their art knowledge. This can be seen from the habit implemented by the founder of Suradiva, namely Bli Adi, who requires studio children to read books during break times after training sessions. This habit arose from Bli Adi's desire to instill a culture or habit of reading in the children he educates. Departing from this habit, the Art Studio and Library became a Creative House complete with a reading collection for the children of the Suradiva Art Studio.

LIBRARY AND ART STUDIO

Libraries as places are still considered only as book warehouses or places where books are stored. However, in reality, the library is an information center that follows developments in science, where the library's functions and duties also develop. The library is the heart or lifeblood of an agency/institution/university/other corporate body. Libraries today are no longer just a place to store and search for books, but more than that, they are a source/place to search for information. The library is a place where the public can search for information, whether in the form of scientific, historical, technological, geographical information, as well as various kinds of existing information, including popular information in accordance with current developments. The role of the library for the community is not only as a place that provides books, but the role of the library is more than that. Libraries as repositories of knowledge must of course be utilized better by the community in using their facilities and services. The benefits of the library are; to search for and explore information needed by the public as library users. Apart from that, libraries are also useful as a place for innovation, creativity and a place to access information for users.

According to Kamus Besar Bahasa Indonesia, a studio is a place of worship located in the yard of a house, or it can also be called a place for artistic activities (dance, painting, and so on). With that, an art studio can be interpreted as a place or means for a group of people to meet and channel expression through the arts they are engaged in. An art studio can also be called a place where artists can process art for a performance. Apart from preparing a performance, art studios can also be used to explore, manage and foster artistic development for artists. Libraries have long stood as bastions of knowledge, information, and learning, while art studios serve as spaces for creativity, self-expression, and visual exploration. Traditionally operating in separate domains, these institutions are increasingly finding common ground in their shared

commitment to public service, education, and community development. This paper aims to explore the value and mechanisms of collaboration between libraries and art studios.

RATIONALE FOR COLLABORATION

Libraries and art studios share several key values, including accessibility, inclusivity, and the promotion of lifelong learning. Their collaboration allows for:

- Cross-disciplinary learning: Combining literature, history, and art fosters interdisciplinary understanding.
- Community building: Joint programs can draw diverse audiences, creating shared cultural experiences.
- Enhanced engagement: Art can make library resources more accessible and engaging, especially for visual learners and younger audiences.

Several models exist for fostering collaboration between libraries and art studios, such as hosting exhibitions in libraries where artists interpret literary works through visual media. Allowing artists to work within library spaces, engage with patrons, and use library materials as inspiration. Offering book-making, zine workshops, and storytelling illustration sessions facilitated by artists. Collaborative mural paintings or installations based on local history sourced from library archives. Live illustration or animation during readings, enhancing the storytelling experience. In Indonesia, mobile libraries collaborate with street artists to create public art that promotes reading and literacy. Benefits and impact consist of:

- Educational enrichment: Provides dynamic, multisensory learning opportunities.
- Cultural preservation: Uses artistic expression to interpret and preserve local history and stories.
- Social inclusion: Encourages participation from marginalized groups by creating diverse entry points into cultural engagement.
- Creative literacy: Enhances both traditional and creative literacy, expanding the definition of what it means to be literate in the 21st century.

The collaboration between libraries and art studios is a promising model for enriching public access to knowledge and creative expression. By working together, these institutions can create vibrant, inclusive spaces that inspire learning, imagination, and community connection.

As society continues to evolve, such interdisciplinary partnerships will become increasingly vital in addressing educational, cultural, and social needs.

This art studio was formed with various objectives, namely; to cultivate art owned by a community group. Art studios were also formed for the purpose of studying arts owned by the community in the form of traditions and culture. Apart from that, the art studio is also intended to prepare for the purposes of presenting collections or what is usually referred to as exhibitions. Of course, the aims of an art studio can create benefits that have an impact on the people within it. The establishment of an art studio which aims to be a forum for artists in preparing for the presentation of collections or exhibitions can be useful as access to display works of art that cannot be exhibited in museums, such as dance movements, music in the form of instruments and vocals, artists (dancers or musicians), and others. Art studios also have the opportunity to become a process of formation and development that is rooted in the original culture of a region or ethnic group. Apart from that, through all the preparations carried out in the art studio, it will be able to introduce and help the public to know and appreciate the culture that exists in a region. As well as as access to information for art lovers related to existing culture.



Figure 1: Flyer of Sanggar Seni Suradiva, Tampaksiring

RESEARCH METHOD

This research uses an observation method in the form of interviews, and uses a literature study method. This method is used to find out directly the conditions and roles related to the topic in this paper. The author collects data through interviews that have been conducted and collects various literature that is relevant to the topic of the writing. This paper produces information in the form of notes and descriptive data contained in the text being researched and studied.

RESULTS AND DISCUSSION

The library is a place that can be used as a forum for creativity and innovation for the community, of course it plays a vital role in the development of the literacy skills of the surrounding community. The very low literacy ability is an urgency that should be highlighted for the Indonesian people, who of course are interconnected in the process of improving it. According to the results *International Student Assessment Program* (PISA) in 2022 which was initiated by *Organization for Economic Co-operation and Development* (OECD), shows a decline in children's literacy scores in Indonesia. With research results showing the low literacy skills of Indonesian society, of course the entire community and government play a very important role in improving literacy skills as a form of optimizing human resources.

Literacy ability standards are an important aspect in the development of Human Resources in society, whose improvement requires a lot of support and significant action from various parties. Apart from the government, society also plays an important role in the process of increasing society's literacy skills through various innovations that can be applied at every level of society, especially for young children as the nation's successors. Not only is it a place to read, a library which acts as an information center can also be a place for people to develop their various abilities. From this, the community can innovate in developing libraries that not only collect library materials and information, but the community can also innovate through changing various facilities in order to increase visitor interest. Starting from increasing visitor interest, libraries can optimize this opportunity to improve people's literacy skills. One form of innovation that already exists and has been implemented by the community is the Suradiva Literary Library which was founded by I Ketut Gede Agus Adi Saputra or who is often called Bli Adi, who implemented the library concept in the dance art studio. This is a new breakthrough in increasing interest in visiting and literacy culture among the community, especially in the Banjar Maniktawang area, Manukaya Village, Tampaksiring District, Gianyar Regency, Bali. This new innovation that combines the roles of art studios and libraries is one of the bright ideas which in its implementation can attract people's interest in being creative and innovating in developing their abilities.



Figure 2: Reading activities at the Sanggar Seni Suradiva

Bli Adi is a literacy activist who has an artistic background as a dance trainer, especially in the field of Balinese arts and culture. Graduating from the Indonesian Institute of Arts Bali, brought

Bli Adi to know and explore various arts and cultures. Bli Adi's interest in reading was the initial and main thing that led Bli Adi to innovate in improving the literacy skills of those around him and combining his abilities in the arts. Starting from an interest in reading, Bli Adi was creative in establishing a Reading Corner for the children of the Suradiva art studio which facilitates the children of the art studio to get a lot of information and becomes a place for creativity. Not only in the arts field, the Suradiva Literary Library also serves various types of collections in various fields of science.

Bli Adi, as the founder of the Suradiva Art Studio, established the Reading Pojok, which initially only contained a collection of books in the form of art books, then entered the realm of religion and culture in Indonesia as a field of knowledge that Bli Adi studied during his studies at the Indonesian Institute of the Arts, Bali. This is the reason why many collections are homogeneous towards art and culture in Indonesia. Apart from most of its collection classifications regarding Arts, the Suradiva Literary Library also provides library materials regarding the fields of Social Sciences, General Works, and a large collection of Fiction. The Reading Corner was the initial movement in the establishment of the Suradiva Literary Library. With a total of 143 children from all levels becoming part of the members of the Suradiva art studio, which automatically becomes part of the members of the Suradiva Literary Library. In its continuity, the intensity of library visitors is in accordance with the training schedule of art studio members. In this case, the founder of the library, Bli Adi, stated that there are 3 training sessions a week, each time during break times you are always required to read in the library at the Suradiva art studio. During that time, there were around 20-35 children who read after the practice session.



Figure 3: Library at the Sanggar Seni Suradiva

CONCLUSION

Libraries in Bali, especially in Tampaksiring are redefining their roles, emerging as vital contributors to the island's creative and cultural ecosystems. By partnering with art studios and embracing interdisciplinary collaboration, they serve not only as custodians of knowledge but also as incubators of innovation. The continued development of this relationship holds great promise for empowering communities, preserving cultural heritage, and fostering a more inclusive and creative society.

ACKNOWLEDGEMENTS

We would like to thank all parties who helped in the completion of this research paper. We would like to thank the Institute for Research and Community Service of Udayana University, Suradiva Art Centre, Tampaksiring, Bali. We would also like to thank the committee of CONSAL XIX Malaysia who gave us the opportunity to present our paper at the prestigious library conference in Southeast Asia.

REFERENCES

Badan Pusat Statistik Provinsi Bali. (2023). Indeks Pembangunan Literasi Masyarakat dan Unsur Penyusunnya Menurut Kabupaten/Kota di Provinsi Bali, 2023. Badan Pusat Statistik Provinsi Bali.

Batubara, A. (2015). Literasi Informasi Di Perpustakaan. Jurnal Iqra', 09(01), 43-56.

Bennett, H. (2006). Bringing the studio into the library: Addressing the research needs of studio art and architecture students. Art Documentation: Journal of the Art Libraries Society of North America, 25(1), 38-42.

Buchanan, S., Gibb, F., Simmons, S., & McMenemy, D. (2012). Digital library collaboration: a service-oriented perspective. The Library Quarterly, 82(3), 337-359.

de Oliveira, C. B., & de Barros Cianconi, R. (2013). Cooperation, sharing and collaboration: the case of the network of libraries and information centers on art in the state of Rio de Janeiro–REDARTE/RJ. Brazilian Journal of Information Science, 7, 211-232.

Duff, W. M., Carter, J., Cherry, J. M., MacNeil, H., & Howarth, L. C. (2013). From Coexistence to Convergence: Studying Partnerships and Collaboration among Libraries, Archives and Museums. Information Research: An International Electronic Journal, 18(3), 1-26.

Ferer, E. (2012). Working together: library and writing center collaboration. Reference Services Review, 40(4), 543-557.

Ginting, R. T., Dewi, A. S. S., Resen, P. T. K., & Samosir, F. T. (2021, November). Digitizing the Balinese lontar manuscript: A case study of Puri Kauhan Ubud, Bali. In 7th International Conference of Asian Special Libraries.

Yarrow, A., Clubb, B., & Draper, J. L. (2008). Public libraries, archives and museums: Trends in collaboration and cooperation. International Federation of Library Associations and Institutions (IFLA).

Zaugg, H., & Warr, M. C. (2018). Integrating a creativity, innovation, and design studio within an academic library. Library Management, 39(3/4), 172-187.

CONSAL XIX
MALAYSIA 2025

Pecha Kucha Forum

An Overview of Library Development Trends Towards SCOPUS Database Sustainable Development Goals: A Bibliometric Analysis

Kanokwan Buangam[1,2], Chokthamrong Chongchorhor[3]

[1]Thammasat University Library, Bangkok, Thailand

[2]Sukhothai Thammathirat Open University, Nonthanburi, Thailand

[2]Faculty of Humanities, Srinakharinwirot University, Bangkok, Thailand

Corresponding email: bkanokwan1977@gmail.com

ABSTRACT

This study examines the state and trends of library development in alignment with the Sustainable Development Goals (SDGs) using publications indexed in the Scopus database. The analysis focuses on research articles and conference papers published between 2016 and 2024, utilizing Bibliometrix and VOSviewer software for bibliometric analysis. Key findings include: (1) 80 publications related to libraries and SDGs met the inclusion criteria; (2) Siviwe Bangani, a librarian at North-West University, South Africa, was the most prolific author with four publications; (3) The highest publication outputs were recorded in 2024 (20 articles), 2020 (15 articles), and 2023 (13 articles); (4) The leading journals were Library Philosophy and Practice (13 articles), IFLA Journal (6 articles), and International Information and Library Review and Journal of Librarianship and Information Science (5 articles each); (5) The top countries for international research collaborations were Nigeria (11 publications), the United States (8 publications), and South Africa (6 publications); (6) The most cited article, with 22 citations, was “A World with Universal Literacy: The Role of Libraries and Access to Information in the UN 2030 Agenda” by Fiona Bradley (2016). Content analysis of abstracts revealed that library development trends emphasize advancements in information resources, services, and personnel to support the implementation of SDGs.

Keywords: Sustainable Development Goals (SDGs); Library Development; Bibliometric Analysis

INTRODUCTION

Sustainable development has become a global priority, particularly following the COVID-19 pandemic and the increasing severity of natural disasters, which highlight the rapid transformation of our world. In response, the United Nations established the Sustainable Development Goals (SDGs) in 2015, endorsed by 193 member states. The SDGs provide a framework for balancing economic, social, and environmental development over a 15-year period (2015–2030), encompassing 17 goals with sub-targets and indicators to guide policy and planning at local and global levels (Centre for SDG Research and Support, n.d.).

In higher education, the SDGs serve as a key performance metric, notably through the Times Higher Education (THE) Impact Rankings, which evaluate universities' contributions to the SDGs across four domains: research, stewardship, outreach, and teaching. In 2024, top performers included Western Sydney University (Australia, 1st), University of Manchester (UK, 2nd), University of Tasmania (Australia, 3rd), Aalborg University (Denmark, 4th), and RMIT University (Australia, 5th). In Thailand, Mahidol University (19th globally), Chulalongkorn University (43rd), Chiang Mai University (75th), and Thammasat University (81st) ranked among the top 100 (Duereh, 2024). This global momentum has prompted university libraries, as critical academic support units, to align their strategies with SDGs to complement institutional policies (Duereh, 2024).

The International Federation of Library Associations and Institutions (IFLA), collaborating with members across 150 countries, champions libraries' roles in advancing SDGs at national and local levels. Libraries facilitate access to information, digital literacy, and information and communication technologies (ICT), supporting universal literacy, media and information literacy, and digital inclusion. They also serve as hubs for government services, academic research, and cultural preservation, fostering community engagement and reducing information access gaps (Rodsoodthi, 2019).

In Thailand, the Green Library Network, under the Thai Library Association, promotes sustainable practices through energy conservation, resource efficiency, and environmental stewardship, fostering eco-friendly library operations (Green Library Group, n.d.). Given libraries' pivotal role in supporting SDGs, this study investigates the current state and trends of SDG-related library research in the Scopus database using bibliometric analysis. The findings aim to inform policy and enhance interdisciplinary research in library and information sciences, fostering integrated research efforts in the future.

Research Objectives

This study has two primary objectives:

1. To examine the current state of research on libraries and their contributions to SDGs in the Scopus database.
2. To analyze trends in research related to libraries and SDGs in the Scopus database**.**

Research Scope

This quantitative study is divided into two main scopes:

1. Population and Sample: The study focuses on research articles published in Scopus-indexed journals from 2015 to 2024, regardless of the researchers' affiliations, countries, or funding sources.
2. Content Scope: The analysis targets publications related to SDGs and libraries, using keywords such as Sustainable Development Goals, SDGs, Library, and Library Activities. Bibliometric analysis was conducted using Bibliometrix and VOSviewer to explore the current state and trends of SDG-related library research.

METHODOLOGY

This quantitative study employs bibliometric analysis based on the frameworks of Borgman and Furner (2002) and the PRISMA guidelines (Moher et al., 2009). The methodology is detailed as follows:

1. Population and Sample: The population comprises research articles and conference papers in the Scopus database related to libraries and SDGs, published between 2015 and 2024. The sample includes 80 documents meeting the inclusion criteria, primarily research articles (69, 86.26%) and conference papers (11, 13.94%).
2. Research Tools: A survey form was developed to collect data on SDG-related library research articles, focusing on authors, institutions, countries, and publication sources.
3. Data Collection: Data collection involved three steps:

Step 1: A scoped search using keywords ("Sustainable Development Goals", "SDGs", "Library", "Library Activities", "Library Service") was conducted in Scopus, targeting English-language research articles published from 2015 to 2024, yielding 242 records.
Step 2: Boolean operations, truncation, synonyms, and free-text search techniques were applied to refine the search, resulting in 208 records.

Step 3: A facet-analytic approach filtered abstracts explicitly related to libraries, reducing the dataset to 80 complete records.

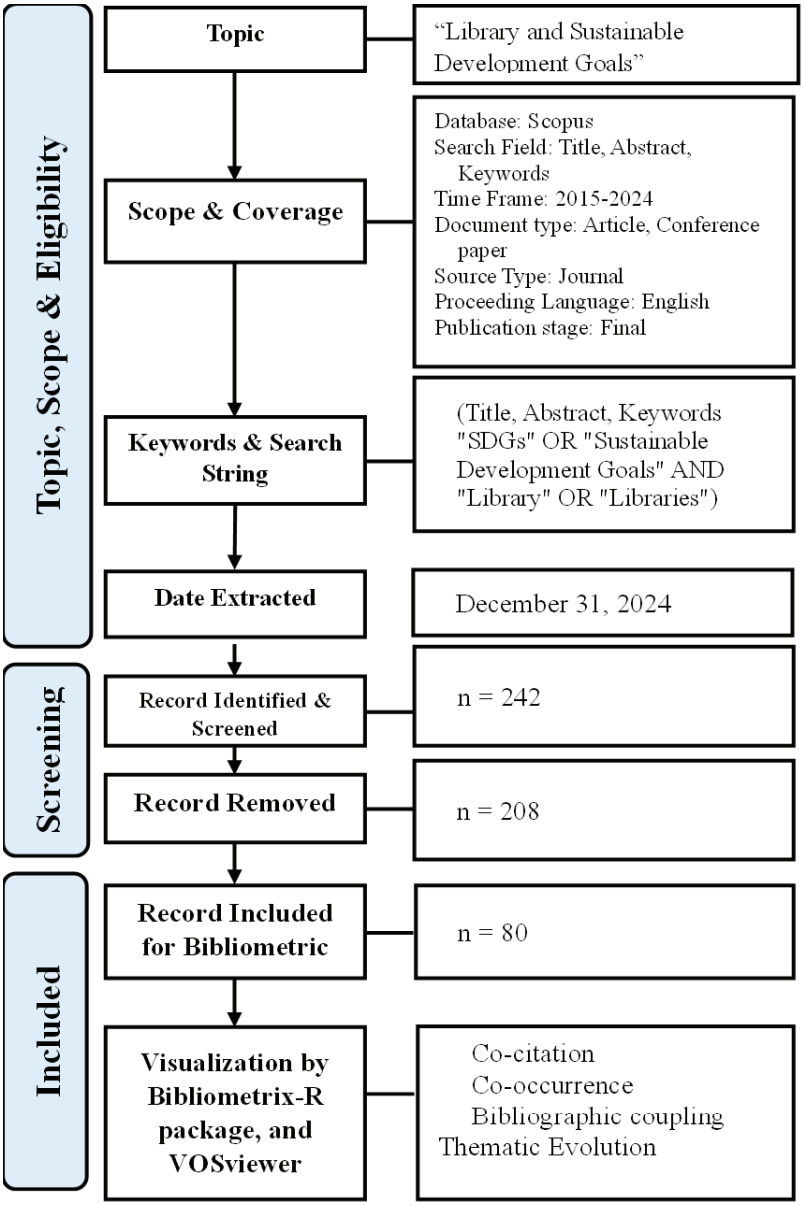


Figure 1: PRISMA-based bibliometric analysis process.

4. Data Analysis: Quantitative analysis was performed using VOSviewer and Bibliometrix with R software. Data cleaning removed duplicates and standardized formats, with data saved as CSV files. Descriptive statistics (frequency, percentage, median, range) and thematic map analysis were used to explore keyword relationships and bibliometric trends.

RESULTS

The findings are divided into two sections: (1) General characteristics of SDG-related library research, and (2) Conceptual and trend analysis of SDG-related library research.

General Characteristics Of SDG-Related Library Research

From 2015 to 2024, 80 documents were identified, comprising 69 research articles (86.26%) and 11 conference papers (13.94%). The average annual publication rate was 3.54, with 2,654 total citations and an average of 4.04 citations per article. The dataset included 170 keywords, 270 author-defined keywords, and 190 authors, with 26 single-authored articles and an average of 2.52 authors per article (Table 1).

Table 1: Summary of SDG-related library research documents

Description	Results	Description	Results
Timespan	2016:2024	Authors	N/A
Sources (Journals, Books, Etc.)	41	Authors of Single-Authored Docs	190
Documents	80	Authors Collaboration	22
Annual Growth Rate %	45.42	Single-Authored Docs	
Document Average Age	3.54	Co-Authors per Doc	26
Average Citations per Doc	4.037	International Co-Authorships %	2.52
References	2654	Document Types	15
Document Contents	N/A	Article	
Keywords Plus (ID)	170	Conference Paper	69
Author's Keywords (DE)	278	Timespan	11

Publication Trends: Publications began in 2016, peaked in 2024 (20 articles), and saw significant outputs in 2020 (15 articles) and 2023 (13 articles). A dip occurred in 2021 (6 articles) (Table 2).

Table 2: Publication counts by year

Year	Articles
2016	1
2017	1
2018	7
2019	7
2020	15
2021	6

Year	Articles
2022	10
2023	13
2024	20

Leading Authors: Siviwe Bangani (North-West University, South Africa) was the most prolific author with four publications, followed by authors with two publications each, including Clement Ola Adekoya, Ayooluwa Aregbesola, and others (Table 3).

Table 3: Most relevant authors

Authors	Articles	Articles Fractionalized
Bangani, S.	4	3.50
Adekoya, C.O.	2	1.33
Aregbesola, A.	2	0.50
Connaway, L.S.	2	0.70
Cyr, C.	2	0.70
Fedorowicz-Kruszewska, M.	2	2.00
Hamad, F.	2	0.75
Mehra, B.	2	1.00
Missingham, R.	2	2.00
Sultana, R.	2	0.67

Leading Countries: Nigeria led with 11 publications, followed by the United States (8) and South Africa (6), reflecting strong research activity in these regions (Table 4).

Table 4: Corresponding Authors' Countries

Country	Articles
Nigeria	11
USA	8
South Africa	6
Ghana	5
Australia	3
India	3
Jordan	3
Bangladesh	2
Egypt	2
Hong Kong	2

Table 5: Top 10 Journals by publication count

Sources	Articles
Library Philosophy and Practice	13
IFLA Journal	6
International Information and Library Review	5
Journal of Librarianship and Information Science	5
Library Management	4
Proceedings of the Association for Information Science and Technology	4
Public Library Quarterly	4
Electronic Green Journal	2
Global Knowledge, Memory and Communication	2
Information Development	2

Leading Journals*: Library Philosophy and Practice* published 13 articles, followed by *IFLA Journal* (6), and *International Information and Library Review* and *Journal of Librarianship and Information Science* (Table 5).

Institutions: The Food and Agriculture Organization of the United Nations led with 11 publications, followed by Landmark University (Nigeria) and the University of Ghana (Table 6).

Table 6: Top 10 Institutions by publication count

Affiliation	Articles
Food and Agriculture Organization of the United Nations	11
Landmark University	6
University of Ghana	6
University of Pretoria	6
Chalmers University of Technology	4
Federal University	4
OCLC Online Computer Library Center Inc	4
Perm State University	4
Hassan II University of Casablanca	3
James Cook University	3

Journals with Highest H-Index: Among 41 publication sources, *IFLA Journal* had the highest H-index (4) from six articles, cited 55 times, followed by *Library Philosophy and Practice* (42 citations) (Table 7).

Table 7: Top 10 publication sources by H-Index.

Source	H-index	Total citation	Year
IFLA Journal	4	55	2016
Library Philosophy and Practice	3	42	2018
Journal of Librarianship and Information Science	3	31	2020
Library Management	3	29	2018
International Information and Library Review	3	28	2018
Public Library Quarterly	2	26	2019
Journal of Library Administration	2	16	2018
Resources, Conservation and Recycling	1	14	2022
Proceedings of the Association for Information Science and Technology	2	12	2020
JLIS.it	1	12	2019

Most Cited Countries: Nigeria led with 38 citations (average 3.50 citations per article), highlighting its significant research impact, followed by USA with 33 citations, Ghana (26 citations) (Table 8).

Table 8: Top 10 most cited countries

Country	Total citation	Average Article Citations
Nigeria	38	3.50
USA	33	4.10
Ghana	26	5.20
South Africa	24	4.00
Netherlands	22	22.00
Hong Kong	20	10.00
Jordan	19	6.30
Australia	15	5.00
Egypt	15	7.50
United Kingdom	13	6.50

Conceptual And Trend Analysis

Most Cited Articles: The top-cited article was “A World with Universal Literacy: The Role of Libraries and Access to Information in the UN 2030 Agenda” by Fiona Bradley (2016, 22 citations), followed by “Predictors of Knowledge Sharing Behaviour on Sustainable Development Goals Among Library Personnel in Nigeria” by Magnus Osahon Igbinovia and Ngozi P. Osuchukwu (2018, 16 citations), and “Libraries as Agents for Development: The

Potential Role of Egyptian Rural Public Libraries Towards the Attainment of Sustainable Development Goals Based on the UN 2030 Agenda" by Essam Mansour (2019, 15 citations) (Table 9).

Table 9: Most globally cited documents

Paper	DOI	Total Citations
Bradley, F., 2016, IFLA J	10.1177/0340035216647393	22
Igbinovia, M.O., 2018, IFLA J	10.1177/0340035218763445	16
Mansour, E., 2020, J Librarianship Inf Sci	10.1177/0961000619872064	15
Missingham, R., 2021, J Libr Adm	10.1080/01930826.2021.1883376	14
Yu, B., 2022, Resour Conserv Recycl	10.1016/j.resconrec.2022.106566	14
Tbaishat, D., 2021, Public Libr Q	10.1080/01616846.2020.1738836	14
Omona, W., 2020, Libr Philos Pract	N/A	14
Majinge, R.M., 2018, Libr Manage	10.1108/LM-04-2017-0038	13
Fedorowicz-Kruszewska, M., 2019, JLIS.it	10.4403/jlis.it-12500	12
Baada, F.N.-A., 2019, Libr Philos Pract	N/A	11

Co-Citation Analysis: Co-citation analysis of authors with more than 50 citations identified 9 clusters, including Cluster 1 (19 authors, e.g., Bradley, Fiona; Holmner, Marlene), Cluster 2 (8 authors, e.g., Anarte, Francisca Yaba), Cluster 3 (8 authors, e.g., Adeleke, Tunji, Ayoolawe, Fausat, Manzari, Esam), Cluster 4 (7 authors, e.g., Babalola-Achampong, Stella, Lynch, Renee, Young, Jason C.) and others (Figure 2).

Co-Occurrence Analysis: Co-occurrence analysis using VOSviewer identified 28 keyword clusters, including cluster 1 agricultural extension, cluster 2 socio-economic development, cluster 3 information literacy, cluster 4 climate change, cluster 5 digital libraries, cluster 6 copyright and other (Figure 3).

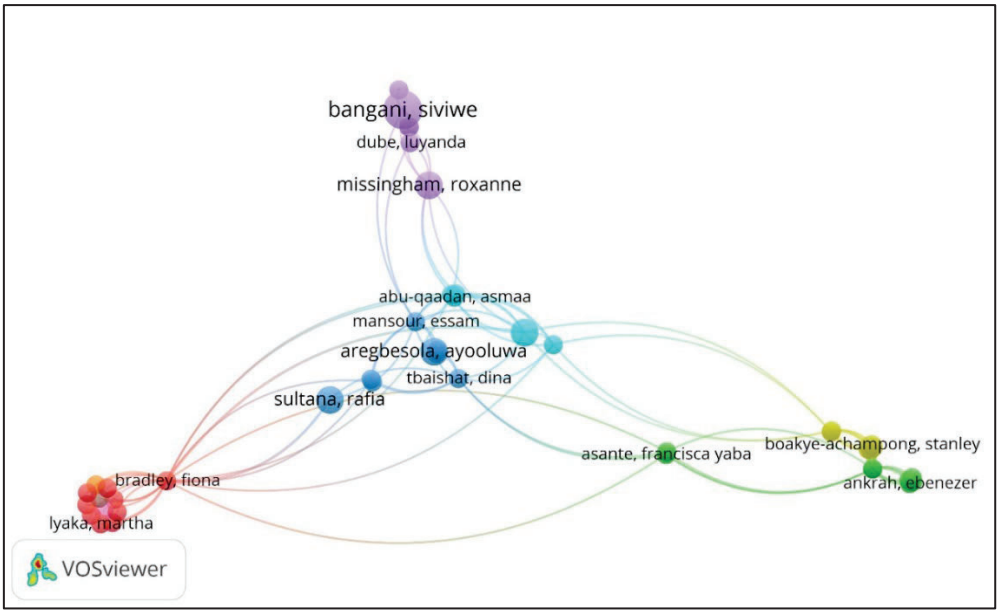


Figure 2: Co-citation network of authors

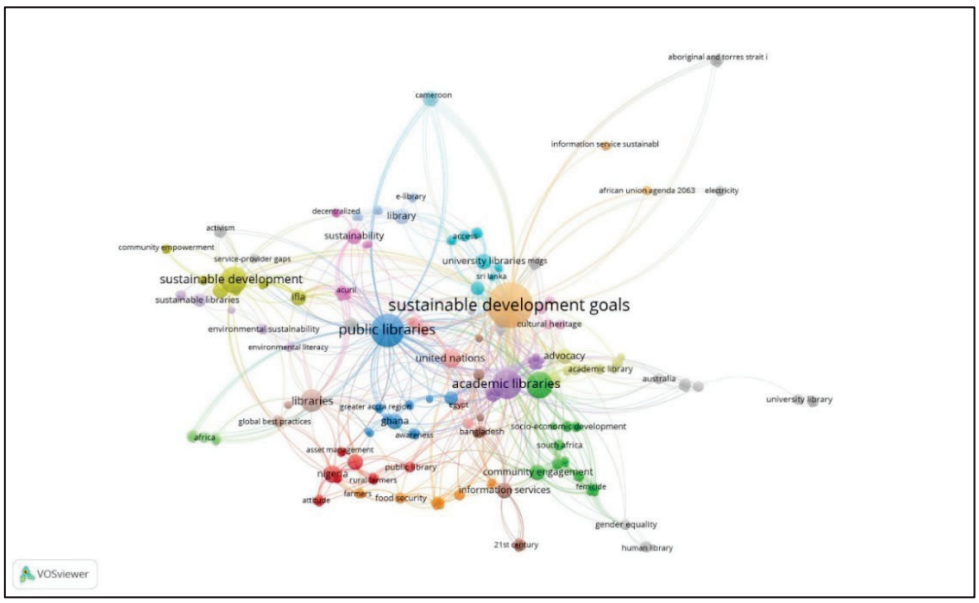


Figure 3: Co-occurrence network of keywords

Bibliographic Coupling of Countries: Bibliographic coupling revealed research collaborations across 30 countries, grouped into six clusters, including Red Cluster (8 countries, e.g., Australia, India), Green Cluster (8 countries, e.g., Bangladesh, Finland), and Blue Cluster (4 countries, e.g., Nigeria, South Africa) (Figure 4).

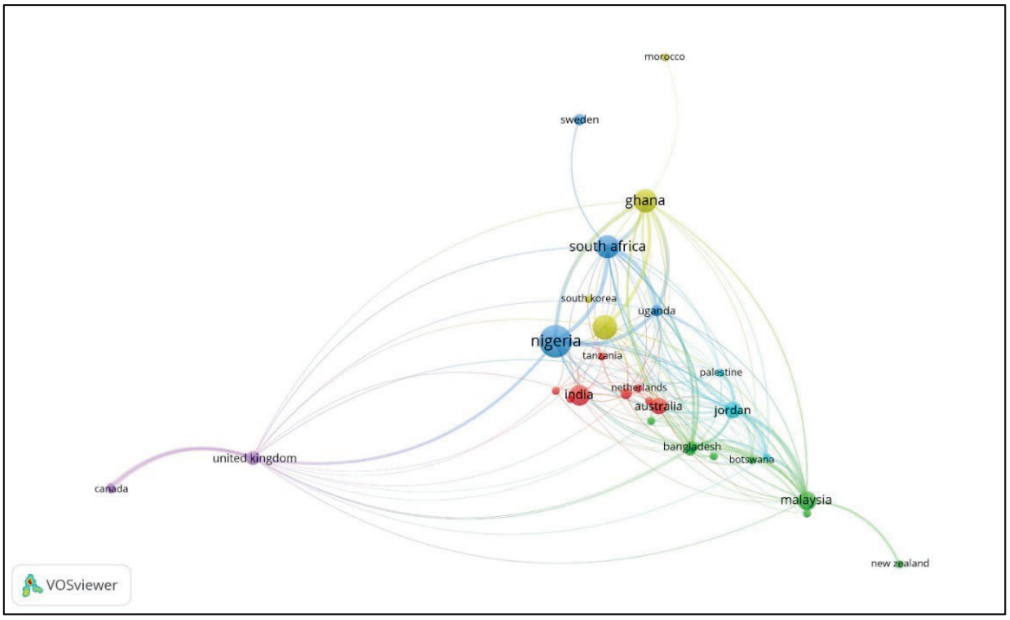


Figure 4: Bibliographic coupling of countries

Bibliographic Coupling of Sources: Analysis of 41 publication sources identified 97 collaboration networks, grouped into 9 clusters, including cluster 1 (e.g., Information Development, Library Management) and cluster 6 (e.g., IFLA Journal, Journal of Library Administration) (Figure 5).

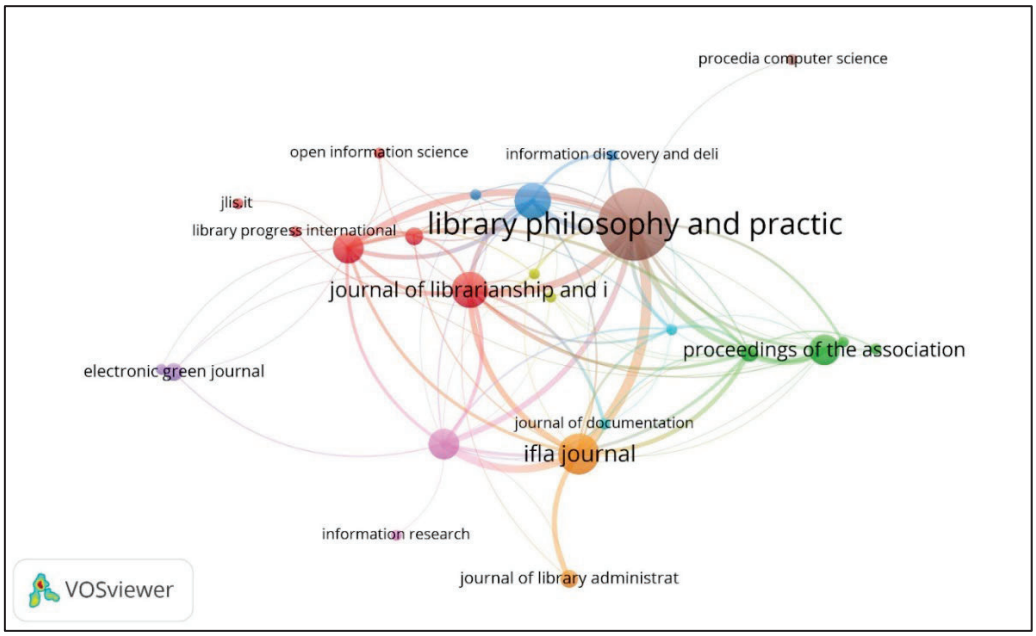


Figure 5: Bibliographic coupling of sources

Thematic Evolution: Thematic mapping categorized topics by density and centrality:

- High Centrality, High Density (Red): sustainable development, libraries, united nations (requiring in-depth research).
- High Density, Low Centrality (Green): case studies, sustainable development goals, green buildings (rapidly developing topics).
- Low Density, Low Centrality (Purple): economics (emerging topic).
- High Centrality, Moderate Density (Blue): Information services, developing countries, digital libraries (established topics) (Figure 6).

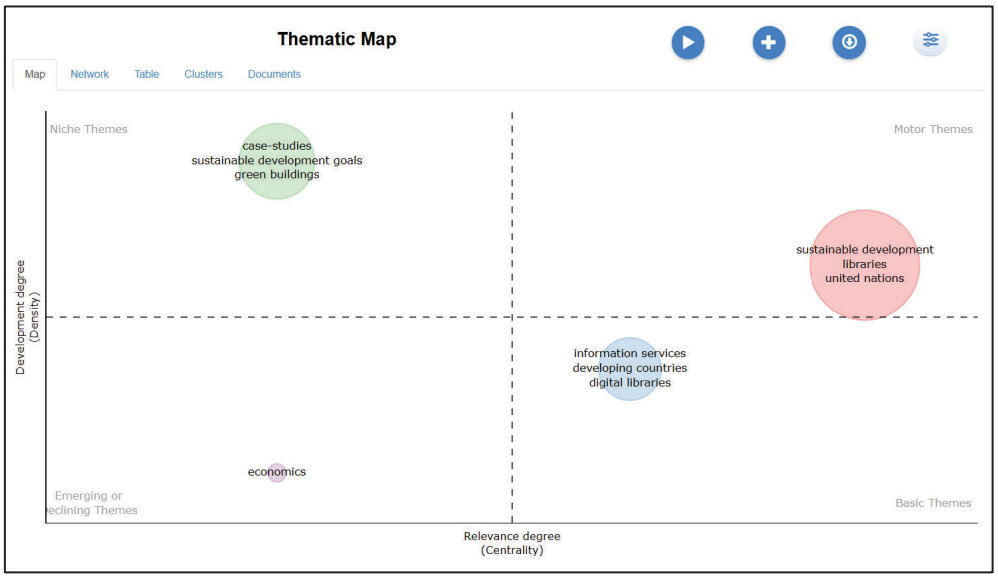


Figure 6: Thematic map

DISCUSSION AND CONCLUSION

This study analyzed 80 Scopus-indexed publications (2016–2024) related to libraries and SDGs, comprising 69 research articles (86.26%) and 11 conference papers (13.94%). The highest publication output occurred in 2024 (20 articles), with *Library Philosophy and Practice* and *IFLA Journal* as leading journals. Siviwe Bangani (South Africa) was the most prolific author, and Nigeria led in publication (11 articles) and citation counts (38 citations).

Thematic analysis identified three key clusters: (1) Green: sustainable development, libraries, united nations, public library, content analysis; (2) Blue: case studies, sustainable development goals, green buildings; (3) Red: information services, developing countries, digital libraries.

Trend analysis highlighted sustainable development as the most discussed topic, followed by libraries and united nations, with these themes likely to remain significant for future research.

These findings align with Li and Yang (2022), who identified sustainable development and green libraries as key research areas in the Web of Science database, and Jankowska and Marcum (2010), who emphasized sustainability challenges in academic libraries. Hauke and Werner (2013) provide practical insights into green library buildings, supporting your emerging theme of sustainable infrastructure. Igbinovia and Osuchukwu (2018) explain Nigeria's research dominance through knowledge-sharing behaviors among librarians, while Bradley (2016) underscores libraries' role in universal literacy, a theme reflected in your high-centrality clusters.

This study highlights libraries' critical role in advancing SDGs through enhanced resources, services, and personnel. The prominence of Nigeria and South Africa suggests a shift toward contributions from developing countries, contrasting with United States centric studies. Future research should explore interdisciplinary collaborations, combining bibliometric and qualitative methods to investigate regional motivations (e.g., Nigeria's productivity) and the practical impacts of green libraries and digital inclusion on SDG outcomes.

REFERENCES

Bradley, F. (2016). A world with universal literacy: The role of libraries and access to information in the UN 2030 Agenda. *IFLA Journal, 42*(2), 118-125.

Centre for SDG Research and Support. (n.d.). *Introduction in SDGs.* https://www.sdgmove.com/intro-to-sdgs/

Duereh, A. (2023). *THE Impact Rankings 2023.* https://www.sdgmove.com/2023/06/02/the-impact-rankings-thailand-2023/

Duereh, A. (2024). *THE Impact Rankings 2024.* https://www.sdgmove.com/2024/06/12/the-impact-rankings-2024-thailand/

Green Library Group. (n.d.). *Green Library Group.* https://www.greenlibnet.in.th/

Hauke, P., & Werner, K. U. (2013). The second-hand library building: sustainable thinking through recycling old buildings into new libraries. *IFLA Journal, 39*(1), 60-67.

Igbinovia, M. O., & Osuchukwu, N. P. (2018). Predictors of knowledge sharing behaviour on Sustainable Development Goals among library personnel in Nigeria. *IFLA Journal*, *44*(4), 267-280.

Jankowska, M. A., & Marcum, J. W. (2010). Sustainability challenge for academic libraries: Planning for the future. *College & Research Libraries, 71*(2), 160-170.

Li, S., & Yang, F. (2022). Green library research: A bibliometric analysis. *Public Library Quarterly*, *42*(4), 424-443. https://doi.org/10.1080/01616846.2022.2116886

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & PRISMA Group (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS medicine*, *6*(7), e1000097. https://doi.org/10.1371/journal.pmed.1000097

Rodsoodthi, S. (2019). The role of green library as a mean for environmental conservation. *Journal of the Faculty of Arts, Silapakorn University, 41*(1), 129-149.

Research Data Management Service Sustainability: A Framework for Malaysian Universities

Wei Haan Goh, Yanti Idaya Aspura Mohd Khalid, Kiran Kaur

Department of Library and Information Science, Faculty of Arts and Social Sciences, Universiti Malaya, Kuala Lumpur, Malaysia

Corresponding email: 17030812@siswa.um.edu.my

ABSTRACT

The sustainability of research data management (RDM) services presents a critical challenge for universities globally, particularly in Malaysia, where infrastructure, governance, resource constraints, and weak interdepartmental and external partnerships hinder effective implementation. These challenges result in inconsistencies in service provision, gaps in resource allocation, and a lack of cohesive policies, all of which compromise the ability of institutions to manage research data effectively. Such systemic issues not only impede the accessibility and preservation of research data, but also limit universities' ability to support researchers and align with evolving global research standards. This study aims to develop a comprehensive framework to sustain RDM services in Malaysian universities by addressing systemic issues such as service inconsistencies, resource management instability, fragmented governance, and limited collaboration. Through a qualitative approach, the research explores current RDM service practices, identifies barriers, and evaluates strategies employed to achieve long-term sustainability. Data collection involves interviews with key stakeholders, including librarians, IT personnel, research office staff, and university leadership, alongside document analysis of institutional policies, strategic plans, and governance frameworks. By addressing these challenges, the study seeks to provide practical insights and recommendations to enhance institutional RDM services, contributing to the broader goal of fostering effective research data management service practices in Malaysian universities.

Keywords: Research Data Management Services; Governance; Collaboration; Resource Management; Malaysian Universities

INTRODUCTION

The global research landscape has undergone a significant transformation, driven by increasing demands for research transparency, data integrity, and alignment with Open Science practices. In this evolving environment, Research Data Management (RDM) has become a critical component of academic and scientific activity. RDM encompasses structured processes that support the entire research data lifecycle, from data creation, documentation, and active use to long-term preservation and sharing (Griffin & Janz, 2024). These practices ensure the integrity, accessibility, and reproducibility of research, while also enabling compliance with funder mandates and journal policies (Carlson, 2023; Koivisto & Mäntylä, 2024).

To support researchers in implementing these practices, universities have developed Research Data Management Services (RDMS). These services offer institutional support through infrastructure, policy, and expertise, often coordinated by libraries, IT departments, or research offices (Griffin & Janz, 2024). Typical RDMS functions include data repository management, training and consultation, support for Data Management Plans (DMPs), and compliance guidance aligned with ethical, legal, and funder requirements.

In Malaysia, the development of RDMS is still in its nascent stages. While some public universities have implemented foundational services and engaged with national Open Science efforts, many institutions face substantial challenges. These include the lack of advanced infrastructure, limited personnel expertise, and minimal alignment with international frameworks such as the FAIR principles (Amanullah & Abrizah, 2023; Ismail et al., 2022). An institutional scan of 22 Malaysian universities, identified via their participation in the Malaysian Open Science Platform (MOSP) and the national survey The Landscape of Open Science in Malaysia, revealed wide disparities in RDM service provision. Many institutions lack formal policies, long-term storage strategies, metadata support, and researcher engagement mechanisms.

These inconsistencies are rooted in deeper institutional challenges that threaten the sustainability of RDMS across Malaysian universities. Resource instability remains a key barrier, with many institutions lacking adequate funding, scalable infrastructure, and skilled personnel to support the full research data lifecycle. Studies have shown that temporary project-based funding models and limited digital infrastructure hinder long-term planning and service continuity (Arndt et al., 2022; Ball, 2013; Griffin & Janz, 2024). Essential components such as secure repositories, metadata support, and preservation tools are often underdeveloped or completely absent, especially in under-resourced universities (Herres-Pawlis et al., 2022; Wissik & Ďurčo, 2015).

Governance fragmentation further exacerbates these issues. RDM responsibilities are frequently distributed across libraries, IT departments, and research offices without cohesive

coordination, leading to duplicated efforts and policy misalignment (Ball, 2013; Chen et al., 2023; Chiarelli et al., 2022). In many institutions, data management policies exist in name only and are not fully integrated into operational workflows, often lacking monitoring mechanisms or executive support (Demchenko et al., 2024; Gowen & Meier, 2020).

Limited collaboration among institutional stakeholders poses another structural challenge. Cross-functional partnerships, essential for delivering integrated RDM support, are often weak or non-existent, resulting in fragmented services and gaps in researcher support (Cox et al., 2019; Mittal et al., 2023; Rod et al., 2023). The absence of joint training programs and interdisciplinary capacity-building further weakens institutional resilience and service quality (Kim, 2020; Tammaro & Caselli, 2020).

Finally, researcher engagement remains low, driven by concerns over data misuse, intellectual property, and the lack of institutional incentives for sharing data (Hodonu-Wusu et al., 2020; Xu et al., 2022; Zhou et al., 2023). Many researchers in Malaysian universities store their data in personal drives rather than institutional repositories, are unaware of Open Science policies, and feel unprepared to develop Data Management Plans (Academy of Sciences Malaysia, 2021; Amanullah & Abrizah, 2023).

Given the systemic nature of these challenges, it is no longer sufficient to address RDM issues in isolation. There is an urgent need for a holistic sustainability framework that integrates governance, resource planning, and interdepartmental collaboration. Without such a framework, Malaysian universities risk delivering fragmented, inefficient, and short-lived services that compromise the long-term availability, accessibility, and integrity of research data—ultimately undermining national research competitiveness and global knowledge contributions.

Statement of Problem

Universities have developed RDM services to support researchers at each stage of the data management lifecycle, especially in educating on best practices in data management, developing data repositories that allow researchers to store, preserve, and share their data, and providing assistance with data analysis, visualization, and data management plan reviews for grant compliance. These services also often include meeting legal and ethical requirements.

However, despite these efforts, many RDM services face sustainability challenges due to issues related to resource management, governance, and collaboration. While initial funding may support the development and implementation of RDM services, it rarely ensures their longevity.

First, institutions struggle to maintain critical services such as scalable and secure infrastructure to handle growing volumes of data, and advanced tools that are essential for ensuring data integrity and reusability. In the Malaysian context, many universities face significant gaps in developing and maintaining such infrastructure, often due to limited budgets and insufficient technological expertise.

Second, the recruitment and retention of skilled personnel such as data librarians and analysts remain significant issues. A lack of tailored professional development and mentorship programs in Malaysia further exacerbates the situation, leading to overburdened staff and inconsistencies in service delivery.

Third, collaboration between key stakeholders such as libraries, IT departments, and research offices, remains limited in many institutions. Weak interdepartmental coordination results in fragmented services, duplicated efforts, and missed opportunities for integrated RDM support. Without structured and sustained collaboration, RDMS initiatives often lack the cohesion and institutional backing necessary for long-term success.

Fourth, the absence of a standardized framework for ensuring the sustainability of RDMS intensifies this problem. There is a pressing need to integrate governance, resource management, and collaboration into a sustainability framework for RDMS. Existing studies primarily focus on isolated issues rather than proposing holistic solutions tailored to higher education institutions.

Without such measures, the academic community risks compromising research data's availability, integrity, and usability, elements that are vital for scientific advancement and societal impact.

Aims of The Study

This study aims to develop a sustainability framework for research data management services in a university by addressing the systemic challenges of service inconsistencies, resource management instability, fragmented governance, and limited collaboration. This framework will explore current practices, identify barriers, and propose strategic interventions to improve

governance, resource allocation, and partnerships, ensuring the delivery of consistent, effective, and sustainable RDM services.

Research Objectives

RO1: To explore the current practices in research data management services (RDMS) in Malaysian universities

RO2: To identify the strategies employed by Malaysian universities in sustaining research data management services (RDMS)

Research Questions

RQ1: What are the predominant research data management services implemented by Malaysian universities?

RQ2: What systemic challenges do Malaysian universities face in implementing research data management services?

RQ3: What strategies do Malaysian universities employ in the Research Data Governance that support the sustainability of Research Data Management services?

RQ4: What strategies do Malaysian universities employ to sustain the infrastructure and services across the research data life cycle?

RQ5: What strategies do Malaysian universities employ to provide training and support that enhance the sustainability of RDM services

RQ6: What strategies do Malaysian universities employ to foster partnerships and collaborative approaches that enhance the sustainability of RDM services?

LITERATURE REVIEWS

This literature review explores key factors shaping the sustainability of Research Data Management Services (RDMS), focusing on governance, infrastructure, training, collaboration, and guiding frameworks. The review is structured around five themes: Governance and Strategy, Infrastructure and Resourcing, Capacity Building, Collaborative Approaches, and Guiding Principles.

Governance And Strategy

Effective RDMS sustainability depends on strong institutional governance, leadership, and policy alignment. Studies highlight the role of libraries in championing RDM policy development and institutional coordination (Cox et al., 2017). Examples from McGill University and Bielefeld University show how integrated governance models strengthen long-term service delivery (Rod et al., 2023; Schirrwagen et al., 2019).

Regionally, Singapore exemplifies successful strategic alignment, with institutions like SMU and NTU embedding RDM into institutional workflows and Open Science policies (Dong & Yeo, 2022). In contrast, Indonesia's progress remains at the planning stage, with national strategies focused on institutional readiness (Marlina & Purwandari, 2019). Malaysia has shown gradual advancement since 2015, but progress is inconsistent, with limited standardization of Data Management Plans and uneven policy implementation (Amanullah & Abrizah, 2023; Hazmi et al., 2023).

Overall, the literature emphasizes that sustainability requires not just isolated policy actions, but integrated strategies backed by national frameworks, clear mandates, and institutional commitment (Arndt et al., 2022; Pinfield et al., 2014).

Funding And Infrastructure

Sustainable RDMS require both stable funding and scalable infrastructure. Literature emphasizes that long-term financial support must be embedded in institutional strategies rather than relying on short-term, project-based models (Cox et al., 2017; Hiom et al., 2015). Funding integration into core research support budgets is essential for service continuity.

In Malaysia, many universities remain focused on basic tools like repositories and bibliographic software, with limited adoption of advanced services such as collaborative storage or

visualization tools (Jusoh et al., 2019). Resource constraints often push researchers toward personal storage solutions, raising concerns about data security and institutional control (Ismail et al., 2022).

Innovative models suggest cost-effective ways forward. For example, integrating Knowledge Management Systems with Data Management Systems can optimize resources (Mozgova et al., 2022), while platforms like Globus offer affordable, cloud-based data storage options (Chard et al., 2017). Advanced frameworks—such as digital twin architectures aligned with FAIR principles—highlight the potential for resilient, future-proof infrastructure (Lehmann et al., 2023), though they may require additional capacity building in the Malaysian context. In sum, sustainable RDMS delivery depends on aligning financial planning with infrastructure development to support the evolving needs of research data stewardship.

Capacity Building and Training

Sustainable RDMS depend on more than infrastructure and policy—they require continuous investment in human capital. Training for both researchers and support staff is essential to build competencies in data curation, metadata, and sharing practices (Arias-Coello et al., 2018; Koltay, 2017). Regional models underscore the importance of institutional context. In Singapore, universities like SMU and NTU embedded librarian-led training into research workflows early on, fostering a strong data culture (Dong & Yeo, 2022). Conversely, Indonesian institutions face barriers such as policy ambiguity and staffing limitations, highlighting the need for structured development pathways (Istiarni & Ali, 2021).

In Malaysia, capacity-building remains uneven. While some universities, like USM, offer workshops on metadata and data sharing, these efforts are localized and not yet institutionalized (Ismail et al., 2022; Zain et al., 2023). Most librarians lack training in advanced data tasks, and researchers often rely on self-managed tools.

International initiatives offer transferable strategies. Spain and China have developed scalable training programs, including online modules tailored to discipline-specific needs (Arias-Coello et al., 2018; Xu et al., 2022). Locally, the Malaysia Open Science Platform (MOSP) has introduced a national data stewardship module, providing foundational RDM training aligned with FAIR and Open Science principles (MOSP, n.d.).

To support long-term sustainability, Malaysian universities must adopt coordinated, interdisciplinary training approaches that align institutional policies with evolving research and governance trends.

Collaborative Approaches

Collaboration, both internal and external, is central to sustainable RDM service delivery. Studies emphasize that aligning libraries, IT units, and research offices under shared governance structures leads to more coherent policies and reduces service duplication (Davidson et al., 2014; Verbaan & Cox, 2014).

Beyond institutional boundaries, resource-sharing consortia among universities can enhance infrastructure, reduce costs, and strengthen collective expertise. Australian models show how multi-institutional partnerships improve long-term stewardship capacity (Morgan et al., 2017), an approach highly relevant for Southeast Asia.

In Malaysia, collaboration remains weak. Most institutions operate in silos, with limited interdepartmental coordination and minimal inter-university resource sharing (Amanullah & Abrizah, 2023). This fragmentation results in inefficiencies and uneven RDM maturity across the sector.

Technological collaboration also plays a role. Platforms like Germany's Sciebo demonstrate how cloud-based systems can support scalable, secure, and interoperable RDM infrastructure across institutions (Herzmann et al., 2014; Wilms et al., 2016). To scale sustainable RDM systems, Malaysian universities must strengthen collaborative mechanisms internally across departments and externally through shared platforms and national coordination.

Guiding Principles and Frameworks

The FAIR (Findable, Accessible, Interoperable, Reusable) and TRUST (Transparency, Responsibility, User Focus, Sustainability, Technology) principles provide essential frameworks for guiding sustainable RDM practices. Embedding these principles helps institutions align with global Open Science movements and improve data usability and credibility.

FAIR-aligned practices, including structured metadata and interoperable repositories, enhance data visibility and reuse. However, challenges remain in implementation without supportive policies and training (Birkbeck et al., 2022). Machine-actionable Data Management Plans (DMPs) are a key innovation, enabling automated FAIR compliance monitoring (Pham et al., 2023).

The TRUST principles complement FAIR by emphasizing repository governance and long-term sustainability. Certification mechanisms like CoreTrustSeal validate repository quality and build user confidence (Donaldson et al., 2017; Lin et al., 2020; Yakel et al., 2024).

For Malaysian universities, applying these frameworks strengthens institutional accountability, improves repository trustworthiness, and supports sustainable data stewardship. Together, FAIR and TRUST offer a roadmap for future-proofing RDM services and enhancing engagement in global research ecosystems.

Sustainable RDM services require more than infrastructure, they depend on effective governance, funding, training, collaboration, and alignment with FAIR and TRUST principles. While global models offer guidance, Malaysia's unique challenges call for an integrated framework tailored to local institutional contexts.

Research Gaps

While existing literature discusses governance, infrastructure, funding, and FAIR principles in RDM, most studies treat these elements separately. In Malaysia, RDM services remain fragmented, with limited strategies for financial planning, collaboration, and capacity building. There is also inconsistent use of Data Management Plans and advanced infrastructure. This study addresses the gap by proposing an integrated framework that aligns governance, resources, and collaboration to support sustainable RDM services in Malaysian universities.

Conceptual And Theoretical Foundations

This study integrates three models to guide the sustainability of Research Data Management Services (RDMS) in Malaysian universities:

- Jones et al. (2013) forms the core framework, outlining essential RDM service components across the data lifecycle, such as governance, planning, infrastructure, and support.

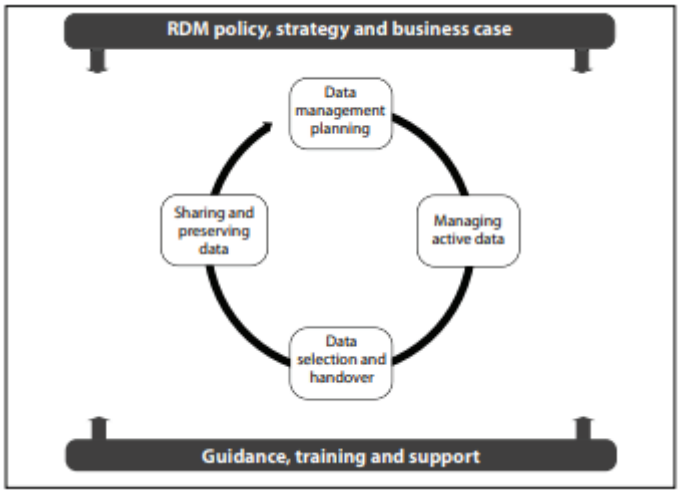


Figure 1: Components of research data management services

(Source: Jones et al., 2013)

- FAIR Principles (Findable, Accessible, Interoperable, Reusable) ensure that data is well-managed, discoverable, and reusable, aligning RDM practices with global standards.
- TRUST Principles (Transparency, Responsibility, User Focus, Sustainability, Technology) assess the trustworthiness and long-term viability of institutional data services and repositories.

Together, these models support the development of a holistic, sustainable RDM framework aligned with both local needs and international best practices.

METHODOLOGY

This study adopts a qualitative approach within an interpretivist paradigm to explore sustainability strategies in research data management services (RDMS) at Malaysian universities. Data will be gathered through interviews and document reviews from selected institutions involved in open science initiatives. Thematic analysis and triangulation will be used to identify key patterns and insights relevant to the research objectives.

Scope of the Study

This study focuses on Malaysian public and private universities actively involved in Research Data Management (RDM), particularly those listed under the Malaysian Open Science Platform (MOSP). Institutions with visible progress in policy, infrastructure, and support services are included, with the aim of assessing current practices and proposing a sustainability framework applicable across varying institutional contexts.

Significance of the Study

This study offers a holistic framework to strengthen the sustainability of RDM services in Malaysian universities. It contributes to academic literature, informs institutional policy, supports Malaysia's Open Science agenda, and aligns with global standards such as FAIR. The findings provide practical guidance for improving governance, infrastructure, and researcher support.

REFERENCES

Academy of Sciences Malaysia. (2021). *The landscape of Open Science Malaysia*. https://www.akademisains.gov.my/asm-publication/the-landscape-of-open-science-in-malaysia/

Amanullah, S. W., & Abrizah, A. (2023). The landscape of research data management services in Malaysian academic libraries: librarians' practices and roles. *The Electronic Library*, *41*(1), 63-86. https://doi.org/10.1108/EL-06-2022-0135

Arias-Coello, A., Simon-Blas, C., Arranz-Val, P., & Simon-Martin, J. (2018). Research data management in three Spanish universities. In *Information Literacy in the Workplace* (pp. 195-204). https://doi.org/10.1007/978-3-319-74334-9_21

Arndt, W., Gerlich, S. C., Hofmann, V., Kubin, M., Kulla, L., Lemster, C., Mannix, O., Rink, K., Nolden, M., Schweikert, J., Shankar, S., Söding, E., Steinmeier, L., & Süß, W. (2022). *A survey on research data management practices among researchers in the Helmholtz Association* [Project Report] (doi:10.3289/HMC_publ_05). (HMC Report, Issue. https://oceanrep.geomar.de/id/eprint/57494/

Ball, J. (2013). Research data management for libraries: getting started. *Insights: the UKSG journal*. https://doi.org/10.1629/2048-7754.70

Birkbeck, G., Nagle, T., & Sammon, D. (2022). Challenges in research data management practices: a literature analysis. *Journal of Decision Systems*, *31*(sup1), 153-167. https://doi.org/10.1080/12460125.2022.2074653

Carlson, J. (2023). Untapped potential: A critical analysis of the utility of data management plans in facilitating data sharing. *The Journal of Research Administrator*, *55*(3), 20. https://www.srainternational.org/blogs/srai-jra2/2023/10/18/untapped-potential-a-critical-analysis-of-the-util

Chard, K., Foster, I., & Tuecke, S. (2017). *Globus* Practice and Experience in Advanced Research Computing 2017: Sustainability, Success and Impact,

Chen, H.-l., Chiu, T.-H., & Cline, E. (2023). Academic libraries and research data management: a case study of Dataverse global adoption. *Information Discovery and Delivery*, *51*(2), 166-178. https://doi.org/10.1108/IDD-04-2022-0028

Chiarelli, A., Beagrie, N., Boon, L., Mallalieu, R., Johnson, R., May, A. W., & Wilson, R. (2022). To protect and to serve: developing a road map for research data management services. *Insights: the UKSG journal*. https://doi.org/10.1629/uksg.566

Cox, A., Kennan, M. A., Lyon, L., & Pinfield, S. (2017). Developments in Research Data Management in Academic Libraries: Towards an Understanding of Research Data Service Maturity. *Journal of the Association for Information Science and Technology*, *68*(9), 2182-2200. https://doi.org/10.1002/asi.23781

Cox, A. M., Kennan, M. A., Lyon, L., Pinfield, S., & Sbaffi, L. (2019). Maturing research data services and the transformation of academic libraries. *Journal of Documentation*, *75*(6), 1432-1462. https://doi.org/10.1108/JD-12-2018-0211

Davidson, J., Jones, S., Molloy, L., & Kejser, U. B. (2014). Emerging Good Practice in Managing Research Data and Research Information within UK Universities. *Procedia Computer Science*, *33*, 215-222.

https://doi.org/https://doi.org/10.1016/j.procs.2014.06.035

Demchenko, Y., Cuadrado-Gallego, J. J., Chertov, O., & Aleksandrova, M. (2024). Research Data Management. In Y. Demchenko, J. J. Cuadrado-Gallego, O. Chertov, & M. Aleksandrova (Eds.), *Big Data Infrastructure Technologies for Data Analytics: Scaling Data Science Applications for Continuous Growth* (pp. 307-347). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-69366-3_9

Donaldson, D., Dillo, I., Downs, R., & Ramdeen, S. (2017). The Perceived Value of Acquiring Data Seals of Approval. *International Journal of Digital Curation*, *12*, 130-151. https://doi.org/10.2218/ijdc.v12i1.481

Dong, D., & Yeo, P. P. (2022). *SMU's research data management journey: Policy, engagement and feasibility*. https://ink.library.smu.edu.sg/library_research/203

Gowen, E., & Meier, J. (2020). Research data management dervices and strategic planning in libraries today: A longitudinal study. *Journal of Librarianship and Scholarly Communication*, *8*, 2336. https://doi.org/10.7710/2162-3309.2336

Griffin, T. M., & Janz, M. (2024). Research data management sustainability: services, infrastructure, accountability, and planning. *Portal*, *24*(2), 305-324. https://doi.org/10.1353/pla.2024.a923709

Hazmi, N. R., Abrizah, A., & Idaya, A. M. K. Y. (2023). Research data governance activities for implementation in Malaysia research performing organizations: insights from data practitioners via Delphi study. *Malaysian Journal of Library and Information Science*, *28*(3), 37-60. https://doi.org/10.22452/mjlis.vol28no3.3

Herres-Pawlis, S., Bach, F., Bruno, I. J., Chalk, S. J., Jung, N., Liermann, J. C., McEwen, L. R., Neumann, S., Steinbeck, C., Razum, M., & Koepler, O. (2022). Minimum information

standards in chemistry: A call for better research data management practices. *Angewandte Chemie International Edition*, *61*(51), e202203038.
https://doi.org/https://doi.org/10.1002/anie.202203038

Herzmann, D., Abendroth, L., & Bunderson, L. (2014). Data management approach to multidisciplinary agricultural research and syntheses. *Journal of Soil and Water Conservation*, *69*, 180A. https://doi.org/10.2489/jswc.69.6.180A

Hiom, D., Fripp, D., Gray, S., Snow, K., & Steer, D. (2015). Research data management at the University of Bristol. *Program: electronic library and information systems*, *49*(4), 475-493. https://doi.org/10.1108/PROG-02-2015-0019

Hodonu-Wusu, J. O., Noorhidawati, A., & Abrizah, A. (2020). Malaysian researchers on open data: The first national survey on awareness, practices and attitudes. *Malaysian Journal of Library & Information Science*, *25*(2), 1-20. https://doi.org/10.22452/mjlis.vol25no2.1

Ismail, M. I., Jaafar, C. R. C., Azmi, N. A., Makhtar, M. M. Z., Samsuddin, S. F., & Abrizah, A. (2022). Eliciting researchers' behaviour as the foundation of research data management service development. *Library and Information Science Research E-Journal*.

Istiarni, A., & Ali, I. (2021). Studi eksplorasi kesiapan adopsi manajemen data penelitian (Research data management) Perpustakaan Perguruan Tinggi di Indonesia. *Media Pustakawan*, *29*(3), 279-293. https://doi.org/10.37014/medpus.v29i3.3485

Jusoh, Y. Y., Abdullah, R., Sidi, F., Ishak, I., Napis, S., Marhaban, M. H., Tugiran, Y., & Tajuddin, N. I. I. (2019). *Research data management in supporting knowledge sharing among univesity researchers*.

Kim, J. (2020). Academic library's leadership and stakeholder involvement in research data services. *Proceedings of the Association for Information Science and Technology*, *57*(1). https://doi.org/10.1002/pra2.304

Koivisto, E., & Mäntylä, E. (2024). Are Open Science instructions targeted to ecologists and evolutionary biologists sufficient? A literature review of guidelines and journal data policies. *Ecology and Evolution*, *14*(7), Article e11698. https://doi.org/10.1002/ece3.11698

Koltay, T. (2017). Data literacy for researchers and data librarians. *Journal of Librarianship and Information Science*, *49*(1), 3-14. https://doi.org/10.1177/0961000615616450

Lehmann, J., Schorz, S., Rache, A., Häußermann, T., Rädle, M., & Reichwald, J. (2023). Establishing reliable research data management by integrating measurement devices utilizing intelligent digital twins. *Sensors*, *23*(1), 468. https://www.mdpi.com/1424-8220/23/1/468

Lin, D., Crabtree, J., Dillo, I., Downs, R. R., Edmunds, R., Giaretta, D., De Giusti, M., L'Hours, H., Hugo, W., Jenkyns, R., Khodiyar, V., Martone, M. E., Mokrane, M., Navale, V., Petters, J.,

Sierman, B., Sokolova, D. V., Stockhause, M., & Westbrook, J. (2020). The TRUST principles for digital repositories. *Sci Data*, *7*(1), 144. https://doi.org/10.1038/s41597-020-0486-7

Marlina, E., & Purwandari, B. (2019). Strategy for research data management services in Indonesia. Procedia Computer Science,

Mittal, D., Mease, R., Kuner, T., Flor, H., Kuner, R., & Andoh, J. (2023). Data management strategy for a collaborative research center. *GigaScience*, *12*. https://doi.org/10.1093/gigascience/giad049

Morgan, A., Duffield, N., & Walkley Hall, L. (2017). Research data management support: Sharing our experiences. *Journal of the Australian Library and Information Association*, *66*(3), 299-305. https://doi.org/10.1080/24750158.2017.1371911

MOSP. (n.d.). *Data Stewards*. https://www.mosp.gov.my/stewards

Mozgova, I., Altun, O., Sheveleva, T., Castro, A., Oladazimi, P., Koepler, O., Lachmayer, R., & Auer, S. (2022). Knowledge annotation within research data management system for oxygen-free production technologies. *Proceedings of the Design Society*, *2*, 525-532. https://doi.org/10.1017/pds.2022.54

Pham, N.-M., Moulaison-Sandy, H., Bishop, B. W., & Gunderman, H. (2023). Data management plans: Implications for automated analyses. *Data Science Journal*. https://doi.org/10.5334/dsj-2023-002

Pinfield, S., Cox, A. M., & Smith, J. (2014). Research data management and libraries: relationships, activities, drivers and influences. *PLoS ONE*, *9*(12), e114734. https://doi.org/10.1371/journal.pone.0114734

Rod, A. B., Zhou, B., & Rousseau, M.-E. (2023). There's no "I" in Research Data Management: : Reshaping RDM Services Toward a Collaborative Multi-Stakeholder Model. *Journal of eScience Librarianship*, *12*(1).

https://publishing.escholarship.umassmed.edu/jeslib/article/id/624/

Schirrwagen, J., Cimiano, P., Ayer, V., Pietsch, C., Wiljes, C., Vompras, J., & Pieper, D. (2019). Expanding the Research Data Management Service Portfolio at Bielefeld University According to the Three-pillar Principle Towards Data FAIRness. *Data Science Journal*. https://doi.org/10.5334/dsj-2019-006

Tammaro, A. M., & Caselli, S. (2020). Training Data Stewards in Italy: Reflection on the FAIR RDM Summer School. In M. Ceci, S. Ferilli, & A. Poggi (Eds.), *Digital Libraries: The Era of Big Data and Data Science* (Vol. 1177, pp. 163-172). Springer International Publishing. https://doi.org/10.1007/978-3-030-39905-4_16

Verbaan, E., & Cox, A. M. (2014). Occupational Sub-Cultures, Jurisdictional Struggle and Third Space: Theorising Professional Service Responses to Research Data Management. *The Journal of Academic Librarianship*, *40*(3), 211-219.

https://doi.org/https://doi.org/10.1016/j.acalib.2014.02.008

Wilms, K., Meske, C., Stieglitz, S., Rudolph, D., & Vogl, R. (2016). How to Improve Research Data Management. In *Human Interface and the Management of Information: Applications and Services* (pp. 434-442). https://doi.org/10.1007/978-3-319-40397-7_41

Wissik, T., & Ďurčo, M. (2015). Research data workflows: From research data lifecycle models to institutional solutions. *Linköping Electronic Conference Proceedings* Selected Papers from the CLARIN Annual Conference 2015, October 14–16, 2015, Wroclaw, Poland, Vienna, Austria.

Xu, Z., Zhou, X., Kogut, A., & Clough, M. (2022). Effect of online research data management instruction on social science graduate students' RDM skills. *Library & Information Science Research*, *44*(4), 101190. https://doi.org/https://doi.org/10.1016/j.lisr.2022.101190

Yakel, E., Faniel, I. M., & Robert, L. P. (2024). An empirical examination of data reuser trust in a digital repository. *Journal of the Association for Information Science and Technology*, *75*(8), 898-915. https://doi.org/10.1002/asi.24933

Zain, W. M., Ahmad, Z. S., Lackie, P., Kamarudin, N., & Nordin, S. K. (2023). Academic library opportunity: Examining the research data management challenges facing Malaysian information science researchers. *International Journal of Information & Knowledge Management (22318836)*, *13*.

Zhou, X., Xu, Z., & Kogut, A. (2023). Research data management needs assessment for social sciences graduate students: A mixed methods study. *PLoS ONE*, *18*(2), e0282152. https://doi.org/10.1371/journal.pone.0282152

Research Data Management in Citizen Science Project: A Case Study at Malaysian Research Universities

Cik Ramlah Che Jaafar[1&3], Asmadi Mohammed Ghazali[2], Mad Khir Johari Abdullah Sani[1]

[1]College of Computing, Informatics & Mathematics, Universiti Teknologi Mara (UiTM), Perdana, Shah Alam, Selangor, Malaysia

[2]College of Computing, Informatics & Mathematics, Universiti Teknologi Mara (UiTM), Cawangan Kedah, Kampus Sungai Petani, Merbok, Kedah Darul Aman, Malaysia

[3]Hamzah Sendut Library, Universiti Sains Malaysia, Penang, Malaysia

Corresponding email: asmadi615@uitm.edu.my

ABSTRACT

Research Data Management (RDM) is vital for ensuring the success and sustainability of Citizen Science (CS) projects, especially in research universities (RU). This study examines RDM practices, challenges, and strategies within CS initiatives at a Malaysian RU. Using a qualitative approach, insights were gathered from project managers across diverse disciplines through interviews, providing a comprehensive view of current RDM practices. Initial findings indicate varied data collection, sharing, and storage approaches, including using Open Platforms, GIS tools, and cloud storage like Google Drive. However, challenges such as unclear data ownership, limited technological awareness, insufficient resources, and lack of institutional enforcement and policy hinder systematic RDM practices. Funding constraints and the absence of integrated systems further amplify these gaps. To improve RDM, strategies such as integrating RDM elements into grants, leveraging open platforms, enhancing capacity building, and implementing clear data-sharing policies are recommended. These steps align with global standards, support open science initiatives, and foster sustainable development. Future research should focus on developing a framework for integrating RDM into institutional policies, exploring the role of advanced technologies in CS projects, and assessing the long-term impacts of improved RDM practices on research outcomes and societal engagement.

Keywords: Research Data Management; Citizen Science; Open Science; Malaysian Research Universities

INTRODUCTION

Citizen Science (CS) is growing in enhancing scientific literacy and public participation by involving non-professionals in data collection, monitoring, and analysis (Hecker et al., 2019). Research Universities (RU) are increasingly incorporating CS into their agendas, supporting global movements like Open Science and the Sustainable Development Goals (UNESCO, 2021). Central to effective CS is Research Data Management (RDM), the structured data handling across its lifecycle to ensure accessibility, transparency, and reusability (Yin, 2018). However, in many developing countries, RDM practices remain informal and fragmented (Senyoni, 2021). In Malaysian RU, CS-related RDM is still emerging. Tools like Google Drive, WhatsApp, and iNaturalist are commonly used. However, challenges such as unclear data governance, limited digital literacy, and weak institutional policies persist. This study investigates RDM practices in CS projects at a Malaysian RU, aiming to (i) examine current RDM practices; (ii) explore factors leading to unsystematic practices; and (iii) propose strategies for improvement. The study supports more inclusive, transparent, and sustainable research aligned with Open Science and participatory ethics.

METHODOLOGY

This study employed a qualitative single-case study design to explore RDM practices, challenges, and strategies in CS projects at a Malaysian RU. This approach enabled an in-depth understanding of RDM implementation across CS initiatives involving environmental monitoring, biodiversity conservation, and heritage preservation (Yin, 2018). Purposive sampling was used to select seven participants, all academic staff or project managers involved in data collection, processing, or storage. The sample size was sufficient for thematic saturation (Guest et al., 2020). Data were collected through semi-structured interviews guided by the study's objectives and relevant literature. Each interview lasted 45–60 minutes and was conducted in person or online, with consented audio recordings transcribed verbatim. Ethical approval was obtained from the university's research ethics committee. Data were analyzed using thematic analysis based on the six-phase approach (Braun & Clarke, 2022), combining deductive and inductive coding. Coding was supported by ATLAS.ti software to enhance rigor. Strategies such as prolonged engagement, member checking, and maintaining an audit trail were used to ensure trustworthiness, following standards by Lincoln and Guba (1985).

FINDINGS AND DISCUSSIONS

Main Themes and Sub-Themes

The findings of this study are organised into three main themes: (i) Current RDM Practices,

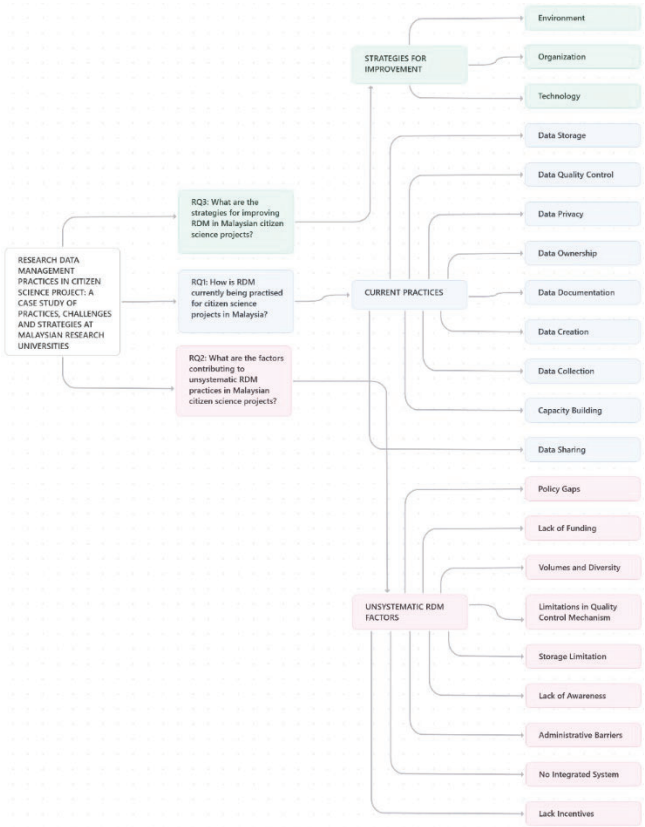


Figure 1: Main themes and sub-themes

(ii) Unsystematic RDM Factors, and (iii) Strategies for Improvement (Figure 1). Under the first theme, the sub-themes identified include data creation, data collection, data documentation, data ownership, data privacy, data quality control, data storage, data sharing, and capacity building. The second theme, which explores unsystematic RDM, comprises sub-themes such as policy gaps, lack of funding, volumes and diversity of data, limitations in quality control mechanisms, storage limitations, lack of awareness, administrative barriers, lack of integrated systems, and lack of incentives. The final theme, strategies for improvement, includes environment, organization, and technology as sub-themes representing different dimensions needed to enhance RDM practices in CS projects.

Sub-theme 1: Current Practices

Figure 2 revealed nine key sub-themes under the 'current RDM practices' theme in CS projects, highlighting the decentralised and varied approaches project teams use to manage citizen-generated data.

'Data creation' in CS projects involved audio-visual and tabular or documented formats. Photos and videos captured field observations but were often poorly organized, limiting reuse. Tabular data, collected via tools like Google Forms and Excel, was more manageable but prone to incomplete or inconsistent entries, especially when done manually (Vattakaven et al., 2022).

"Most of the data were obtained from surveys conducted via Google Forms and were also recorded in various documented formats."(4:8 p 4 in P4).

CS projects employed digital platforms, manual methods, and open-source tools for 'data collection'. Tools like Google Forms and WhatsApp allowed quick input but were limited by inconsistent data and internet reliance. Though useful in low-connectivity areas, manual methods led to delays and transcription errors (Pattinson et al., 2024). Open platforms like iNaturalist provide structured formats and GPS tagging, enhancing standardisation and transparency (Della Rocca et al., 2024).

"We utilise both mobile-based and web-based digital platforms to collect crowdsourced information from the community." (6:4 p 3 in P6).

These mixed approaches show flexibility but also stress the need for proper guidelines and training to ensure data quality.

'Data storage' practices were inconsistent across projects, with a combination of specific institutional repositories, personal devices, and cloud-based platforms such as Google Drive and Dropbox. While cloud storage enables real-time collaboration, using personal and local devices raises concerns about data security and long-term preservation (Akhtar et al., 2021).

"We use external hard drives and cloud-based storage services. One copy is stored on an external drive, another on a local computer, and a third in the cloud, accessible only to the project's modelling team."(6:10 p 6 in P6).

Most CS projects applied basic verification methods, including observation checks and instrument-based validation, often guided by the project manager's expertise. Fraisl et al. (2022) and Balazs et al. (2021) have noted similar approaches, highlighting the role of tailored validation strategies in ensuring data reliability.

"Data validation was carried out using follow-up questions. For example, if a participant reported sighting a humpback dolphin, we would ask additional questions about specific features such as the animal's coloration to confirm the accuracy of the observation." (2:48 p 2 in P2).

'Data privacy and ownership' were typically managed informally, with verbal or implied consent from participants. There was a lack of clarity on who owns the data, whether it belongs to the institution, the project team, or the public contributors.

"Some data are subject to non-disclosure agreements. In such cases, the data is typically stored by the principal investigator, and team members must request access by the PI."(3:43 p 9 in P3).

This mirrors findings by (Hecker et al., 2019), who emphasised the need for clearer ethical guidelines in participatory research.

'Data documentation' in CS projects was generally inconsistent. While a few used structured systems with templates and naming conventions, most relied on basic folder organization, lacking standardisation. This aligns with findings by Thuermer et al. (2023), who highlight poor documentation as a barrier to data reuse and transparency.

"I developed a systematic documentation system, which includes naming files based on the year the survey was conducted. Another method I use involves naming documents according to the titles advertised or tendered through the university's system." (5:9 p 5 in P5).

The findings underscore the need for institutional support and training to strengthen documentation practices.

'Capacity building' was generally underdeveloped. Only a few participants mentioned providing structured training for citizen contributors.

"While some training focuses on conservation response, such as handling stranded wildlife, all CS projects must include comprehensive initial and follow-up training to ensure effective and informed participation." (2:46 p 1 in P2).

This aligns with Stall et al. (2019), who stress the importance of training to support ethical and effective RDM in CS.

Lastly, 'data sharing' practices ranged from uploading data to open platforms (e.g., iNaturalist) to using private tools like Google Sheets. However, most sharing was informal, lacking clear policies or data-sharing agreements.

"The most convenient platforms for communication and data exchange were WhatsApp and email."(1:60 p 11 in P1).

Nurfarawahidah et al. (2023) and Che Jaafar et al. (2024) found similar practices in Malaysian university-led CS projects, where open data culture is still emerging.

These findings reveal that while CS projects in Malaysian RU actively generate and manage data, their practices remain largely ad hoc and fragmented. Institutional support is needed in developing clear guidelines, training modules, and centralised platforms to standardise and sustain RDM efforts in these community-driven research initiatives.

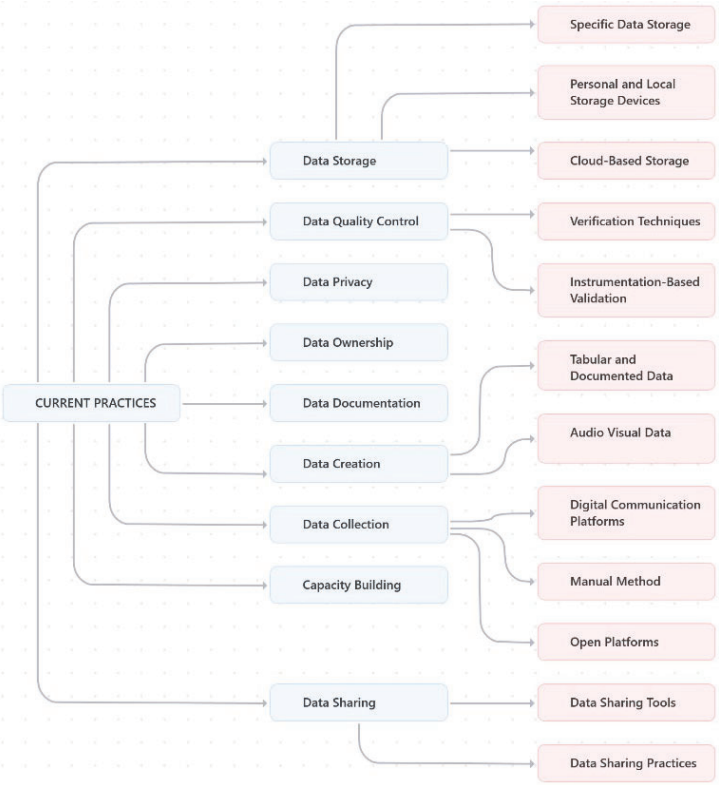


Figure 2: Current practices

Sub-theme 2: Unsystematic RDM Factors

Figure 3 shows nine interrelated factors contributing to the unsystematic implementation of RDM in CS projects. The most prominent barrier cited by participants was the 'lack of institutional funding', which limits access to reliable data infrastructure, trained personnel, and long-term storage systems.

"Typically, project activities tend to cease once funding ends. (2:44 p 1 in P2).

Similar observations were reported by Van Brussel and Huyse (2019), who found that limited financial support leads to adopting ad hoc data practices, particularly in resource-constrained environments. Participants also pointed to 'gaps in institutional policy' related to data governance and ethical use.

"Although a policy exists, it lacks clarity and remains largely theoretical. It has not been effectively implemented or widely practised across the campus." (5:20 p 11 in P5).

This lack of policy alignment with Open Science principles is consistent with findings by Ramachandran et al. (2021), who emphasise that the absence of formal frameworks undermines data integrity and reuse.

Another critical issue was the 'lack of awareness and training' among researchers and citizen scientists. Many project managers noted that participants were unfamiliar with basic RDM concepts or standards.

"There are numerous CS projects in Malaysia with funding potential. However, the data generated is often managed individually and is rarely shared or made accessible to others."(4:21 p 10 in P4).

This knowledge gap affects data quality and increases the risk of non-compliance with ethical and legal requirements (Stall et al., 2019).

'Administrative barriers' further constrain systematic practices. These include complicated approval procedures for external data-sharing and unclear responsibilities across departments.

"Although funding was available, the lack of clear financial guidance, such as handling incorrect VOT codes, was confusing. This administrative complexity has demotivated many researchers who are not directly involved in financial management."(1:73 p 2 in P1).

These institutional inefficiencies echo findings by Child et al. (2022), who call for simplified and centralised RDM support structures.

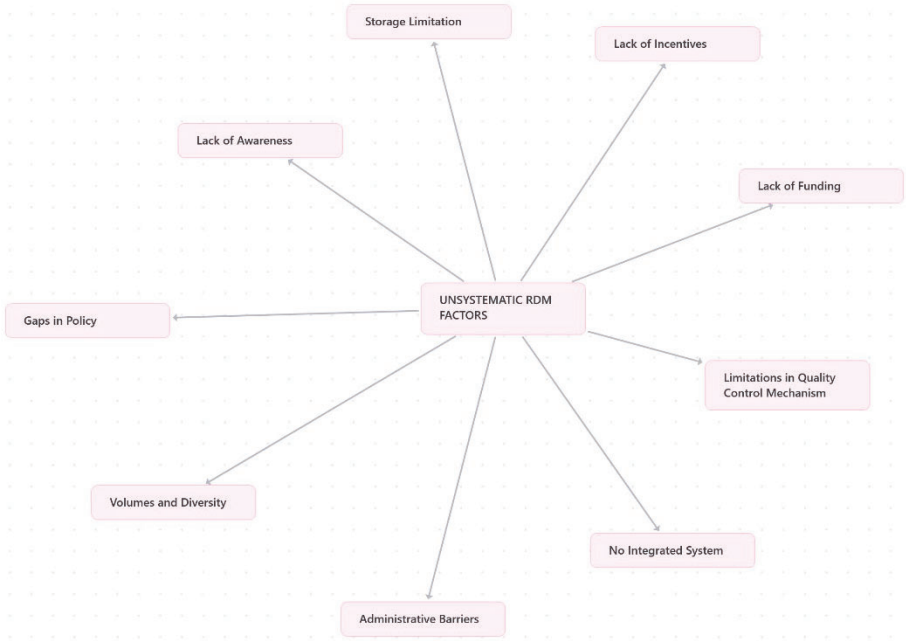


Figure 3: Unsystematic RDM factors

Additionally, the ‘absence of an integrated system’ for managing data across the research lifecycle leads to data fragmentation. Participants noted the use of disconnected tools, leading to inconsistencies in data formatting, versioning, and access control. The challenge is compounded by the ‘diversity and high volume of data’ produced in CS projects, ranging from text and tabular formats to audio-visual and geospatial files, as Huang et al. (2024) reported.

"Access to the data is typically not granted. In most cases, samples are submitted, and the results are returned via email." (7:18 p 15 in P7).

Other limiting factors included ‘storage constraints’, especially for large datasets such as videos or sensor-based outputs, and ‘limitations in quality control mechanisms’, where verification processes were either manual or informal. Lastly, the ‘lack of incentives’ for engaging in good RDM practices demotivates researchers from adopting and sustaining structured data workflows.

"A key challenge involves ensuring that the data collected from respondents is unbiased. While efforts are made to minimise bias, researchers cannot control the respondents' mood or behaviour, and direct interference may introduce bias. (5:22 p 9 10 in P5).

These findings highlight institutional, technical, and human factors that lead to unsystematic RDM in CS projects. Strengthening RDM requires clear policies, sufficient funding, integrated systems, and targeted training. Addressing administrative barriers and offering incentives can promote ethical and effective data practices. Therefore, aligning with Open Science standards will improve research quality, transparency, and public trust.

Sub-theme 3: Strategies for Improvement

To overcome unsystematic RDM in CS projects, participants proposed strategies across three dimensions: environment, organization, and technology.

At the organisational level, participants emphasised the need for formal policies, appointment of data stewards, and cross-disciplinary collaboration to support consistent and ethical data practices.

"There is a clear need for more Tot programs for data managers to reduce dependency on a single individual. Relying solely on one person can jeopardise institutional continuity if those individual leaves." (6:20 p 11 in P6).

Technologically, participants called for user-friendly, interoperable tools and centralised repositories with standard documentation templates. They also highlight the importance of digital infrastructure and training tailored to the needs of CS projects, especially in low-resource settings (Kaushik et al., 2024).

"With the availability of smartphones and smart systems, data collection has become more accessible. If the process does not place a significant burden on citizens, their participation in CS projects is unlikely to be an issue." (1:41 p 3 in P1).

Environmentally, embedding RDM into grant criteria, KPIs, and project evaluations was seen as key to institutional accountability (Stall et al., 2019; UNESCO, 2021).

“Since many researchers are motivated by KPIs and funding opportunities, integrating data sharing into grant platforms may encourage greater project visibility and participation."(6:23 p 15 in P6).



Figure 4: Strategies for improvement

These strategies reflect a multi-level approach to strengthening RDM and aligning citizen science efforts with global open science principles.

CONCLUSION

This study investigated the RDM practices, challenges, and improvement strategies in CS projects at a Malaysian RU. The findings revealed that while CS initiatives are valuable for promoting community engagement and inclusive knowledge creation, RDM practices remain inconsistent due to policy gaps, limited funding, low awareness, and the absence of integrated systems. To overcome these issues, participants proposed strategies focused on enhancing institutional environments, strengthening organizational support, and leveraging appropriate technologies. Key takeaways include institutionalising RDM through clear policies and grant requirements, fostering capacity building among researchers and citizen scientists, and adopting accessible digital tools supported by adequate infrastructure and training. These improvements are essential for ensuring ethical, transparent, and sustainable data management in CS. By aligning institutional practices with global open science standards, universities can better support inclusive and community-driven research, empowering academics and the public to become active partners in scientific discovery and knowledge stewardship.

REFERENCES

Akhtar, Dr. N., Kerim, Dr. B., Perwej, Dr. Y., Tiwari, Dr. A., & Praveen, Dr. S. (2021). A Comprehensive Overview of Privacy and Data Security for Cloud Storage. *International Journal of Scientific Research in Science, Engineering and Technology*, 113–152. https://doi.org/10.32628/ijsrset21852

Balazs, B., Mooney, P., Novakova, E., Bastin, L., & Jokar Arsanjani, J. (2021). Data Quality in Citizen Science. In *The Science of Citizen Science* (pp. 139–157). Springer International Publishing. https://doi.org/10.1007/978-3-030-58278-4_8

Braun, V., & Clarke, C. (2022). *Thematic Analysis: A Practical Guide*. Sage Publications.

Che Jaafar, C. R., Ghazali, M. M., Ismail, M. I., Azmi, N. A., Md Akil, M. A. M., & Ruppert, N. (2024). Universiti Sains Malaysia Campus Nature Challenge: A Collaborative Citizen Science Initiative For Biodiversity Conservation And Environmental Awareness. *PaperASIA*, *40*(3b), 33–41. https://doi.org/10.59953/paperasia.v40i3b.77

Child, A. W., Hinds, J., Sheneman, L., & Buerki, S. (2022). Centralized project-specific metadata platforms: toolkit provides new perspectives on open data management within multi-institution and multidisciplinary research projects. *BMC Research Notes*, *15*(1), 1–6. https://doi.org/10.1186/s13104-022-05996-3

Della Rocca, F., Musiani, M., Galaverni, M., & Milanesi, P. (2024). Improving Online Citizen Science Platforms for Biodiversity Monitoring. *Journal of Biogeography*, 1–12. https://doi.org/10.1111/jbi.15000

Fraisl, D., Hager, G., Bedessem, B., Gold, M., Hsing, P.-Y., Danielsen, F., Hitchcock, C. B., Hulbert, J. M., Piera, J., Spiers, H., Thiel, M., & Haklay, M. (2022). Citizen science in environmental and ecological sciences. *Nature Reviews Methods Primers*, *2*(1), 64. https://doi.org/10.1038/s43586-022-00144-4

Guest, G., Namey, E., & Chen, M. (2020). A simple method to assess and report thematic saturation in qualitative research. *PLoS ONE*, *15*(5), 1–17. https://doi.org/10.1371/journal.pone.0232076

Hecker, S., Haklay, M., Bowser, A., Makuch, Z., Vogel, J., & Bonn, A. (2019). *CS: Innovation in open science, society and policy.* UCL Press.

Huang, X., Wang, S., Yang, D., Hu, T., Chen, M., Zhang, G., Biljecki, F., Lu, T., Zou, L., Wu, C. Y. H., Park, Y. M., Li, X., Liu, Y., Fan, H., Mitchell, J., Li, Z., & Hohl, A. (2024). *Crowdsourcing Geospatial Data for Earth and Human Observations: A Review*. 1–25. https://doi.org/10.34133/remotesensing.0105

Kaushik, A., Barcellona, C., Mandyam, N. K., Tan, S. Y., & Tromp, J. (2024). Challenges and Opportunities for Data Sharing Related to Artificial Intelligence AI Tools in Healthcare in Low-and Middle-Income Countries: A Systematic Review and Case Study from Thailand. *Available at SSRN 4735624*.

Lincoln, YS., & Guba, EG. (1985). *Naturalistic Inquiry*. Sage Publications.

Nurfarawahidah, B., Idaya, Y., Binti, A., & Khalid, M. (2023). *Exploring Libraries, Citizen Science , and the Sustainable Development Goals (SDGs): Insights from Researchers and Project Managers*. *December*, 1–9.

Pattinson, N. B., Dickens, C. W. S., Taylor, J., & Graham, P. M. (2024). *Smartphones for citizen science water quality monitoring in developing regions*. 1–22.

Ramachandran, R., Bugbee, K., & Murphy, K. (2021). From Open Data to Open Science. *Earth and Space Science*, *8*(5). https://doi.org/10.1029/2020EA001562

Senyoni, W. F. (2021). *Institutional Work in Strengthening Health Information Systems in Fragmented Settings*. 204.

Stall, S., Yarmey, L., Cutcher-Gershenfeld, J., Hanson, B., Lehnert, K., Nosek, B., Parsons, M., Robinson, E., & Wyborn, L. (2019). Make scientific data FAIR. *Nature*, *570*(7759), 27–29. https://doi.org/10.1038/d41586-019-01720-7

Thuermer, G., Guardia, E. G., Reeves, N., Corcho, O., & Simperl, E. (2023). Data Management Documentation in Citizen Science Projects: Bringing Formalisation and Transparency Together. *Citizen Science: Theory and Practice*, *8*(1), 25. https://doi.org/10.5334/cstp.538

UNESCO. (2021). *UNESCO Recommendation on Open Science*. https://unesdoc.unesco.org/ark:/48223/pf0000379949

Van Brussel, S., & Huyse, H. (2019). *Citizen science on speed? Realising the triple objective of scientific rigour, policy influence and deep citizen engagement in a large-scale citizen science project on ambient air quality in Antwerp*. www.CurieuzeNeuzen.eu

Vattakaven, T., Barve, V., Ramaswami, G., Singh, P., Jagannathan, S., & Dhandapani, B. (2022). Best Practices for Data Management in Citizen Science - An Indian Outlook. *Biodiversity Informatics*, *17*, 27–49. https://doi.org/10.17161/bi.v17i.16441

Yin, R. K. (2018). Case study research and applications: Design and methods. In *Journal of Hospitality & Tourism Research* (Vol. 53, Issue 5). https://doi.org/10.1177/109634809702100108

Bridging Knowledge: The Evolving Role of Academic Libraries in Citizen Science

Nurfarawahidah, B.[1,2], K. Kiran, K.[1], Yanti Idaya, A.M.K.[1]

[1]Department of Library and Information Science, Faculty of Arts and Social Science, Universiti Malaya, Kuala Lumpur, Malaysia

[2]Al-Bukhari Library, Universiti Teknologi MARA Pahang, Jengka Campus, Pahang, Malaysia

Corresponding email: 17035127@siswa.um.edu.my

ABSTRACT

Citizen science initiatives are gaining traction in academic libraries as a means to enhance public involvement and stimulate research innovation within an open science context. This research investigated how academic libraries are redefining their roles and developing crucial skills for managing citizen science projects. The study employed a qualitative approach, conducting semi-structured interviews with librarians and important stakeholders involved in library-led citizen science activities across various higher education institutions. Results show that while libraries play a significant role in volunteer recruitment and data management, they encounter difficulties in maintaining long-term collaborations and adapting to the diverse needs of communities. Moreover, librarians need to acquire new competencies in project coordination, digital literacy, and facilitation to support research led by volunteers. Recommendations for the future include implementing formal institutional policies on citizen science, improving collaboration between departments, and offering practical workshops to enhance librarians' outreach and data curation skills. These actions are expected to strengthen the role of academic libraries in connecting scientific research with community participation, ultimately enriching the research ecosystem and reinforcing libraries' position as crucial partners in citizen science endeavors.

Keywords: Academic Libraries; Citizen Science; Open Science; Data Management; Community Engagement

INTRODUCTION

Citizen science (CS), the involvement of non-professional scientists in scientific processes, has rapidly expanded as a participatory research model across multiple disciplines. Its growth has been driven by global movements toward open science, public engagement, and democratization of knowledge (Ignat et.al., 2018; Liu & Liu, 2023). In the context of higher education, CS is not only a tool for data collection, but also a mechanism for fostering societal impact, enhancing science literacy, and building collaborative relationships between institutions and the communities they serve (Mumelaš & Martek, 2023).

While CS projects have traditionally been led by researchers or civil society organizations, academic libraries are increasingly emerging as important contributors to the CS ecosystem (Cohen et al., 2015; Fraisl et al., 2022). Libraries are well-positioned to support participatory science due to their long-standing commitments to public service, information accessibility, and capacity building (Mumelaš & Filipeti, 2025). As neutral, trusted spaces within academic institutions, libraries are now reimagining their traditional functions to support not just information management but also citizen-led inquiry, community-based research, and collaborative knowledge production (Tautkeviciene & Pranckutė, 2024).

This evolving engagement demands a redefinition of librarians' roles. No longer confined to back-end support, librarians involved in CS are taking on new and varied responsibilities ranging from project planning and strategic coordination to community outreach, data management, and policy advocacy (Rammutloa, 2023). These evolving roles are closely aligned with broader transformations in scholarly communication, open data practices, and research infrastructure development (Liu & Liu, 2023).

This paper presents selected findings from a qualitative study conducted with academic librarians and key stakeholders across various CS projects and academic settings. The study sought to explore how academic libraries are involved in CS, and more specifically, what roles librarians are adopting in these initiatives. Through thematic analysis of interviews, seven distinct yet interconnected roles were identified. These roles provide a nuanced picture of how academic libraries contribute to CS efforts not just as supporters, but as enablers, educators, strategists, and ambassadors.

Each role represents a functional shift that expands the boundaries of librarianship in meaningful ways. For example, librarians are not only curating data, but also coordinating

institutional strategies for public science. They are facilitating interdisciplinary networks, supporting training programs, and advocating for ethical and policy frameworks that align with participatory research values. These findings are not only timely but also significant for understanding the strategic potential of libraries in enhancing institutional readiness for CS.

By outlining these seven roles, this paper offers both a conceptual lens and practical insights for academic institutions aiming to integrate CS into their research agendas. It also provides a foundation for recognizing the vital and evolving contributions of academic libraries in bridging the gap between scientific research and public participation.

The primary aim of this paper is to identify and examine the evolving roles of academic librarians within CS initiatives, with a focus on how these roles contribute to institutional capacity for community engagement and public scientific literacy. Specifically, the study addresses the following research question: What are the emerging roles of academic librarians in CS projects, and how do these roles redefine traditional library functions in the academic context?

MAIN CONTENT

This paper presents selected findings from a qualitative study involving ten academic librarians and twelve key stakeholders who were actively engaged in CS initiatives across diverse institutional and disciplinary contexts. Data were collected through semi-structured interviews and analyzed thematically to explore how academic librarians understand, enact, and evolve their roles within CS projects. The study focused on identifying role-based patterns and transformations that reflect a shift beyond traditional library functions. The analysis revealed six emerging roles; Project Developer and Coordinator, Stakeholder Connector, Citizen Science Educator, Data Steward, Technology Access Coordinator, and Library–CS Ambassador, that highlight the expanding scope and strategic contribution of librarianship in CS initiatives.

Project Developer and Coordinator

Academic libraries have increasingly stepped into the role of project developers and coordinators within CS initiatives. Traditionally regarded as support entities, libraries are now becoming central to the initiation and strategic execution of CS projects. This role reflects a significant shift in institutional culture where librarians are not only participating in research activities but actively shaping their direction, objectives, and delivery mechanisms (Kaarsted et al., 2023; Rammutloa, 2023; Tautkeviciene & Pranckutė, 2024).

In this study, participants consistently emphasized the active role that librarians play in crafting and spearheading CS initiatives that align with both institutional research goals and societal demands. Often, librarians were the ones to kickstart CS projects, driven by a rising interest in areas such as sustainability, biodiversity, and data literacy.

"We initiated the citizen science project after realizing how it could align with our campus biodiversity agenda and strengthen community ties." (L1)

Instead of waiting for researchers or external parties to propose projects, library teams were observed to take the initiative in developing CS activities involving both academic circles and the general public. This strategic coordination involves overseeing collaborations with faculty members, student organizations, community groups, and international partners. Librarians were highlighted as crucial in rallying support across departments and ensuring that CS initiatives gained necessary institutional recognition and resources. They acted not only as logistical coordinators but also as institutional champions, aligning CS projects with university goals such as public engagement, research innovation, and sustainable development objectives.

Inclusive and collaborative planning is an essential component of this position. Librarians worked together to ensure that projects were accessible to those without expertise, while maintaining the integrity and quality of research. This involved balancing the objectives of scientific exploration with the principles of public involvement, often achieved through participatory design sessions, pilot tests, and iterative feedback processes, which included both researchers and community members.

We trained the participants, including students and staff, on how to observe, record, and submit biodiversity data using their smartphones." (L7)

In addition, within certain academic institutions, librarians have played a pivotal role in the institutionalization of CS by integrating it into strategic plans and faculty development agendas. Through the organization of workshops, leadership of university-wide initiatives, and engagement in consultations with multiple stakeholders, librarians have established the necessary conditions for CS to flourish as a component of the research culture. Their efforts

have facilitated the mainstreaming of CS, ensuring that it is not perceived as a singular project but rather as an essential element of academic knowledge production.

In sum, the role of project developers and coordinators underscores how librarians reposition themselves as architects of participatory research. Their leadership goes beyond operational management, reflecting a commitment to integrating CS into the core strategies of higher education institutions. This redefined role not only enhances the visibility and credibility of the library, but also strengthens the institutional infrastructure necessary for sustainable and impactful CS engagement.

Stakeholder Connector

Academic librarians are increasingly playing the role of stakeholder connectors in CS projects, highlighting their growing importance as intermediaries in intricate engagement networks. In this role, librarians go beyond simply facilitating information exchange; they act as strategic players who forge connections among various stakeholders, including faculty, students, local communities, government bodies, NGOs, and international collaborators (Corrall, 2023; Martek et al., 2022).

This study underscored the crucial role of librarians within diverse institutional settings, acknowledging their contributions in forming significant partnerships that facilitated the growth and sustainability of CS projects beyond their initial stages.

My role as a connector, I found that connector role is extremely important. Librarians do not participate in citizen science, there must be someone to make the connection between librarians and citizen science initiatives." (K7)

By leveraging their neutral position within the university, librarians often succeeded in assembling interdisciplinary teams and coordinating efforts across the administrative, research, and community sectors. Participants characterized librarians as fulfilling a unique "bridging" function: connecting CS project leaders with relevant collaborators or assisting external community-based organizations in accessing university support structures. In certain instances, librarians served as the primary institutional point of contact for cross-sector collaborations, facilitating dialogue between CS researchers and the broader public.

In institutions aiming to integrate CS into broader institutional or national frameworks, the role of stakeholder engagement is crucial. For instance, librarians collaborated closely with national associations, research offices, and faculty to ensure that CS initiatives were in harmony with institutional objectives such as sustainability, public engagement, and experiential learning for students. These activities went beyond mere administration, showcasing librarians' capacity to negotiate common goals and mobilize resources across various organizational boundaries. Furthermore, librarians frequently serve as cultural intermediaries to broaden their participation in CS. By translating scientific objectives into language accessible to the community and facilitating researchers' understanding of public expectations, librarians play a pivotal role in the co-creation of knowledge and the establishment of trust between academic and non-academic stakeholders. This role was particularly pronounced in multilingual and multicultural settings, where libraries offered inclusive access points for engagement and dialogue. An additional aspect of this role is the formulation of outreach strategies. Librarians organized roadshows, digital campaigns, and networking events to enhance their awareness of CS. These initiatives reinforced the library's reputation as a public science hub, and contributed to increasing the visibility of academic research within the community.

In summary, the stakeholder connector role demonstrates the relational capacity of academic librarians to weave together the social fabric necessary for CS to succeed. Their ability to navigate institutional silos, build collaborative trust, and expand the reach of CS reinforces the library’s broader function as a connection between science and society.

Citizen Science Educator

The role of the CS educator exemplifies the expanding contributions of academic librarians to capacity building and research literacy within CS projects. In this capacity, librarians assume the responsibility of educating a diverse array of participants including undergraduate students, academic staff, and community members about the principles, tools, and values that underpin participatory science.(Ocran & Afful-Arthur, 2021; Joo & Schmidt, 2021).

The educational role of librarians is fundamentally rooted in their expertise in information literacy and in public education.

I teach a course that is about Science, Society and in that course, particularly, use some citizen, community science projects with my students.” (L7)

However, within the framework of CS, this role acquires an additional dimension, necessitating the creation and implementation of customized learning experiences that facilitate scientific inquiry by non-experts. Participants in this study provided instances of librarians conducting training sessions on data collection methodologies, digital platforms (such as iNaturalists), ethical research practices, and project-specific protocols. In certain instances, librarians collaborated with faculty members to integrate CS into academic coursework, thereby introducing students to community-driven research as part of their formal education. These initiatives frequently utilized the library as both a pedagogical collaborator and a learning environment, underscoring its potential to serve as a venue for interdisciplinary, applied learning. One university librarian described how incorporating CS projects into courses on science-society or sustainability provided students with practical opportunities to connect theoretical knowledge with practice while contributing to tangible real-world outcomes.

Beyond the classroom setting, librarians facilitated public workshops and informal learning events with the objective of demystifying scientific research and empowering community members to actively engage. These outreach-oriented educational activities were designed not only to disseminate knowledge, but also to enhance participants' confidence, reduce barriers to entry, and promote inclusivity. For instance, several institutions have developed introductory computer science toolkits and conducted bilingual training sessions to reach underserved populations.

The role of the educator also encompasses enhancement of internal capacity. Librarians facilitated peer-learning sessions for library personnel, aiding colleagues in comprehending the relationship between CS and open science, data services, and research impact. This internal educational initiative contributed to the institutionalization of CS within the library strategy and promoted professional development among the staff. Notably, the participants highlighted that the educator's role was dynamic, adapting to the specific needs of each project and community. Librarians modified their approaches based on discipline, technological tools employed, and literacy levels of the participants. This adaptability and learner-centered philosophy reflects enduring pedagogical values within the field of librarianship.

Data Steward

The role of the Data Steward represents one of the most technically sophisticated and strategically essential contributions that academic librarians bring to CS initiatives. As projects generate increasing volumes of data through public participation, ensuring the integrity,

usability, and ethical handling of such data has become a central concern. Librarians, with their expertise in information organization, metadata standards, and open access policies, are well-positioned to lead these efforts.(Cooper et al., 2021;Scotti et al., 2025;Kung et al., 2020).

In this research, participants consistently portrayed librarians as taking the lead in handling data-related duties throughout the entire life cycle of CS projects. These responsibilities encompassed creating workflows for data collection and curation, setting up data quality control measures, overseeing the repository infrastructure, and providing guidance on licensing and access models.

"We worked with other people in the library who were also interested in Open Science as a concept of how a librarian as a profession can facilitate that. We worked with them to make sure all the data we have generated was shared and archived, so people can use it." (L9)

The incorporation of library-driven data services into CS projects ensured that data generated by citizens were not only properly stored but also reusable for future research, education, and public benefit. A consistent theme was the crucial role of librarians in advocating ethical and responsible data practices. Since CS frequently involves data contributions from volunteers, participants emphasized librarians' efforts to secure informed consent, maintain participant anonymity when needed, and adhere to institutional and international data governance standards. Librarians often work alongside research offices, ethics committees, and IT departments to manage these complexities.

In many cases, librarians act as liaisons between researchers and platform developers, ensuring that data management needs are effectively translated into practical digital tools and repositories. At some institutions, librarians took an active role in managing open science platforms, such as the Open Science Framework (OSF), e-Mammal, and institutional research data portals. These platforms support adherence to FAIR data principles by making CS datasets findable, accessible, interoperable, and reusable. Another important aspect of the role of data stewardship is public engagement. Librarians have improved community access to data through visual dashboards, interactive maps, and user-friendly databases. These tools enabled citizen scientists to not only contribute data but also explore the results, draw their own conclusions, and feel part of the scientific process. This push towards "data democratization" was considered crucial for sustaining long-term engagement and transparency in participatory research. Finally, the data steward role positioned librarians as advocates for open data policies

that enhance the impact of CS. Participants observed that libraries often played a significant role in institutional discussions about research visibility, reproducibility, and data reuse, areas increasingly prioritized by funders and policymakers.

In summary, academic librarians are essential for advancing the scientific precision, ethical practices, and societal advantages of CS. Their involvement ensures that the data produced are not only efficiently managed but also ethically supervised, easily accessible, and impactful in both the academic and public domains.

Technology Access Coordinator

As CS projects increasingly rely on specialized tools, sensors, and digital platforms for data collection and engagement, academic libraries are stepping into the role of technology access coordinators. Libraries provide essential infrastructure and technological support that enable broader and more equitable participation in CS activities.(Selker & Wilkins, 2017;Margam, 2024)

In this study, participants highlighted the role of academic librarians in providing access to devices that are not commonly available to the public or even some researchers.

"The library lends the equipment for the use of some Citizen Science project." (L7)

These devices include environmental sensors like noise and light meters, camera traps, air quality monitors, mobile phone microscope adapters, and water testing kits. At several institutions, libraries have implemented organized equipment lending systems akin to traditional book loans, enabling students, researchers, and citizen scientists to borrow tools for fieldwork activities. This position involves offering technical assistance and training. Librarians frequently create educational resources, conduct demonstrations, and offer advice on the effective use of various tools. These activities are crucial for maintaining data quality and boosting participants' confidence in their ability to engage in scientific research. At some institutions, technology support also extends to providing access to recording studios, GIS labs, and 3D printing facilities, thereby fostering broader citizen-led investigations and community-driven innovation.

Several participants emphasized that libraries offered a unique advantage in this area owing to their existing expertise in resource sharing and user support. By integrating CS equipment into library systems and workflows, they ensured the efficient management, maintenance, and tracking of resources. Moreover, the central and neutral locations of libraries on campus make them ideal distribution hubs for tools required in distributed and large-scale CS projects. Librarians also play a role in coordinating with external technology partners and research offices. For instance, in some collaborative projects, equipment is sourced or co-developed through partnerships with CS platforms such as SciStarter or research initiatives funded by government agencies. In these scenarios, librarians acted as logistical and administrative coordinators, aligning equipment procurement with project timelines and user needs.

In addition to physical equipment, librarians facilitate access to essential digital tools and platforms for CS. They have organized online resources, created specialized microsites to increase the visibility of CS projects, and incorporated CS materials into existing library guides and portals. This digital integration has improved resource discoverability and contributed to a smooth user experience. The role of a technology access coordinator exemplifies how academic libraries can reduce obstacles to participating in CS by providing fair access to resources. It also highlights the library's changing role as a facilitator of technology in collaborative research, ensuring that both tools and knowledge are accessible to all participants.

Library-CS Ambassador

The role of Library–Citizen Science) Ambassador encapsulates the outward-facing efforts of academic librarians to promote, represent, and institutionalize CS within both academic and public spheres. As ambassadors, librarians act as visible champions of CS, raising awareness, fostering community engagement, and positioning the library as a trusted hub for participatory science.(Sheard et al., 2024; Cavalier, 2025).

During the research, participants highlighted the crucial role of libraries in advocating for public science. In numerous institutions, librarians took the lead or collaborated in communication campaigns that presented CS projects to both internal and external audiences. These initiatives included organizing public exhibitions, science fairs, and "citizen science months," as well as creating digital newsletters, webinars, and blog series to spotlight ongoing projects and their results.

"We are the National and University Library and I think that this is our role because we are Librarian... we have to be main speakers about citizen science here.." (L2)

Through these endeavors, librarians not only increased the visibility of CS but also conveyed its significance to a wide range of stakeholders, such as university leaders, policymakers, funders, and the general public. In this capacity, librarians often worked alongside communications departments, faculty, student groups, and local media to spread messages that positioned the library as an active research partner. They crafted narratives that personalized research, highlighted community involvement, and demonstrated the tangible effects of CS on biodiversity conservation, public health, environmental monitoring, and social innovation. By doing so, they reinforced the image of the academic library as a hub connecting people, ideas, and knowledge.

Participants also highlighted their involvement with both national and international networks like SciStarter, LIBER, and various regional librarian associations. These platforms facilitated the exchange of experiences among librarians, allowed them to contribute to the wider conversation on CS, and helped them advocate for the importance of library-led CS within institutions. Some librarians took on leadership roles in working groups, delivered presentations at conferences, or engaged in the collaborative creation of global CS resources and guidelines. Notably, this ambassadorial role often required strategic and symbolic positioning. Librarians leveraged their institutional credibility to promote the integration of CS into university missions focused on community engagement, responsible research, and alignment with the Sustainable Development Goals (SDGs). Their skill in navigating institutional hierarchies and communicating across administrative, academic, and civic spheres enabled them to legitimize CS as both an academic and societal pursuit.

In numerous contexts, libraries have emerged as both physical and conceptual spaces where the lines between scholarly expertise and public involvement become indistinct. By welcoming community workshops, public forums, and inquiries led by citizens, libraries have shown their ability to democratize research and build trust in scientific endeavors. Ultimately, the role of the Library–CS Ambassador underscores the library's changing role as a vibrant link between science and the public. Through advocacy, increased visibility, and strategic networking, academic librarians are reshaping the perception, support, and sustainability of CS both within and outside the university setting.

CONCLUSION

The findings of this study underscore a significant evolution in how academic libraries engage with CS within the context of higher education. Rather than remaining passive supporters or background facilitators, librarians are increasingly stepping into dynamic roles as collaborators, educators, strategists, and public science advocates. The six roles identified are project developer and coordinator, stakeholder connector, CS educator, data steward, technology access coordinator, and library–CS ambassador demonstrate how academic librarians are expanding their influence across scientific, institutional, and community domains. Each role marks a substantial shift in the scope and depth of library engagement. Librarians are not only initiating and coordinating CS projects but are also facilitating cross-sector partnerships, delivering participatory learning experiences, managing research data responsibly, enabling access to essential tools and technologies, and promoting CS through strategic communication and public advocacy. These contributions reflect the alignment of core library values such as openness, equity, and knowledge stewardship with the participatory and inclusive principles of CS. These emerging roles redefine the professional identity and strategic relevance of academic librarianship. They position libraries as key players in bridging the gap between academia and society, enhancing institutional capacity for public engagement, and advancing the democratization of scientific knowledge.

Furthermore, these roles are interrelated. For example, when the librarian acts as a technology coordinator, it facilitates the educator's efforts; the policy advocate lays a solid groundwork for the data steward; and the ambassador enhances visibility, which supports the development of future projects. Collectively, these roles demonstrate how libraries are evolving into supportive ecosystems for CS offering the necessary infrastructure, expertise, and leadership to maintain long-term, meaningful engagement. Crucially, this transformation is not happening in isolation. It is part of a larger movement in academic culture towards open science, interdisciplinary collaboration, and research that is responsive to community needs. Through their changing roles, academic libraries are in a unique position to assist institutions in navigating this transition and addressing demands for more democratic, transparent, and inclusive knowledge creation. The results also highlight significant consequences for institutional policies and capacity enhancement. Maximizing the capabilities of libraries in CS requires universities to invest in professional development, recognize librarians as research collaborators, and incorporate CS into broader strategic plans. Likewise, librarians should be supported in developing new skills, adapting to new technologies, and interacting with diverse communities.

In conclusion, academic libraries are no longer peripheral actors in the research landscape. Through CS, they are reclaiming their role as hubs of innovation, participation, and societal

transformation, bridging the worlds of academia and community for a more inclusive scientific future.

REFERENCES

Cohen, C. A., Cheney, L., Duong, K., Lea, B., & Unno, Z. P. (2015). Identifying opportunities in citizen science for academic libraries. Issues in Science and Technology Librarianship. https://doi.org/10.29173/istl1629

Fraisl, D., Campbell, J., See, L., Wehn, U., Wardlaw, J., Gold, M., & Moorthy, I. (2022). The role of citizen science in addressing global challenges and supporting sustainable development goals. Nature Sustainability, 5(2), 173-184. https://doi.org/10.1038/s41893-021-00806-1

Ignat, T., Ayris, P., i Juan, I. L., Reilly, S., Dorch, B. F., Kaarsted, T., & Overgaard, A. K. (2018). Merry work: libraries and citizen science. Insights, 31.

Kaarsted, T., Blake, O., Nielsen, K. H., Alving, B., Rasmussen, L. T., Overgaard, A. K., & Hansen, S. M. B. (2023). How European Research Libraries Can Support Citizen-Enhanced Open Science. Open Information Science, 7(1), 20220146. https://doi.org/https://doi.org/10.1515/opis-2022-0146

Liu, L., & Liu, W.-Y. (2023). The engagement of academic libraries in open science: A systematic review. *The Journal of Academic Librarianship, 49*(3), 102711. https://doi.org/https://doi.org/10.1016/j.acalib.2023.102711

Martek, A., Mučnjak, D., & Mumelaš, D. (2022). Citizen science in Europe—challenges in conducting citizen science activities in cooperation of university and public libraries. *Publications*, *10*(4), 52. https://doi.org/10.3390/publications10040052

Mumelaš, D., & Martek, A. (2024). Benefits of citizen science for libraries. *Publications*, *12*(1), 8. https://doi.org/10.3390/publications12010008

Rammutloa, M. W. (2023). The missing link: The capacity development for academic librarians to sustain citizen science at university libraries. *Library Management, 44*(6/7), 437-447. https://doi.org/10.1108/LM-03-2023-0014

Tautkeviciene, G., & Pranckute, A. (2024). Competences of librarians in performing different roles in citizen science projects. In University library at a new stage of social communications development. Conference proceedings. (No. 9, pp. 226-236). Ukrainian State University of Science and Technologies.

Forging Synergies Between Libraries and Educational Institutions to Develop Digital Skills: Universities' Central Library

Khin Thazin Myint

Department of Library and Information Studies, University of Yangon, Myanmar

Corresponding email: khinthazinmyint66@gmail.com

ABSTRACT

In an era of rapid digital transformation, university libraries are evolving from traditional repositories to dynamic hubs fostering digital skill development, directly contributing to the United Nations Sustainable Development Goals (SDGs). This study explores the role of a Universities' Central Library in advancing Quality Education (SDG 4) and promoting Reduced Inequalities (SDG 10) through collaboration with educational institutions to enhance digital literacy. As digital skills become essential for academic and professional success, libraries are pivotal in bridging gaps in resource access and capability. Using a mixed-method approach, combining thematic and statistical analyses, this research examines the perspectives of library staff, faculty, and students on digital resource access, usage, and challenges. The findings highlight key areas where the library can improve its digital services and identify potential synergies with educational institutions to further community development through enhanced digital literacy. Based on the analysis, this study offers practical recommendations for strengthening libraries' role in the digital era, emphasizing the need for tailored programs that address the evolving educational landscape. These recommendations can be applied by library administrators, educators, and policymakers to ensure sustainable growth in digital skills, bridging the digital divide and fostering equal opportunities for all.

Keywords: Digital Literacy; Libraries; Educational Institutions; Digital Skill Development; Community Development

INTRODUCTION

Today's world is slowly replacing everything with digital, including daily lives and activities. This is why digital transformation is already an important matter that can no longer be avoided in

all aspects of life. Since then, the ability to navigate and utilize digital skills has become the core skill for education. Education plays a crucial role as the center of learning and innovation where it offers students many kinds of skills. Universities act as a hub for advanced creation, research and skill development for the students before they get into the real world. Within these institutions, libraries serve not only as traditional repositories but also as a dynamic place where lifelong learning is supported. Effective collaborations begin with a clear understanding of institutional goals. Libraries that align their collaboration with their mission and vision can create more durable digital literacy services by working with educational institutions (Henderson, 2016). Forging synergies between libraries and educational institutions is essential to enhance the ability of digital skills for the future generations. These efforts directly endow in achieving SDG 4 (Quality Education) and SDG 10 (Reduced Inequality). This paper explores how Universities' Central Library of Myanmar is striving to partner with education institutions to foster digital skill development, based on primary research findings from survey and interview questions.

Research Objectives

The objective of this study is to explore how Universities' Central Library and educational institutions can collaborate to enhance the digital skills among especially students and faculty members.

RQ1: What is the current level of digital access provided by the Universities' Central Library to students and staff?

RQ2: How effective do users perceive the library's digital skill development initiatives to be?

RQ3: What are the main challenges and barriers that hinder digital skills development through the library?

RQ4: How can collaboration between the library and educational institutions be strengthened to improve digital skill development?

Scope

Among other university libraries, this study focuses on the Universities' Central Library which leads all the universities in Myanmar. This paper explores how Universities' Central Library and educational institutions work together to strengthen students' digital skills. This is limited to one selected central library and its associated users.

Research Methodology

A mixed-method approach is used. A structured survey was conducted with users of the library to gather quantitative data. Questionnaires were sent out to 100 respondents via email and received 78 complete responses with 78% rate. In addition, interviews were also carried out with the Head Librarian of the Universities' Central Library to collect qualitative insights. The data was analyzed thematically and presented with charts and summaries to support the findings.

Background History

According to Dr. Hlaing Hlaing Gyi (personal communication, April 10, 2025), the Universities' Central Library started as the University of Yangon Library in 1929. It was essentially a research and reference library and earned a good reputation as one of the best university libraries in Southeast Asia, especially in history and culture. It was renamed the Universities' Central Library and placed under the Department of Higher Education, Ministry of Education, in 1964. The Universities' Central Library offers information and services to support teaching and research for the universities and colleges of Myanmar. It preserves Myanmar's culture heritage in the form of ancient manuscripts and is a hub of culture resource.

RELATED LITERATURE

As McGrath (2024) observed, educators are inclined to believe that the information literacy (IL) skills of students are weaker than expected, a situation influenced by factors ranging from access to resources to the quality of teacher-student relationships. This addresses the importance of community area and resource availability, which ties nicely with the two key concepts: Digital Literacy and Institutional Collaboration used in this paper to model digital skills development. Numerous scholars and researchers have used various techniques and strategies for the development of digital skills, particularly in educational institutions, libraries, and their partnerships. A variety of studies were conducted worldwide, some of which were as follows:

Lu and Lin (2024) did a study on how promoting digital reading services impacts college library readers' satisfaction. By using Fuzzy-Set Qualitative Comparative Analysis (fsQCA) of survey data collected, they uncovered that factor like access, ease of use, timely assistance, regularity of resources, and credibility must function together to encourage higher satisfaction levels. None of the factors were responsible for significant satisfaction increases. The study concluded that strategic use of digital services is necessary to enhance user experience and accelerate digital transformation. Their findings provide practical recommendations for libraries to

modify digital reading environments in response to evolving student needs. Their results support my opinion that digital transformation is more than technology adoption but rather reflective, user-sensitive system design.

Thomas and Saib (2013) presented a case study of this, explaining how the partnership between librarians and academic staff led to the effective incorporation of information literacy into the engineering curriculum at Durban University of Technology. Originally initiated through a pilot intervention aimed at addressing plagiarism issues, through collaboration, it evolved into a structured IL program integrated across undergraduate levels. The study emphasized that success was based on mutual trust, joint planning, and respecting librarians as academic colleagues. Despite initial academic resistance, continued collaboration attempts demonstrated the value of integrating Il into building students' critical thinking and independent learning skills.

Digital transformation in academia is not just an IT issue but instead it is a cultural transformation that affects the use, sharing and understanding of information across the organization. Deja, Rak, and Bell (2021) examined the influence of digital literacy, information culture, and self-efficacy contributing to digital transformation readiness in universities. They developed a structural model to assess how academic staff in social sciences and humanities experience this transformation. It was shown that high information literacy leads to greater empowerment, which subsequently promotes the capability of the academic community to manage and use information effectively. This study recognizes academic librarians as key change agents in moving this transformation, which supports my focus on empowerment by librarians.

Henderson (2016) discussed how academic libraries can form effective partnerships with external groups such as academic departments, nonprofits, and businesses. Based on case studies and literature, the study emphasized that successful partnerships require mutual objectives, shared resources, and established structure. Both formal and informal business, sector, and endorsement models. The article stressed that by showing value, libraries can attract important partnerships and strengthen their place in institutions, especially at a time when the budget is reduced and there are changing perception of library functions. This related to my view that academic libraries must actively market their relevance through effective partnerships.

DATA ANALYSIS

To understand how the collaboration between the Universities' Central Library and educational institutions contributes to digital skills acquisition, in this section, there are findings from both user survey and interview with the head librarian. There are four main themes around which the analysis is structured. They are supported by the goals of SDG 4(Quality Education) and SDG 10(Reduced Inequalities). These themes offer insight into the library's current role, gaps, and opportunities for more effective partnerships advancing digital skills.

Theme 1: Current Digital Access (SDG 4 – Quality Education)

Among 78 participants, 46% used research databases most frequently, followed by 38% using e-books, and then 28% using online journals. Then, 27% of respondents presented the use of digital archives and some used other unrelated sources like novel and stories books under the category "Others" (13%).

Table 1: Usage of digital resources from the universities' central library (N=78)

Resource Type	Frequency	Percentage
Research Database	36	46%
E-Books	30	36%
Online Journals	22	28%
Digital Archives	21	27%
Others	10	13%

While interviewing, the head librarian outlined a long list of digital resources currently offered by the Universities' Central Library, including online databases, e-books, scholarly journals, an institutional repository, OPAC for searching, and remote access via login. Quarterly, upgrades from by providers maintain resources up-to-date, and virtual training along with user manuals has been made available to ensure easy accessibility, especially the aftermath of the shift to online learning during COVID-19. Collaboration with universities was stressed as an important aspect to meet academic standards. Despite the resources' availability, the lower usage with certain resources like online journals and archives may point to the lack of awareness or missed user preference from institutional efforts like remote access and training. These efforts reflect strong alignment with SDG 4, ensuring inclusive access to digital academic resources that support lifelong learning opportunities for all.

Theme 2: Perceived Effectiveness (SDG 4 – Quality Education)

Most respondents (73%) agreed that the library's digital resources support their studies, with only 1% disagreed. This aligns with the head librarian's perspective who emphasized that current resources meet most academic and digital literacy needs. However, they also acknowledge the gaps in training, access speed, and subject coverage, which may explain the 20% who responded "Somewhat".

Interview insights from the head librarian highlighted that feedback from users is collected through multiple channels, including surveys, user statistics, and direct consultation. This supports the library's ongoing responsiveness to evolve students' and faculty needs. Universities, for example, recommend new databases as a response to curriculum changes and the library responds accordingly by showing a feedback loop at work. Additionally, external partnerships, such as EIFL, have boosted the access and impact of digital resources. These have been helpful in providing technical platforms and funds required to support digital education. By continuously improving digital services based on feedback, the library contributes directly to SDG 4 by enhancing the quality and relevance of education through responsive digital infrastructure.

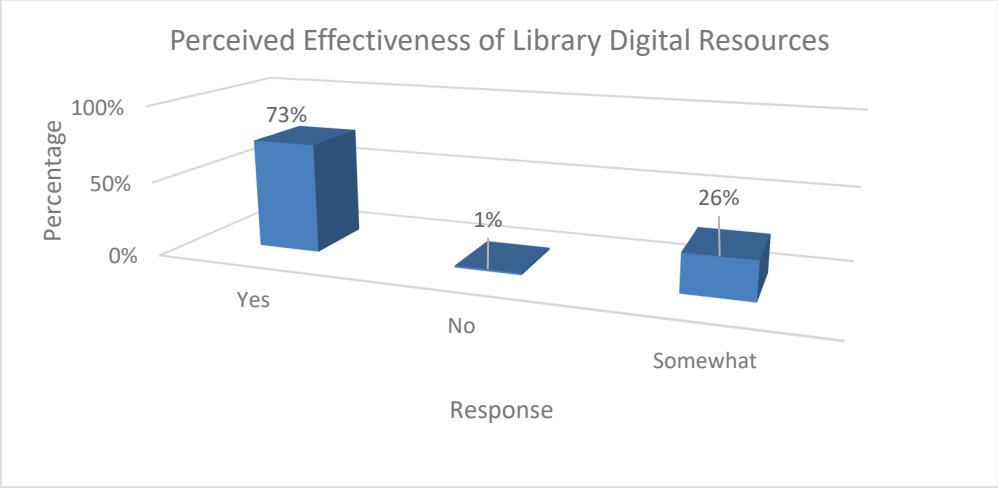


Figure 1: Perception of digital resources supporting academic studies and research (N=78)

Theme 3: Challenges and Barriers (SDG 10 – Reduced Inequalities)

Survey results revealed key barriers in accessing digital resources: "Poor Internet Access (44%)", "Limited Materials (41%)", and "Lack of Digital Skills (29%)". These findings confirm the head librarian's view with low awareness, low skills, access issues, and preference for traditional materials.

Table 2: Challenges faced when using digital resources from the universities' central library (N=78)

Challenges Faced	Frequency	Percentage
Poor Internet Access	34	44%
Lack of Knowledge on How to Use Them	23	29%
Limited Availability of Necessary Materials	32	41%

Note. Respondents were allowed to select more than one option.

In the interview, the head librarian added that limited funds, high subscription fees, and weak technological infrastructure prevent the development of digital services and smooth access at the library. These barriers are directly contributing to the challenges experienced by users in the survey. To reduce these inequalities, the library offers digital literacy courses, training workshops, and in-person support. It also offers on-site computer labs and face-to-face support to assist students who are disadvantaged. Addressing these challenges is essential to advancing SDG 10, by ensuring that students, regardless of background or skill level, can benefit equally from digital learning opportunities.

Theme 4: Future Collaborations (SDG 10 – Reduced Inequalities)

Both Interview and survey findings have a shared desire for stronger collaboration and better digital services. According to the librarian, future collaborations with educational institutions should incorporate joint training, digital literacy sessions, and feedback regularly to enhance relevance and accessibility. While the library has previously partnered and remained active with the Ministry of Education, EIFL, and technology providers, there is always an urgent need for new alliances with technology firms, publishers, and training institutions to support funding, infrastructure, and digital literacy development.

Survey results showed that 68% of respondents support more partnerships between the library and external organizations. Only 1% answered "No", while 31% had no opinion.

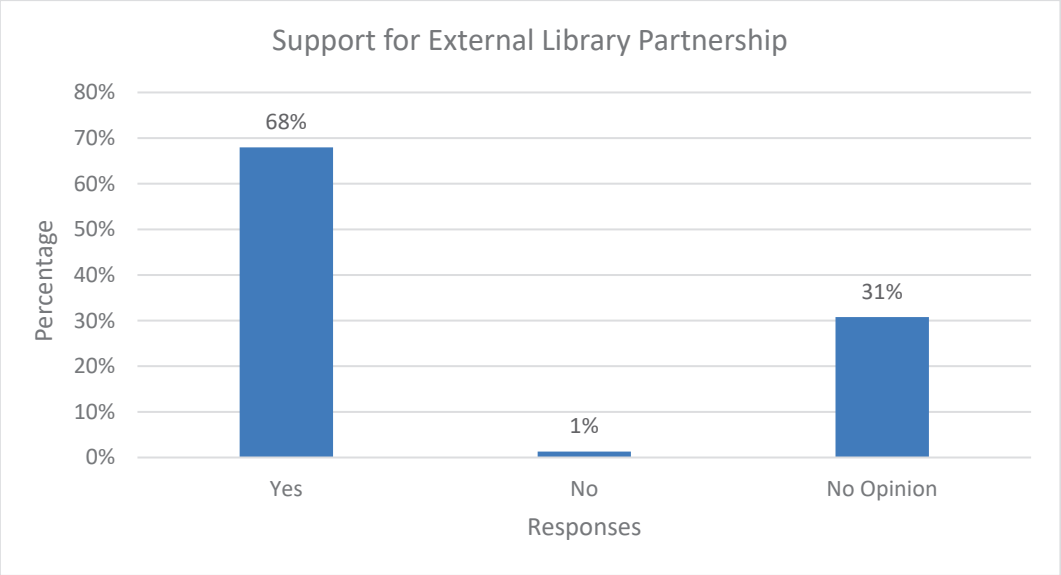


Figure 2: Support for library collaboration with external organizations (N=78)

In open-ended responses from survey respondents, they suggest numerous digital service improvements, including expanding e-book and audiobook collections, creating mobile apps, improving internet connectivity, offering online workshops, content creation software, citation generator, live-chat with librarian, and AI-powered search engines. Most common concerns were poor internet quality and lack of guidance for beginners, indicating the need for user-friendly platforms and stronger digital skill support. Strengthening partnerships and expanding inclusive digital services support the goals of SDG 10, helping bridge digital divides and reduce educational inequalities through collaborative innovation.

FINDINGS

The study found that while the Universities Central Library offers decent digital access, it does not satisfy users' digital and academic needs entirely. While 73% of the respondents said that the resources support their learning, 29% struggle with digital skills, and 44% face poor internet access. The interview confirmed weal infrastructure, low awareness, and limited training. Digital literacy programs exist but are not always aligned with users' needs. While current collaborations have helped, more partnerships are needed. The survey showed 68% support for expanding collaborations. Respondents also want more e-books, AI tools, mobile apps and better support, highlighting a need for modern solutions.

CONCLUSION

According to Henderson (2016), successful collaborations begin with clear understanding of institutional goals. Libraries that align their collaboration with visions and missions can help build sustainable digital literacy programs by working closely with educational institutions.

This study shows that although the library has grown in maintaining digital access and literacy, key gaps persist in infrastructure and user support. The digital divide persists, particularly for students who lack basic skills or unreliable technology. Users value existing services but require more innovation, better internet, and face-to-face training. Developing partnerships and focusing on user needs can transform the library into a more inclusive learning environment. With targeted improvements, the library can change from a supportive to a leadership role in digital equity and learning success.

REFERENCES

Deja, M., Rak, D., & Bell, B. (2021). Digital transformation readiness: Perspectives on academia and library outcomes in information literacy. *The Journal of Academic Librarianship*, *47*(5), 102403. https://doi.org/10.1016/j.acalib.2021.102403

Henderson, M. (2016). Successful partnerships for academic libraries. *Journal of New Librarianship*, *1*(1), 28–54. https://doi.org/10.21173/newlibs/2016/henderson.1

Lu, Y., & Lin, S. (2024). Digital transformation in college libraries: The effect of digital reading on reader service satisfaction. *PLOS ONE*, *19*(8), e0307699. https://doi.org/10.1371/journal.pone.0307699

McGrath, L. (2024). *High School Teachers' Perceptions of Student Information Literacy Competency Skills, Levels of Teacher Librarian Collaboration, and Teacher Experiences of Collaboration with School Librarians in the Mountain West: A Mixed Methods Study* (Publication No. 31328530) [Doctoral dissertation, Northwest Nazarene University]. ProQuest Dissertations & Theses Global.

Thomas, D., & Saib, M. O. (2013). Collaboration between Academics and Librarians: The case of the Durban University of Technology. In *Proceedings of the IATUL Conferences*, Paper 40. https://docs.lib.purdue.edu/iatul/2013/papers/40

How do Transparency and Openness in Scholarly Publishing Improve the Reproducibility of Social Science Research?

Noor Masliana Razlan[1,2], Ali Fauzi Ahmad Khan[2], Samsul Farid Samsuddin[2], Abrizah, A.[2]

[1]Information Science Studies, College of Computing, Informatics and Mathematics, Universiti Teknologi MARA Kelantan Branch, Kelantan, Malaysia

[2]Department of Library & Information Science, Faculty of Arts and Social Sciences, Universiti Malaya, Kuala Lumpur, Malaysia

Corresponding email: masliana0315@uitm.edu.my

ABSTRACT

This paper explores how transparency and openness enhance the reproducibility of social science research. It addresses the reproducibility issues, emphasizing the importance of transparent methodologies and the open sharing of data and findings. The study adopts a qualitative approach, with semi-structured in-depth interviews with 20 top Malaysian researchers to understand their practices and attitudes to measure the extent of transparency and openness in their scientific publishing. The study indicates five significant practices which enhance reproducibility: (a) detailed methodology reporting (b) use of established research instruments (c) open data and code sharing (d) open Communication of Research Limitations and Future Directions and (5) comparative and collaborative research methods. Reproducibility was found to enhance trust in research, promote collaboration, and drive scientific progress by enabling the validation and extension of findings. This paper calls for institutional policies that support open access, encourage data-sharing practices, and provide training programs to foster a culture of transparency. Such measures are vital for improving the reproducibility of social science research and addressing the ongoing reproducibility crisis. The outcomes of this study are critical for ensuring that social science research remains credible, impactful, and useful for policymaking and societal benefit. Additionally, the findings contribute to the global discussion on open science by offering actionable recommendations for researchers, academic institutions, and funding organizations.

Keywords: Transparency; Openness; Reproducibility; Social Sciences; Scientific Publishing

INTRODUCTION

Transparency and openness in scholarly publishing (TOSP) are fundamental to research quality and credibility across the sciences, a principle also rigorously emphasized in the social sciences due to its complex human-centric methodologies (Moravscik, 2020). By enabling independent verification and replication of findings, these principles strengthen empirical trust which is crucial for policymaking and scientific progress (Hardwicke et al., 2020; Miguel et al., 2014; Wong & Bouchard, 2023). Yet, widespread reproducibility failures persist, often due to incomplete methodological reporting (Nosek & Errington, 2020), restricted data access and inconsistent standards (Iqbal et al., 2016; Kilkenny et al., 2013; Prager et al., 2019). While initiatives such as the Center for Open Science advocate for openness and reproducibility (Smith et al., 2021), systemic barriers such as ethical concerns, resource constraints, and traditional publishing norms continue to hinder open practices (Guardia & Sturdy, 2019; Martinez, 2021).

Despite growing recognition of these challenges, empirical research on how TOSP practices directly enhance reproducibility remains limited, particularly in understudied contexts like Malaysia. Existing studies highlight structural obstacles (e.g., funding constraints, industry resistance) (Ogungbeni et al., 2018) but seldom examine researcher-level perceptions and practices that could drive cultural change. Addressing this gap is urgent: transparent methodologies, open data, and detailed reporting not only mitigate reproducibility crises (Elliott & Resnik, 2019) but also foster collaborative, high-impact science (Basak, 2023; Jarke et al., 2022).

This study, conducted as part of a doctoral thesis[20], investigates how TOSP practices enhance reproducibility in social science research with a focus on Malaysia researchers[21]. Specifically, it addresses the following research question: ***How do specific Transparent and Open Scientific Publishing practices strengthen reproducibility in social science research by improving verification, reducing bias, and facilitating replication*****?** By integrating quantitative and qualitative insights from Malaysian social scientists, this work contributes empirical evidence to two critical gaps (a) the underexplored role of TOSP in social science reproducibility (beyond

[20] Razlan, N. M. (2025). *Transparency and openness in scientific publishing among social science researchers* (Doctoral thesis, Universiti Malaya).

[21] The overall study incorporated a mixed-method approach (exploratory sequential mixed-method). In the larger study, a survey was also conducted to validate the findings from semi-structured interviews and assess the adoption level of TOSP among Malaysian social science researchers

STEM discipline); and (b) region-specific challenges and opportunities for open science adoption in Malaysia. The findings aim to provide actionable policy recommendation that promote TOSP as a pathway to more replicable, trustworthy science for academic and research institutions, funders and journals.

LITERATURE REVIEW

Transparency refers to making the research process visible and understandable, while openness ensures unrestricted access to research outputs (Razlan et al., 2024). Both concepts are crucial for advancing knowledge and fostering trust in scientific publishing, aligning with the broader objectives of open science. Nosek et al. (2015) emphasized the important role of journals in promoting transparency, openness, and reproducibility by requiring authors to share data and code, declare conflicts of interest and funding sources, and register study protocols. As stewards of the scientific record, journals are uniquely positioned to influence research practices and elevate the standards of scientific publishing.

Concerns about reproducibility, particularly in the social sciences, have gained momentum over the past two decades. Initially highlighted in psychology and biomedical fields, the low replication rates reported by the Open Science Collaboration triggered widespread discussions about the need for methodological rigour (Wu et al., 2021). This conversation has since expanded into other fields such as sociology and economics (Moody et al., 2025), with the rise of computational social science further emphasizing the necessity of standardising research methodologies (Iñiguez et al., 2019). Practices like preregistration and data sharing have gained support as practical solutions to reproducibility challenges (Freese, 2007; Kenny, 2021), while Nelson et al. (2021) reminded that media narratives can exaggerate reproducibility crises, calling for balanced discourse. Altogether, these developments have strengthened transparency and standardisation efforts, ensuring that social science research becomes more reliable and impactful.

The broader shift towards open science has encouraged the development of frameworks and initiatives that prioritise accessibility, transparency, and reproducibility. Yet, unique challenges in the social sciences, particularly around ethics and data privacy, complicate this transition. Lulia (2023) highlighted the ethical tensions of data sharing in social work, underscoring the importance of balancing participant confidentiality with open research practices. Similarly, Grubb and Easterbrook (2011) stressed that credibility hinges on openly sharing data and methodologies. Transparency not only strengthens trust within the research community, as Heise and Pearce (2020) observed, but also fosters a collaborative and accountable scientific

environment. Interdisciplinary collaboration and stakeholder engagement are increasingly recognised as essential (Armeni et al., 2021; Mason et al., 2017; Uzochukwu et al., 2020). However, institutional barriers (Gagliardi et al., 2015) and financial challenges, especially for researchers in the humanities and social sciences (Jobmann & Schönfelder, 2019) highlight the need for systemic reforms to fully support open science practices.

Despite these efforts, the literature reveals persistent issues regarding transparency and reproducibility in social science research, which undermine the credibility of research findings. Miguel et al. (2014) pointed out that traditional reliance on theoretical arguments and weak empirical correlations has often compromised research robustness. Adoption of experimental methods such as randomised trials and quasi-experimental designs has been advocated to enhance the quality and relevance of social science research. However, challenges remain. Minocher et al. (2020) reported that only 30% of social learning research publications over a 63-year span had recoverable data, emphasizing the urgent need for better data availability. Similarly, Hardwicke et al. (2020) warned that the minimal adoption of transparency-related practices could erode scientific self-correction mechanisms, leading to a broader credibility crisis unless reforms are implemented.

Transparency and openness are interconnected pathways that enhance reproducibility by enabling scrutiny, validation, and collaboration. Transparent practices allow other researchers to replicate and verify findings independently, ensuring research robustness and fostering trust (Bond-Lamberty et al., 2016; Nüst & Pebesma, 2020). Openness, particularly through sharing data and methodologies, fuels collaboration and innovation by allowing researchers to build on existing work (Poldrack et al., 2025; Sandy et al., 2017). Nevertheless, challenges such as "fuzzy transparency," where information is technically available but not meaningfully usable, call for clearer standards (Jeng et al., 2020). Systematic efforts are needed to optimise transparency practices and reinforce research credibility (Munafò et al., 2017).

Several initiatives and models have been introduced to strengthen the link between transparency and reproducibility. The Transparency and Openness Promotion (TOP) guidelines encourage journals to standardize requirements for disclosing methodologies, data, and analysis scripts, thus facilitating independent verification of results (Hardwicke et al., 2020). Post-publication error discussions, as advocated by Gannot et al. (2017), further support research quality. Data-sharing policies are becoming more common across biological science journals, enhancing transparency (Resnik et al., 2019; Wallach et al., 2018). Provenance-based reproducibility, which documents research workflows for easier replication (Moreau, 2011), and training initiatives aimed at embedding transparency into research culture (Muñoz-Tamayo et al., 2022), are critical for building a sustainable, open scientific community.

METHODOLOGY

This study used semi-structured interviews as data collection methods. A series of semi-structured interviews were carried out with 20 prominent researchers to investigate the attitudes and behaviours of Malaysian social science researchers about TOSP.

This semi-structured in-depth interview method is best suited for situations where open-ended questions are used to extract comprehensive information from prolific authors regarding their practices in scientific publishing and their perspective on transparency and openness in the field. Face-to-face interviews were conducted with 6 participants, while 14 participants opted for online interviews via Google Meet. The interviews were conducted in English language due to its extensive usage in Malaysia. The interview process spanned approximately 9 months, commencing in February 2023 and concluding in November 2023. The duration of each interview session ranged from 50 to 80 minutes. The online interview sessions were exclusively done and captured using the online platform Google Meet, and the information on the participants (See Appendix 1)1. The interviews, typically 50-90 minutes in duration, were recorded, with the transcripts returned to the participants to ensure accuracy/agreement and to obtain further clarity. For the quantitative data collection process, an online survey methodology was adopted.

RESULTS

***How do specific TOSP practices strengthen reproducibility in social science research by improving verification, reducing bias, and facilitating replication*?**

Findings from the interviews highlighted five aspects of TOSP that enhance reproducibility in social science research: (a) Detailed methodology reporting; (b) Use of established research instruments; (c) Open data and code sharing; (d) Comprehensive communication of limitations and future directions; and (e) Comparative and collaborative research approaches

Detailed Methodology Reporting

The majority of interview participants emphasized that clear and detailed methodological documentation is critical to reproducibility. In general, they uphold the principle that transparent documentation of research methods, including sampling strategies, data collection procedures, and analytical techniques, enables precise replication and reduces ambiguity in interpretation, and particularly crucial for qualitative and mixed-methods social science research. Eighteen out of 20 participants reported that they prioritize transparency in describing their procedures, protocols, and analytic approaches. For instance, P16/F(IS) noted

that openness in method disclosure enables others to understand, replicate, and reuse the study, reinforcing the TOSP principle of open methods: *"I gained valuable insights from a Professor in UK about the importance of transparency in research. Through collaborating with him and publishing papers together, I learned the significance of openly sharing data and methodology details. Mike emphasized that research papers should not only present results but also provide sufficient information for others to understand, replicate, and reuse the data and methodology. This lesson influenced the way I approach publishing, particularly in collaborations where openness is crucial."* in P16/F(IS)

Additionally, P14/M(L) stated: "I always strive to clearly explain my methodology such as data sources, time frame, and search terms; so others can easily replicate my work."

Use of Established Research Instruments

Reproducibility is also manifested through the reuse of validated instruments. A consistent response from the participants is that employing validated measurement tools, standardized protocols, and widely recognized frameworks ensures consistency across studies, facilitates cross-cultural comparisons, and minimizes ad hoc modifications that may compromise reproducibility. P08/M(IS) for example stressed that using established variables and tools not only ensures rigour but also saves time. "*Using well-tested instruments skips the development phase and ensures credibility. It's also a transparent way to acknowledge prior research*." – P08/M(IS)

P18/M(EM) added: "I only dare to publish a questionnaire in my article if I have personally created it. This ensures reproducibility, which can be observed through the potential reuse of the data collection instrument or the ideas we suggest for future research in the conclusion section of the article."

While P07/M(IS) echoed: "We don't just provide a detailed methodology, we also include our research instrument to give others the opportunity to replicate it and encourage the wider adoption of our methods."

This practice aligns with TOSP's emphasis on transparent materials and standardization, making research more reproducible and efficient. Researchers view instrument sharing as a practical route to foster consistency in scientific inquiry.

Open Data and Code Sharing

Participants who are familiar with open science practices supported that providing unrestricted access to raw datasets, analysis code, and supplementary materials allows for independent verification, reduces analytical flexibility, and promotes secondary data use while addressing ethical considerations through proper anonymization. While ethical concerns and institutional limitations were acknowledged, several participants reported positive attitudes toward sharing datasets and analytic scripts as the key features of TOSP. P09/M(IS) emphasized that reproducibility can be observed when others reuse their data collection instruments or build upon proposed research ideas. Although fewer researchers reported sharing raw data directly, many mentioned providing access upon request, indicating moderate alignment with open data and code practices.

P05 highlighted: *"If you share your data or at least explain how others can access and follow it, it really helps enhance research reproducibility."* P05/F(IS)

Open Communication of Research Limitations and Future Directions

Social scientists also enhance reproducibility by openly discussing study limitations and recommending areas for future research, which is an approach that promotes cumulative science and aligns with **constructive peer discussion and open critique and feedback process** within the TOSP framework. They believed that explicitly acknowledging study constraints, potential biases, and boundary conditions helps contextualize findings and guides future replication efforts by identifying key variables that may affect reproducibility. For example, P09/M(IS) emphasized guiding early-career researchers to locate replicable topics through conclusion sections. This creates a feedback loop for replication and encourages progressive refinement of scientific knowledge.

"*By identifying limitations and suggesting future studies, we make it easier for others to replicate or extend our work."* – P09/M(IS)

"In my paper's recommendations section, I highlight possible future research directions by suggesting different methodologies, study contexts, or populations. For example, if I focused on primary schools in Malaysia, others might apply it to secondary schools or similar cultural settings in other countries."- P12/F(IS)

Comparative And Collaborative Research Approaches

A few participants employed comparative methods to test their frameworks against prior models, further exemplifying openness and methodological rigour. They acknowledged working collaboratively and conducted multi-team replication studies, cross-cultural

investigations, and open collaborative platforms to enhance the robustness of their research findings by testing results across diverse contexts and research teams, which is particularly valuable for social sciences where cultural and situational factors significantly influence outcomes. P05/F(IS) explained using original datasets with new methods to verify validity, as an act of workflow documented for reproducibility that strengthens her research's credibility and builds on prior findings transparently.

DISCUSSION

This study confirms that transparency and openness, as promoted by TOSP, significantly contribute to improving reproducibility in social science research. Both qualitative and quantitative findings highlight that practices such as detailed methodology reporting, data and instrument sharing, and the acknowledgment of study limitations play a central role in enabling replication and independent verification.

The emphasis on clear methodological reporting among respondents aligns with Freese et al. (2022) and Christensen et al., (2019) who argue that transparency in research design, data collection procedures, and analysis strategies is foundational to reproducibility. In this study, participants confirmed providing detailed methodology which is a TOSP-aligned practice categorized under "open methods." This is essential not only for verification but also for reuse and modification in future studies.

Additionally, many researchers reported using validated instruments rather than creating new ones, a strategy that enhances research efficiency and consistency across studies. This reflects the TOSP component of "transparent materials," supporting claims by Moody et al. (2024), that reproducibility in the social sciences can be improved by standardizing tools and constructs, particularly in complex fields such as communication and education.

Openness also extends to data and analytic script sharing, which are vital for enabling others to reproduce findings. Although complete openness remains limited due to ethical and institutional concerns aligned in previous studies by Lopez et al. (2024) and Bochynska et al. (2023), a significant proportion of respondents indicated a willingness to share data upon request. This reflects gradual progress toward implementing open data and code practices, which Resnik et al. (2019) argue are essential for scientific integrity and trust.

Another core behaviour observed was discussing study limitations and proposing future research, which supports the TOSP emphasis on open peer dialogue. Such transparency invites replication and critical engagement. As Nosek et al. (2015) and Vilhuber et al. (2023) suggest, acknowledging uncertainty helps create a culture of openness that is necessary for self-correction in science.

Finally, comparative and collaborative approaches, such as adapting existing datasets and testing new frameworks against prior studies, were found to improve the credibility and relevance of research. These practices support provenance documentation, a less explored but vital element of reproducibility (Moreau, 2011). This is especially relevant in social sciences where replication often takes the form of conceptual rather than exact replication.

In summary, this study validates the assertion that when researchers engage in TOSP practices such as detailed method sharing, open data, use of validated tools, and transparent reporting which enable reproducibility. These behaviours, increasingly adopted in the Malaysian social science community, mirror global shifts towards open science, even as challenges such as lack of training, resource constraints, and data privacy concerns persist (Jobmann & Schönfelder, 2019; Samuel & König-Ries, 2021).

CONCLUSIONS AND RECOMMENDATIONS

Social science research becomes more reproducible through transparency and openness, as these practices promote detailed methodological reporting, open data sharing, and clear communication of the research process. Researchers achieve independent validation and foster collaboration and scientific progress by openly disclosing their methodologies, data, and findings. Transparent scientific practices help establish trust between researchers and their peers, as well as between researchers and the public, while addressing credibility issues and preventing publication bias. However, implementing transparency and openness practices encounters additional research needs to understand how demographic factors, disciplinary cultures, and institutional policies affect their adoption. The social sciences face ongoing challenges due to ethical data-sharing concerns, limited resources, and insufficient training in reproducible research practices. The future of social science research relies on adopting an open science model, which enables better accessibility, replicability, and increased impact. For open science adoption, systemic changes are necessary alongside institutional support, improved research incentives, and comprehensive education about transparency practices to create a credible, sustainable collaborative research environment.

Based on the results of this study, it is recommended that researchers follow best practices for transparency and openness by sharing their raw data, instruments, and analytic code when ethical conditions allow, and by providing complete descriptions of their research methods. Researchers should use established reporting guidelines and open repositories to make their work accessible. Institutions need to implement policy changes to actively support open data access, open methods research, and open access publishing. The implementation of institutional policies that enforce openness should be combined with training programs focused on transparency and reproducibility, as well as repositories that assist researchers in sharing their outputs. Funders and journals should enforce reproducibility-enhancing practices through funding and publication requirements that include preregistration and data and code sharing. The implementation of reproducibility checklists, along with author transparency statements and financial support for open access publishing fees, will make transparency accessible to all researchers.

REFERENCES

Armeni, K., Brinkman, L., Carlsson, R., Eerland, A., Fijten, R., Fondberg, R., Heininga, V. E., Heunis, S., Koh, W. Q., Masselink, M., Moran, N., Baoill, A., Sarafoglou, A., Schettino, A., Schwamm, H., Sjoerds, Z., Teperek, M., van den Akker, O. R., van't Veer, A., & Zurita-Milla, R. (2021). Towards wide-scale adoption of open science practices: The role of open science communities. *Science and Public Policy*, *48*(5), 605-611. https://doi.org/10.1093/scipol/scab039

Basak, R. (2023). Open data culture in social science research. *International Journal of Research -GRANTHAALAYAH*, *11*(5). https://doi.org/10.29121/granthaalayah.v11.i5.2023.5167

Bochynska, A., Keeble, L., Halfacre, C. A. E., Casillas, J. V, Champagne, I.-A., Chen, K., Röthlisberger, M., Buchanan, E. M., & Roettger, T. B. (2023). Reproducible research practices and transparency across linguistics. *Glossa Psycholinguistic*, *2*(1), 1-36. https://doi.org/https://doi.org/10.5070/G6011239

Bond-Lamberty, B., Smith, A. P., & Bailey, V. (2016). Running an open experiment: Transparency and reproducibility in soil and ecosystem science. *Environmental Research Letters*, *11*(8). https://doi.org/10.1088/1748-9326/11/8/084004

Christensen, G., Freese, J., & Miguel, E. (2019). *Transparent and Reproducible Social Science Research: How To Do Open Science* (1st ed.). University of California Press.

Elliott, K. C., & Resnik, D. B. (2019). Making open science work for science and society. *Environmental Health Perspectives*, *127*(7), 1-6. https://doi.org/10.1289/EHP4808

Freese, J. (2007). (2007). Replication standards for quantitative social science: Why not sociology? . *Sociological Methods & Research*, *36*(2), 153-172.

Freese, J., Rauf, T., & Voelkel, J. G. (2022). Advances in transparency and reproducibility in the social sciences. *Social Science Research*, *107 (102770)*. https://doi.org/https://doi.org/10.31235/osf.io/pucvj

Gagliardi, D., Cox, D., & Li, Y. (2015). Institutional inertia and barriers to the adoption of open science. In E. Reale & E. Primeri (Eds.), *The Transformation of University Institutional and Organizational Boundaries* (pp. 107-133). SensePublishers.

Gannot, G., Cutting, M. A., Fischer, D. J., & Hsu, L. J. (2017). Reproducibility and transparency in biomedical sciences. *Oral Diseases*, *23*(7), 813-816. https://doi.org/10.1111/odi.12588

Grubb, A. M., & Easterbrook, S. M. (2011). On the lack of consensus over the meaning of openness: An empirical study. *PLoS ONE*, *6*(8). https://doi.org/10.1371/journal.pone.0023420

Hardwicke, T. E., Wallach, J. D., Kidwell, M. C., Bendixen, T., Crüwell, S., & Ioannidis, J. P. A. (2020). An empirical assessment of transparency and reproducibility-related research practices in the social sciences (2014-2017). *Royal Society Open Science*, *7*(2). https://doi.org/10.1098/rsos.190806

Heise, C., & Pearce, J. M. (2020). From open access to open science: The path from scientific reality to open scientific communication. *SAGE Open*, *10*(2). https://doi.org/10.1177/2158244020915900

Hoces de la Guardia, F., & Sturdy, J. (2019). *Best Practices for Transparent, Reproducible, and Ethical Research*. February. https://publications.iadb.org/en/best-practices-transparent-reproducible-and-ethical-research

Iñiguez, G., Jo, H. H., & Kaski, K. (2019). Special issue "computational social science." *Information (Switzerland)*, *10*(10). https://doi.org/10.3390/info10100307

Iqbal, S. A., Wallach, J. D., Khoury, M. J., Schully, S. D., & Ioannidis, J. P. A. (2016). Reproducible Research Practices and Transparency across the Biomedical Literature. *PLoS Biology*, *14*(1), 1-13. https://doi.org/10.1371/journal.pbio.1002333

Jarke, H., Jakob, L., Bojanićx, L., Garcia-Garzon, E., Mareva, S., Mutak, A., & Gjorgjiovska, J. (2022). Registered report: How open do you want your science? An international investigation into knowledge and attitudes of psychology students. *PLoS ONE*, *17*(2 February). https://doi.org/10.1371/journal.pone.0261260

Jeng, W., Wang, S. H., Chen, H. W., Huang, P. W., Chen, Y. J., & Hsiao, H. C. (2020). A decentralized framework for cultivating research lifecycle transparency. *PLoS ONE*, *15*(11 November). https://doi.org/10.1371/journal.pone.0241496

Jobmann, A., & Schönfelder, N. (2019). The transcript OPEN library political science model: A sustainable way into open access for e-books in the humanities and social sciences. *Publications*, *7*(3). https://doi.org/10.3390/publications7030055

Kenny, A. R. (2021). Commentary on the beyond WEIRD special issue: The importance of open research practices to empirical research in the evolutionary social sciences. *Evolution and Human Behavior*, *42*(3), 268-270. https://doi.org/10.1016/j.evolhumbehav.2021.02.008

Kilkenny, C., Browne, W. J., Cuthill, I. C., Emerson, M., & Altman, D. G. (2013). Improving bioscience research reporting: The arrive guidelines for reporting animal research. *Animals*, *4*(1), 35-44. https://doi.org/10.3390/ani4010035

Lopez, D. A., Cardenas-Iniguez, C., Subramaniam, P., Adise, S., Bottenhorn, K. L., Badilla, P., Mukwekwerere, E., Tally, L., Ahanmisi, O., Bedichek, I. L., Matera, S. D., Perez-Tamayo, G. M., Sissons, N., Winters, O., Harkness, A., Nakiyingi, E., Encizo, J., Xiang, Z., Wilson, I. G., … Huber, R. S. (2024). Transparency and reproducibility in the adolescent brain cognitive development (ABCD) study. *Developmental Cognitive Neuroscience*, *68*. https://doi.org/10.1016/j.dcn.2024.101408

Lulia, B. A. (2023). Ethical challenges in social work. *Pangeea*, 111-115. https://doi.org/10.29302/Pangeea

Martinez, L. (2021). *Openness, a Must for the Research System*. Orvum. https://blog.orvium.io/openness-research-data-science/

Mason, J. G., Rudd, M. A., & Crowder, L. B. (2017). Ocean research priorities: Similarities and differences among scientists, policymakers, and fishermen in the United States. *BioScience*, *67*(5), 418-428. https://doi.org/10.1093/biosci/biw172

Miguel, E., Camerer, C., Casey, K., Cohen, J., Esterling, K. M., Gerber, A., Glennerster, R., Green, D. P., Humphreys, M., Imbens, G., Laitin, D., Madon, T., Nelson, L., Nosek, B. A., Petersen, M., Sedlmayr, R., Simmons, J. P., Simonsohn, U., & Van Der Laan, M. (2014). Promoting transparency in social science research. *Science (New York, N.Y.)*, *343*(6166), 30. https://doi.org/10.1126/SCIENCE.1245317

Minocher, R., Atmaca, S., Bavero, C., McElreath, R., & Beheim, B. (2020). *Reproducibility Improves Exponentially Over 63 Years of Social Learning Research*. https://doi.org/https://doi.org/10.31234/osf.io/4nzc7.

Moody, J. W., Keister, L. A., & Ramos, M. C. (2024). Reproducibility in the social sciences. *Annual Review of Sociology Downloaded from Www.Annualreviews.Org. Guest*, *16*, 54. https://doi.org/10.1146/annurev-soc-090221

Moody, J. W., Keister, L. A., & Ramos, M. C. (2025). Reproducibility in the social sciences. *Annual Review of Sociology Downloaded from Www.Annualreviews.Org. Guest*. https://doi.org/10.1146/annurev-soc-090221

Moravscik, A. (2020). Transparency in Qualitative Research. *SAGE Research Methods Foundations*, *bv*. https://doi.org/10.4135/9781526421036863782

Moreau, L. (2011). Provenance-based reproducibility in the semantic web. *Journal of Web Semantics*, *9*(2), 202-221. https://doi.org/10.1016/j.websem.2011.03.001

Muñoz-Tamayo, R., Nielsen, B. L., Gagaoua, M., Gondret, F., Krause, E. T., Morgavi, D. P., Olsson, I. A. S., Pastell, M., Taghipoor, M., Tedeschi, L., Veissier, I., & Nawroth, C. (2022). Seven steps to enhance Open Science practices in animal science. *PNAS Nexus*, *1*(3). https://doi.org/10.1093/pnasnexus/pgac106

Nelson, N. C., Ichikawa, K., Chung, J., & Malik, M. M. (2021). Mapping the discursive dimensions of the reproducibility crisis: A mixed methods analysis. *PLoS ONE*, *16*(7 July). https://doi.org/10.1371/journal.pone.0254090

Nosek, B. A., Alter, G., Banks, G. C., Borsboom, D., Bowman, S. D., Breckler, S. J., Buck, S., Chambers, C. D., Chin, G., Christensen, G., Contestabile, M., Dafoe, A., Eich, E., Freese, J., Glennerster, R., Goroff, D., Green, D. P., Hesse, B., Humphreys, M., … Yarkoni, T. (2015). Promoting an open research culture. *Science*, *348*(6242), 1422-1425. https://doi.org/10.1126/SCIENCE.AAB2374/SUPPL_FILE/TOP_GUIDELINES_SUMMARY-GOOGLE_SHEETS_FILES.ZIP

Nosek, B. A., & Errington, T. M. (2020). What is replication? *PLoS Biology*, *18*(3). https://doi.org/10.1371/journal.pbio.3000691

Nüst, D., & Pebesma, E. (2020). Practical reproducibility in geography and geosciences. . *Annals of the American Association of Geographers*, *111*(5), 1300-1310.

Ogungbeni, J. I., Obiamalu, A. R., Ssemambo, S., & Bazibu, C. M. (2018). The roles of academic libraries in propagating open science: A qualitative literature review. *Information Development*, *34*(2), 113-121. https://doi.org/10.1177/0266666916678444

Poldrack, R. A., Gorgolewski, K. J., & Varoquaux, G. (2025). *Computational and Informatic Advances for Reproducible Data Analysis in Neuroimaging*. *42*, 20. https://doi.org/10.1146/annurev-biodatasci-072018

Prager, E. M., Chambers, K. E., Plotkin, J. L., McArthur, D. L., Bandrowski, A. E., Bansal, N., Martone, M. E., Bergstrom, H. C., Bespalov, A., & Graf, C. (2019). Improving transparency and scientific rigor in academic publishing. *Journal of Neuroscience Research*, *97*(4), 377-390. https://doi.org/10.1002/jnr.24340

Razlan, N. M., Samsuddin, S. F., & Abrizah, A. (2024). Embracing transparency and openness in scholarly publishing: Insights from Malaysian social sciences researchers. *Malaysian Journal of Library and Information Science*, *29*(3), 19-45. https://doi.org/10.22452/mjlis.vol29no3.2

Resnik, D. B., Morales, M., Landrum, R., Shi, M., Minnier, J., Vasilevsky, N. A., & Champieux, R. E. (2019). Effect of impact factor and discipline on journal data sharing policies. *Accountability in Research*, *26*(3), 139-156. https://doi.org/10.1080/08989621.2019.1591277

Samuel, S., & König-Ries, B. (2021). Understanding experiments and research practices for reproducibility: An exploratory study. *PeerJ*, *9*. https://doi.org/10.7717/peerj.11140

Sandy, H. M., Mitchell, E. T., Corrado, E. M., Budd, J. M., & West, J. D. (2017). Making a case for open research: implications for reproducibility and transparency. *Proceedings of the Association for Information Science and Technology, 54*(1), 583-586. https://doi.org/10.1002/pra2.2017.14505401079.

Smith, C. A., Nolan, J., Tritz, D. J., Heavener, T. E., Pelton, J., Cook, K., & Vassar, M. (2021). Evaluation of reproducible and transparent research practices in pulmonology. *Pulmonology*, *27*(2), 134-143. https://doi.org/10.1016/j.pulmoe.2020.07.001

Uzochukwu, B., Onyedinma, C., Okeke, C., Onwujekwe, O., Manzano, A., Ebenso, B., Etiaba, E., Ezumah, N., & Mirzoev, T. (2020). What makes advocacy work? Stakeholders' voices and insights from prioritisation of Maternal and Child Health programme in Nigeria (Preprints). In *Research Square*. https://doi.org/10.21203/rs.2.24368/v1

Vilhuber, L., Schmutte, I., Michuda, A., & Connolly, M. (2023). Reinforcing reproducibility and replicability: An introduction. *Harvard Data Science Review*.

Wallach, J. D., Boyack, K. W., & Ioannidis Id, J. P. A. (2018). Reproducible research practices, transparency, and open access data in the biomedical literature, 2015-2017. *PLoS Biol*, *16*(11), 2015-2017. https://doi.org/10.1371/journal.pbio.2006930

Wong, J. S., & Bouchard, J. (2023). Do meta-analyses of intervention/prevention programs in the field of criminology meet the tests of transparency and reproducibility? *Trauma, Violence, and Abuse*, *24*(3), 1522-1542. https://doi.org/10.1177/15248380211073839

Wu, J., Nivargi, R., Lanka, S. S. T., Menon, A. M., Modukuri, S. A., Nakshatri, N., Wei, X., Wang, Z., Caverlee, J., Rajtmajer, S. M., & Giles, C. L. (2021). *Predicting the reproducibility of social and behavioral science papers using supervised learning models*. http://arxiv.org/abs/2104.04580

Appendix 1

Demographic details of research participants in interview (n=20)

Participants Code	Institution Code	Positions	Research Field	Gender	No of papers (last 5 years)	Medium of Interview	Interview Date
P01	U1	Associate Professor	Humanities (H)	F	16 WoS	Online	28th Feb. 2023
P02	U3	Professor	Education (E)	M	39 WoS	Online	2nd Mar 2023
P03	U1	Professor	Business and economics (BE)	F	48 WoS	Online	10th Mar. 2023
P04	U4	Associate Professor	Economics (E)	M	74 WoS	Online	13th Apr. 2023
P05	U1	Associate Professor	Information science (IS)	F	41 WoS	Online	14th Apr. 2024
P06	U8	Associate Professor	Business and economics	M	32 WoS	Online	18th Apr. 2023
P07	U3	Senior Lecturer	Information Science (IS)	M	4 WoS, 21 Scopus	Online	14th June 2023
P08	U3	Senior Lecturer	Information Science (IS)	M	3 WoS, 30 Scopus	Face-to-face	13th June 2023
P09	U3	Professor	Information Science (IS)	M	22 WoS	Online	4th June 2023
P10	U3	Associate Professor	Information Science (IS)	M	10 Scopus	Online	26th June 2023
P11	U1	Associate Professor	Information Science (IS)	F	12 WoS	Face-to-face	7th Sept. 2023
P012	U1	Senior Lecturer	Education (E)	M	26 WoS	Face-to-face	6th Sept. 2023

P13	U1	Associate Professor	Environmental Politics (EP)	F	12 WoS	Online	29th Sept. 2023
P14	U1	Senior Lecturer	Law (L)	M	17 WoS	Online	25th Sep. 2023
P15	U1	Associate Professor	Business and Economics (BE)	M	7 WoS, 7 Scopus	Face-to-face	10th Oct 2023
P16	U1	Professor	Information Science (IS)	F	33 WoS	Face-to-face	13th Oct. 2023
P17	U5	Senior Lecturer	Sustainable Development (SD)	F	23 WoS	Online	16th Oct. 2023
P18	U1	Senior Lecturer	Economics and Management (EM)	M	28 WoS	Online	18th Oct. 2024
P19	U5	Senior Lecturer	Marketing (M)	F	36 WoS	Face-to-face	30th Oct 2023
P20	U7	Assistant Professor	Psychology (P)	F	17 WoS	Online	2nd Nov. 2023
*** M = Male ; F = Female**							

How Academic Libraries Drive OER Adoption in Malaysian Universities: Insights from OER Experts

Nurul Diana Jasni, Noorhidawati Abdullah, Yanti Idaya A.M.K.

Department of Library and Information Science, Faculty of Arts & Social Sciences, Universiti Malaya, 50603 Kuala Lumpur, Malaysia

Corresponding email: noorhidawati@um.edu.my

ABSTRACT

Academic libraries are strategically well positioned to act as catalysts for community development through the promotion and adoption of open educational resources (OER). This study examined the role and contribution of academic libraries in promoting community development in Malaysian universities. The study focused on the perspectives of OER experts from public and private universities and highlighted the strategic importance of libraries in supporting OER ecosystems. Using qualitative methods, semi-structured interviews were conducted with OER experts to explore their views on the promotion of OER initiatives in Malaysian higher education. The findings showed that librarians act as key facilitators, bridging the gap between educators and institutional settings while advocating for open access and equitable learning opportunities. However, challenges such as limited training, insufficient awareness and the lack of a coherent policy framework hinder their full potential. The study also emphasized the importance of synergistic relationships with stakeholders, including librarians, educators, and institutional leaders, to effectively advance the development and adoption of OER. Recommendations included capacity-building programmes, stronger frameworks for collaboration, and the development of institutional and national OER policies. By bringing together the insights of OER experts, this study highlights the central role of librarians in shaping inclusive and sustainable education ecosystems that advance both national education goals and the global Sustainable Development Goal 4 (Quality Education).

Keywords: Open Educational Resources; Open Education; Academic Libraries

INTRODUCTION

Open educational resources (OER) are the positive way that enables free and accessible education to everyone and access to knowledge as a public good (Reed & Jahre, 2019). An increasing number of academicians, researchers, and individuals share educational material resources via multiple online platforms such as using social media without thinking of any copyright or legal issues, financial or technical barriers. Librarians are able to provide value and demonstrate their worth to their institution by building relationships across campus to integrate their services deeply within the educational mission of their home institution (Anderson et al., 2017; Baas et al., 2019; Braddlee & Vanscoy, 2019; Crozier, 2018; Elias et al., 2020; Muganda et al., 2016). Yet, despite the similar outcomes sought by both, intentional connections are seldom made especially on highlighting OER adoption by academic libraries in higher institutions.

The promotion and adoption of OER represent pivotal developments in contemporary higher education, aligning closely with global educational equity goals and sustainability agendas. OER are openly licensed educational materials freely accessible for use, reuse, adaptation, and distribution (Santos-Hermosa, 2024). The potential of OER to transform education has gained considerable attention, particularly in addressing issues related to educational access, affordability, and quality (Browne et al., 2010; Creswell & Creswell, 2018; Hilton III et al., 2010; Wright, 2018). Previous research indicates that institutions adopting OER have witnessed positive impacts such as reduced educational costs, improved student outcomes, and enhanced pedagogical innovations (de Jong et al., 2019; Koltay, 2016; Santally, 2011).

In the creation and administration of OER, academic libraries are tasked with a crucial role, although this role is yet to be universally acknowledged to the same extent as their involvement in facilitating open access to scientific information or data. According to Langdon & Parker (2019) and Thompson & Muir (2020) academic librarians play a crucial role and bear a professional responsibility to guide faculty and students in advancing the scope of the OER which align with the open science movement within higher education. However, despite the promising landscape, the adoption of OER in Malaysia is still in its nascent stages. A lack of common understanding regarding the development and licensing of OER has been identified as a significant barrier. The absence of specific guidelines hampers the effective integration of OER into curricula, leading to issues related to discoverability and accessibility. Furthermore, while there is a growing awareness of OER among academics, many students remain unaware of its benefits, which indicates a need for targeted outreach and educational efforts.

Academic libraries, traditionally custodians of knowledge and advocates for accessible information, are uniquely positioned to lead the advancement and integration of OER within higher education institutions (HEIs) (McNally & Ludbrook, 2023; Mićunović et al., 2023). Recent studies highlight that librarians are becoming increasingly central to OER advocacy, providing critical support through resource discovery, licensing guidance, and instructional collaboration (Al-Zahrani, 2023; Smith & Lee, 2017). Nevertheless, research emphasizes ongoing challenges, including inadequate professional training and insufficient institutional and policy support, which restrict the full realisation of the libraries' potential in promoting OER (Calilung, 2020; De los Arcos et al., 2016; Kleymeer et al., 2019; West & Jensen, 2015).

This study addresses a significant gap by examining how academic libraries in Malaysian universities facilitate and promote OER adoption from the perspectives of OER experts. Despite growing international discourse on OER, limited research specifically explores the Malaysian context, and the strategic roles academic libraries could play within it. This study captures insights from Malaysian HEIs, identifies areas for development, and proposes enhancements for OER initiatives. By aligning with national educational priorities and the global Sustainable Development Goal 4 (Quality Education), this study contributes to the discourse surrounding educational equity, community development, and the evolving role of librarians as key agents of change.

METHODOLOGY

This qualitative study employed semi-structured interviews to gain comprehensive insights into the role of academic libraries in the adoption of OER. Participants were selected through purposive sampling to include OER experts from both public and private Malaysian universities, ensuring representation across diverse institutional contexts. A total of five participants, recognised for their expertise and involvement in OER initiatives, participated in the interviews. The semi-structured interview format allowed flexibility for in-depth exploration of the participants' views, facilitating detailed discussions around the libraries' roles, the challenges faced, and recommendations for strategic development. This approach aimed to obtain the perspectives of OER experts from the public and private universities and highlights the strategic importance of libraries in supporting OER ecosystems. The interpretation and findings are presented based on the research objectives and research questions of this study.

Research Objectives

RO1: To understand OER experts regarding the strategic roles and contributions of academic libraries in promoting and facilitating OER adoption within Malaysian higher education institutions

The following research questions were formulated.

RQ1: What are the perspectives of OER experts on the roles and contributions of academic libraries in fostering OER adoption within Malaysian universities?

In this context, it is important for librarians to recognise and understand the roles of their partners and stakeholders to ensure that the implementation of OER advocacy strategies can be carried out effectively. This study focused on examining the current practices and experiences of OER experts in adopting OER initiatives, which encompass a wide range of HEIs in Malaysia. This approach provided a holistic picture and a significant cross-section representation of institutions in the local context. Throughout the face-to-face interview sessions, informants shared their views through questions designed to explore experiences related to current practices of academic libraries in the adoption, engagement, and delivery of OER services. The stories shared by the informants were candid, honest, and provided deep insights into the challenges and opportunities they faced in driving OER initiatives at their respective institutions.

Data collection involved face-to-face in-depth interviews that allowed detailed exploration of participant perspectives and experiences. Interviews were audio-recorded, transcribed verbatim, and analysed using thematic analysis via the NVivo software, enabling rigorous identification, coding, and categorisation of recurring themes. This rigorous analytical process facilitated the identification, coding, and categorisation of recurring themes directly aligned with the stages of the OER lifecycle. Ethical considerations, including obtaining informed consent, maintaining confidentiality, and ensuring participant anonymity, were strictly adhered to throughout the research process.

Table 1: Demographic profile of participants

Informants (Pseudonym)	Age	Gender	Academic Qualification	Institutions Code	Institutions Type	Positions and Roles	Working Experience
Zain	49	Male	PhD	AL3	Public University	Academician- OER Experts	16-20 Years
Arjuna	50	Male	Master	AL7	Public University	Academician- OER Experts	11-15 years
Budi	50	Male	PhD	AL2	Public University	Academician- OER Experts	16-20 Years
Kelana	37	Male	Degree	AL2	Public University	Academician- OER Experts	6-10 Years
Rose	37	Female	PhD	AL8	Public University	Academician- OER Experts	16-20 Years

In this study, the OER lifecycle serves as a foundational framework for understanding the processes involved in the creation, adaptation, and dissemination of OER. The interview protocol was designed around the OER lifecycle framework (Figure 1) critical stages including creation, adaptation, dissemination, and evaluation (adapted from Clements et al., 2015; Letseka & Seeletso, 2021). Specifically, the OER lifecycle provided an essential structure for designing the research instrument and guiding data collection and analysis. The semi-structured interview protocol was specifically designed around these stages, prompting participants selected for their expertise and direct involvement with OER to discuss comprehensively their experiences, insights, and reflections concerning the academic librarians' roles throughout each phase of the lifecycle. During interviews, participants described concrete examples and shared reflections about the librarians' current practices in their respective institutions, identified gaps and barriers encountered at each stage, and provided suggestions for improvement. This structured yet flexible approach allowed for in-depth exploration of the nuances in the librarians' contributions, effectively highlighting their strategic involvement across the entire OER lifecycle.

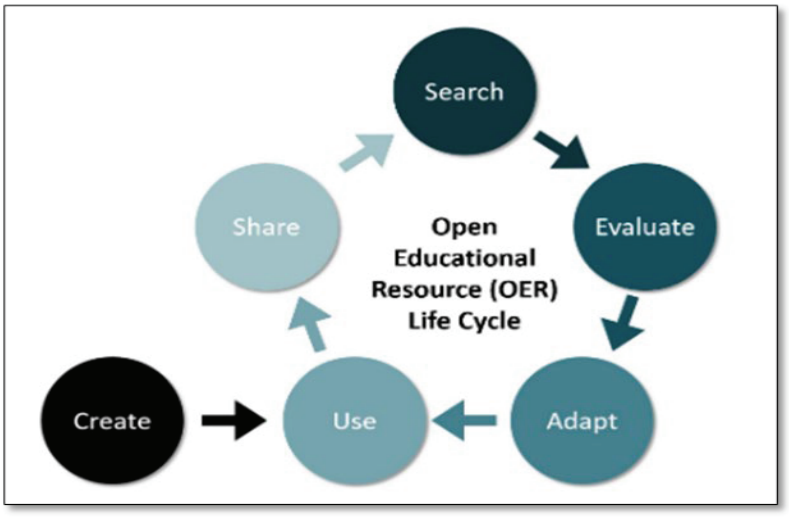


Figure 1: OER lifecycle

(Adapted from Clements et al., 2015; Letseka & Seeletso, 2021)

Utilising this lifecycle-based approach facilitated richer and more structured conversations, enabling a thorough exploration of the librarians' multifaceted roles, their effectiveness in each

lifecycle stage, and actionable insights for enhancing library practices in supporting sustainable and impactful OER initiatives. Additionally, the OER lifecycle presents numerous opportunities for librarians to contribute significantly to the creation, adoption, adaptation, implementation, and evaluation of OER.

FINDINGS AND DISCUSSION

The findings show that librarians act as key facilitators, bridging the gap between educators and institutional settings while advocating for open access and equitable learning opportunities. However, challenges such as limited training, insufficient awareness and the lack of a coherent policy framework hinder their full potential. The study also emphasizes the importance of synergistic relationships with stakeholders, including librarians, educators and institutional leaders, to effectively advance the development and adoption of OER. Firstly, the data collection process was greatly facilitated to understand the perspectives of OER experts on the roles and contributions of academic libraries in facilitating OER adoption within Malaysian universities.

The findings indicate that while there is some involvement of libraries in supporting OER adoptions, there is a potential for libraries to take on a more significant role. The OER expert team perceived value seven librarians' roles in the adoption of OER: (1) Co-Creator of OER; (2) OER Advocator (Discoverability, Advocacy and Awareness); (3) Licensing and Copyright Advisor; (4) OER Partner and Collaborator; (5) OER Trainer and Instructor; (6) Technical Administrator; and (7) Resource Curator (Figure 2). By expanding and embracing these roles, librarians can significantly contribute to the successful adoption and integration of OER in higher education, ultimately serving as key trusted partners in supporting OER implementations within the academic environment. These findings not only describe the current situation but also provide guidance that can support efforts to strengthen OER infrastructure and drive the prioritisation of OER initiatives in Malaysian HEIs. With these findings, it is hoped that academic libraries can play a more strategic role in empowering the wider use and creation of OER in the future. The analysis of expert insights revealed seven primary librarian roles in the doption of OER (Figure 2).

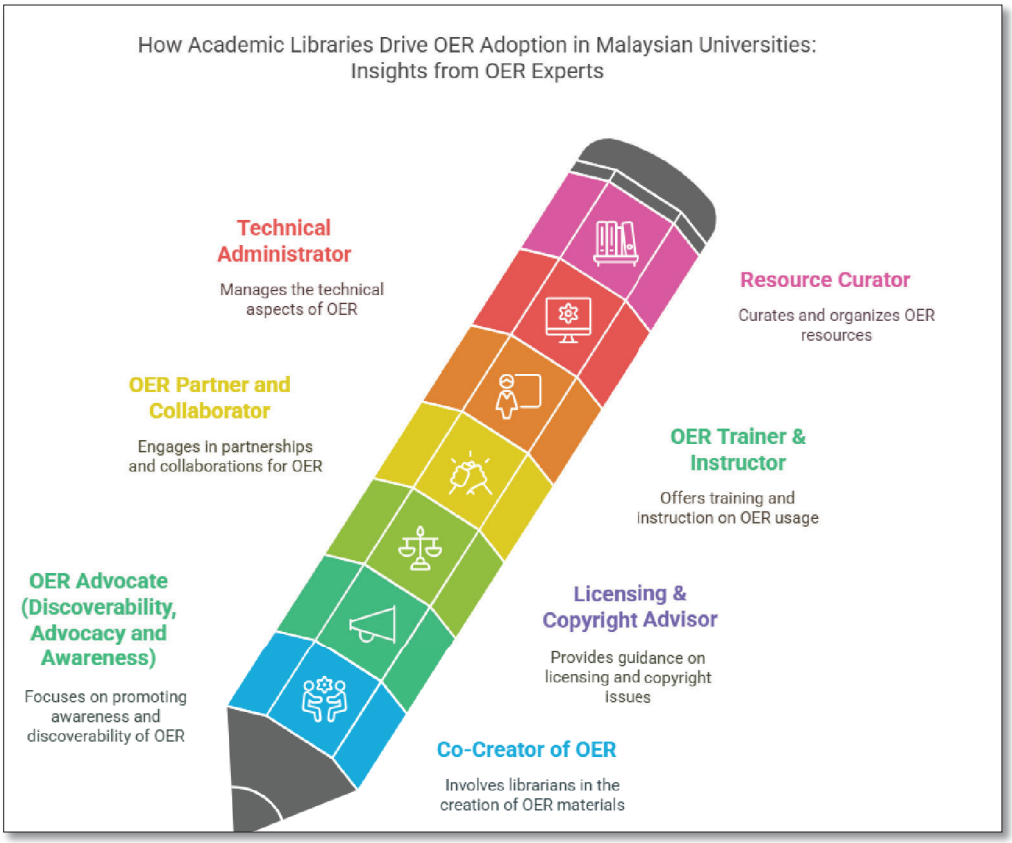


Figure 2: How academic libraries drive OER adoptions: Insights from OER experts

Strategic Role of Librarians as Co-Creator of OER

The findings demonstrate the librarians' roles as co-creators of OER to the development of high-quality, accessible, and effective educational resources, thus playing a crucial part in the broader open education movement. Informants revealed that librarians are uniquely positioned to collaborate with faculty, provide expertise, organise resources, and facilitate the publishing and distribution of OER as co-creators. Their skills in areas like metadata, curation, copyright, and discovery make them valuable partners in the OER development process (Clemons & Schonfeld, 2016; Deshmukh, 2020; Patrick & Bliss, 2016; Salem, 2017 and Tillinghast, 2020;). Librarians emerged as essential co-creators of OER, actively bridging the gap between educators, students, and institutional frameworks. Participants consistently emphasized that librarians' advocacy for open access and their proactive engagement with OER initiatives significantly enhanced adoption rates and awareness within academic communities.

OER Advocate (Discoverability, Advocacy and Awareness)

Librarians serve as exemplary advocates for OER. An academic librarian may function as a leader in instruction, a proponent for students, a supporter of faculty, or a generalist capable of specialising in meeting the requirements of students or faculty members as necessary (Baker & Lindburg, 2021; Et.al, 2021; Upneja, 2020; Zuhairi et al., 2020). The majority of scholars acknowledge the assistance that librarians provide OER advocates to their students. Librarians are essential to institutional growth as they function in many capacities and engage with individuals across diverse disciplines and professional responsibilities (McNally & Ludbrook, 2023; Okamoto, 2013; Smith & Lee, 2017; Woodward, 2017).

Librarians can assist in locating and organising OER, as well as addressing copyright issues, providing guidance on open licensing, and supporting instructional design related to the utilisation of open materials. This is where librarians inherently serve as advocates for OER due to their established trust with prospective partners and stakeholders. In the capacity of OER advocator, a librarian must comprehend their function as a trusted advisor and strive to maintain equilibrium between being an OER proponent and an educational facilitator.The advocate's mission is to promote excellent learning experiences and provide equitable access to education.

In most educational institutions, librarians are cognisant of significant changes occurring across several departments and are collaborating to assist colleagues and students in attaining overarching objectives. Moreover, academic librarians develop networks within the institution founded on trust and reliability. Liaison librarians frequently possess expertise in fostering change and partnering to enhance student learning, with open education serving as an extension of these endeavors (Henke et al., 2024; Nurul Diana et al., 2024; Scoulas & De Groote, 2023; Tang & Tseng, 2023). For instance, some informants pointed out that the growing awareness of OER among faculty and students helps to promote and encourages adoption, ultimately reducing barriers to accessing quality education. This includes providing guidance on finding high-quality OER materials and explaining open licensing (Creative Commons licenses). Feedback from the OER expert team suggests that during information literacy sessions, librarians are also able to educate users on OER discoverability, quality and relevance of OER materials. Furthermore, librarians play a key role in this process by developing effective search strategies and creating guides like LibGuides to help users identify high-quality OER.

OER Partner And Collaborator

Findings strongly underscore the necessity for collaborative partnerships between librarians, educators, institutional leaders, and policymakers. Effective OER adoption was closely linked to synergistic efforts across institutional stakeholders. Participants recommended developing structured collaboration frameworks and capacity-building programmes to enhance librarians' capabilities and influence. Collaborative engagement throughout the OER lifecycle, particularly during the creation and adaptation phases, can foster a more robust and sustainable OER ecosystem. Despite their strategic potential, librarians face substantial barriers in promoting OER. Key challenges identified included inadequate professional training, limited awareness among educators and administrators, and the absence of coherent institutional and national policy frameworks (Ailakhu & Ibrahim, 2024; Mohammed et al., 2024; Tlili et al., 2023). These obstacles substantially limit the scope and effectiveness of library-driven OER initiatives. Addressing these challenges at each stage of the OER lifecycle can improve resource creation, accessibility, dissemination, and evaluation.

Licensing And Copyright Advisor

The OER experts perceived that librarians at their institutions are actively engaged in OER programmes. From their opinion, librarians are vital partners in OER projects. The librarians' ability to collaborate across departments ensures that OER initiatives are well-aligned with curriculum needs, enhancing the effectiveness and adoption of these resources (McGeary et al., 2021). By actively participating as members of OER development teams, librarians are able to contribute their expertise and foster collaborations with faculty, other libraries, and external organisations. This collaborative approach not only improves the quality of OER materials but also promotes broader sharing and utilisation. Librarians provide critical expertise on copyright and licensing, particularly regarding open licenses like Creative Commons, ensuring proper legal use and dissemination of OER materials (Atkins et al., 2007; Judith Gisip et al., 2024).

OER Trainer And Instructor

Informants revealed that this can be achieved by participating in workshops, webinars, and conferences that focus on OER and open education. Informants believe librarians can take the lead as OER trainers focusing on conducting professional workshops that focus specifically on OER. The librarians can conduct targeted professional development and training programmes to build institutional capacity in finding, adopting, and creating OER, enhancing pedagogical effectiveness and resource utilisation (Allen, 2023; Kim, 2018; McGeary et al., 2021; Mićunović et al., 2023; Rodes et al., 2019).

Technical Administrator

The informants acknowledged that it was important for librarians to be persistent, noting that university libraries are well-suited to take the lead or provide support in the creation and dissemination of OER. However, the informants are concern with the current state of affairs where Malaysia's HEIs have not yet fully integrated their OER efforts with their libraries. Informants highlight several publishing supports such as aid in the publishing process of OER materials, offering technical and editorial assistance to ensure high-quality outputs. The informants relate librarians' responsibilities by providing editorial support, proofreading, and assistance with formatting and distribution. They hope librarians can also help faculty navigate the publishing process, ensuring that newly created OER are accessible and properly licensed. Previous research also stated that the librarians' expertise in managing technical aspects of OER repositories, platforms, and tools, ensuring seamless access, distribution, and maintenance of resources, thereby enhancing user experience and resource sustainability (Atenas & Havemann, 2014; Deus & Barbosa, 2020; Ferguson, 2017; Shined et al., 2021).

Resource Curator

The informants also believed that the librarians' knowledge and skills in the resource curation of OER are crucial for ensuring the effective discovery, organisation, and accessibility of educational content. This involves understanding the specific needs of users, identifying and selecting high-quality OER materials, and ensuring that these resources are organised in a way that facilitates easy access and use. The librarians will systematically curate and organise OER materials, ensuring ease of access and effective retrieval. Their expertise in metadata standards, cataloguing, and repository management significantly improves resource usability and discoverability (Baker & Lindburg, 2021; Zaid & Alabi, 2021).

CONCLUSION

Overall, the study highlights the critical but underleveraged role academic libraries play in promoting OER adoption. These roles underscore the librarians' strategic potential in fostering effective OER ecosystems. However, challenges such as limited professional training, low levels of awareness, and insufficient institutional and national policies, significantly limit their impact. Overcoming these challenges through targeted training, institutional policy frameworks, and enhanced collaborative strategies is essential to fully leverage the librarians' contributions towards sustainable and inclusive educational environments. Addressing existing challenges through targeted training, comprehensive policies, and institutional support is essential for maximising the librarians' contributions towards creating inclusive and sustainable educational environments. Future research should focus on developing strategies to overcome several challenges and promote the sustainable use of OER in educational

contexts. Effective OER adoption is closely linked to synergistic efforts across institutional stakeholders.

Participants recommended developing structured collaboration frameworks and capacity-building programmes to enhance the librarians' capabilities and influence. Strategies and synergy were crucial to overcome these challenges and promote the sustainable use of OER for the actual engagement of academic librarians and educators to which they follow the established OER lifecycle model. By bringing together the insights of OER experts, this study highlights the central role the librarians play in shaping inclusive and sustainable education ecosystems that advance both national education goals and the global Sustainable Development Goal 4 (Quality Education). In summary, this study underscores the vital yet frequently underutilised role that academic libraries play in facilitating the adoption of OER. To fully leverage the librarians' potential in fostering inclusive and sustainable educational environments, it is crucial to strategically address existing barriers through targeted professional training, comprehensive institutional policies, and enhanced institutional support frameworks.

REFERENCES

Ailakhu, U. V., & Ibrahim, M. G. (2024). Open educational resources (OER) management: implications for policymakers on the best practices in an open education university libraries in Nigeria. *Library Management*, *45*(5), 273-286. https://doi.org/10.1108/LM-01-2024-0013

Al-Zahrani, A. (2023). Embracing the Promise of Open Educational Resources: Faculty Insights and Implications in Higher Education. https://doi.org/10.21203/rs.3.rs-2984517/v1

Allen, T. (2023). Awareness and future use of open educational resources by music faculty. *Update: Applications of Research in Music Education*, *41*(2), 48-59. https://doi.org/10.1177/87551233211069313

Anderson, T., Gaines, A., Leachman, C., & Williamson, E. P. (2017). Faculty and instructor perceptions of open educational resources in engineering. *The Reference Librarian*, *58*(4), 257-277. https://doi.org/10.1080/02763877.2017.1355768

Atenas, J., & Havemann, L. (2014). Questions of quality in repositories of open educational resources: a literature review. *Research in Learning Technology*, *22*, 20889. https://doi.org/10.3402/rlt.v22.20889

Atkins, D. E., Brown, J. S., & Hammond, A. L. (2007). A review of the open educational resources (OER) movement: Achievements, challenges, and new opportunities. Creative common Mountain View.

Baas, M., Admiraal, W., & van den Berg, E. (2019). Teachers' Adoption of open educational resources in higher education. *Journal of Interactive Media in Education*, *1*(9), 1-11. https://doi.org/https://doi.org/10.5334/jime.510

Baker, M. D., & Lindburg, J. (2021). Inclusive access for all. *Current Issues in Education*, *22*(1 (Sp Iss)). https://cie.asu.edu/ojs/index.php/cieatasu/article/view/1904

Braddlee, D., & Vanscoy, A. (2019). Bridging the chasm: Faculty support roles for academic librarians in the adoption of open educational resources. *College & Research Libraries*, *80*, 426-449. https://doi.org/10.5860/crl.80.4.426

Browne, T., Holding, R., Howell, A., & Rodway-Dyer, S. (2010). The challenges of OER to Academic Practice. *Journal of Interactive Media in Education*.

Calilung, R. (2020). Perceptions and Practices of Academic Librarians in Handling and Managing Open Education Resources (OERs): Basis for Capacity Building Plan.

Clements, K., Pawlowski, J., & Manouselis, N. (2015). Open educational resources repositories literature review – Towards a comprehensive quality approaches framework. *Computers in Human Behavior*, *51*, 1098-1106. https://doi.org/https://doi.org/10.1016/j.chb.2015.03.026

Clemons, J., & Schonfeld, R. C. (2016). Why should librarians be involved in facilitating access to content needed for courses? *Against the Grain*, *28*(5), 7. https://doi.org/10.7771/2380-176X.7504

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications, Inc. .

Crozier, H. (2018). Promoting open access and open educational resources to faculty. *The Serials Librarian*, *74*(1-4), 145-150. https://doi.org/10.1080/0361526X.2018.1428470

de Jong, M., Munnik, M. E., & Will, N. U. (2019). Innovation opportunities for academic libraries to support teaching through open education: A case study at TU Delft, the Netherlands. *New Review of Academic Librarianship*, *25*(2-4), 392-407. https://doi.org/10.1080/13614533.2019.1621185

De los Arcos, B., Cannell, P., & McIlwhan, R. (2016). Awareness of open educational resources (OER) and open educational practice (OEP) in Scottish Higher Education Institutions Survey results: Interim report. Edinburgh: Opening Educational Practices Scotland.

Deshmuk, U. B. (2020). Open educational resources and the role of librarians. *International Journal of Science and Research (IJSR)*, *9*(2), 820 - 821. www.ijsr.net/get_abstract.php?paper_id=SR20210114451

Deus, W. S. d., & Barbosa, E. F. (2020, 13-17 July 2020). The Use of Metadata in Open Educational Resources Repositories: An Exploratory Study. 2*020 IEEE 44th Annual Computers, Software, and Applications Conference (COMPSAC)*,

Elias, M., Oelen, A., Tavakoli, M., Kismihok, G., & Auer, S. (2020). *Quality evaluation of open educational resources*.

Et.al, U. A. A. (2021). Librarians skills and competencies for scholarly communication and repository management in Nigeria. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, *Vol.12* (No.3), 1909-1915.

Ferguson, C. L. (2017). Open educational resources and institutional repositories. *Serials Review*, *43*(1), 34-38. https://doi.org/10.1080/00987913.2016.1274219

Henke, N. A., Anthoney, M., & Burek Pierce, J. (2024). Librarians' roles in OER authoring and open pedagogy: Lessons from the field. *Internet Reference Services Quarterly*, *28*(4), 1-10. https://doi.org/10.1080/10875301.2024.2443851

Hilton III, J., Wiley, D., Stein, J., & Johnson, A. (2010). The four 'R's of openness and ALMS analysis: frameworks for open educational resources. *Open Learning: The Journal of Open, Distance and e-Learning*, *25*(1), 37-44.

Judith Gisip, Norazura Ibrahim, Suzana Ratim, & Fazni Susila Abdul Ghani. (2024). Open educational resources (OER) in e-learning for higher education. *International Journal on e-Learning and Higher Education (IJELHE)*, *Volume 19*(2), 449-463. https://doi.org/https://ir.uitm.edu.my/id/eprint/62243/

Kim, D. (2018). A framework for implementing oer-based lesson design activities for pre-service teachers. *The International Review of Research in Open and Distributed Learning*, *19*(4). https://doi.org/10.19173/irrodl.v19i4.3394

Kleymeer, P., Kleinman, M., & Hanss, T. (2019). Reaching the Heart of the University: Libraries and the Future of OER.

Koltay, T. (2016). Facing the challenge of data-intensive research: Research data services and data literacy in academic libraries. In *Innovation in Libraries and Information Services* (Vol. 35, pp. 45-61). Emerald Group Publishing Limited. https://doi.org/10.1108/S0732-067120160000035008

Langdon, A. N., & Parker, K. E. (2019). Bridging the gap: Rural librarians' journey to understanding students' role in OER outreach. *The International Journal of Open Educational Resources*, *2*(1), 99-118. https://doi.org/10.18278/ijoer.2.1.7

Letseka, M., & Seeletso, M. K. (2021). Open learning in the African context: Challenges and possibilities for self-directed learning. In D. Burgos & J. Olivier (Eds.), *Radical Solutions for Education in Africa: Open Education and Self-directed Learning in the Continent* (pp. 175-186). Springer Singapore. https://doi.org/10.1007/978-981-16-4099-5_9

McGeary, B., Guder, C., & Ganeshan, A. (2021). Opening up educational practices through faculty, librarian, and student collaboration in OER creation: Moving from labor-intensive to supervisory involvement. *Partnership: The Canadian Journal of Library and Information Practice and Research*, *16*(1), 1-27.

https://doi.org/10.21083/partnership.v16i1.6149

McNally, M., & Ludbrook, A. (2023). A national advocacy framework for open educational resources in Canada.

Mićunović, M., Rako, S., & Feldvari, K. (2023). Open Educational resources (OERs) at European higher education institutions in the field of library and information science during COVID-19 pandemic. *Publications*, *11*, 38.

https://doi.org/10.3390/publications11030038

Mohammed, I., Olatunde-Aiyedun, T., & Bello, A. (2024). Distance learning lecturers' awareness and readiness towards open educational resources. *Computers and Children*, *3*(1). https://doi.org/https://doi.org/10.29333/cac/15209

Muganda, C. K., Samzugi, A. S., & Mallinson, B. J. (2016). Analytical insights on the position, challenges, and potential for promoting OER in ODeL institutions in Africa. *International Review of Research in Open and Distributed Learning*, *17*(4), 36-49.

Nurul Diana, J., Noorhidawati, A., & Yanti Idaya, A. M. K. (2024). Current landscape of open educational resources initiatives by Malaysian academic libraries. *Malaysian Journal of Library and Information Science*, *29*(3), 145-170. https://doi.org/10.22452/mjlis.vol29no3.7

Okamoto, K. (2013). Making higher education more affordable, one course reading at a time: Academic libraries as key advocates for open access textbooks and educational resources. *Public Services Quarterly*, *9*(4), 267-283. https://doi.org/10.1080/15228959.2013.842397

Patrick, B., & Bliss, T. J. (2016). *Open education : international perspectives in higher education*. Open Book Publishers. http://library.oapen.org/handle/20.500.12657/31229

Reed, J. B., & Jahre, B. (2019). Reviewing the current state of library support for open educational resources. *Collection Management*, *44*(2-4), 232-243. https://doi.org/10.1080/01462679.2019.1588181

Rodes, V., Barujel, A., & Llamas Nistal, M. (2019). University teachers and open educational resources: Case studies from Latin America. *International Review of Research in Open and Distance Learning*, *20*. https://doi.org/10.19173/irrodl.v20i1.3853

Salem, J. A. (2017). Open pathways to student success: Academic library partnerships for open educational resource and affordable course content creation and adoption. *The Journal of Academic Librarianship*, *43*(1), 34-38. https://doi.org/10.1016/j.acalib.2016.10.003

Santally, M. I. (2011). OERs in context-Case study of innovation and sustainability of educational practices at the University of Mauritius. *European Journal of Open, Distance and E-Learning*, *14*(1).

Santos-Hermosa, G. (2024). Impact and Implementation of UNESCO's recommendation on open educational resources in academic libraries: SPARC Europe case study. *Research in Learning Technology*, *32*, 1-22. https://doi.org/10.25304/rlt.v32.3183

Scoulas, J. M., & De Groote, S. L. (2023). Faculty perceptions, use, and needs of library resource and services in a public research university. *The Journal of Academic Librarianship*, *49*(1), 102630. https://doi.org/https://doi.org/10.1016/j.acalib.2022.102630

Shined, B., Bhatti, R., & Khan, S. A. (2021). Prospects of open repositories in Pakistan: Current status & challenges. *Pakistan Library & Information Science Journal*, *52*(1), 41-50. https://eresourcesptsl.ukm.remotexs.co/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=lih&AN=150572138&site=ehost-live

Smith, B., & Lee, L. (2017). Librarians and OER: Cultivating a community of practice to be more effective advocates. *Journal of Library & Information Services in Distance Learning*, *11*(1-2), 106-122. https://doi.org/10.1080/1533290X.2016.1226592

Tang, Y., & Tseng, H. (2023). Exploring academic librarians' perception of OER through the lens of technology acceptance model. *The Journal of Academic Librarianship*, *49*(5), 102769. https://doi.org/10.1016/j.acalib.2023.102769

Thompson, S. D., & Muir, A. (2020). A case study investigation of academic library support for open educational resources in Scottish universities. *Journal of Librarianship and Information Science*, *52*(3), 685-693. https://doi.org/10.1177/0961000619871604

Tillinghast, B. (2020). *Open educational resources: From exploration to application* (Publication Number 27829473) [Ph.D., University of Hawai'i at Manoa]. ProQuest Dissertations & Theses Global. Ann Arbor. http://search.proquest.com.ezaccess.library.uitm.edu.my/dissertations-theses/open-educational-resources-exploration/docview/2430115143/se-2

Tlili, A., Garzón, J., Salha, S., Huang, R., Xu, L., Burgos, D., Denden, M., Farrell, O., Farrow, R., Bozkurt, A., Amiel, T., McGreal, R., López-Serrano, A., & Wiley, D. (2023). Are open educational resources (OER) and practices (OEP) effective in improving learning achievement? A meta-analysis and research synthesis. *International Journal of Educational Technology in Higher Education*, *20*(1), 54. https://doi.org/10.1186/s41239-023-00424-3

Upneja, S. K. (2020). Contribution of library professionals and libraries in open educational resources in Indian scenario. *DESIDOC Journal of Library & Information Technology*, *40*, 445-451. https://doi.org/10.14429/djlit.40.02.15339

West, Q. & Jensen, K. (2015). Open educational resources and the higher education environment:A leadership opportunity for libraries. *College & Research Libraries News*, *76*, 215-218. http://crln.acrl.org/content/76/4/215.full

Woodward, K. M. (2017). Building a path to college success: Advocacy, discovery and OER adoption in emerging educational models. *Journal of Library & Information Services in Distance Learning*, *11*(1-2), 206-212. https://doi.org/10.1080/1533290X.2016.1232053

Wright, R. E. (2018). *OER adoption in higher education: A case study of stakeholders' perceptions at a Florida state college* [(Doctoral dissertation), Nova Southeastern University]. https://search.proquest.com/openview/6cb6d05c37e57561988b16af782a713f/1?pq-origsite=gscholar&cbl=18750&diss=y

Zaid, Y. A., & Alabi, A. O. (2021). Sustaining open educational resources (OER) initiatives in Nigerian universities. *Open Learning: The Journal of Open, Distance and e-Learning*, *36*(2), 181-197. https://doi.org/10.1080/02680513.2020.1713738

Zuhairi, A., Raymundo, M. R. D. R., & Mir, K. (2020). Implementing quality assurance system for open and distance learning in three Asian open universities: Philippines, Indonesia and Pakistan. Asian Association of Open Universities Journal, 15(3), 297-320. https://doi.org/10.1108/AAOUJ-05-2020-0034

The Road Less Travelled: A Comparative Study of Information-Seeking in Special Education Teachers Across Four States

Nur Aswani Mohd Azhar, Nur Leyni Nilam Putri Junurham, Muna Azuddin, Aishah Hanim Abd Karim

International Islamic University Malaysia, Kuala Lumpur, Malaysia

Corresponding email: aswaninur9165@gmail.com

ABSTRACT

This study investigates the information seeking behaviors of special education teachers across four Malaysian regions: North, South, East, and West. Guided by two research objectives, to identify the information needs of special education teachers and to examine the barriers they encounter. This study adopts a qualitative methodology using semi-structured interviews with eight teachers from different states. The findings reveal that while teachers actively seek information, their efforts are often topic-driven and primarily reliant on online sources. However, they face challenges such as limited resources, inconsistent internet accessibility, concerns over information accuracy, time constraints, and difficulties in finding contextually relevant materials. Regional differences were noted, with teachers in East Malaysia reporting more pronounced barriers related to resource availability and information relevance. Overall, the study highlights the persistent gaps between information needs and information access among special education teachers, underscoring the importance of understanding contextual factors in shaping information-seeking behavior. Future research should further examine strategies to bridge these gaps across different educational settings

Keywords: Special Education; Teachers; Information; Malaysia; Qualitative

INTRODUCTION

Malaysia is a former British colony in Southeast Asia with a population of 34.1 million people, consisting of a multi-racial community of Malays (58.1%), Chinese (22.4%), Indians (6.5%), and other minorities (0.7%) (Department of Statistic, 2025). Geographically, Malaysia is divided into Peninsular Malaysia and East Malaysia, with Peninsular Malaysia located on the Malay Peninsula and East Malaysia comprising the states of Sabah and Sarawak on the island of

Borneo. Since independence in 1957, Malaysia has commited to improving access to education for people with disabilties consistent with the 1994 salamanca statement, *inclusive education is the most efficient means of combating discrimination and delivering excellent education for all pupils, including those with disabilities*.

Malaysia offers three special education programs, segregation, integration, and inclusive. The Department of Social Welfare noted that the number of special education teachers and students with special needs is rising annually. In 2023, the number of registered children with special needs attending primary and secondary special education schools increased by 17.5% and 0.9%, respectively, with 1,736 and 1,055 students. Special education is, as we all know, a significant field of service in the Malaysian school system, and what makes this schooling unique is that the pupils engaged are those with special needs or *murid berkeperluan khas* (MBK) consisting of various categories of disabilities such as hearing problems, vision problems and learning problems (Norizan et al., 2013). However, as the field grows, the need for high-quality information and tools to assist special education teachers becomes more pressing. Effective teaching in this setting requires not only pedagogical abilities, but also the capacity to obtain, assess, and use information from a variety of sources.

In Malaysia, a special education teacher is a professional who helps students with special educational needs obtain access to education and learning. They are trained to deliver personalized training and implement specialized education plans. According to Muhammad (2009), the information seeking behavior involves identifying an issue, gathering relevant information, and evaluating its availability in various locations. According to Majid and Kassim (2000), the information seeking behavior is broad in the sense that it focuses on analyzing the information one is looking for before using it to meet their needs. Purposeful knowledge searching is motivated by a desire to achieve specific aims.The widely used layered model developed by Wilson (1999) separates information behavior research into subfields. The primary field that examines "the variety of methods people employ to discover and gain access to information sources" is information behavior, which includes information-seeking behavior. "A subset of information-seeking, specifically concerned with the interactions between information users and computer-based information systems" is the definition of information-searching behavior. From previous literature, numerous research have been conducted about information seeking behavior especially on profesional groups such as doctors, scientists, lawyers, general schoolteachers, and many others. However, the information seeking behaviour among special education teachers remains a path less travelled. An example of a research on the information seeking behavior of general school teachers was conducetd by Perrault (2021). His study on the information seeking behaviour of biology teachers revealed that many teachers need information regarding their work, that is to fulfill their teaching and

learning. Online sources are the most preferred material but the teachers are unable to maximize the potential fo their access to new information and resources that are offered since they lack the necessary online search skills to efficiently find, and effectively use, the online tools. According to Gunasekera and Balasubramani (2021) in their study on the information seeking behavior of teachers in Sri Lanka, their findings noted that the information seeking behaviour of teachers in Sri Lanka is influenced by intervening variables, demographic factors such age and gender, role-related factors such working experience in teaching, and environmental factor where the location of the school the teacher is working, and psychology factors such literacy skills/library awareness. The study found that older teachers depend on younger teachers to help them seek information on the internet, inexperienced teachers rely on experienced teachers to show them how and where they can easily gather information because they have spent enough time in their field. Awang (2016) also mentioned that despite the wealth of studies on the information seeking behavior of practitioners from across a broad range of professions, studies delving into the information seeking behavior of special education teachers remain limited which give rise to difficulties in examining their information seeking behaviour pattern.

This study highlights the importance of understanding the information needs and information seeking behavior of special education teachers. Special education teachers not only deliver lessons but also play a critical role in helping students with special needs discover and maximize their potential. In line with the Ministry of Education's objective of ensuring that "no child is left behind" and promoting equal access to quality education through inclusive practices, it is crucial that special education teachers are equipped with strong information literacy skills. Access to diverse, accurate, and up-to-date information resources is essential for these teachers to create engaging and effective learning environments. Libraries serve as key partners by providing access to specialized materials, digital databases, assistive technologies, and professional development resources tailored to the needs of special education. Strengthening the link between special education teachers and library services can enhance teaching strategies, promote lifelong learning, and encourage evidence-based practices in classrooms.

RESEARCH OBJECTIVE

This study is guided by two main research objectives. First, it aims to explore the information needs and information-seeking behavior of special education teachers across selected Malaysian states, focusing on how they identify, search for, and apply information relevant to their teaching practices. Second, it seeks to compare the barriers these teachers encounter in information seeking process. The comparison aims to understand whether these barriers differ

across regions or are shaped by broader systemic challenges in the education and information environment.

RESEARCH METHODOLOGY

This study employed a fully qualitative approach, utilizing interviews as the primary method to gather in-depth insights from special education teachers. The focus was on the Integrated Special Education Program, which caters to students with visual impairments, hearing impairments, and learning disabilities. While there are 35 special education schools in Malaysia, this study selected eight schools, representing each major geographical zone: the Northern region (Perak and Pulau Pinang), the Central region (Kuala Lumpur and Selangor), the Southern region (Johor Bahru and Melaka), and East Malaysia (Sabah and Sarawak). A total of eight special education teachers participated in the study, with one representative selected from each school. Participants were chosen based on their academic background and a minimum of five years of teaching experience in the field of special education.

Table 1: Number of participants of each state

No.	Geographical Zone	State	Number of Participants
1.	Northern Region	Perak	1
2.	Northern Region	Pulau Pinang	1
3.	Central region	Kuala Lumpur	1
4.	Central region	Selangor	1
5.	Southern region	Johor Bharu	1
6.	Southern region	Melaka	1
7.	East Malaysia	Sabah	1
8.	East Malaysia	Serawak	1
		Total	8

FINDINGS

The findings are reported based on data derived from semi-structured individual interviews.

R01: To explore the information needs and information-seeking behavior of special education teachers across selected Malaysian states.

Northern Region

In Perak (S1), the teacher prioritized mental readiness information, focusing on emotional and psychological preparation for both students and teachers. In Pulau Pinang (S2), the need

centered on improving knowledge and skills in special education, especially through online professional development courses.

Central Region

In Kuala Lumpur (S3), the information needed was specific to *sign language* acquisition, driven by the necessity to communicate with hearing-impaired students. Meanwhile, in Selangor (S4), the focus was on strengthening *teaching skills*, with an emphasis on differentiated instruction methods for special education classrooms.

Table 2: Information needs of special education teachers in four states

Informant	Geographical Zone	State	Information Needs
S1	Northern Region	Perak	Mental readiness
S2	Northern Region	Pulau Pinang	Knowledge & skills in special education
S3	Central region	Kuala Lumpur	Sign language
S4	Central region	Selangor	Teaching skill
S5	Southern region	Johor Bharu	Curriculum and therapy resources
S6	Southern region	Melaka	Student behavior
S7	East Malaysia	Sabah	Knowledge on student emotion
S8	East Malaysia	Sarawak	Student level of cognitive

Southern Region

In Johor Bahru (S5), the informant sought *curriculum and therapy resources* to support both academic learning and therapy activities. In Melaka (S6), attention was given to understanding *student behavior*, including behavior management techniques for special needs students.

East Malaysia

In Sabah (S7), the teachers needed resources related to *student emotions*, emphasizing socio-emotional learning approaches. In Sarawak (S8), the focus was on understanding the *cognitive levels* of students to better tailor instruction to diverse learning abilities.

RO 2: To compare the barriers these teachers, encounter in information seeking process

Limited resources

This is faced by informants in both the Northern Region (S1 - Perak, S2 - Pulau Pinang) and East Malaysia (S7 - Sabah). Despite being geographically distant (Peninsular vs Borneo), both regions shared the same problem, suggesting that resource availability for special education is a nationwide problem, not limited to rural or urban classification.

Internet Accessibility

Internet accessibility issues were reported in both urban areas (S4 - Selangor, S6 - Melaka).This finding challenges the assumption that only rural areas face connectivity problems.Even states located in the Central and Southern regions, which are considered to be more developed, struggle with reliable internet, affecting teachers' ability to seek information online.

Information Accuracy

Concerns were specific to Kuala Lumpur (S3). Being in a capital city with wide internet access, the issue here was not access, but too much unverified information online. It shows that urban teachers deal more with issue on quality of information, whereas rural teachers may struggle with information quantity and access.

Table 3: Barrier encounter of special education teachers in four states

Informant	Geographical Zone	State	Barrier Encounter
S1	Northern Region	Perak	Limited resources
S2	Northern Region	Pulau Pinang	Limited resources
S3	Central region	Kuala Lumpur	Information accuracy
S4	Central region	Selangor	Internet accessibility
S5	Southern region	Johor Bharu	Time constraint
S6	Southern region	Melaka	Internet accessibility
S7	East Malaysia	Sabah	Limited resources
S8	East Malaysia	Sarawak	Unrelevant findings

Time Constraint

This is pecifically reported by Johor Bahru (S5). It reflects high workload in developed urban schools, where administrative and teaching demands leave little room for continuous professional development.

Irrelevant Findings

This were noted only in Sarawak (S8) and may reflect the problem of algorithm bias. Online search engines are often populated with generic or Western-centric content, making it harder for teachers in Borneo to find culturally and contextually relevant materials.

Table 4: Summary of comparison on barrier encounter

Comparison Area	Similarities	Differences
Resource limitation	Northern (Perak, Penang) & East Malaysia (Sabah)	More severe in East Malaysia
Internet accessibility	Selangor (urban) & Melaka (urban)	Surprisingly, urban areas also affected
Information quality	Only Kuala Lumpur faced accuracy issues	Rural areas faced lack of information, not misinformation
Time constraint	Only Johor Bahru (S5)	Due to administrative overload
Relevance of Information	Problem specific to Sarawak (S8)	Reflects algorithm and localization gaps

CONCLUSION

This study explored the information seeking behavior of special education teachers across four states in Malaysia, focusing on their information needs and the barriers encountered. Findings revealed that the teachers' information needs varied from mental readiness and sign language to curriculum development and understanding student emotions. All informants demonstrated a strong preference for online, topic-driven information seeking behavior. Online platforms provided flexibility and immediacy, yet the challenges are limited resources, internet accessibility, information accuracy, time constraint, and irrelevant search results. All these issues significantly shaped their experiences.

Comparative analysis highlighted both commonalities and regional distinctions. Teachers in East Malaysia faced greater difficulties in resource availability and information relevance, while those in urban areas like Kuala Lumpur and Selangor struggled with information overload and connectivity. These findings suggest that infrastructural improvements, curated localized content, and targeted professional development initiatives are critical in supporting effective information seeking among special education professionals.

Overall, this study underscores the importance of understanding contextual factors in shaping information behaviors. As Malaysia advances towards inclusive education, addressing these

challenges will be vital in empowering teachers to access the knowledge they need to support diverse learners. Future research could further explore more information seeking behavior on each special need program in Malaysia to make comparisons.

REFERENCES

Awang, S. R. B. (2016). Understanding the Information-Seeking Behavior of Special Education Teachers in Singapore. *Singapore Journal of Library & Information Management, 45*(4).

Department of Statistic Malaysia. (2024) . https://www.dosm.gov.my/

Gunasekera, C., Balasubramani, R., & Arumugam, J. (2019). Study of information seeking pattern of schoolteachers in Sri Lanka with respect to Curriculum planning. Library Philosophy and Practice, pp.1-17.

Kementerian Pendidikan Malaysia. (2021). *Buku Data Pendidikan Khas*. https://www.moe.gov.my/muat-turun/pendidikankhas/buku-data-pendidikan-khas.

Lee, L.W. and Low, H.M. (2014), Special Education in Malaysia. British Journal of Special Education, 41: 42-58. https://doi.org/10.1111/1467-8578.12048.

Majid, S., & Kassim, G. M. (2000). Information seeking behaviour of International Islamic University Malaysia law faculty members. Malaysian Journal of Library & Information Science, 5(2), 1-17.

Muhammad, R. (2009). Information Seeking Behavior and User Satisfaction of University Instructors: A Case Study Library Philosophy and Practice (e-journal). https://digitalcommons.unl.edu/libphilprac/240.

Norizan Abdul Ghani, Zahidah Anisah Mohamad & Che Wan Takwa Che Wan Abu Bakar (2013). Teachers' Challenges in Educating Special Children in Special Classes of Three Selected Primary Schools, Kuala Terengganu, Terengganu, Malaysia. Advances in Natural and Applied Sciences, 7(3): 284-291, 2013.

Perrault, A. (2021). Information Seeking Behaviours of Educators. https://doi.org/10.29173/IASL7581.

Wilson, T. D. (1999). Models in information behaviour research. Journal of Documentation, 55(3), 249-270.

The Urban Digital Divide and Access Challenges: Experiences of Brgy. Camputhaw, Cebu City Residents

Frances Riscel S. Padin

University of the Philippines-Diliman, Quezon City, Philippines
Library, St. Theresa's College of Cebu, Cebu, Philippines

Corresponding email: fspadin@up.edu.ph

ABSTRACT

This study explores the urban digital divide and access challenges in Brgy. Camputhaw, Cebu City, focusing on lower-middle, low-income, and poor households. Despite Cebu City's urbanization, digital access disparities persist, hindering equitable participation in the digital world. Using a phenomenological research design, semi-structured interviews with five residents highlighted factors affecting their digital information access and usage. The study found that cellphones are the primary devices for Internet access, but usage quality and extent vary due to socioeconomic status, digital literacy, Internet affordability, and infrastructure. Younger, more educated respondents exhibited better digital literacy and broader platform use, while older, less educated individuals displayed limited engagement. The study emphasizes addressing these inequalities to enhance digital inclusivity, promote equitable access, and align with SDG 9, which advocates for resilient infrastructure and innovation, and SDG 10, which focuses on reducing inequalities. Local government units and partner organizations are encouraged to implement targeted policies, including community-based digital literacy programs and public Wi-Fi installations, to lower costs and improve connectivity. Bridging the digital divide requires more than providing access; it requires enhancing people's overall digital experiences by improving the infrastructure, fostering digital skills, and ensuring that everyone benefits from digital resources, thus, promoting inclusivity and equity.

Keywords: Digital Divide; Digital Inclusivity; Information Behavior; Information Experience

INTRODUCTION

According to the latest report of Data Reportal (Kemp, 2024), this is the digital adoption and use in the Philippines in early 2024:

- There were 86.98 million Internet users, where Internet penetration stood at 73.6%, and 86.75 million social media users, equating to 73.4% of the total population.
- A total of 117.4 million cellular mobile connections were active in early 2024, equivalent to 99.3% of the total population.

This means that the majority of Filipinos now have access to the Internet. The data also shows that almost all Filipino Internet users are into social media and that mobile devices are the primary means of access.

Therefore, it is undeniable that the Internet has become an integral part of how our world is today – from its humble beginnings now to its ubiquitous presence. Imagine the billions of people who will be affected if there is a worldwide Internet shutdown – from communication disruption, educational setbacks, and economic impacts down to its psychological impact on people. Indeed, the Internet already permeates nearly every aspect of our lives.

Looking at the statistics provided above, one might think that these numbers are already very good. However, even though many Filipinos are already connected to the Internet, the benefits of all these digital technologies are not equitably distributed. This results in what we call the digital divide, and many factors contribute to this, which will also be discussed in this paper.

According to Van Dijk (2017), the digital divide is “the gap between people who do and do not have access to forms of information and communication technology.” These differences are generally thought to intensify social inequalities and create a persistent information or knowledge gap between those who have access to and use the new media (“haves”) and those who do not (“have-nots”).

The problem on digital divide is also a problem that information professionals should look into. To reiterate what Van Dijk (2017) stated, digital divide causes information or knowledge gap. Individuals without adequate access to digital technologies are less likely to access the wealth

of information available online, which can limit their knowledge base, make them more vulnerable to information disorders, and hinder their ability to fully participate in society.

As stewards of information, information professionals have an ethical responsibility to promote equitable access to information for all. Additionally, bridging the digital divide also involves enhancing digital literacy for people to fully benefit from the opportunities that the Internet offers. If the digital divide is not addressed, this can just worsen the social and economic inequalities here in the country. One concrete example of this is the increase of the learning poverty rate during the pandemic because of the perceived ineffectiveness of distance learning as many Filipinos were not prepared to shift to the online learning modality. Most teachers, parents, and students lacked the appropriate gadgets like cellphones, computers or laptops, and the strong Internet connectivity for online learning. Telecommunication companies were also not prepared for the upsurge of users and the signal strength lack in many urban and rural areas.

According to columnist Lu (2023), the Philippines is facing a severe issue of 'learning poverty,' a situation exacerbated by the pandemic. Before the pandemic in 2019, a World Bank study estimated that 69.5% of Filipino children experienced learning poverty. However, by 2021, this figure had surged to 91%, indicating that nine out of ten Filipino children under the age of 10 cannot read a basic text. According to the World Bank, this places the Philippines at the highest level of learning poverty in East Asia and the Pacific region.

According to Ibrahim (2022), the digital divide among households seems to hinge mainly on various factors, including geographic location, income levels, household size, age, gender, physical abilities, and educational background. In the context of the Philippines, the most significant variables influencing this gap are the affordability of Internet services and the accessibility of Internet access points or infrastructure. Sigue added that it is important to remember that the digital divide is not only about gaps in connectivity. It could also be gaps in digital skills (Clapano, 2023).

In the latest Philippine Statistics Authority report, three cities in Cebu, namely Lapu-Lapu City, Cebu City, and Mandaue City, are among the top 10 richest cities outside Metro Manila (Mascardo, 2024). Furthermore, according to the Commission on Audit (COA) Annual Financial Report for 2022 on Local Government Units (LGU), the Province of Cebu is still the richest province in the country for nine consecutive years (Laqui, 2023). Indeed, Cebu province and

its cities are among the richest in the country. Despite the fact that the cities and the province of Cebu are among the richest, PSA also revealed that it also has the most number of poor people at 1.71 million because the poor population jumped in both province and the cities (Osmeña, 2024).This means that even if the city is rich, but then there are also many less privileged people in there whose digital skills and financial capacity contribute to the digital divide. As a result, this impacts their information behavior, influencing how they access the Internet and use digital information, ultimately affecting their overall information experience. Therefore, Cebu City, a highly urbanized city, is not an exception to the digital divide. In the urban areas, despite proximity to technological infrastructure, digital literacy and socio-economic factors can still hinder equal access to digital resources.

Brgy. Camputhaw, where this study is set, is one of the barangays situated in the heart of Cebu City. Even with big establishments located in this barangay, not everyone in this community benefits equally from the advancements brought by digital technologies.

Acknowledging the presence of the digital divide even in urbanized communities, this study seeks to explore the factors that influence the access to digital information of the selected lower-middle, low-income, and poor residents of Brgy. Camputhaw and the different ways in which these factors affect the respondents' usage of digital technologies for work, educational, and personal purposes. The study emphasizes addressing these inequalities to enhance digital inclusivity, promote equitable access, and align with SDG 9, which advocates for resilient infrastructure and innovation, and SDG 10, which focuses on reducing inequalities.

By looking into these factors and their effects, the LGU and its partner organizations can develop ways to address the digital divide and make digital access easy and convenient, especially for the lower-middle, low-income, and poor residents of the barangay. As St. Theresa's College of Cebu's partner barangay, the results of this study can also help the school craft its projects for its Community Involvement Program.

METHODOLOGY

This study employed a phenomenological research design to explore the digital divide and access challenges faced by lower-middle, low-income, and poor residents of Brgy. Camputhaw, Cebu City. This research aims to identify the factors that deter these residents from accessing digital information and to understand how they affect their usage of digital technologies for work, educational, and personal purposes.

The use of one-on-one semi-structured interviews enabled a deep, contextual understanding of individual experiences, perceptions, and behaviors related to digital access. Participants were selected based on specific criteria that align with the study's objectives:

1. Income Criteria: Families classified as lower middle, low-income, and poor according to local government standards. In the report of Garcia (2024), according to the Philippine Institute for Development Studies (PIDS), the Filipino Income Group and how much they are earning (Table 1).
2. Technology Access: Families must have access to at least one smartphone or computer and some form of Internet connectivity.

Purposive sampling was employed to ensure that participants fall within the targeted demographic groups. Five participants were interviewed from different locations in the barangay.

A flexible interview guide was used which allowed the researcher to probe deeper based on the participant's answers. Each interview lasted for about 20 to 40 minutes. The interviews were conducted in an area where it was convenient and comfortable for the participants. The researcher personally visited them in their homes and/or stores.

Table 1. Filipino income groups and how much they are earning

Income Group	Range of monthly family incomes (for a family size of five members) in 2021 Prices
Poor	Less than P12,030 per month
Low Income (but not poor)	Between P12,030 to P24,060 per month
Lower Middle Incom	Between P24,060 to P48,120 per month
Middle Middle Class	Between P48,120 to P84,210 per month

Upper Middle Income	Between P84,210 to P144,360 per month
Upper Income (but no rich)	Between P144,360 to P240,600
Rich	At least P240,600

All participants were provided with detailed informed consent forms explaining the study's purpose, procedures, risks, and benefits prior to participation. Participant confidentiality was also strictly maintained and all data were anonymized using code names and securely stored.

The audio recordings of the interviews were translated into English and converted into written text. To analyze the interview transcripts, the qualitative data were imported, coded, and categorized into themes using Dedoose software.

RESULTS

This part presents the results of the digital experiences of selected residents of Brgy. Camputhaw, Cebu City by exploring their experiences in digital access and literacy that contribute to the urban digital divide. Despite Cebu City's status as one of the Philippines' major urban centers, this study reveals significant disparities in digital access among its lower-middle, low-income, and poor residents. Drawing on the data collected from interviews, this section examines the primary digital information needs identified by the residents, the factors influencing and affecting their access to digital technologies, and the implications of these factors to their educational, work-related, and personal pursuits. This part also extends to the residents' suggestions of potential interventions that could mitigate these challenges, aiming to provide actionable insights for local government units and other stakeholders.

Table 2 shows the demographics of the five respondents with their alias, sex, age, status, educational attainment, work, and employment classification.

Table 2. Demographics

Alias	Sex	Age	Status	Educational attainment	Work	Employment classification

Respondent 1	Female	50	Mother of 4 Widow	Not specified	Part-time snacks vendor	Informal sector
Respondent 2	Female	31	Single	College graduate	Medical secretary	Formal
Respondent 3	Female	21	Single	Senior high school graduate	Street vendor	Informal
Respondent 4	Female	45	Mother of 6 Separated	Not specified	Street sweeper	Informal
Respondent 5	Female	College age	Single	College student	Student	Not applicable

Primary Digital Information Needs

Theme 1: Reliance On Cellphones For Internet Access

There is a major reliance on cellphones as the primary device for Internet access among the interviewees. This reveals that despite the availability of other devices, like laptops for Respondents 2 and 5, cellphones are preferred due to their convenience and portability. This is evident across different demographics, including students, informal workers, and parents. All of them are using the older models of Android phones.

It is worth noting that the kind of device used also influences the digital divide as different devices differ in their capabilities on how fast they can connect to the Internet and sustain Internet activities. Expensive brands and the latest cellphone models offer better quality of Internet speed compared to older models and cheaper brands, and they can also handle average multitasking without lags.

Theme 2: Primary Use of the Internet

Social media platforms play a significant role in the lives of the participants, and they are used for both social interaction and as a source of information and entertainment. The use of social media platforms like Facebook, YouTube, and TikTok illustrates how integrated these services are in the everyday social and family dynamics of the respondents.

All respondents tagged entertainment and social communication as their primary reasons for using the Internet. The secondary reason is for educational and work-related purposes. As for the mothers, they shared that their children also use the Internet to help them with their assignments. For Respondents 3 and 5, the Internet has been a great help to them during the

distance learning set-up. Respondent 2 also considers the Internet important to her work as a secretary and to her other family members who work as ride-hailing app riders.

The use of e-wallets and digital banking is also rare, with only Respondent 2 using an e- wallet like PayMaya for bill payments. Respondents 1, 3, and 4 still rely on the traditional "Pera Padala" in sending and claiming money remittance.

Respondents 1 and 4 predominantly use Facebook and are less likely to use other social media platforms. They also tend to be passive in their social media use as they have admitted that they lack knowledge of how to use it for other functions. Respondents 2, 3, and 5 use a broader range of platforms, including e-wallets, Facebook, YouTube, TikTok, and online games, and are more active interacting with them.

Therefore, the level of digital skills also influences the usage of the respondents, with Respondents 2, 3, and 5 being more active and diverse in their online activities, whereas Respondents 1 and 4 mainly use the Internet to scroll through Facebook and Messenger.

Theme 3: Adaptation To Modular And Online Learning During The Pandemic

The transition to modular and online learning during the pandemic presented various challenges and required significant adaptation from students and parents. Modular learning, which involved physical modules for study, was often supplemented by Internet research. Online learning utilizes digital platforms like Canvas.

When asked about their situation during the remote learning, they had opted for modular learning because it is cheaper. The use of mobile phones and their signal may not be consistent and strong enough to handle long hours of video calls and will also require higher amounts of load package. Therefore, modular learning is the best option for them. However, it is important to remember how the country's learning poverty rate soared due to distance learning.

Factors Influencing Access to Digital Information

Theme 4: Affordability of the Internet

The respondents differ in how they navigate and manage their Internet needs in the context of their economic capacities. Respondents in both formal and informal sectors employ various

solutions as they face the cost-related challenges of securing Internet access for essential activities such as education, work, entertainment, and communication. This sheds light on the socio-economic disparities in Internet accessibility, where affordability often dictates the quality and consistency of Internet usage.

Among the respondents, only Respondents 3 and 4 needed consistent access to the Internet because they only bought loads when they really needed them to save money. The usual promos they avail are the 50 pesos for three days or the 100 pesos for one week. When it is free data only, only sending chats in Messenger is available. The use of Piso Wi-Fi may also be a cheap alternative. However, a congested network can slow down the Internet speed. Indeed, economic constraints influence Internet accessibility and affordability, revealing the various coping mechanisms individuals adopt to meet their connectivity needs.

Theme 5: Gaps In Digital Literacy

The respondents show varying levels of familiarity and comfort with digital technologies. They face various obstacles in digital literacy, focusing on the difficulties in using smartphones and the Internet. The gaps in digital skills are also a factor influencing how they use the Internet. Their digital skills are primarily influenced by their educational attainment and type of work, with Respondents 1 and 4 falling behind the other respondents. The perceived complexities of social media platforms and online activities demonstrate how lack of knowledge and fear of scams hinder deeper engagement with digital technologies.

Respondents 1 and 4 expressed their difficulties in understanding the languages used by social media platforms. While Respondents 1 and 4 expressed their difficulties in using the Internet and can only do the basics, such as liking posts and sending messages, Respondents 2, 3, and 5 expressed only little concern about the difficulties faced in using the Internet. Respondent 2 uses the Internet for work-related tasks. Respondent 3 expressed her interest in learning how to edit videos, but the ready-made templates now make it easier. Respondent 5 is also using the Internet for her education.

Indeed, digital literacy differs among various generations and educational or occupational backgrounds, highlighting the influence of formal education and work environments on digital competency.

Theme 6: Challenges With Network Reception/Disruptions

The influence of infrastructure and external disruptions on digital connectivity also affects the residents' everyday activities, communication, and ability to fully benefit from digital technologies. Their network reception is generally fine since they are situated in the city, but there are times when the signal is slow because of maintenance repairs and network congestion.

Signal strength also varies depending on the type of connection, with broadband connections having faster speeds than mobile or prepaid data. Broadband or postpaid plans receive higher data allocation than prepaid plans and Piso Wi-Fi. Connecting to the Internet via mobile data also adds to the challenges faced by the residents for there are certain times of the day when the connection is slow because of network congestion and the Internet speed also varies depending on the amount of data package that one has availed. Moreover, the type and specifications of the device used also affect the speed of their connection.

Implications of the Influencing Factors to Educational, Work-Related, And Personal Purposes

Theme 7: Impact Of Internet Access On Quality Of Life

Internet access influences various aspects of people's daily lives, including work, communication, and personal activities. The respondents highlighted the convenience and efficiency of the Internet in both professional and personal contexts. The presence of the Internet facilitates improved work and academic performance, easier communication, and overall better connectivity with family and community members. On the other hand, the lack of Internet access often results in limited communication and slower, less efficient work processes.

Generally, the respondents expressed a positive impact of the Internet on their lives because of its convenience. It also means better income for Respondent 2, who has family members who are Angkas and MoveIt riders, whose income increased as compared to when they were just doing traditional *habal-habal* driving. Respondent 2 also uses the Internet to avoid the long lines of paying bills by paying online.

Theme 8: Concerns on Internet Safety and Privacy

Some respondents expressed both direct experiences and secondhand accounts of scams involving financial loss, deception through online marketplaces, and the emotional impact of

these events. They have also shared awareness and preventive measures taken to avoid falling victim to such scams, like opting to send money via over-the-counter means to be safe or a video call to confirm the identity of the recipient.

A striking information gathered is the threat of invading one's privacy, like in the story of Respondent 4, where other people in their household use her phone to alter its signal settings and message her daughter about things that put her [Respondent 4] image in a bad light.

All of the respondents shared their worries regarding online scams. It is important to note that one's digital literacy can also significantly influence the likelihood of being a victim of these scams.

Proposed Interventions to Improve the Digital Information Access

Theme 9: Suggestions For A Free Public Wi-Fi

The community deeply appreciates the local government's initiative to provide free Internet access, particularly during emergencies like Typhoon Odette. This underscores the crucial role that free Wi-Fi plays in bridging the digital divide, enhancing connectivity, and reducing the financial burden of Internet costs for residents. The community hopes that this initiative will be maintained.

All the respondents have expressed a strong desire for a free public Wi-Fi in their community, especially for Respondents 2, 3, and 4. This would relieve them from the pressure to buy load promos when their load expires, and serve as a means of saving money, particularly for Respondents 3 and 4 who are striving to make ends meet everyday.

The community values free Wi-Fi for its role in enhancing connectivity, especially during emergencies, and reducing Internet costs. However, public Wi-Fis also have some limitations in access and speed because many devices connect at the same time and share the bandwidth.

DISCUSSION

Indeed, the digital divide is also present even in the urban setting, not just in the rural. They just differ in their level of digital divide – coverage and connection are the main concerns in

rural areas and digital literacy and affordability issues are the main concerns in urban low-income communities.

Considering the three levels of the digital divide, the respondents in Brgy. Camputhaw generally perceive the access divide (first level) as a minor concern. They report having access to mobile phones with sufficient network coverage for their regular online activities, which primarily involve social media. However, a closer look at the situation reveals that the access divide persists. The heavy reliance on mobile phones may restrict respondents to social media activities, as these devices are optimized for such tasks but lack the capabilities of laptops and computers in terms of features and specifications. This limitation is worsened by their use of older mobile phone models, which may receive weaker signals and no longer support updated features, thereby hindering their ability to engage in a broader range of online activities.

In terms of affordability, some respondents expressed a willingness to spend money, as they usually do, to maintain Internet access. However, Internet access is not always a priority for others, especially when the budget is tight. Therefore, the availability of public Wi-Fi would be a good initiative to reduce costs and assist those who find purchasing load packages a financial burden. Nonetheless, relying primarily on cellphone loads and public Wi-Fi may still contribute to the digital divide, as these types of connections typically offer limited speeds compared to broadband connections.

The usage divide (second level) focuses on how people use digital technologies. It is quite evident that there is a divide between the respondents – where Respondents 1 and 4 use digital platforms passively and consume lesser content, which is usually for viewing posts and sending messages only, whereas Respondents 2, 3, and 5 actively engage with digital platforms and content for various purposes such as for social interaction, entertainment, education, and work. This means that their quality and complexity of digital usage vary, with older Respondents 1 and 4 being the basic users and Respondents 2, 3, and 5 being intermediate users. This signifies that there is a gap in their digital skills which in turn affects their utilization of the Internet. Therefore, even though all respondents have mobile phones and Internet access, their Internet utilization still varies in complexity and variety as primarily influenced by their digital skills.

With the widespread issue of scams, they are also cautious in doing online transactions – with one respondent requesting to have a video call to confirm the identity of the recipient, while

the others just opt to send money through over-the-counter means to be safe. Their worries about online scams could have been lessened if they had the necessary digital skills to combat them, such as detecting the common patterns of scams, verifying the identity of online accounts, and knowing the importance of one-time passwords (OTPs) and other verification methods in doing online transactions.

The quality of use divide (third level) refers to how individuals use digital tools to improve their lives. This may include enhancing work efficiency and productivity and accessing educational resources. Based on the interviewees' responses, only Respondents 2, 3, and 5 have utilized technology to improve their work performance and support their educational needs. With the proper digital skills, better devices, and strong connectivity, they could have leveraged Internet access to pursue online side hustles or venture into online businesses.

Even with the availability of the Internet and access to mobile phones, these respondents are still experiencing the digital divide because of the varying speeds of the Internet that they are receiving as influenced by their type of connection and device used, and also the differences in their digital skills as influenced by their educational background and their type of employment. Because of these gaps, they have not fully availed of all the other capabilities and opportunities that the Internet offers.

It is also evident how these five respondents differ and have in common – their age group, educational attainment, and employment classification either from the formal or informal sector. The respondents belonging to the younger generation have achieved a higher degree of educational attainment and, therefore, have shown a higher degree of digital literacy skills compared to the respondents belonging to the older generation and working in the informal sector. Indeed, Mulyaningsih et al. (2020) were right when they said that there is a consistent link among poverty, lack of education, job formality, and the digital divide.

The results of the study also agree with Lembani et al. (2019), who used resource theory to understand the digital divide: material (financial capabilities), cognitive (digital literacy), and social resources (social networks). These factors all influence one's digital capabilities.

CONCLUSION

The digital divide in Brgy. Camputhaw, Cebu City, is primarily shaped by economic, generational, and educational factors. While cellphones provide accessible Internet options and mobile loads offer flexible Internet packages, digital literacy remains a significant barrier, especially to older members of the community. This supports Olphert and Damodaran's (2013) suggestion to include a fourth level of digital divide that focuses on older people and their digital disengagement.

The respondents' Internet speed, digital skills, and financial capabilities greatly influence their information behavior – with the primary use of cellphones to access the Internet with much focus on the use of social media, and the different strategies that they employ to be safe online.

Looking at the digital divide through the lens of information experience helps us understand the different ways people in Brgy. Camputhaw interact with technology. This view highlights not only the differences in access and usage but also how individuals interpret and feel about their digital experiences, with some feeling frustrated about themselves for having a hard time learning even the basic functions and features of social media, while the others are feeling satisfied and eager to upgrade their skills. Even though they generally consider their experiences as positive, there are still feelings of frustration and impatience, especially when the signal gets inconsistent and when they want to learn an online task but find it hard to do. There is also the fear of scams and the feeling of not being safe because of invasion of privacy.

By recognizing these personal experiences, the authorities and other people concerned can create more caring and effective solutions that can meet the diverse needs of the community. In the end, tackling the digital divide is not just about giving people access. It is also about improving their overall experience with technology, helping everyone fully engage in the digital world by lowering the cost and improving the infrastructure and people's digital skills.

Tackling the digital divide issue is crucial for librarians and information professionals. As Sullivan (2019) said, there is a cost associated with being informed and the depth of one's information depends on structural and infrastructural factors. An informed citizenry is a prerequisite for a functioning democracy and the issue of information disorders is further exacerbated by the digital divide. This divide influences the quality and quantity of information

that people receive and how they interact with it, which, thus, affects how they make critical decisions for themselves and for society.

Acknowledging the impacts of digital divide can also promote for the equitable access to information and support lifelong learning and digital literacy, especially with the evolving digital landscape. More importantly, addressing to reduce the digital divide is also one way to advocate for social justice as it promotes equality and empowerment of the marginalized groups to access the same opportunities as others.

RECOMMENDATIONS

Based on the results of the study, the following recommendations have been formulated:

Implementation of a Community-based Digital Literacy Program

Due to the perceived gaps in digital literacy, especially among the older members of the community and those belonging to the informal sector, it is recommended for the local government unit (LGU) to partner with other organizations (Public-Private Partnerships) and hold a community-based digital literacy program which aims to focus on basic and intermediate digital skills. This includes sessions on the following topics:

- navigating the features and capabilities of a smartphone, such as how to maximize the use of their phones other than social media
- exploring different online and social media platforms, how they work, their advantages and disadvantages
- ensuring online privacy and safety
- enhancing digital financial literacy
- introducing e-commerce and digital marketing for local businesses to adapt to the digital economy

Improve Digital Infrastructure

It is recommended that the LGU partner with Internet Service Providers to improve the digital infrastructure in the barangay and ensure reliable high-speed Internet is available to all residents. This includes upgrading the network coverage in the area and installing public Wi-Fi hotspots in schools and the various areas of the barangay to provide free Internet access to the community. A sufficient number of public Wi-Fi hotspots should be installed to prevent

network congestion. The installation of free public Wi-Fis offers an affordable alternative to the residents. Affordability is so important since it often determines the quality and consistency of one's Internet usage.

Support Online Education

It is recommended that the LGU and school administrators provide access to online learning platforms and resources in schools, libraries, and barangay reading centers to support teachers and students have access to a wider body of knowledge and for them to be competent in this evolving digital world.

Provide Good Job Opportunities to the Residents

Since the digital divide is also consistently linked to poverty, it is recommended for the LGU to continuously organize job fairs to provide residents with opportunities for stable employment, thereby improving their financial capacity.

These recommendations aim to create a more digitally inclusive community, ensuring that all residents have the skills, resources, and opportunities needed to adapt and thrive in the digital age.

REFERENCES

Clapano, J. R. (2023). *DICT: 83% of Pinoys are internet users, but…* https://www.philstar.com/headlines/2023/06/04/2271289/dict-83-pinoys-are-internet-users-but

Garcia, N. (2024). *Are you poor, middle class, or rich? Here's how much Filipino income groups are earning.* https://philstarlife.com/news-and-views/847218-how-much-filipino-income- groups-earning#google_vignette

Ibrahim, M. (2022). The pandemic and the widening digital divide.

https://mb.com.ph/2022/02/08/the-pandemic-and-the-widening-digital-divide/

Kemp, S. (2024). *Digital 2024: The Philippines.* https://datareportal.com/reports/digital-2024-philippines?rq=philippines

Laqui, I. (2023). *Among the country's provinces: Cebu still richest.* https://www.philstar.com/the-freeman/cebu-news/2023/10/11/2302905/among-countrys- provinces-cebu-still-richest

Lembani, R., Gunter, A., Breines, M., & Dalu, M. T. B. (2020). The same course, different access: the digital divide between urban and rural distance education students in South Africa. *Journal of Geography in Higher Education, 44*(1), 70–84. https://doi.org/10.1080/03098265.2019.1694876

Lu, B. J. (2023). *Addressing effects of Covid-19 among Filipino learners.* https://www.pna.gov.ph/index.php/opinion/pieces/704-addressing-effects-of-covid-19-among-filipino-learners

Mascardo, I. H. (2024). *3 Cebu cities on list of wealthiest areas outside Metro Manila.* https://www.philstar.com/the-freeman/cebu-news/2024/03/20/2341908/3-cebu-cities-list- wealthiest-areas-outside-metro-manila

Mulyaningsih, T., Wahyunengseh, R., & Hastjarjo S. (2020). Poverty and digital divide: A study in urban poor neighborhoods. *Jurnal Ilmu Sosial dan Ilmu Politik, 24*(2), 189-203. https://doi.org/10.22146/jsp.52325

Olphert, W. & Damodaran, L. (2013). Older people and digital disengagement: a fourth digital divide? *Gerontology, 59*(6), 564-70. https://doi.org/10.1159/000353630

Osmeña, R. (2024). Asset-rich Cebu has most poor people in Phl, says PSA.

https://tribune.net.ph/2024/01/26/asset-rich-cebu-has-most-poor-people-in-phl-says-psa

Sullivan, M. C. (2019). Libraries and fake news: What's the problem? What's the plan?

Communications in Information Literacy, 13(1), 91-113. https://doi.org/10.15760/comminfolit.2019.13.1.7

Van Dijk, J.A.G.M. (2017). Digital divide: Impact of access. In P. Rössler, C.A. Hoffner & L. Zoonen (Eds.), *The International Encyclopedia of Media Effects* (Eds). https://doi.org/10.1002/9781118783764.wbieme0043

Conceptualizing Health Literacy Programs in Public Libraries for Older Adults with Chronic Diseases

Zhou Hongli, Noorhidawati Abdullah, Ali Fauzi

Department of Library and Information Science, Faculty of Arts and Social Sciences, Universiti Malaya, Kuala Lumpur, Malaysia

Corresponding email: 22081969@siswa.um.edu.my

ABSTRACT

This paper proposes a conceptual framework for developing health literacy programs in public libraries, specifically tailored to meet the needs of older adults managing chronic diseases. Grounded in established health literacy models, the framework emphasizes a multi-stage process beginning with a needs assessment to identify health challenges and information gaps within this demographic. It highlights the vital role of libraries as trusted providers of accessible health information and supportive learning environments. The framework integrates key stakeholders and outlines a holistic program design featuring diverse resources and interactive methods suited to older adults. Implementation focuses on inclusive, community-based strategies, while evaluation and sustainability measures ensure long-term effectiveness and impact. This conceptualization aims to guide libraries in implementing impactful programs, thereby promoting health equity among vulnerable older adults.

Keywords: Health Literacy; Health Literacy Programs; Older Adults with Chronic Diseases; Public Library; Librarian

INTRODUCTION

Health Literacy (HL) has been recognized as a crucial factor in improving overall well-being and reducing health disparities (Jean et al., 2020; Abd-Rahim et al., 2021; Lohrasbi et al., 2021). Developing tailored solutions for older adults with chronic diseases is essential because they often require higher health literacy (Valizadeh-Haghi, 2021; Wu et al., 2022). A review of 34 studies published between 2000 and 2020 revealed that health literacy programs can significantly enhance the health literacy skills of older adults (Zolbin et al., 2022). The functions of libraries include social education and the transmission of scientific information (Gibson & Martin, 2019). However, this population's low health literacy issue is compounded by a lack of targeted programs, particularly those leveraging community resources such as libraries. Public libraries are trusted community resources with expertise in information management and are uniquely positioned to address individuals' health literacy needs (Foy, 2024). This gap in service provision and research presents an opportunity for developing innovative, accessible health literacy programs for vulnerable groups.

LITERATURE REVIEW

The phrase health literacy (HL) dates back to the 1970s. The Council on Scientific Affairs of the American Medical Association (AMA) recommended five statements on health literacy, which were adopted as an AMA guideline in June 1998 (Andrus et al., 2002). It refers to the ability to read (access), understand, and use health information to make appropriate healthcare decisions and follow treatment instructions (Weiss, 2003; Prasauskas & Spoo, 2006). Older adults with chronic diseases generally have lower levels of HL compared to other groups (Valizadeh-Haghi, 2021; Eruchalu et al., 2021; Delgado et al., 2017; Yoon et al., 2020; Ubolwan et al., 2020). They are more susceptible to cognitive impairment (Vijayan et al., 2016; Tan et al., 2017). Relevant and understandable healthcare information is identified as a communication issue (i.e., tailored health information, health literacy, and patient(older adults) language barriers) that influences their participation (Gaffney & Hamiduzzaman, 2022; Obarem, 2022). These elements are not within individuals' control (Zolbin et al., 2022) and require assistance from others to develop awareness about available resources (Ruthven, 2022). Otherwise, consistently lower health literacy could have far-reaching implications for their ability to manage health information and diseases, limiting opportunities for a healthy life (Jennings-Roche, 2023).

New job titles have emerged for librarians, such as consumer health librarian, health information services librarian, and health literacy librarian. Libraries have begun to provide health information education for different groups through reading promotion activities (Vassilakaki et al., 2023). However, only a few positive examples exist for older adults in

developed countries (Lenstra & Oguz, 2022). A lack of training in teaching diverse populations health information literacy skills is often cited, as many librarians feel they lack the necessary training to effectively assist individuals with their health questions (Arding & McLeod, 2013; Danhoundo et al., 2019). Grant et al. (2023) found that librarians often lack familiarity with health literacy concepts and models, leading to low utilization rates of health information resources. These challenges could have far-reaching implications for libraries and librarians in offering health literacy services, limiting opportunities for consumers to access, understand, and utilize health information. More theory-informed tools and models should be developed for various groups (Foy, 2024). The positive examples of health literacy programs for older adults are listed in Table 1. This gap underscores the need for the present study to explore how public libraries can effectively implement a health literacy program for older adults with chronic diseases. Thus, the study aims to conceptualize health literacy programs tailored for older adults with chronic diseases in public libraries.

Table 1: Examples of health literacy programs for older adults

Author	Main Content	Does it include libraries, librarians, or older adults?	Duration	Program outcome	Country
Lenstra & Oguz, 2022	535 older adults participated in a video-based exercise program at the public library. Because this program was available, participants reported increased levels of physical activity and mental health.	Both	12 weeks	Positive	USA
Hebert & Huwieler, 2022	Adult large print collections continue to be vital collections utilized by public libraries in their services to older adults.	Both	--	Positive	USA

Conceptual Framework

Don Nutbeam's Health Literacy Model (2000)

Don Nutbeam's Health Literacy Model (2000) is a foundational framework that conceptualizes health literacy as a set of progressive skills essential for individuals to engage with health information and services effectively. The model identifies three levels of health literacy:

functional, interactive, and critical. Functional health literacy refers to the basic reading and writing skills necessary to understand health-related materials. Interactive health literacy involves more advanced cognitive and social skills that enable individuals to actively participate in healthcare and adapt to changing environments. Critical health literacy encompasses the highest level of competence, where individuals can critically analyze health information, exert greater control over life events, and engage in collective action for health improvement. This model has significantly influenced public health policies and education by highlighting the importance of empowering individuals through tailored communication and community-based interventions.

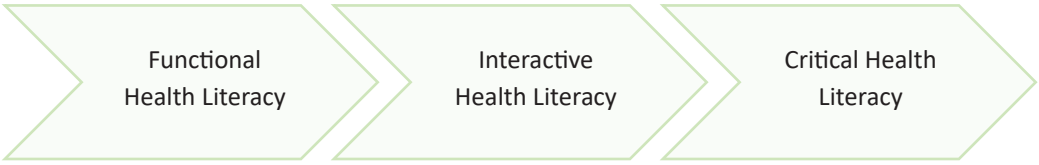


Figure 1: Don Nutbeam's health literacy model

NNLM Health Literacy Framework (2018)

The Network of the National Library of Medicine (NNLM) Health Literacy Framework (2018) will be utilized in this study.

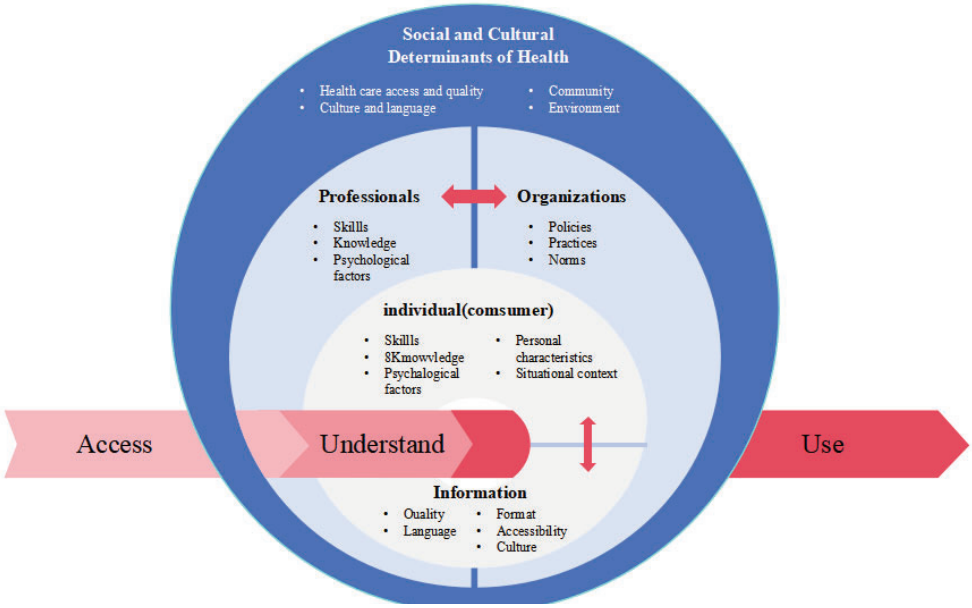


Figure 2: NNLM health literacy framework

This framework identifies the key factors influencing an individual's health literacy, or ability to access, understand, and use health information. Numerous factors can affect a person's health literacy, often interacting or overlapping in complex ways. The study draws inspiration from the NNLM Health Literacy Framework to conceptualize the components. The framework posits that "health is affected by the interaction between characteristics of the individual, the community, and the environment." In other words, a complex range of influences and interactions affects, and is affected by an individual's health.

Conceptualize The Health Literacy Program Development for Older Adults with Chronic Diseases.

The conceptual framework will be designed based on the NNLM Health Literacy Framework and the Nut Beam health literacy model. It focuses on how individuals interact with information. It considers the multiple-level contextual elements, such as professional, organizational, social, and cultural determinants of health, that influence health literacy and acknowledges their importance in developing a multidimensional health literacy library-based program. The program design is grounded in the three-dimensional (functional, interactive, and critical) health literacy of the Nut Beam Health Literacy Model to ensure it is scientific and systematic.

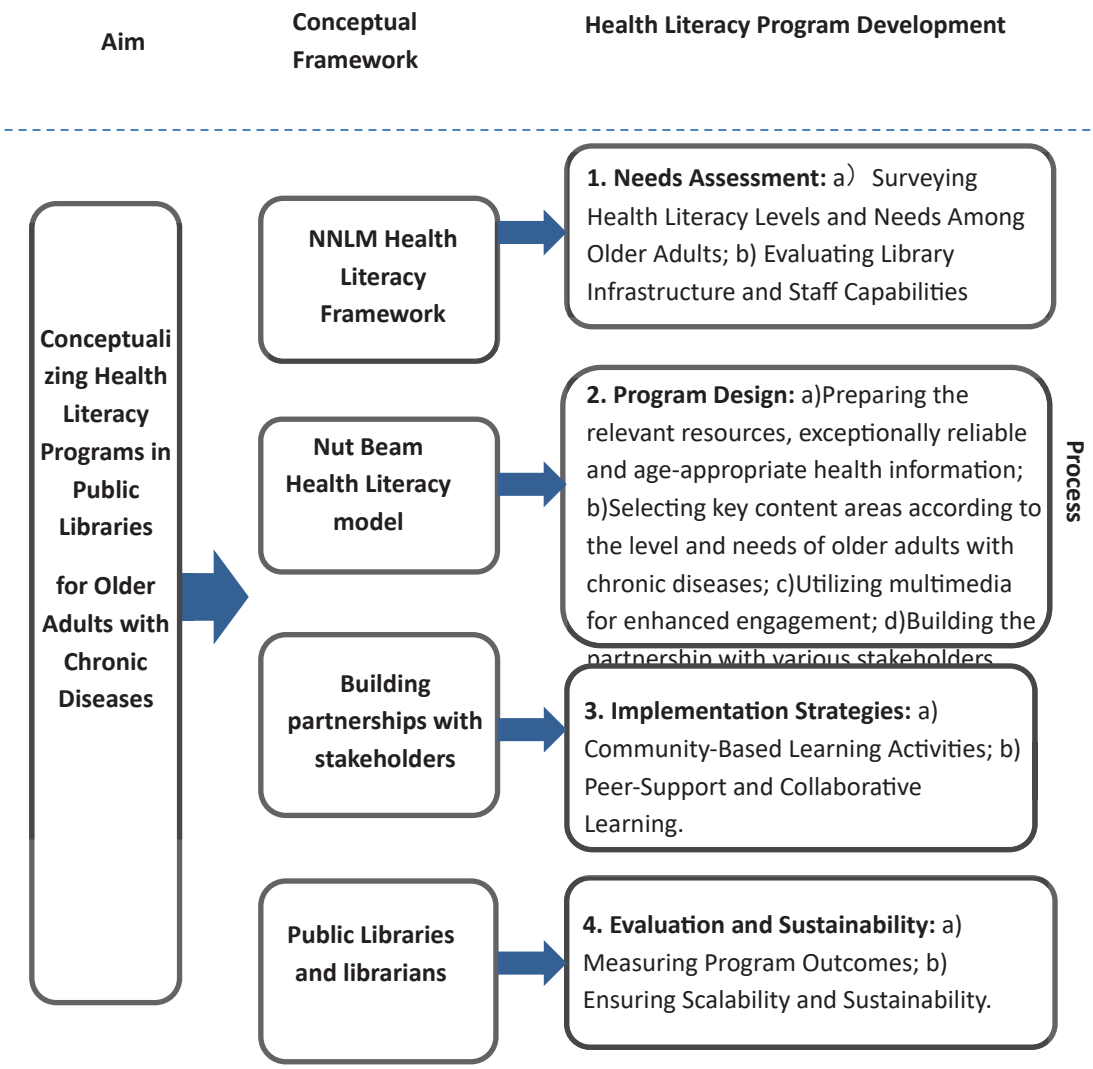


Figure 3: Conceptualizing the health literacy program

Needs Assessment

a. Understanding the health literacy needs or levels among older adults

A thorough assessment of health literacy levels among older adults is a crucial first step in designing effective library health literacy programs (Naccarella & Horwood, 2020; Shi & Luo, 2020). This involves identifying their challenges in understanding, accessing, and using health information based on the NNLM health literacy framework. Surveys and interviews can capture variations in literacy across different factors, such as age, education level, chronic disease status, and digital literacy, according to the NNLM health literacy framework. The data collected can provide insights into gaps in knowledge, preferred learning methods, and the types of support older adults require, thereby informing the development of tailored programs that address their unique needs.

b. Evaluating library infrastructure and staff capabilities

Lack of training in teaching diverse populations health information literacy skills is often cited, as they feel they lack the required training to effectively assist individuals with their health questions (Arding & McLeod, 2013; Danhoundo et al., 2019). Thus, an equally essential needs assessment component is evaluating libraries' existing infrastructure and their staff's capacity to support health literacy initiatives based on the NNLM Health Literacy Framework. An important aspect is also evaluating librarians' skills in health communication and digital literacy instruction, as well as their ability to collaborate with healthcare professionals. Mastering these factors promises libraries' readiness to implement and sustain effective health literacy programs for older adults with chronic diseases.

Program Design

a. Preparing the relevant resources, especially the reliable and age-appropriate health information

Developing effective health literacy programs requires careful preparation of relevant and reliable information resources tailored to the needs of older adults with chronic diseases. This process involves curating evidence-based materials from reputable health organizations, translating complex medical terminology into accessible language, and selecting content formats suitable for diverse literacy levels based on the three dimensions (functional, interactive, and critical) of the Nut Beam Health Literacy Model. For example, adult large print collections exemplify public libraries' services to older adults (Hebert & Huwieler, 2022). Additionally, resources should be culturally appropriate and available in both print and digital forms to accommodate varying levels of digital access and proficiency.

b. Selecting key content areas according to the level and needs of older adults with chronic diseases

A well-structured health literacy program for older adults should prioritize content areas directly relevant to their daily health needs and be based on the three-dimensional (functional, interactive, and critical) health literacy of the Nut Beam Health Literacy Model. Core topics include chronic disease management, medication adherence, and lifestyle improvements such as nutrition, physical activity, and stress reduction (Lenstra & Oguz, 2020). These areas are critical for empowering older adults to take control of their health and make informed decisions. Content should be evidence-based, accessible, and tailored to accommodate varying literacy levels and health conditions commonly found in this population.

c. Utilizing multimedia for enhanced engagement

According to the NNLM Health Literacy Framework, various factors influence an individual's health literacy. Thus, the health literacy program should employ a variety of multimedia formats to increase participation and comprehension. These may include videos (Irish et al., 2022), infographics, interactive slides, audio guides, and printed handouts (Hebert & Huwieler, 2022). Multimedia content caters to diverse learning preferences and helps break down complex health information into more digestible and visually appealing formats. Additionally, incorporating digital tools is important, as they can help older adults with chronic diseases develop confidence in modern technology and healthcare services.

d. Building partnerships with various stakeholders

According to the NNLM Health Literacy Framework, various stakeholders exist. Public libraries could serve as interdisciplinary contact points, facilitating the coordination of collaborative networks among healthcare professionals, policymakers, educators, science communicators, and other relevant stakeholders (Driscoll et al., 2021; Fadda et al., 2022). Through collaboration networks, public libraries could evolve into dynamic hubs for integrating academic knowledge, promoting evidence-based practices, and advancing science communication. By embracing digital transformation and adapting to emerging modes of information exchange, they can effectively disseminate reliable health information to the broader community.

Implementation Strategies

a. Community-based learning activities

Effective implementation of health literacy programs in libraries can be achieved by engaging in various activities (workshops, health-focused book clubs, and digital literacy sessions) (Shi & Luo, 2020; DeRosa, 2021; Ladd & Wright, 2023) based on the three-dimensional (functional, interactive, and critical) health literacy of the Nut Beam Health Literacy Model (Nut Beam, 2000). These formats allow older adults to better understand health information in a supportive, familiar environment. Workshops can address topics like managing chronic diseases, understanding medication labels, or using online health portals, while book clubs encourage critical thinking and discussion around health-related literature. Digital literacy sessions are valuable for helping older adults navigate health technologies, such as telemedicine platforms and electronic health records (Dong et al., 2023).

b. Peer support and collaborative learning

Incorporating peer-support groups into library-based programs enhances the learning experience by fostering a sense of community and mutual encouragement. These groups allow older adults to share personal experiences, exchange practical advice, and learn from one another in a non-judgmental setting (Baluk, 2020; Lenstra et al., 2022). Those with lived experience managing chronic diseases can serve as relatable role models and provide culturally

and emotionally relevant support. This collaborative approach reinforces health knowledge while promoting social connectedness and sustained engagement with the program.

Evaluation and Sustainability

a. Measuring program outcomes

Implementing systematic outcome measurement strategies to evaluate the effectiveness of library-based health literacy programs for older adults with chronic diseases (Naccarella & Horwood, 2020; DeRosa, 2021) is essential. Gathering feedback from older adults with chronic diseases is key to understanding their satisfaction and the relevance of program content, enabling continuous improvement and refinement of the programs. This helps assess improvements in health literacy levels, changes in health behaviors, and increased confidence in navigating healthcare systems.

b. Ensuring scalability and sustainability

Sustainability and expansion guarantee the outcomes of library health literacy programs. Consistent funding is essential and can be obtained through government grants, partnerships with healthcare organizations, or community sponsorships (Naccarella, 2021). Additionally, aligning these programs with national health policies and library development strategies enhances their legitimacy and potential for integration into broader public health frameworks. The key point is to build strong institutional support and demonstrate measurable impact to maintain program relevance and longevity.

CONCLUSION

The study draws on the NNLM Health Literacy Framework and Don Nutbeam's Health Literacy model to conceptualize health literacy programs for older adults with chronic diseases. It highlights the multiple influencing factors and the importance of functional, interactive, and critical health literacy as guiding principles in program development. It addresses the gap in how public libraries scientifically implement health literacy programs for older adults with chronic diseases. It has significant implications for the health promotion of vulnerable groups and health equity by positioning public libraries as accessible, non-clinical settings for health education. Additionally, the development of structured frameworks and librarian training programs can further enhance libraries' capacity to deliver impactful health literacy programs.

Limitations And Future Study

This conceptual framework has limitations. Firstly, successful implementation is contingent on library capacity, which varies significantly, especially in under-resourced or rural settings lacking funding, technology, or trained staff. Tailoring the framework to diverse library contexts

requires further exploration. Secondly, the diverse needs, preferences, and capabilities within the older adult population pose challenges for creating universally effective programs.

These limitations highlight the need for future research. Empirical studies are required to test the feasibility and effectiveness of this framework in different library settings. Research should explore specific adaptations needed for rural versus urban libraries, or for populations with varying levels of digital access. Evaluating the long-term impact of such programs on participants' health behaviors and outcomes is also a critical next step.

REFERENCES

Abd-Rahim, S. N. H., Mohamed-Yassin, M.-S., Abdul-Razak, S., Isa, M. R., & Baharudin, N. (2021). The prevalence of limited health literacy and its associated factors among elderly patients attending an urban academic primary care clinic in Malaysia. *International Journal of Environmental Research and Public Health, 18*(17), 9044.

Andrus, M. R., & Roth, M. T. (2002). Health literacy: a review. *Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy, 22*(3), 282-302.

Arding A & McLeod S . (2013). The role of Canadian public librarians in promoting health literacy: Potential programs and partnerships. Partnership: *The Canadian Journal of Library and Information Practice and Research, 8*(2), 1-7.

Baluk, K. W., Griffin, M., & Gillett, J. (2021). Mitigating the challenges and capitalizing on opportunities: A qualitative investigation of the public library's response to an aging population. Canadian Journal on Aging = La Revue Canadienne du Vieillissement, 40(3), 475-488. https://doi.org/10.1017/S0714980820000367

Danhoundo G, Whistance-Smith D, & Lemoine D, et al. (2019). Provision of consumer health information in Alberta rural public libraries. *Health Information and Libraries Journal, 36*(1), 41–59.

Delgado, J. M., & Ruppar, T. M. (2017). Health literacy in older latinos with heart failure: A systematic review. *The Journal of Cardiovascular Nursing, 32*(2), 125-134.DOI: 10.1097/JCN.0000000000000314

Dong, Q., Liu, T., & Liu, C. (2023). Effectiveness of digital health literacy interventions in older adults: Single-arm meta-analysis. *Journal of Medical Internet Research*. https://doi.org/10.2196/48166

Duarte, N., Hughes, S. L., & Paúl, C. (2021). Theory of planned behavior in predicting physical activity among Portuguese older adults with osteoarthritis. *Activities, Adaptation & Aging*. https://doi.org/10.1080/01924788.2021.1916717

Driscoll, D., Mathew, L., Engelhardt, D., Moran-Peters, J., & Eckardt, S. (2021). Evaluating mental illness–substance abuse stigmatic perceptions through education: A library-nursing initiative. *Public Health Nursing*, *38*(5), 850-855.

Elgamal, R., La Rose, T., Detlor, B., Julien, H., & Serenko, A. (2024). A community partnership approach to digital literacy training for older adults between public libraries and seniors' organizations. *The Canadian Journal of Information and Library Science*, *47*(1), 3-17.

Eruchalu, C. N., Pichardo, M. S., Bharadwaj, M., Rodriguez, C. B., Rodriguez, J. A., Bergmark, R. W., ... & Ortega, G. (2021). The expanding digital divide: digital health access inequities during the COVID-19 pandemic in New York City. *Journal of Urban Health*, *98*, 183-186.

Fadda, M., et al. (2022). Libraries as hubs for health literacy interventions: A collaborative approach. *Journal of Health Communication*, *27*(4), 356-370.

Foy, C. M. (2024). Impacts of educational intervention of librarian instruction on health information seeking attitudes and behaviors in an employee wellness program. *Journal of the Medical Library Association*, *112*(2), 107-116.

Gaffney, H. J., & Hamiduzzaman, M. (2022). Factors influencing older patients participation in clinical communication within developed country hospitals and GP clinics: A systematic review of current literature. *PloS one*, *17*(6), e0269840.

Gibson, A. N., & Martin, J. D. (2019). Re-situating and re-defining African American community through archives: A case study of preserving the legacy of a freedom school. *Journal of the Association for Information Science and Technology*, *70*(10), 1107-1118. https://doi.org/10.1002/asi.24169

Grant, M. J. (2023). Librarians as health information intermediaries: Challenges in understanding and utilizing health literacy models. *Journal of Information Science*, *49*(2), 203-218.

Hebert, H. S., & Huwieler, C. (2022). Adult large print collections in the United States: An exploratory survey. Journal of Librarianship and Information Science, 54(1), 3-15. https://doi.org/10.1177/0961000620985921

Irish, E., Burke, K., Geyer, E., & Allard, I. (2022). Patient empowerment: a partnership for community engagement in three phases. *Journal of Consumer Health on the Internet*, *26*(1), 109-118. https://doi.org/10.1080/15398285.2022.2030143

Jean, N., et al. (2020). Libraries as agents of health equity: Addressing health information injustices. *Journal of Library Science*, *56*(3), 234-250.

Jennings-Roche, A., Adle, M., St. Jean, B., & Jaeger, P. T. (2023). The 1918 influenza pandemic in popular media and the roles of public libraries in supporting health information access, health literacy, and health justice during pandemics: Learning from the past to prepare for the future. *The Library Quarterly*, *93*(1), 86-109.

Ladd, D. L., & Wright, J. C. (2023). Promoting rural residents' participation in clinical trials: clinical trials basics programming and training for rural public librarians. *Journal of the Medical Library Association: JMLA*, *111*(3), 722.

Lenstra, N., & Oguz, F. (2020). Enhancing health outcomes through library-hosted programs: A case study. *Health Literacy and Libraries Quarterly*, *12*(1), 45-60.

Lenstra, N., Oguz, F., Winberry, J., & Wilson, L. S. (2022). Supporting social connectedness of older adults during the COVID-19 pandemic: the role of small and rural public libraries. Public Library Quarterly, 41(6), 596–616.

Lohrasbi, F., Ilali, E. S., Nasab, N. M., & Yaghoubi, T. (2021). Factors associated with health literacy and medication adherence in elderly patients with chronic kidney diseases. Journal of Nursing and Midwifery Sciences, 8(2), 106-113.

Naccarella, L. (2021). Public libraries as health literate organizations: An Australian perspective. *Health Promotion Journal of Australia, 32*(S1), 66–73. https://doi.org/10.1002/hpja.437

Naccarella, L., & Horwood, J. (2021). Public libraries as health literate multi-purpose workspaces for improving health literacy. Health Promotion Journal of Australia, 32, 29-32.

Nutbeam, D. (2008). The evolving concept of health literacy. *Social Science & Medicine*, *67*(12), 2072-2078

Prasauskas, R., & Spoo, L. (2006). Literally Improving Patient Outcomes. *Home Health Care Management & Practice*. https://doi.org/10.1177/1084822305284747

Ruthven, I. (2022). *Dealing with change through information sculpting*. Emerald Publishing Limited.

Tan, H. H., Xu, J., Teoh, H. L., & Chan, B. P. (2017). They are more susceptible to cognitive impairment, which could drastically compromise their ability to perform self-care. *Aging & Mental Health, 21*(2), 127-135.

Ubolwan, K., Kheokao, J., Yingrengreong, S., & Chuaintha, E. (2020). Evaluating factors associated with health literacy among older adult social media users in Thailand. *Southeast Asian Journal of Tropical Medicine and Public Health*, *51*(5), 754-762.

Valizadeh-Haghi, S., Rahmatizadeh, S., Soleimaninejad, A., Seyedeh Fatemeh, M. S., & Mollaei, P. (2021). Are health websites credible enough for elderly self-education in the most prevalent elderly diseases? *BMC Medical Informatics and Decision Making*, *21*, 1-9.

Vijayan, M., & Reddy, P. H. (2016). They are more susceptible to cognitive impairment, which could drastically compromise their ability to perform self-care. *Journal of Stroke and Cerebrovascular Diseases*, *25*(3), 661-667.

Vassilakaki, E., & Moniarou-Papaconstaninou, V. (2023). Librarians support in improving health literacy: A systematic literature review. *Journal of Librarianship and Information Science*, *55*(2), 500-514.

Weiss, B. D. (2003). Health literacy. *American Medical Association*, 253.

Yanxia, Shi., Lili, Luo. (2020). Meeting Chinese older adults' health information needs: The role of public libraries. *The Library Quarterly*, *90*(3), 332-348. doi: 10.1086/708961

Yoon, H., Jang, Y., Vaughan, P. W., & Garcia, M. (2020). Older adults use the internet for health information: digital divide by race/ethnicity and socioeconomic status. *Journal of Applied Gerontology*, *39*(1), 105-110.

Zolbin, M. G., Huvila, I., & Nikou, S. (2022). Health literacy, Health literacy interventions, and decision-making: a systematic literature review. *Journal of Documentation*, *78*(7), 405-428.

Exploring The Role of Popular Burmese Picture Books in a Suburban Library: A Case Study in Seikkyi Khanaungtoe Township, Yangon

Su Thant San

Department of Library and Information Studies, University of Yangon, Yangon, Myanmar

Corresponding email: suthantsan133@gmail.com

ABSTRACT

This study examines the influence of Burmese picture books on children's experiences at the public library in Seikkyi Khanaungtoe Township, Yangon. Using qualitative methods, including content analysis and a case study of library reading sessions, this research explores how these narratives resonate with young readers and contribute to a long-term interest in reading. The analysis considers themes related to childhood experiences, cultural elements, and the potential for promoting non-toxic perspectives. Survey responses from children highlight their connections with characters and the appeal of these stories. The findings suggest that providing access to Burmese picture books supports early literacy, engagement with local culture, and the development of a lasting love for reading. The study underscores the importance of libraries in offering culturally relevant resources that nurture positive values. Recommendations include understanding children's preferences to inform collection development, promoting diverse perspectives, and enhancing library programming to reinforce the library's role as a valuable community space that inspires a lifelong love of reading.

Keywords: Burmese Picture Books; Children's Libraries; Cultural Representation; Inclusivity; Literacy Development

INTRODUCTION

Children's literature is a significant factor in shaping young minds, fostering creativity, and instilling values (Nikolajeva, 2014). In Myanmar, picture books have played an essential role in children's early learning experiences, particularly in libraries that serve as accessible

knowledge hubs and provide vital access to information capital for children from diverse socioeconomic backgrounds (Neuman & Celano, 2012). This study explores the role of five popular Burmese picture books in shaping children's perspectives and engagement with local culture. The study is based on a case study of the public library in Seikkyi Khanaungtoe Township, a suburban area in Yangon, where these books are frequently accessed by young readers.

LITERATURE REVIEW

The Role of Children's Picture Books in Early Literacy Children's picture books serve as an essential tool for literacy development. According to studies in children's education, visual storytelling enhances comprehension, emotional connection, and cognitive skills (Nikolajeva, 2014). Illustrated books help children develop a deeper understanding of narratives and cultivate an interest in reading from an early age.

This study is grounded in two key theoretical perspectives: reader-response theory and culturally responsive pedagogy.

1. Reader-Response Theory: Reader-Response Theory emphasizes the active role of readers in constructing meaning from texts. According to this theory, readers bring their own experiences, emotions, and cultural backgrounds to the reading process, which shapes their interpretation of the narrative (Rosenblatt, 1978). In the context of this study, children's responses to Burmese picture books are influenced by their personal and cultural contexts. For example, children who relate to rural settings may find stories like Toot Pi more engaging, while others may connect with urban narratives. This theory highlights the importance of providing diverse literature that resonates with readers' unique identities.
2. Culturally Responsive Pedagogy: Culturally Responsive Pedagogy advocates for the inclusion of culturally relevant materials in educational settings to affirm students' identities and foster inclusivity (Gay, 2010). By analyzing Burmese picture books that reflect local traditions, values, and societal norms, this study underscores how culturally specific narratives can enhance children's sense of belonging and appreciation for their heritage.

The study also draws on these frameworks to recommend strategies for library programming and collection development that prioritize inclusivity and cultural representation.

METHODOLOGY

This study adopted a qualitative approach to explore the influence of Burmese picture books on children's development, employing content analysis and a case study at the public library in Seikkyi Khanaungtoe Township. The library holds a total collection of 10,399 books, including approximately 2,000 Burmese picture books, according to information provided by the librarian during field visits. The picture books were analyzed for recurring themes related to childhood development, moral values, cultural representation, and emotional resonance.

Specific attention was given to:

- Portrayal of characters and relationships
- Depiction of cultural traditions and societal norms
- Use of humor, adventure, or relatable narratives

Complementing the content analysis, the case study involved observations during weekly reading sessions at the library, a suburban institution serving children from diverse socioeconomic backgrounds. Additionally, a small survey was administered to young readers to gather insights into their favorite characters, and overall engagement with the books.

FINDINGS AND DISCUSSION

Each of the selected books contributes uniquely to children's mindset and social development.

Toot Pi

Written by Swe Min (Danu Phyu), this book introduces children to the beauty of village life, teaching them the simplicity, harmony, and close-knit bonds of rural Myanmar. Toot Pi is a hunter, and most of his adventures take place in the woods, where he interacts with nature. Through his journeys, young readers learn about nature, self-sufficiency, and the value of community. The relationship between Toot Pi and his pupil, Bike Ka Lay, is heartwarming and built on mutual respect. The story is filled with vibrant and memorable characters, including the village head, the schoolteacher, and the mischievous yet lovable hobbledehoy. Each character has a unique personality and trait of signature, making them stand out. For instance, Toot Pi always ends his adventures with the phrase, "Today, Toot Pi is unlucky." Meanwhile, Bike Ka Lay, and the hobbledehoy form a comedic duo, constantly dreaming of marriage but always facing heartbreak.

Beyond its entertaining storytelling, this book plays a crucial role in shaping children's perspectives. Additionally, it preserves and promotes Myanmar's cultural and social traditions, helping young readers develop a deeper appreciation for their heritage. The ability to bring these characters to life with vivid storytelling is why Toot Pi remains a cherished classic for children of the 1990s and 2000s—and continues to capture hearts today.

Twin Sisters - Lay Mon & Htwe Mon

A lighthearted tale of family, laughter, and love, this story follows Uncle Mg Mg Zar, whose greatest mission in life is to find a girlfriend—though his heart always belongs to his twin nieces, Lay Mon and Htwe Mon. Wise beyond their years, the girls guide their naive yet well-meaning uncle, often outsmarting him with sharp wit and affectionate teasing. Though Mg Mg Zar dreams of romance, when faced with a choice, his nieces always come first. Their bond is rare, heartwarming, and filled with humor, proving that love isn't just found—it's built in the moments shared with family.

Pyar Ga Long & Pyar La Chaung

Written by Cartoon Tin Aung Ni, this book follows a pair of twins with distinctive large glasses and oversized shirts, capturing the essence of childhood friendships and individuality. The story revolves around a group of children who, despite not being real detectives, take on the role of young investigators to maintain peace in their township community. With their diverse squad, consisting of members from different backgrounds, they engage in solving everyday problems that arise in their neighborhood. Their playful yet determined approach to keeping their town peaceful makes the story unique and engaging. By pretending to be detectives, the characters inspire young readers to use their imagination, think critically, and develop problem-solving skills. The story encourages creativity, curiosity, and teamwork, as the children collaborate to address various challenges in their community. Through the squad's adventures, children learn to work together, respect differences, and support one another.

Bo Bo

Cartoon Min Zaw created this, making it one of Myanmar's earliest animated adaptations. The phrase "Cartoon Min Zaw's Bo Bo included" remains catchy and beloved, even among adults today. The story follows Bo Bo, an ordinary boy who meets E.T., a friend with the ability to invent wonderful things—mostly to help Bo Bo. Unlike a prodigy, Bo Bo is just a regular child, navigating school, home, and friendships. He isn't exceptionally bright, nor is he mischievous, but his simplicity makes him relatable. Though E.T.'s inventions often lead to playful chaos, they

ultimately strive for good. Unlike rural life stories, this tale leans toward science fiction, blending curiosity with wonder.

I also want to highlight Cartoon Min Zaw's thoughts on picture books, as his perspective is refreshing and insightful: "Picture books are not meant to give lectures, nor are they for children who can already read. They are meant to spark curiosity, to invite young minds into the world of reading. That's why I write stories that capture their interest. I don't aim to teach lessons, but I am mindful to avoid harmful messages. When children begin reading, cartoons play a crucial role. With fewer words and more pictures, they gently nurture a reading habit. And as that habit grows, children will find their own way to books that inspire them." (Min Zaw, 2020).

Khar U & Htun Khin

Set in a world like Toot Pi, this story explores the deep bond between its two protagonists and their surroundings. Unlike Toot Pi, which is driven by adventure, this tale unfolds through emotions and relationships. Khar U and Htun Khin, a young couple, have loved each other for years, yet marriage remains out of reach—held back by family duties and financial burdens. Pure-hearted and selfless, they always put others before themselves. The saddest truth of this story is that its creator, Mi Man Lay (Taungoo), has passed away, leaving Khar U and Htun Khin forever as they were—two young souls, bound by love but never united in marriage.

DATA SURVEY: CHILDREN'S RESPONSES TO BURMESE PICTURE BOOKS

In this library, a reading session is held every Friday, where librarians provide snacks and drinks for the children who participate. The age group is diverse. Children aged 8 to 14 are especially drawn to picture books, while the younger ones prefer playing with toys and exploring the supplementary reading materials provided for them. Since this is a suburban library, most of the children come from middle and lower-class families. They tend to enjoy books that reflect their everyday surroundings, making stories about village life and neighborhood life particularly popular. I faced no difficulties when asking them about their favorite books. Being their neighbor, I was familiar with them, which made them feel comfortable expressing their opinions. In fact, they were delighted to be included in the conversation, eagerly sharing their thoughts and preferences.

To further understand how Burmese picture books influence children, a small survey was conducted with young readers at the public library in Seikkyi Khanaungtoe Township. The survey was conducted through casual, free-talk interviews with children. To ensure a relaxed and natural discussion, no structured questionnaire was used, and participants were not

required to provide personal details. Their responses were recorded anonymously, focusing solely on their thoughts and engagement with Burmese picture books.

Children's Responses to Burmese Picture Books

Question 1: What is your favorite Burmese picture book, and why?

- "Bo Bo is my favorite! He reminds me of my brother, always getting into funny trouble but meaning well." (Girl, 9 years old)
- "I like 'Toot Pi' because the village life in the book is just like my grandparents' home.'' (Boy, 12 years old)
- "I love 'Bo Bo' because he is like me! He's not super smart, but he tries his best, and E.T. always helps him. I wish I had a friend like E.T. too." (Girl, 13 years old)

Question 2: Do you see yourself in any of the characters?

- "Yes! I think I am like Pyar Ga Long because I like solving problems with my friends. We also pretend to be detectives when we play." (Boy, 12 years old)
- "I don't know if I'm like Bo Bo, but I wish I had a friend like E.T. so we could invent cool things!" (Boy, 8 years old)

Question 3: What lesson did you learn from the book?

- "Be nice." (Boy, 10 years old)
- "Don't be scared to try." (Girl, 9 years old)
- "Help friends!" (Girl, 13 years old)

Question 4: Do these stories remind you of real life?

- "Yes! 'Pyar Ga Long Pyar La Chaung' feels like my own friends and me. We like to act like we are detectives and pretend to solve mysteries." (Boy, 12 years old)
- "The stories feel real, but sometimes they are a little different from my life. I live in the city, so I don't know much about village life, but I like reading about it. " (Girl, 13 years old)

Question 5: Has reading these books made you want to visit the library more?

- "Yes! I like the Friday reading sessions because we get to talk about the stories and eat snacks!" (Boy, 8 years old)
- "I never came to the library before, but after I read 'Bo Bo' at school, I wanted to find more books like that." (Girl, 9 years old)
- "Yes, because the librarians help us find books that we will like. Sometimes, they even recommend stories I haven't heard before." (Boy, 14 years old)

CONCLUSION AND RECOMMENDATIONS

The findings suggest that Burmese picture books play a vital role in shaping children's mindsets, promoting cultural values, and fostering inclusivity. These books contribute to early literacy, emotional intelligence, and social development, equipping children with essential tools for navigating the world.

Before the digital age, children's journals played a vital role in shaping childhood experiences. I vividly remember the excitement and anticipation I felt each week as I waited for new issues to arrive. These journals included sections for user-generated content, interviews with children, crosswords, coloring pages, quizzes, and essay competitions, where winners received prizes. They also featured membership systems for young readers and facilitated pen-friend exchanges. What I want to emphasize is that these cartoon books and journals had a profound influence on childhood development. For instance, the Burmese writing system is known for its complexity, especially in orthography. Engaging with these cartoons and journals helped children become more fluent and accurate in their mother tongue.

I hope that this era of interactive, culturally rich children's literature can be revived in some form, allowing today's children to enjoy and benefit from these valuable resources as we once did. Based on these findings, the following recommendations are proposed:

1. Diversify Children's Book Collections: Libraries and educational institutions should expand their collections to include a wide range of Burmese picture books that reflect diverse experiences, characters, and themes.
2. Promote Library Engagement: Libraries should actively promote their children's literature programs through community outreach, reading sessions, and collaborative events with schools and local organizations.

3. Increased Awareness of Children's Literature: It is essential to recognize that picture books should nurture childhood with positive societal values, rather than merely delivering lessons on kindness or morality. Let children be children—free to dream, explore, and build a childhood filled with joy. Stories should spark curiosity, not just instruct, allowing young minds to see endless possibilities. These moments become the foundation they carry into adulthood, a source of strength when life turns difficult. Adulthood may be heavy with burdens, but childhood should be light with wonder. Let them embrace happiness now, before the weight of the world settles on their shoulders, fostering resilience and a lifelong appreciation for the simple joys of life.

REFERENCES

Gay, G. (2010). Culturally responsive teaching: Theory, research, and practice (2nd ed.). Teachers College Press.

Min Zaw, Cartoon (2020, November 19). Cartoon Bo Bo from my childhood memories [Speech transcript]. Lo Ta Ya. https://lotaya.mpt.com.mm/speech-transcript

Neuman, S. B., & Celano, D. (2012). Giving our children a fighting chance: Poverty, literacy, and the development of information capital. Teachers College Press.

Nikolajeva, M. (2014). Children's literature comes of age: Toward a new aesthetic. Routledge.

Rosenblatt, L. M. (1978). The reader, the text, the poem: The transactional theory of the literary work. Southern Illinois University Press.

Exploring Digital Asset Management (DAM) For Film Collections in the Malaysian State Libraries

Nur Haziqah Hapiz, Ranita Hisham Shunmugam

Department of Library and Information Science, Faculty of Arts and Social Sciences, Universiti Malaya, Kuala Lumpur, Malaysia

Corresponding email: haziqahhapiz@gmail.com

ABSTRACT

Film collections in libraries serve as important cultural and historical repositories, preserving visual and audio materials that reflect societal narratives and events. This study explored the management of film collections in Malaysian state libraries and the potential of Digital Asset Management (DAM) systems to address challenges in preservation, accessibility, and efficiency. Film collections, including fragile formats like VHS tapes, CDs, and DVDs, face issues such as physical deterioration, inconsistent cataloging, inadequate storage, and reliance on outdated playback equipment. The findings revealed low usage frequency and underutilisation, with limited regular borrowing activity. Barriers such as media obsolescence, limited playback devices, and minimal promotional efforts restricted patron engagement. A qualitative, exploratory approach was used, involving semi-structured interviews with librarians and stakeholders from five state libraries, along with the analysis of library reports and expert insights. Thematic analysis revealed inefficiencies: labor-intensive and inconsistent cataloging, lack of digital preservation methods, and inadequate storage conditions. Outdated infrastructure and limited resources hindered effective management and public engagement. The study highlighted the need for a tailored DAM system, including automated cataloging, digital preservation, and enhanced user accessibility through centralised digital platforms. Integrating DAM into library workflows will modernise practices, ensure long-term preservation, and provide sustainable access, contributing to safeguarding Malaysia's film heritage.

Keywords: Digital Asset Management; Film Collections; Public Libraries; Preservation; Malaysia

INTRODUCTION

Malaysian state libraries are custodians of invaluable film collections that capture the nation's historical, cultural, and societal evolution, which aligns with UNESCO's (2022) recognition of audiovisual archives as key components of cultural memory. These audiovisual resources serve as critical tools for researchers, students, and the public, offering unique insights into Malaysia's heritage. However, the management and preservation of these collections are increasingly hampered by outdated preservation methods, limited accessibility, and inefficient organizational practices. As Kaur and Subhajit (2023) observed, Malaysian public libraries face recurring issues with aging infrastructure and minimal public interaction with legacy audiovisual formats. Pandey and Kumar (2020) highlighted the physical deterioration risks of outdated media formats such as VHS tapes and DVDs, underscoring the urgent need for digitization and modern archival strategies.

To address these challenges, the integration of a digital asset management (DAM) system specifically designed for film collections presents a compelling solution. Crockett (2020) explained that DAM systems can streamline cataloging and improve operational efficiency, while Hockx-Yu (2018) demonstrated how digital preservation workflows enhance access to audiovisual collections. Ahmad (2015), focusing on Malaysian libraries, stressed that digital preservation is essential for sustaining cultural memory. Orange Logic (2020) emphasized that DAM systems should prioritize accessibility and usability through centralized, searchable platforms. Jayaram and Manikyam (2016) also highlighted the relevance of scalable DAM infrastructure for institutional digital transformation, which supports the shift toward modern library services.

This study aims to develop a DAM framework tailored to the specific needs of Malaysian state libraries by focusing on five institutions representing different regional zones. Preliminary investigations, including those conducted at Perbadanan Perpustakaan Awam Negeri Sembilan (PPANS), identified key pain points such as difficulty locating items, reliance on obsolete playback devices, and inadequate storage conditions. The British Library (2024) has documented how cloud-based DAM systems support long-term preservation, while the New York Public Library (2019) has implemented multilingual metadata and user access tools to expand public engagement. By aligning global best practices with local institutional needs, this research proposes a structured, sustainable DAM system to enhance film collection management, ensure long-term preservation, and promote wider access to Malaysia's film heritage.

METHODOLOGY

The study used a qualitative design, which allows for an in-depth understanding of the experiences and challenges faced by library professionals in managing film collections. The research adopts an exploratory descriptive approach to document current practices and examines the potential benefits of DAM systems.

The study's population includes library staff from five state libraries across Malaysia, each representing a different geographical region: North (*Perbadanan Perpustakaan Awam Pulau Pinang*), South (*Perbadanan Perpustakaan Awam Negeri Johor*), East (*Perbadanan Perpustakaan Awam Terengganu*), West (*Perbadanan Perpustakaan Awam Selangor*), and Central (*Perpustakaan Kuala Lumpur*). This selection ensures a broad geographical representation of management practices across the country. A cluster sampling technique was used to choose one library from each region, and purposive sampling was applied to identify three key staff members within each library: one from top management, one officer responsible for the film collection, and one support staff member. This approach ensured diverse perspectives are gathered, focusing on individuals with direct involvement in the management and preservation of film collections. In total, 15 participants are included in the study.

Data were collected through semi-structured interviews, where participants are asked open-ended questions regarding current management practices, challenges faced in managing film collections, and the potential benefits of DAM systems. Secondary data, such as internal reports and research studies, are also reviewed to supplement and validate the findings. This combination of primary and secondary data collection provides a comprehensive and accurate view of the current state of film collection management in Malaysian state libraries. Thematic analysis is used to examine the interview data, ensuring a clear identification of key themes and patterns.

RESULTS AND DISCUSSION

Current Practices in the Management of Film Collections

The study revealed that Malaysian state libraries manage their film collections primarily through traditional cataloging systems and physical storage methods. Despite having basic protocols in place, challenges remain in terms of preservation, access, and infrastructure limitations.

Cataloging is mostly done using the Dewey Decimal Classification (DDC) system, supported by the KOHA Library Management System (LMS) for inventory tracking. A few libraries reported using Library of Congress Subject Headings (LCSH) for subject indexing. According to Ahmad (2015) and Kaur and Subhajit (2023), while these systems are structured and standardised, they are still largely manual and poorly suited to the needs of audiovisual materials, which often require richer metadata.

“Our collection is cataloged using DDC and KOHA LMS. The films are assigned numerical codes and labeled based on genre for easier organization.” – P1

The collections consist mainly of CDs, VCDs, DVDs, and VHS tapes, stored on genre-labeled shelves in the multimedia section. While this arrangement allows for basic on-site access, it leads to significant space constraints and increases the risk of deterioration due to lack of environmental control. Pandey and Kumar (2020) discuss similar challenges in managing aging physical media, particularly in libraries without environmental monitoring systems.

“CDs and DVDs are stored in our multimedia unit on clearly labeled shelves, categorized by genre for easier user access.” – P2

Condition monitoring is mostly manual. Some libraries use digital tools such as Google Forms to record inspections, but many still rely on visual checks and physical tagging in KOHA.

“We conduct regular inspections where we check for scratches and test media playback. Items marked as damaged are removed from circulation and labeled as 'LUPUS' in KOHA.” – P3

None of the participating libraries maintained digital backups for their film collections. Instead, preservation is based on physical redundancy. Jayaram and Manikyam (2016) point out that lack of funding and copyright concerns often hinder digitisation efforts in public-sector institutions, a trend confirmed by staff in this study.

“Preservation is primarily physical, as we don’t create digital backups due to copyright issues. However, we make sure to have at least two copies of each item for redundancy.” – P5

Playback infrastructure also poses a challenge. Most libraries no longer possess functioning VCD or VHS players, limiting public access to older materials and discouraging usage.

"Playback devices like VCD and VHS players are scarce, and many are no longer functional, limiting access to parts of the collection." – P6

Overall, while libraries demonstrate a clear commitment to managing their film collections within available resources, current practices remain dependent on ageing physical formats, manual processes, and limited technology. These methods are increasingly insufficient to meet the expectations of modern users, particularly in a digital-first environment.

Challenges in the Film Collection Management

The study found that the frequency of film collection usage in Malaysian state libraries is consistently low across all participating institutions. Patrons seldom engage with these materials, primarily due to the outdated nature of physical formats and the absence of modern playback infrastructure. Pandey and Kumar (2020) describe how physical media becomes less usable over time due to obsolescence and poor device compatibility.

"The CDs in our collection are rarely used anymore. Most patrons prefer online streaming services instead." – P12

A major factor behind reduced usage is the shift in user preferences toward digital formats. Many libraries reported low circulation of VCDs, DVDs, and VHS tapes. In contrast, educational documentaries received occasional use, particularly in school-related programmes. Wieringa (2017) notes that digital platforms meet user expectations better in terms of accessibility and convenience.

"The films that do get borrowed are mainly educational documentaries, especially for school-related activities. Fiction films and older collections are rarely used." – P4

Most film materials are used in-house rather than borrowed. This is largely due to media fragility and the unavailability of playback equipment in homes. Pandey and Kumar (2020) explain that older media formats require specific equipment and preservation conditions, which many libraries cannot consistently provide. These limitations make portions of the collection effectively inaccessible.

“Users can view the films on-site using library equipment, but we avoid lending out fragile formats like VCDs and VHS tapes to reduce damage.” – P3

Access is further limited by obsolete media formats and lack of promotion. Ahmad (2015) argues that minimal user awareness and outdated materials often lead to underused collections. Promotion is rarely prioritised, and many users remain unaware of what is available.

“We don’t actively promote it since most materials are in outdated formats.” – P6

Another challenge is the lack of standardised metadata. Without detailed subject tagging or descriptive information, users cannot easily search for specific content. This reduces the collection's relevance for educational, or research purposes and contributes to low engagement.

Preservation practices also remain limited. Fragile formats such as CDs and VCDs are often not backed up digitally, leaving them vulnerable to permanent loss. Without a digitisation plan or infrastructure, these collections face increasing risk as materials deteriorate over time.

Restrictions on off-site access further reduce convenience, especially in an environment where digital access is widely expected. Cecconi et al. (2020) highlight that collections limited to physical viewing discourage engagement, particularly among users accustomed to on-demand, remote access. These factors together have contributed to a sustained decline in usage. Addressing them will require digital infrastructure, stronger promotional efforts, and improved access systems aligned with current user expectations.

Proposed DAM System And Its Functional Benefits

All participants acknowledged the value of a DAM system to address existing issues in film collection management. The system was seen as a tool that could reduce handling of fragile materials, simplify cataloging tasks, and improve long-term accessibility.

"A DAM system would allow users to access films digitally without requiring specialized playback equipment." – P8

Participants noted that such a system could eliminate the need for obsolete formats by enabling digital access.

"With a digital system, we could preserve older materials without worrying about damaged discs." – P9

Several participants also expressed the need for more structured and detailed metadata to improve discoverability. While current cataloging captures basic bibliographic elements, it lacks depth for audiovisual content.

These expectations align with the proposed DAM system developed from this study's findings and informed by established practices and global case studies. The system includes functional components designed to enhance preservation, streamline workflows, and increase accessibility, while being realistic for public libraries in Malaysia.

Oyighan (2024) and Tahil (2022) explain that artificial intelligence and machine learning can support automated metadata tagging by generating descriptive, technical, and administrative metadata. Their studies show how such automation improves cataloging efficiency and reduces human error. Institutions such as the Smithsonian Institution have successfully used these tools to manage large and complex digital collections.

Gonzales (2023) highlights cloud-based preservation as a scalable and secure strategy for managing audiovisual archives. Similarly, the British Library (2024) has adopted cloud systems that enable data redundancy, remote access, and long-term digital preservation.

In discussing multilingual access, the National Library Board of Singapore (2024) provides a model for inclusive design by implementing bilingual interfaces and multilingual metadata tagging. This is particularly relevant in the Malaysian context, where linguistic diversity is a key consideration.

Foxwell (2023) emphasises the importance of system interoperability in public libraries. Integrating the DAM system with platforms such as KOHA would help streamline cataloging and reduce workflow duplication.

Accessibility is also a critical design factor. As Orange Logic (2020) and Akbari (2024) argue, features such as closed captions, responsive interfaces, and descriptive metadata ensure that digital collections are accessible to users with different abilities. Their work reinforces the idea that DAM systems should not only preserve assets but also expand access.

Taken together, the proposed system offers a practical model for improving access, usability, and long-term preservation of film collections in Malaysian state libraries. It is grounded in participant feedback, aligned with global practice, and tailored to the operational realities of public libraries in Malaysia.

CONCLUSION

This study highlights the urgent need for modern digital infrastructure to manage film collections in Malaysian state libraries. Current practices, which include manual cataloging, fragile storage formats, and limited public access, risk the deterioration and underuse of culturally significant materials.

The proposed DAM framework addresses these challenges by offering structured metadata standards, digital preservation tools, and multilingual accessibility features. Interview data confirm that a phased implementation, supported by staff training and infrastructure investment, is both feasible and necessary.

By aligning with international best practices and local institutional needs, the DAM system can improve operational efficiency, extend the lifespan of film collections, and enhance public

access. It positions Malaysian state libraries to safeguard audiovisual heritage while adapting to digital expectations.

Future work should focus on pilot testing, legal policy reform, and sustained collaboration across institutions to ensure long-term success.

REFERENCES

Ahmad, N. (2015, September). The role of the National Library in transforming libraries. In *Conference of Librarians for the Cyber World*, Kuala Lumpur (pp. 14-15).

Akbari, M. (2024). Accessibility in digital libraries: Post-pandemic frameworks. *Library Trends*, *72(*1), 55-73.

British Library. (2024). *Digital Preservation Strategy*. https://www.bl.uk/collection-guides/digital-preservation

Cecconi, F. R., Dejaco, M. C., Moretti, N., Mannino, A., & Cadena, J. D. B. (2020). Digital Asset Management. In *Research for Development* (pp. 243-253). https://doi.org/10.1007/978-3-030-33570-0_22

Crockett, M. (2020). DAM in libraries: The future of digital collection management. *Journal of Library Tech*, *28*(3), 45-58.

Foxwell, T. (2023). Interoperability of DAM systems with ILS: Case studies from public libraries. *International Journal of Library Systems, 19*(2), 112-128.

Gonzales, R. (2023). Cloud infrastructure for public heritage institutions. *Digital Curation Review*, *7*(4), 25-40.

Hockx-Yu, H. (2018). Preserving digital media: Metadata and migration strategies. *Digital Curation Journal*, *5*(2), 75-88.

Jayaram, R., & Manikyam, K. (2016). Digital asset management systems in academic institutions. *Library Management*, *37*(2), 105-120.

Kaur, S., & Subhajit, M. (2023). Adapting digital strategies in Malaysian public libraries. *Asian Journal of Library and Information Science*, *14*(1), 29-42.

National Library Board Singapore. (2024). *Multilingual Access Repository*. https://www.nlb.gov.sg

New York Public Library. (2019). *Digital Research Strategy 2021-2024*. https://www.nypl.org

Orange Logic. (2020). *Inclusion-first design in Digital Asset Management systems*. https://www.orangelogic.com

Oyighan, C. (2024). AI metadata extraction in DAM for libraries. *Library Technology Insights*, *9*(3), 88-102.

Pandey, M., & Kumar, R. (2020). Preservation challenges for fragile media in libraries. *Archival Review*, *19*(1), 11-20.

Tahil, R. (2022). Video content tagging using NLP in digital archives. *Journal of Intelligent Archiving*, *11*(2), 41-59.

UNESCO. (2022). *Audiovisual heritage: Memory of the world*. https://www.unesco.org/en/memory-world/audiovisual-heritage

Wieringa, M. (2017). Obsolescence and the future of analog media. *Preservation Studies Quarterly*, *6*(2), 33-44.

Information Seeking Behaviour of MLBB Players

Khosyi Alfin Maulana

National Library of Indonesia, Jakarta, Indonesia

Corresponding email: Khosyi.Maulana@city.ac.uk

ABSTRACT

This study investigates the information-seeking behaviour of MLBB players using Stebbins' concept of serious leisure and utilises everyday life information-seeking behaviour. Mixed methods design was used, which included an online survey and an online semi-structured interview. 473 responses was collected, but only 413 were completed, which is above the sample size (384). Eight interviews were conducted through teams. Quantitative data were analysed using descriptive and inferential statistical approaches. The test used was Chi-Squared, which was run through Qualtrics. The results of this test describe whether, statistically, the variables in information-seeking behaviour and serious leisure activity have a relationship. P-Value <0.05, then the relationship is declared statistically significant. Qualitative data were analysed using thematic analysis, but before thematic analysis was carried out, transcription and translation were carried out. The results show that MLBB players' information-seeking behaviour is related to serious leisure activities, such as competition participation, playing intensity, community, and playing experience. The study shows a statistically significant relationship between information-seeking behavior and serious leisure activity, so further research is needed to reveal the depth of the causality between the two.

.

Keywords: Information Seeking Behaviour; Serious Leisure; Explanatory Sequential Mixed Method**;** Chi-Squared Test; Mobile Legends Bang Bang

INTRODUCTION

Mobile Legends: Bang Bang (MLBB), a popular Multiplayer Online Battle Arena (MOBA) game, has rapidly gained traction since its 2016 release, reaching 1 billion downloads in four years (Tan, 2020). Designed for mobile devices, MLBB features intense 5v5 real-time battles where players must collaborate and strategise to conquer the enemy base. The game includes a ranking system, and advancing requires winning ranked matches.

To be the winner, players need to learn and understand elements in-game, such as items, passive heroes, hero skills, hero talents, minions, turtles, lords and monsters. It affects the strategy and decision-making in-game. Because of that, MLBB is related to the ability to make decisions, and it involves information that the player should learn and analyse. Players must assess various factors, anticipate opponents' moves, and formulate strategies in-game, which requires players to analyse complex situations, devise effective strategies, and make rapid decisions collaboratively (Dela Cruz et al., 2024). The ability to deal with changing situations or cognitive flexibility is positively related to "rank percentile", indicating that players with higher cognitive flexibility tend to achieve better rankings (Valls-Serano et al., 2020).

MLBB usually update the patch or changes the game every three months, It could include changes in items, heroes, turtles, lords, and rules, which could impact the META (Most Effective Tactics Available). In my personal experience, I noticed players dedicate significant time to searching for information and learning updates, which ultimately affects the META and their choice of hero or character in-game. However, some are misled by disinformation—an issue tied to broader digital literacy challenges. A study conducted by the Ministry of Communication and Informatics about Indonesia's digital literacy in the digital skills indicator, the survey found that only 52% of Indonesians admitted to having a habit of finding out whether the information they find on the website is true or false (Kementerian Komunikasi dan Informatika, 2023). That habit correlates with information literacy skills. Information literacy involves the ability to recognise when information is needed and to locate, evaluate, and use effectively the needed information. Information-seeking behaviour is a critical component of this process, as it encompasses individuals' strategies and actions to find information (Sanders et al., 2015). Since the digital literacy survey used a very close question, it is interesting to investigate information-seeking behaviour among Indonesians through Mobile Legends Bang Bang players. Why? This is because, in 2023, 44 million Indonesians downloaded Mobile Legends Bang Bang, which is 16% of the Indonesian population (IESF, 2023; Indonesia, 2024).

Aims, Objectives, And Research Questions

This study aims to investigate information-seeking behaviour of MLBB Players. It explores how they seek, evaluate, and choose information to help them enhance ther gaming experience. It also explores factors that influence their information-seeking behaviour.

Objectives

1. To investigate the information-seeking behaviour of MLBB players
2. To explore factors that influence the information-seeking behaviour of MLBB players

To approach the objectives of the study, it needs to translate into specific questions such as:

To investigate the information-seeking behaviour of MLBB players

1. How do MLBB players identify their information needs about the game?
2. What search strategies do MLBB players use to find information?
3. How do MLBB players evaluate the information that they find?

To explore factors that influence information-seeking behaviour

1. What factors influence the information-seeking behaviour of MLBB players?
2. How does their role affect their information seeking?
3. How does participation in community and forums affect the information-seeking behaviour of MLBB players?

LITERATURE REVIEW

Information Behaviour and Information-Seeking Behaviour

In information studies, information behaviour is a broad term encompassing how individuals interact with information. This includes seeking, using, managing, and sharing information (Bawden & Robinson, 2022). Furthermore, Information-seeking behaviour is a subset of information behaviour that focuses on actively pursuing information to satisfy a particular need or solve a problem. It involves recognising an information need, searching for information, and evaluating and using the found information (Case & Given, 2016).

Figure 1 shows that information searching is part of information-seeking. Information searching involves using a specific search tool, such as a search engine or database, to find information (Ford, 2017). Technology developments have increased information accessibility and availability. Thus, changes in search tools can impact how people seek information. Therefore, it is essential to use a suitable framework or model of information behaviour for this research.

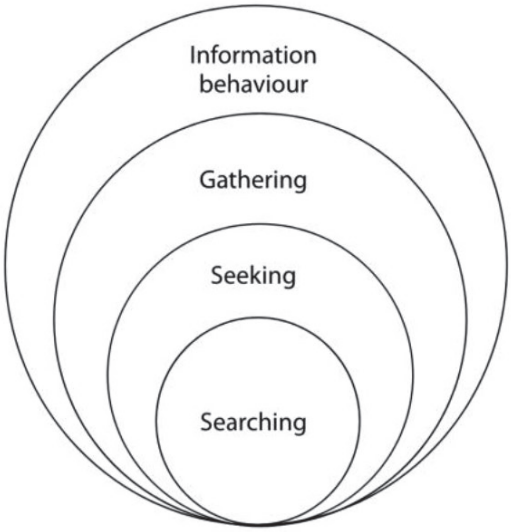


Figure 1: Components of information behaviour (Bawden and Robinson, 2022)

Everyday Life Information Seeking (ELIS)

Everyday life information seeking (ELIS) is one of the prominent models of information behaviour that is used to investigate people seeking information in daily life. Everyday life information seeking (ELIS) refers to the behaviours and practices through which individuals seek, gather, and use information to navigate and manage their daily lives (Savolainen, 1995). This encompasses various activities, from seeking practical information to solve immediate problems to orienting oneself within a broader social and cultural context.

The theory or concept that influences ELIS is Pierre Bourdieu's theory of habitus. It suggests that people's ways of seeking information are not just random or purely personal choices but are structured by their social class, cultural group, and life experiences. This system of dispositions guides individuals in integrating their experiences and evaluating the importance

of different information choices, thus influencing their everyday information-seeking practices (Savolainen, 1995).

As seen in Figure 2, attributes within a human being, such as material and social capital, the current situation of life (experience), values, cultural and cognitive capital, affect the “way of life” and “mastery of life”. “Way of Life” refers to the structured pattern of daily activities, including the allocation of time, consumption habits, and the balance between work and leisure/hobby (Savolainen, 1995). The time for doing a hobby depends on the time that the individuals manage (internally), but it is affected by the type of work or activity related to the material and social capital that the individuals have. Therefore, playing MLBB can be perceived as a hobby that drives information-seeking behaviour.

Mastery of life refers to the active management and organisation of an individual’s everyday activities to maintain a sense of order and coherence. It involves both passive-active monitoring that leads to or is based on problem-solving behaviour to address any dissonance between how things are and how they should be according to one's values and goals (Savolainen, 1995, 2009). There is seeking orienting and practical information inside the box of problem-solving behaviour (including everyday life information-seeking).

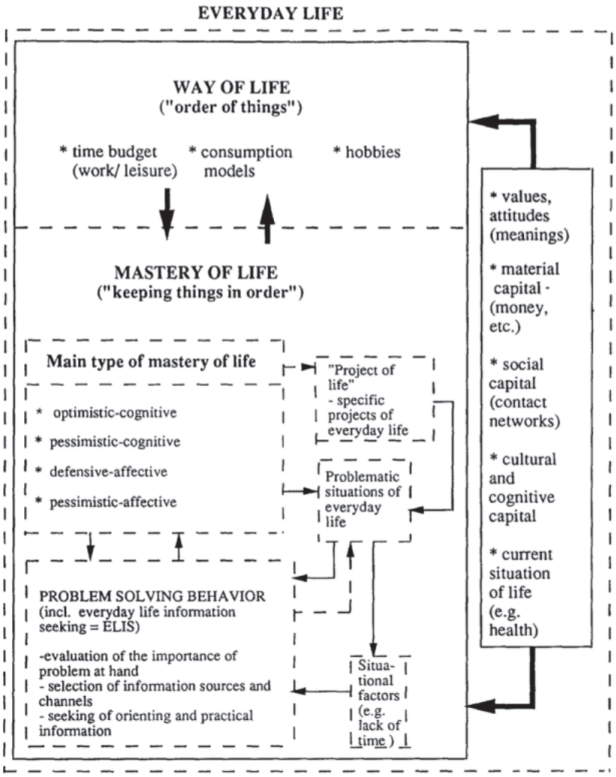


Figure 2: Basic components of the study of ELIS in the context of way of life (Savolainen, 1995)

Seeking orienting information refers to the passive side of seeking information, which is not driven by a specific need or problem but involves staying informed about current events and ad development as part of everyday life. It is characterised by habitual media consumption, such as watching television news or reading newspapers (Savolainen, 1995), and in the digital context, the media could be on websites, social media and streaming services. On the other hand, seeking practical information refers to actively searching for information to address specific problems or challenges in everyday life. This type of information-seeking is often contextualised in problem-solving situations where individuals encounter "unwanted guests" that threaten the meaningful order of things (Savolainen, 2017).

In the gaming context, the unfortunate thing that usually happens is a losing streak that affects the emotions of the players. It leads to their willingness to develop their skills as the solution to the problem, and they have to invest more resources in obtaining deep knowledge about a game, thinking strategically and making good decisions (T'ng et al., 2023). Obtaining deep knowledge about the game is related to seeking practical information, which is also affected by the amount of time that the players spare, money and cognitive capital.

Despite the evolving nature of information environments like mobile technologies, the model's emphasis on the complementarity of work-related and non-work information seeking continues to offer valuable insights. It highlights that these domains can interweave in complex ways, serving both professional and personal ends (Savolainen, 2023). Therefore, ELIS is suitable for this research, as it encourages exploring the interconnectedness of information needs.

Serious Leisure

The concept of serious leisure is inspired by the idea that leisure can be a significant source of personal fulfilment, identity enhancement, and self-expression, much like work traditionally has been. This concept characterises the dedicated and systematic pursuit of an amateur, hobbyist, or volunteer activity that profoundly engages the participant with its challenges and complexity (Stebbins, 1992, 2007). On the other hand, casual leisure is defined as immediately, intrinsically rewarding, relatively short-lived pleasurable activities that require little or no

special training to enjoy (Stebbins, 1992). Several examples of casual leisure are watching television and spa treatments.

Some characteristics that differentiate between casual leisure and serious leisure (Gould et al., 2008; Stebbins, 1992), such as:

a. Perseverance

This quality refers to the sustained effort and persistence required to overcome challenges and obstacles in a leisure activity. Individuals who engaged in serious leisure showed to persevere through difficulties to achieve their goals by improving their skills.

b. Career development

Serious leisure activity have a career-like progression with stages of achievement and involvement. This is not typically found in casual leisure, which is more transient and lacks a structured progression.

c. Significant personal effort

Participants in serious leisure activities invest considerable effort in developing their skills and knowledge. This effort is often reflected in the time, energy, and resources dedicated to mastering the activity.

d. Durable benefit/outcome

Engaging in serious leisure leads to lasting benefits and outcomes, such as self-actualization, self-enrichment, self-expression, recreation or renewal of self, feelings of accomplishment, enhancement of self-image, social interaction and belongingness, and lasting physical products of the activity.

e. Unique ethos

Serious leisure activities often lead to strong identification with the pursuit and the development of a unique ethos or subculture.

f. Identification with the pursuit

Serious leisure is pursued its intrinsic rewards and the personal fulfilment it provides, often involving perseverance through challenges Casual leisure is primarily about immediate pleasure and relaxation, without the deeper personal or social commitments found in serious leisure.

There are three main forms of Leisure activity: serious leisure, casual leisure, and project-based leisure. This typological structure helps to classify and explain leisure activities and experiences within various social, psychological, cultural, geographical, and historical contexts. Moreover, electronic games or video games are categorised as sports and game under the serious leisure group-hobbyists (Stebbins, 2015).

Playing MLBB can be categorised as a serious leisure activity since in MLBB, there is a ranking system that adheres to the players. It meets the quality of serious leisure activity which is to have a career-like progression. This argument is supported by the fact MOBA games like World of Warcraft as serious leisure (Stebbins, 2020).

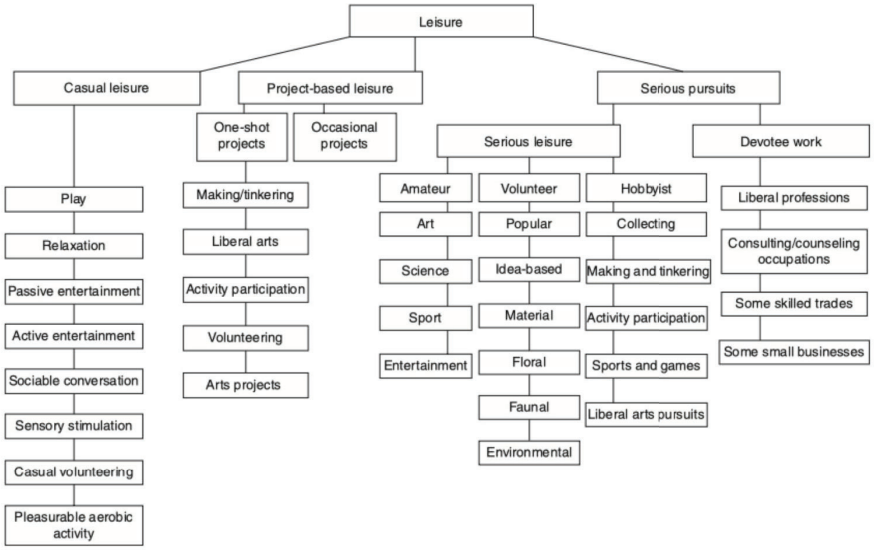


Figure 3: The serious leisure perspective (Hartel, 2013)

Information-Seeking Behaviour In Serious Leisure Perspective

Even though developing knowledge is part of the characteristics of serious leisure, in the beginning, LIS academics and practitioners barely conducted research about the leisure realm because the LIS field tended to do research in the academic context until Jenna Hartel brought leisure to the LIS field (Hartel, 2003; Stebbins, 2007). Passionate, Serious Leisure enthusiasts often develop "leisure careers" centred around acquiring expertise and knowledge in their chosen pursuit. Participants in serious leisure activities often engage in information-seeking behaviours similar to those observed in everyday life, such as searching for information, learning new skills, and sharing knowledge within their communities (Hartel et al., 2016)

Moreover, Serious Leisure participants who are deeply engaged with information showed a profound and enjoyable information experience. They are passionate about their activities, which influences their information-seeking, sharing, and producing. This engagement is often hedonic, persistent, and comprehensive. There are some information activities related to serious leisure, such as Search&retrieve, Browse, Monitor, Unfold, Exchange, Dress, Instruct, and Publish (Hartel, Cox and Griffin, 2016).

Information Behaviour on Games (Previous Research)

Several notable studies focus on information behaviour or information-seeking behaviour of gaming such as Daniel Whittaker's dissertation about a study of information behaviour in the Fantasy Premier League community (2022), Adolescents' Digital Game-Related Information-Seeking (Kahila et al., 2021) Information-seeking behaviour of Dungeon and Dragon's player (Gibson, 2020) and Information Behaviour in World of Warcraft (Nyman and Schild, 2010). Those articles are closely related to answering the research questions around the information-seeking behaviour of MLBB players.

Daniel Whittaker's dissertation discussed the information behaviour of FPL (Fantasy Premier League) players and how they seek, share, and use information in-game. FPL players identify their information needs according to their objectives and the particular choices they have to make during the game. Whittaker discovered that social media played a central role in FPL information behaviour as primary information resources for seeking information (Whittaker, 2022).

An article by Kahila et al. (2021) delved into the digital game-related information-seeking behaviour of adolescents. The study explains the various types of information adolescents seek, the sources they utilise, and the social and collaborative aspects of their information-seeking activities. Adolescents were noted to seek information from diverse sources such as game videos, internet resources, face-to-face interactions, and traditional books (Kahila et al., 2021).

Another research about information-seeking behaviour in gaming or game related is a research conducted by Gibson (2020). The research explores the information-seeking behaviours of Dungeons & Dragons (D&D) players, focusing on the types of information they seek, the resources they use, and their preferences for physical or digital resources. The study highlights

the complexity of information-seeking behaviours within the D&D community. Players value convenience and efficiency, leading to a preference for digital resources.

Research about players' information-seeking behaviour in a similar game genre to MLBB is essential for this research. Nyman's (2010) research explores the information behaviour and social structures within the online game World of Warcraft. The research found most players use third-party websites as their primary source of information, regardless of the complexity of the scenario. Players form social groups (guilds) based on shared attributes and goals. Guilds play a crucial role in the game's social aspect, enhancing player enjoyment.

METHODOLOGY

As the number of MLBB players is huge and rapidly growing, the study takes a pragmatic approach to give a deep and more comprehensive understanding of the information-seeking behaviour of MLBB players. In this study, a pragmatic approach is related to utilising mixed methods to achieve the aim of the study. Mixed methods is a research approach that combines both qualitative and quantitative methodologies to address the same overarching research question (Pickard, 2017). Compared to other research approaches, the use of mixed methods research in library and information science (LIS) has been relatively low (Granikov et al., 2020). To collect the required data, this study used a survey and conducted semi-structured interviews.

Data Collection

Survey

A survey encompasses the entire research process, including sampling and data analysis, whereas a questionnaire is just one tool used to collect data within that process (Pickard, 2013). The survey was conducted using Qualtric online survey software, which included delivering the online questionnaire and analysing the collected responses. The final questionnaire consists of questions about demographics (Age, gender, education background and occupation), MLBB experience (related to serious leisure), information-seeking and further information (if the respondents are willing to be interviewed).

In 2023, the number of MLBB players in Indonesia was 44 millions and to determine the sample size, Cochran’s formula was utilised in this study. Cohcran’s formula is designed to provide a simplified approach to determining sample size when dealing with large populations. In Cochran’s formula, determining the sample size for an infinite population should be done

before calculating the sample size for a finite population. By using the Cochran's formula, the minimum sample size to get a 95% level of confidence is 384 respondents.

Interview

Interviews are the most widely used data collection method in dissertations on information behaviour, because in-depth interviews, can provide an opportunity to explore and gather in-depth information about the participant's life and experiences related to information behaviour, which is essential for understanding the complex nature of information behaviour (Lund, 2021; Pickard, 2017). The criteria are used to select suitable participants who are expected to provide much information and insight to gain an in-depth understanding of the phenomenon (Knott et al., 2022). In this research, the interviewee's criteria were:

- min. 18 years old
- playing at least three seasons
- regularly playing, at least 7 hours per week
- have experience in MLBB tournament
- can speak English or Indonesian Language

DATA ANALYSIS

This research analysed data using a mixed-methods approach, which integrates qualitative and quantitative data to achieve research objectives. This combination gave a deep and more comprehensive understanding of MLBB players' information-seeking behaviour. The following is a description of the procedure for analysing both quantitative and qualitative data.

Quantitative Data

Quantitative data were analysed to identify trends, patterns, backgrounds and relationships among questions related to information-seeking behaviour. The analysis of quantitative data involved the following procedures.

- Data preparation

After the survey was closed, the data that had been collected was checked for completeness through a feature on Qualtrics. With the feature, out of 473 responses recorded, 413 respondents completed the questionnaire.

- Descriptive statistic

Descriptive statistics provide descriptions of sets of quantitative data, which allows for interpretation and comparison (Sheard, 2018). The type of descriptive statistic that is most used in this research is frequency distribution. Frequency distribution helps summarise and organise data by showing how often each value or category occurs within a dataset, providing a clear overview of the data's distribution (Mahbobi & Tiemann, 2015).

- Inferential Statistic

Inferential statistical tests were employed to examine relationships between variables. In this research, Chi-squared tests were used to examine the relationship between the characteristics of serious leisure and activity in information-seeking behaviour. Chi-squared is a statistical test used to determine whether there is a significant association between two categorical variables that are determined using a threshold of $p < 0.05$ (Frost, 2017; Sheard, 2018). These tests were conducted using Qualtrics to ensure accuracy and reliability.

Qualitative Data

In this research, qualitative data were analysed using thematic analysis to give a deep understanding of the information-seeking behaviour of MLBB players. Thematic analysis was conducted using the following procedure:

- Preparation

In the preparation stage, Audio recordings of each interview were transcribed using Microsoft Word.

- Coding, theme and interpretation

In the coding stage, notes are added to the transcript. However, notes were not added for every answer to every question because some questions were asked just to make the conversation smoother. Notes or labels were used that directly lead to or relate to the research question, such as ‘competition’, ‘social’, ‘friendship’, ‘information sources, ‘type of information resources, ’ ‘type of information’, etc. After that, the labels that can be combined into one theme related to the research question, for example, ‘competition’, ‘friendship’, and ‘social’, are put in the group ‘motivation-influence’. Furthermore, the identified themes are interpreted according to the context in the research question and the framework used.

RESULTS

Survey analysis

Respondent Profile

The survey analysis reviews the findings from the online questionnaire filled out by 413 respondents who are MLBB players from Indonesia. The age of 59% of them was between 18 and 24, followed by those aged 25 to 34 (39%), and the rest was the 35 to 44 age group (Figure 4).

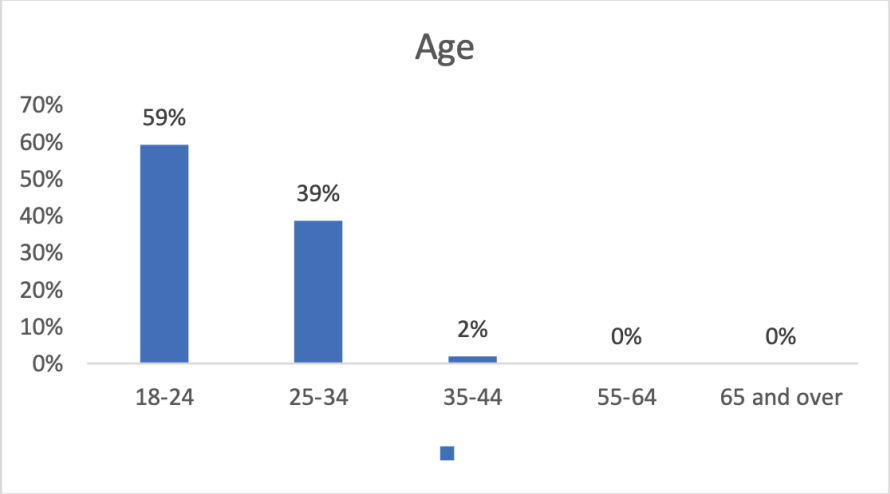


Figure 4: Age of the respondents

The pie chart shows that most respondents are males, with 213 individuals or 52% of the respondents. However, Female respondents are also massive, with 190 individuals or 46% of the respondents.

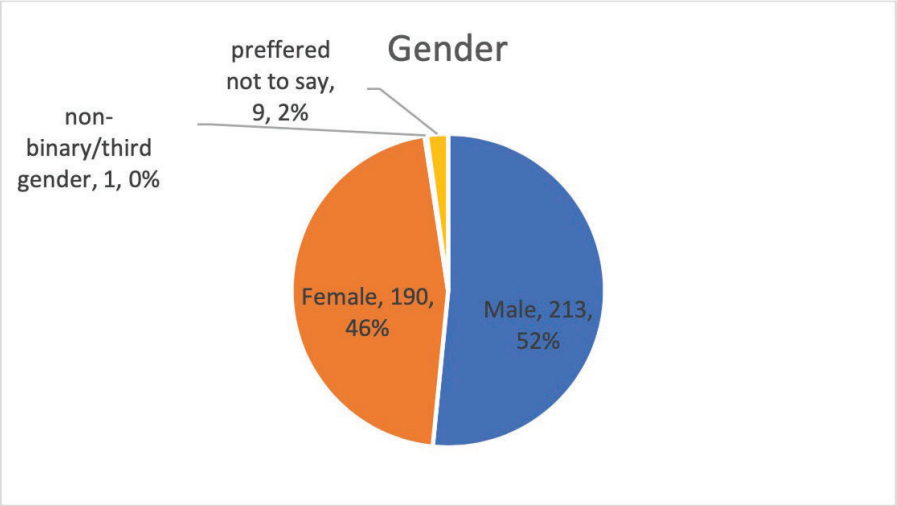


Figure 5: Respondent based on gender

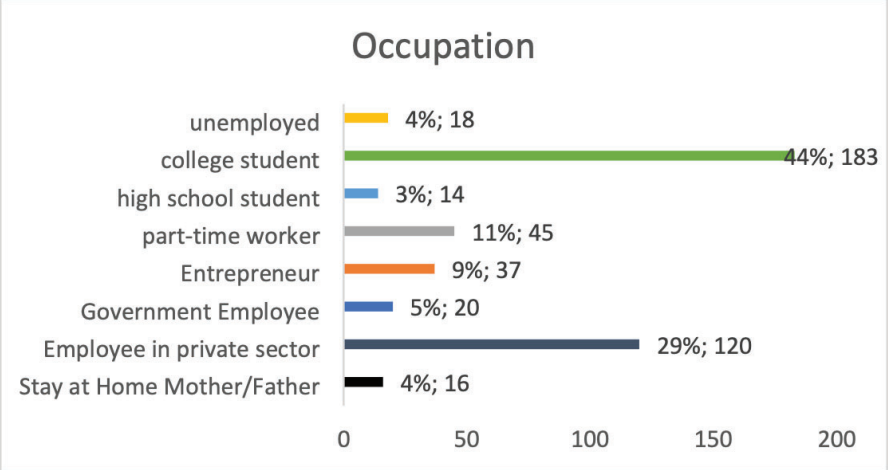


Figure 6: Respondents' occupation

Figure 6 shows that almost half of the respondents are college and high school students, with college students being the majority, at 183 individuals or 44% of the respondents. The second largest occupation of the respondents is that of employees in the private sector, at 120 individuals or 29% of the population, and it is almost six times the number of government employees (5%).

MLBB Experience (Serious Leisure)

As seen in Figure 7, the vast majority of the respondents are playing in a range of 3 to 17 seasons with 3 to 7 seasons being the most significant portion. Figure 8 displays the distribution of respondents' playing time in hours per week, with the majority falling into the 2-6 hours category (46%). A few respondents played MLBB for 1 hour or less per week (7%). However, adding together the remaining categories shows that a considerable portion (47%) play MLBB more than 7 hours a week, or at least one hour per day, statistically.

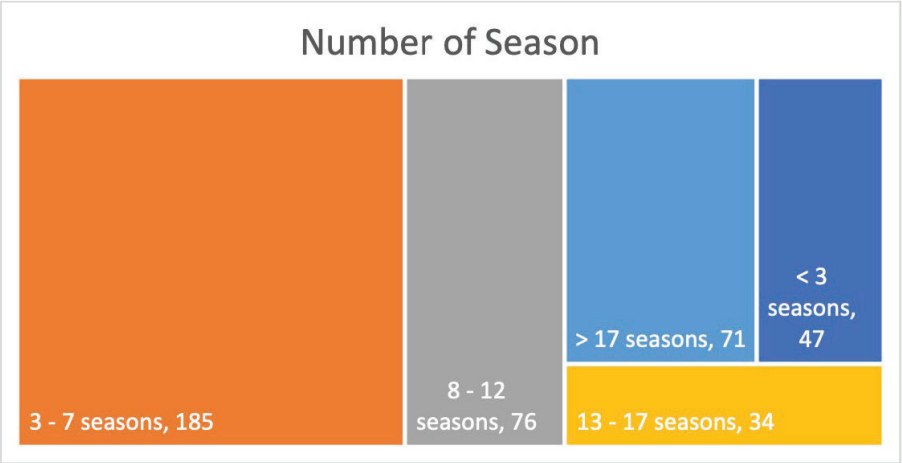


Figure 7: Respondents by number of seasons

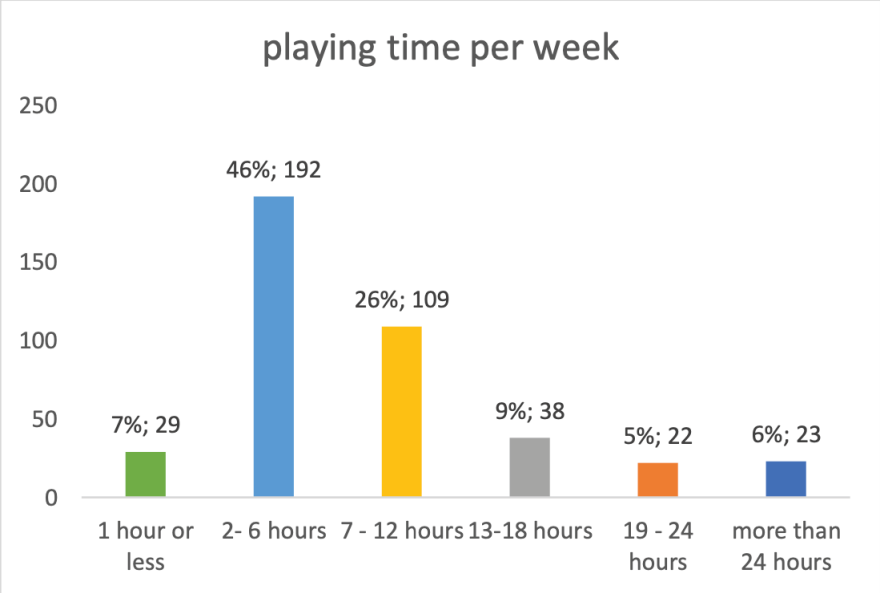


Figure 8: Respondents by playing time

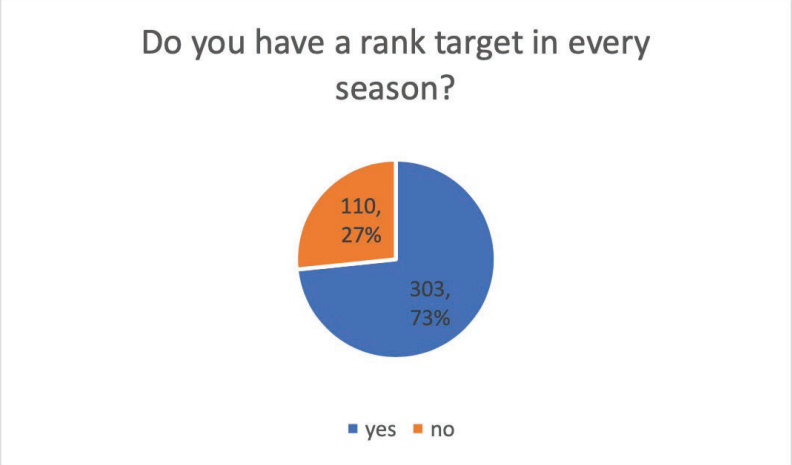


Figure 9: Respondents by having a target in every season

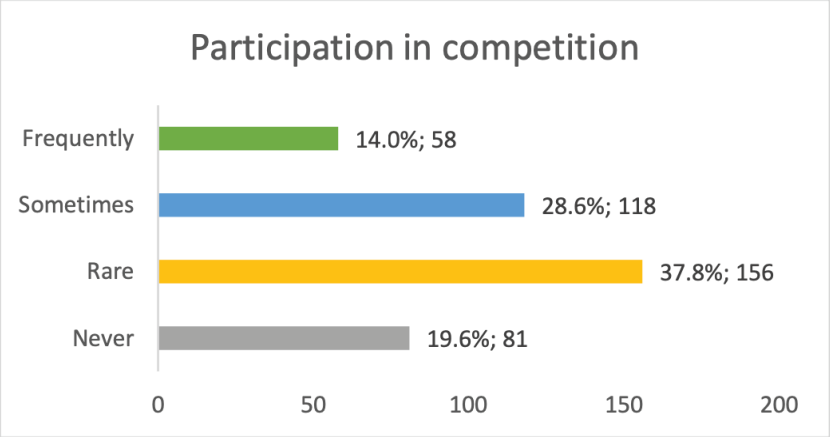


Figure 10: Respondents by participation in competition

Figures 9 and 10 represent the competition and career progression in MLBB. 73% of the respondents have a rank target in every season. Figure 10 shows that more than 80% of the respondents have experience in a tournament, but almost half rarely participate in the competition. However, 28 % of the respondents occasionally participate in the competition, and 14% frequently participate. It suggests that the respondents have an aim or personal target for the game, and it is one of the characteristics of serious leisure, which is a career-like progression.

Information-Seeking

The most frequent information sought is gameplay (strategy-macro), followed closely by Heroes (Mechanics) and Items (combination). Moreover, information about events and skin is also interesting for the respondents. However, the respondents show minimal interest in gossip or rumour.

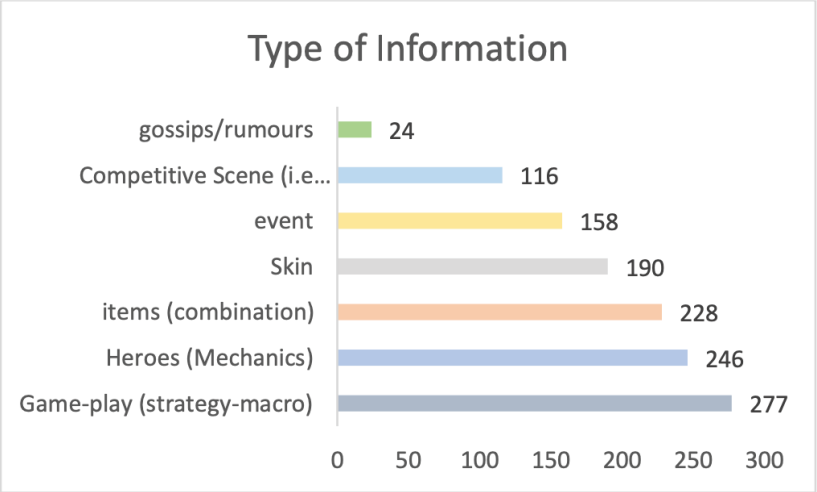


Figure 11: Respondents' type of information needs

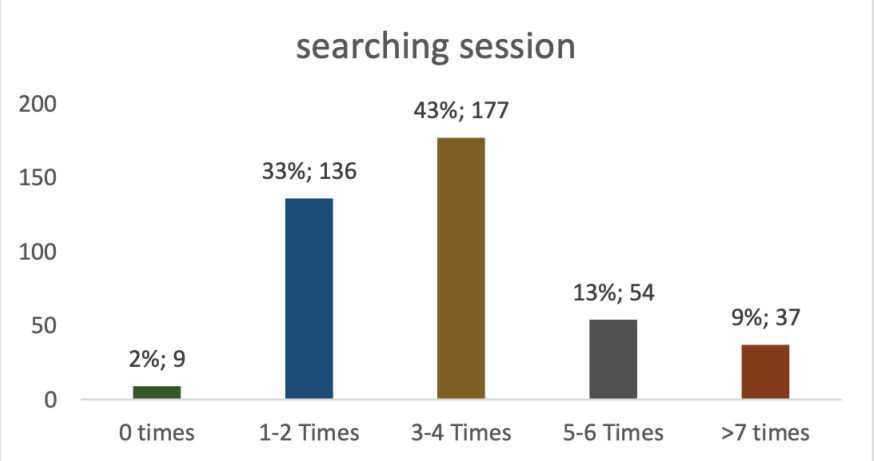


Figure 12: Respondents' searching session

Figure 12 shows that most respondents search 3-4 times per week, with a large portion also searching 1-2 times. Less frequent searching, such as 0 times, is rare, while a smaller group of respondents engages in more frequent searching sessions (5-6 times and 7 times).

Table 1: Influence of various information sources in MLBB

Information Sources	Mode	Mean	Median	Sum
professional players social media	5.00	3.71	4.00	1531.00
in-game information (i.e patch notes and announcements)	4.00	3.55	4.00	1467.00
e-sport media	4.00	3.51	4.00	1450.00
ex-professional players social media	4.00	3.46	4.00	1429.00
Community social media (include whats-app group)	4.00	3.38	4.00	1398.00
Key Opinion Leader social media (exclude KoL with pro player background)	3.00	3.25	3.00	1343.00
Printed materials (books, magazine, and newspapers	1.00	2.65	3.00	1094.00

Table 1 displays information sources ranked in the Likert Scale-type rating for influence. The Respondents' most influential information source is professional players' social media, with a mode score of 5.0, which means that for many respondents, professional players' social media is considered an extremely influential information source. Furthermore, the mean, median and Sum values show that professional players are the primary source of information for MLBB players.

In-game information (e.g. patch notes and official announcements), with a mode of 4.00, indicating that it is very influential for most respondents. Moreover mean score of 3.55 and median of 4.00 further confirm the credibility of this source as one of the primary information sources. E-sports media, has significant influence, with a mode of 4.00, indicating that many

respondents consider it is very influential. The mean (3.51), median (4.00), and sum of 1450.00 show that e-sports media can be categorised as major information sources. Meanwhile, Ex-professional players' social media is also assest as a very influential source,

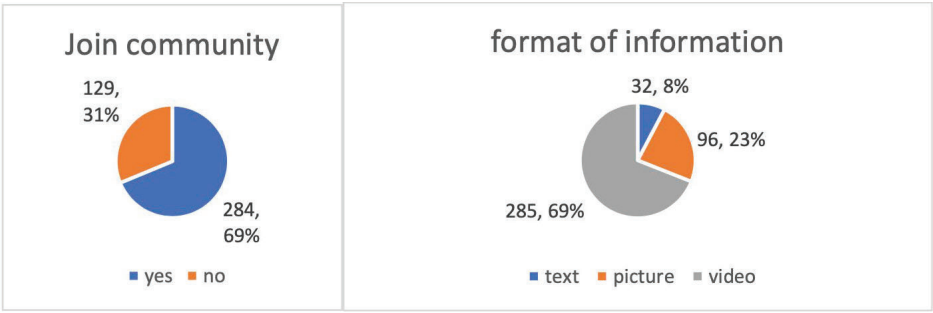


Figure 13: Respondents by preferred type of information and community

Figure 13 shows that most of the respondents, more precisely 69%, prefer information in video form than in text or image form. Then, 23% prefer information in image form and the rest prefer it in written form. Figure 13 also shows that 69% of the respondents join the community that is related to MLBB, and the rest do not.

Analysis of the Relationship

Each question and answer represents a "variable" to explain the information-seeking behavior of MLBB players through the lens of serious leisure. The variables are generally divided into demographics and MLBB experience (related to serious leisure activity) and then connected to information-seeking behaviour. Not all relationships will be displayed, only those with statistically significant relationships through the chi test with a p-value < 0.05. The meaning of the relationship from the chi-squared test does not mean causality. For instance, as shown in Table 2, the test of two variables and based on the p-value, the two variables, which are playing hours and frequency of playing team up, have a statistically significant relationship.

Table 2: Chi-squared test of playing hours and frequency playing team up

P-Value	0.00417
Effect Size (Cramér's V)	0.164
Sample Size	413

Information Searching Relationship with Serious Leisure Activity

Table 3 shows the chi-squared test on the variables "number of seasons", "participation in competition", and "information searching session". (a) is a test of the relationship between "number of seasons" and "participation in competition", then (b) is a test of the relationship between "participation in competition" and "information searching session" and (c) is a test of the relationship between "number of seasons" and "information searching session". Overall, all tests have a P-value < 0.05 which means that there is a statistically significant relationship. The statistical measure, Cramer's V, is a strong and reliable measure based on the chi-square test. It is specifically created to measure the level and importance of the relationship between two categorical variables (Easily, 2024). Table 3 shows that the three variables have a statistically significant relationship, but the association is moderate. Moreover, Table 4 shows that the P-value states that these two variables have a statistically significant relationship, and the association between these two variables is moderate and tends to be strong.

Table 3: Chi-squared test of season played-competition-information searching frequency

P-Value	0.0000632
Effect Size (Cramér's V)	0.180
Sample Size	413

(a)

P-Value	< 0.00001
Effect Size (Cramér's V)	0.237
Sample Size	413

(b)

P-Value	0.0000291
Effect Size (Cramér's V)	0.173
Sample Size	413

(c)

Table 4: Chi-squared test of community and information searching session

P-Value	< 0.00001
Effect Size (Cramér's V)	0.335
Sample Size	413

Table 5: Chi-squared Test of target every season and information searching session

P-Value	0.0000701
Effect Size (Cramér's V)	0.242
Sample Size	413

Table 5 shows that the P-value states these two variables have a statistically significant relationship and a moderate association. Meanwhile, Table 6 shows that the variables "playing hours per week" and "information searching session" have a statistically significant relationship and a moderate association.

Table 6: Chi-squared playing hours per week and information searching session

P-Value	< 0.00001
Effect Size (Cramér's V)	0.273
Sample Size	413

Information Sources' Relationship

As shown in Table 1, the top three information sources are professional players (a), in-game information (b) and e-sport media (c). These three information sources were tested for the same variables as information searching.

Table 7: Chi-squared test of participation in competition and information sources

P-Value	0.000580
Effect Size (Cramér's V)	0.218
Sample Size	413

(a)

P-Value	< 0.00001
Effect Size (Cramér's V)	0.272
Sample Size	413

(b)

P-Value	< 0.00001
Effect Size (Cramér's V)	0.308
Sample Size	413

(c)

Overall, all tests have a P-value < 0.05, meaning there is a statistically significant relationship (real relationship) between participation in competition and information sources. The differences in effect size suggest that the strength of the relationships varies between the

cases, with Tables (b) and (c) showing stronger associations than Table (a). However, none of the associations are particularly strong, as all Cramér's V values are below 0.3.

Table 8 shows that all tests have a P-value < 0.05, meaning there is a statistically significant relationship between participant in competition and information sources. The differences in effect size suggest that the strength of the relationships varies between the cases, with Tables (c) showing strong associations whereas Tables (a) and (b) show a moderate association.

Table 8: Chi-squared a community and information sources

P-Value	0.000580
Effect Size (Cramér's V)	0.218
Sample Size	413

(a)

P-Value	< 0.00001
Effect Size (Cramér's V)	0.272
Sample Size	413

(b)

P-Value	< 0.00001
Effect Size (Cramér's V)	0.308
Sample Size	413

(c)

Table 9 shows that the score of the P-value in each table is very small and less than 0.05, which means there is a statistically significant relationship between having a target in rank and information sources. According to the effect size score, Tables (a) and (b) show a moderate association between having a target in rank and information sources. However, there is a strong association between having a target in rank and e-sports media as information sources.

Table 9: Chi-squared rank target and information sources

P-Value	< 0.00001
Effect Size (Cramér's V)	0.267
Sample Size	413

(a)

P-Value	0.000180
Effect Size (Cramér's V)	0.232
Sample Size	413

(b)

P-Value	< 0.00001
Effect Size (Cramér's V)	0.314
Sample Size	413

(c)

The analysis of relationships and association levels of several variables to several aspects of information seeking behaviour identifies trends in relationships between these variables and some aspects of information-seeking behaviour. Participation in competition, rank target, community, and playing hours are variables the most related to MLBB players' information-seeking behaviour. However, the tests that form the basis of analysis and interpretation are insufficient to answer whether there is causality.

Interview Analysis

After the data questionnaire was collected, many individuals who met the criteria were randomly selected. The eight interviewees are PR (M, early 20s, undergraduate student), PA (M, late 20s, Aide-De-Camp), PZ (M, early 20s, Undergraduate student), PS (M, mid 20s, video editor), PSa (F, late 20s, librarian), PV (M, early 30s, white-collar worker), PL (F, early 20s, undergraduate student), PN (M, mid 20s, marketer).

Thematic Analysis

Motivation

When questioned about their reasons for playing the game and investing a substantial amount of time in it, the participants consistently highlighted a number of interrelated factors:

- **Friendship**

  Participants repeatedly answered that friendship, including colleagues, is one of the reasons for always playing MLBB. All participants started playing mobile legends because of friends' invitations and continued playing because it became an activity in friendship. In addition, PA and PV stated that they continued playing because their friends considered them good at it.

  Although relationships with in-person friends seem to be an important factor for all participants, for PZ, PV, and PL, MLBB also allows him to have friends who are known throughout the game. Friends who are made in this game often become team-up friends for rank games. PV specifically states, “Finally, if in the game or communication, we clicked, so we became friends and then played together….hangout”.

- **Competition**

  All participants always stated that competition or competitive feelings were another reason to continue playing, perhaps tending to be dominant. Competition in mobile legends is multifaceted, and it can mean the desire to defeat opponents in matches, get a higher rank than friends or achieve the targets, win championships and increase hero ranks. Although it was not explicitly stated, most participants implied competition with friends' ranks as one of the factors. PZ's statement is very apt in describing it: "When I get stars, then I see how many stars our friends have, well the competition is there", stars represent rank in the mythical category and so on.

  The target rank in each season also affects the participants’ motivation to play, for example, PSa stated, "If my rank is already high, like mythic honor, I don't play that much, but after the season (reset season), I play a lot". Meanwhile, PS, PV, and PN also got

motivated to play because of their desire to win a championship or tournament, even small tournaments.

Information-Seeking Behaviour

Identify information needs

When asked if there was a moment when they realised they needed information, participants' answers tended to be similar. For example, PSa and PL identified their needs when they realised their hero was not performing well, so their information needs focused on the hero they were using, such as the hero's build. Then, PZ and PV identified their needs when they realised their opponent was adamant and used a unique hero/build, so their information needs were Counter Hero.

Meanwhile, PA and PS, often identified their information needs based on evaluations of their squad's (community) matches (scrimmage or tournaments), so their information needs lean towards gameplay. Finally, PR realised his information needs when he could not complete a quest at an event. In addition to in-game factors, friend factors also influence information needs; for example, when he saw his friends were having difficulty using Lolita. Besides those, new patches or updates also trigger the need for information.

Information Searching

Participants' answers to information search questions indicated two types of activities: passive and active searching. Almost all participants, except PS, rely on TikTok, Twitter, and YouTube as information resources, and each resource is used to search for different things. On Twitter, almost all respondents stated that they usually search for the latest information, events and current META. While on TikTok and YouTube, it is usually to search for hero builds counter META, and hero's gameplay. Moreover, Participants other than PS and PSa stated variations in the types of information sources depending on the type of information needed. For example, PA said, "KB is related to understanding items and events. Macro and gameplay tend to R7 because I'm an EXP"

Most participants have a habit of searching for information through the search bar on social media. The keywords that were repeatedly said by participants were "build hero", "tutorial hero", and "how to counter". However, some participants also developed different keywords; for example, PZ added the word META to the hero build search, for example, "Build Hylos". Although developing keywords, the word choice can still be categorised as controlled vocabulary.

However, some participants do not use controlled vocabulary but search with natural language, such as "how to play with (hero) so that it is damaged", like the search conducted by PN and PR. Experience also affects how participants search the information, for example, PZ added his role to the keywords for his information needs (e.g. build Hylos EXP) because his curiosity to try unusual META. Besides that, PR stated a change in searching for information, from searching to "go straight to a trusted source (account)".

On the other hand, most participants sometimes get information when scrolling on social media or accounts related to MLBB and when watching professional championship matches. Community also play a role in providing information, for instance, PV gets broadcast information related to MLBB from his community, which makes it easier to browse information.

Evaluate information

Evaluating information used in this context involves evaluating the source of information to be selected and evaluating the information provided, both of which can influence each other. Almost all participants said the background of who made the information is a criterion for choosing information for participants, except PS. PS stated that the most reliable source of information is official information from Moonton (e.g. patch notes). He said, "*Instead of looking at influencers, just directly from in-game (patch notes), it's more real*".

Besides the content creator's background, the content's level of engagement (view, comment) is also why PR, PA, PZ, and PL chose the information. To determine the validity of the information, all participants stated that players must try it themselves. PS and PSa participants added to it by testing it with their interpretation and knowledge**.** All participants also confirmed that they had changed or improved their game based on the information discovered.

DISCUSSION

MLBB Players Identify Information Needs

Mobile players identify their information needs based on the challenges they face in the game. So this affects their information needs; this can be seen in Figure 13; the top 3 most searched information are gameplay, items and heroes. This information category is similar to the findings (Kahila et al., 2021) that the category of information that is usually searched for is development as a player. This is, of course, related to factors that are statistically related to the frequency of play, which is friendship (see Table 2). In addition, in-game targets (competitive side) also affect the identification of MLBB players' information needs. This can be seen in PSa when the hero (who has an MMR target) cannot perform. Competition and Friendship can be included in the social capital of human beings, which means social capital drives information-seeking as Slavoinen draws in the ELIS framework.

Information Searching Strategy

There are two types of information searches carried out by MLBB players, namely passive and active; this aligns with the types of information seeking in ELIS, namely seeking orienting and practical information. Orienting aims to continue updating, while practical aims to solve problems. (Savolainen, 2024). The information resources most widely used by participants are YouTube, TikTok and Twitter or, in other words, social media or internet sources; this has similarities with the findings of Whittaker (2022) and Kahila et al. (2021). This similarity occurs because of the characteristics of FPL and MLBB, online-based, and the information sources are dominated by digital.

Furthermore, each information resource is used for different types of information purposes. MLBB players mostly search with controlled keywords such as tutorials, builds, and counters. The community plays a role in making players enjoy the game more, like guilds in Warcraft (Nyman and Schild, 2010). One way is by spreading information. This happens in PV, where PV passively gets information from the community admin. Evidence of this role is strengthened by the results of community tests and information searching frequency, the results of which are statistically significant relationships (Table 4). In-game role also play a factor in MLBB players' information searching. Some participants added "role" to the keyword for searching strategies.

MLBB Players Evaluate Information

The background of the information source is a consideration for mobile legends players when choosing a source of information. This is evident from the criteria mentioned by the participants. This is reinforced by the data in Table 1, where pro-players social media is the respondents' most influential source of information. This suggests that professional players might viewed as experts with valuable insights into game mechanics and strategies, making their social media platforms highly trusted. Then, the competition factor stated in the target rank for each season also statistically significantly affects the choice of pro player social media as a source of information.

Besides the content creator's background, the content's views and comments are the reason why MLBB players chose the information. Moreover, to determine the validity of the information, all participants stated that players must try it themselves. Because they can get experience and knowledge that they will use to assess the information before deciding to use it as PS and PSa stated.

CONCLUSION

This study has demonstrated that MLBB players' information-seeking behaviour is significantly related to leisure activity. The findings reveal that the information-seeking behaviour of the players had a statistically significant relationship with some characteristics of serious leisure activity, which are the rank target, participation in the competition, community, and in-game role. For instance, the top three most information sought by the participants are gameplay, items and heroes, which are related to how they play and how they lean toward winning.

Despite all the limitations in analysis and discussion, this study uses a methodology that is rarely used for research on information-seeking behaviour. Data and quantitative analysis from the results of this study can be used as a reference to determine the relationship between information-seeking behaviour and serious leisure activity. This study also highlights the influence of experience on information-seeking behaviour.

Future studies should explore the relationship between information-seeking behaviour and leisure activity with a perfect balance between quantitative and qualitative data. Suppose the quantitative data is sufficient to explain a causal relationship. In that case, it will be suitable for institutions like libraries to make a program tailored to leisure activity group needs based on the quantitative and qualitative data.

REFERENCES

Dela Cruz, R. A. C., Kilag, O. K. T., Contado, M. B., Torreon, S. J. L., Camangyan, J. R., & Abalde, N. J. V. (2024). *Impact of Mobile Legends Bang Bang on Critical Listening and Communicative Skills Enhancement*. https://doi.org/10.5281/ZENODO.10967336

Easily, L. S. (2024, February 21). *Cramer's V and Its Application for Data Analysis*. LEARN STATISTICS EASILY. https://statisticseasily.com/cramers-v/

Ford, N. (2017). *Introduction to Information Behaviour:* (1st ed.). Facet. https://doi.org/10.29085/9781783301843

Gould, J., Moore, D., McGuire, F., & Stebbins, R. (2008). Development of the Serious Leisure Inventory and Measure. *Journal of Leisure Research*, *40*(1), 47-68. https://doi.org/10.1080/00222216.2008.11950132

Granikov, V., Hong, Q. N., Crist, E., & Pluye, P. (2020). Mixed methods research in library and information science: A methodological review. *Library & Information Science Research*, *42*(1), 101003. https://doi.org/10.1016/j.lisr.2020.101003

Hartel, J. (2003). The Serious Leisure Frontier in Library and Information Science: Hobby Domains.

Hartel, J., Cox, A. M., & Griffin, B. l. (2016, December 15). *Information activity in serious leisure* [Text]. Professor T.D. Wilson. https://www.informationr.net/ir/21-4/paper728.html

IESF. (2023, August 21). MLBB GIANTS: WHO'S COMING? *International ESports Federation*. https://iesf.org/wec23-mlbb-iasi/

Indonesia, B. P. S. (2024). *Jumlah Penduduk Pertengahan Tahun—Tabel Statistik*. https://www.bps.go.id/id/statistics-table/2/MTk3NSMy/jumlah-penduduk-pertengahan-tahun--ribu-jiwa-.html

Kementerian Komunikasi dan Informatika, I. (2023). *Report Survei Status Literasi Digital Indonesia2022.pdf*. https://web.kominfo.go.id/sites/default/files/ReportSurveiStatusLiterasiDigitalIndonesia2022.pdf

Knott, E., Rao, A. H., Summers, K., & Teeger, C. (2022). Interviews in the social sciences. *Nature Reviews Methods Primers*, *2*(1), 73. https://doi.org/10.1038/s43586-022-00150-6

Lund, B. (2021). The structure of information behavior dissertations 2009–2018: Theories, methods, populations, disciplines. *Journal of Librarianship and Information Science*, *53*(2), 225-232. https://doi.org/10.1177/0961000620935499

Mahbobi, M., & Tiemann, T. K. (2015). *Chapter 1. Descriptive Statistics and Frequency Distributions*. https://opentextbc.ca/introductorybusinessstatistics/chapter/descriptive-statistics-and-frequency-distributions-2/

Mansourian, Y. (2020). How Passionate People Seek and Share Various Forms of Information in Their Serious Leisure. *Journal of the Australian Library and Information Association*, *69*(1), 17-30. https://doi.org/10.1080/24750158.2019.1686569

Pickard, A. J. (2017). *Research Methods in Information:* (1st ed.). Facet. https://doi.org/10.29085/9781783300235

Sanders, L., Kurbanoglu, S., Boustany, J., Dogan, G., & Becker, P. (2015). Information Behaviors and Information Literacy Skills of LIS Students: An International Perspective. *Journal of Education for Library and Information Science Online*, *56*(S1), S80-S99. https://doi.org/10.12783/issn.2328-2967/56/S1/9

Savolainen, R. (1995). Everyday life information seeking: Approaching information seeking in the context of "way of life". *Library & Information Science Research*, *17*(3), 259-294. https://doi.org/10.1016/0740-8188(95)90048-9

Savolainen, R. (2009). Everyday Life Information Seeking. In M. J. Bates & M. N. Maack (Eds.), *Encyclopedia of Library and Information Sciences* (3rd ed.) (pp. 1780-1789). CRC Press. https://doi.org/10.1081/E-ELIS3-120043920

Savolainen, R. (2017). Information need as trigger and driver of information seeking: A conceptual analysis. *Aslib Journal of Information Management*, *69*(1), 2-21. https://doi.org/10.1108/AJIM-08-2016-0139

Stebbins, R. A. (1992). Serious Leisure. In *Amateurs, Professionals, and Serious Leisure* (pp. 1-19). McGill-Queen's University Press. https://www.jstor.org/stable/j.ctt81ccj.5

Stebbins, R. A. (2007). *Serious leisure: A perspective for our time*. Transaction Publishers.

Tan, A. (2020, November 3). *Mobile Legends surpasses 1 billion downloads | ONE Esports*. https://www.oneesports.gg/mobile-legends/mobile-legends-surpasses-1-billion-downloads/

T'ng, S. T., Ho, K. H., & Pau, K. (2023). Need Frustration, Gaming Motives, and Internet Gaming Disorder in Mobile Multiplayer Online Battle Arena (MOBA) Games: Through the Lens of Self-Determination Theory. *International Journal of Mental Health and Addiction*, *21*(6), 3821-3841. https://doi.org/10.1007/s11469-022-00825-x

Reviving Inclusivity Through Transformative Governance

Sabariah Abd Samad, Imilia Ibrahim

Faculty of Information Science, Universiti Teknologi MARA, Samarahan Campus, Sarawak, Malaysia

Corresponding email: sabariahas@uitm.edu.my

ABSTRACT

Libraries are evolving institutions, tasked with meeting the diverse needs of their communities while remaining inclusive, accessible, and responsive. This paper explores the critical role of transformative governance in reviving inclusivity within library systems. It examines how traditional governance structures often rigid, hierarchical, and exclusionary can inadvertently create barriers for underserved populations. This perception poses a significant challenge, as it risks alienating a key demographic. To transform libraries into vibrant, inclusive spaces that resonate with all walks of life, this paper explores strategies for adaptability, user-centred design, and resilience in the face of change. Libraries can update their services to better engage and support community people by implementing innovative practices and changing outdated policies. This will create spaces that encourage creativity, learning, and connection for future generations. By analysing successful case studies from libraries that have embraced inclusive governance practices, this study highlights innovative strategies such as participatory decision-making, community representation, and transparent policy development. The paper also draws on local and international examples, including efforts in Malaysian libraries and globally recognized institutions like the Seattle Public Library and Helsinki's Oodi Library, to illustrate how reformed governance can lead to more vibrant, welcoming library environments. The findings suggest that when libraries adopt governance models that are collaborative and community-driven, they are better positioned to serve as equitable hubs of knowledge, engagement, and cultural exchange.

Keywords: Library Governance; Inclusivity; Participatory Decision-Making; Community Engagement; Transformative Leadership; Library Policy Reform

INTRODUCTION

Libraries have long served as pillars of education, cultural preservation, and community development. Traditionally governed through structured policies and top-down administration, they have strived to provide equitable access to information for all. Yet in today's rapidly changing social and technological landscape, these very governance structures can become barriers to inclusion—particularly for younger generations and underserved communities whose needs are often overlooked in the decision-making process.

Ranganathan once said, "A library is a living organism" (Five Laws of Library Science, 2024). It is a reminder that libraries must continuously evolve to stay relevant. The modern patron does not simply visit the library to borrow books; they seek connection, collaboration, flexibility, and belonging. As highlighted in the presentation From Snacks to Stacks: Redefining Libraries for Inclusive Communities by Sabariah Abd Samad and Imilia Ibrahim in Persidangan Pustakawan Borneo 2024 , the needs of Gen Z and Alpha patrons have shifted dramatically. They desire agile spaces, comfortable, tech-integrated, and policy-wise those that reflect the way they live, work, and interact with information. Grace Bourret in her work on reflections on the Canadian public library system, stated that public libraries play an important role in Canadian society by providing information, education, and recreational activities to individuals of all socioeconomic and cultural backgrounds. These institutions try to provide open and inviting environments (Bourret, 2021).

Unfortunately, many libraries remain bound by archaic governance and rigid standards, making them feel stagnant and isolated from the communities they serve. To highlight a number of outdated and antiquated laws, policies such as snacks restrictions, stringent zoning, and limited collaboration spaces can discourage participation and make libraries appear unwelcoming. More than 40 years ago, Frederick Wilfrid Lancaster predicted that libraries will be left behind due to rigid and uninnovative governance. He believed that libraries that we know and recognise may soon disappear. Libraries with facilities dedicated to preserving the print-on-paper record of the past will become more like archives or even museums, delivering little in the way of public benefit. Thus, in the long run, it appears that the libraries will be ignored. The situation appears to be clear in today's situation. Libraries are no longer popular destinations for students, scholars, and the general public (Lancaster, 1982).

On the contrary, some libraries have managed to attract and retain users. Global examples include Helsinki's Oodi Library, the Seattle Public Library, and Qatar's National Library, which have all demonstrated how inclusive policies and community-driven governance can transform

libraries into lively, user-centric hub (Helsinki Central Library Oodi, 2025; The Seattle Public Library, 2025; Qatar National Library, 2025).

This paper argues that the key to achieving such transformation lies in reviving inclusivity through transformative governance. By prioritizing participatory decision-making, community representation, and transparency, libraries can re-establish themselves as relevant, inclusive institutions.

PROBLEM STATEMENT

Despite libraries being historically positioned as inclusive community institutions, their governance structures often lag behind evolving societal expectations, particularly in multicultural and youth-driven contexts. In Malaysia and many parts of the world, libraries continue to operate under rigid, hierarchical governance models that enforce outdated policies, limit community engagement, and fail to reflect the needs of diverse user groups. These governance models often exclude patron voices from decision-making processes, resulting in environments that are perceived as unwelcoming, especially by younger generations and marginalized communities.

The issue is not solely about physical design or programming, it is structural. Policies that restrict behaviours like eating or collaborative interaction, combined with limited avenues for user participation in policy development, prolong exclusivity. Example from international practice such as the Helsinki Central Library Oodi and Seattle Public Library have demonstrated the transformative potential of participatory, transparent, and community-centric governance. However, such practices are not yet widely adopted in Malaysian libraries.

This gap between static governance models and the demand for dynamic, inclusive environments calls for urgent attention. There is a need to explore how governance can be reformed to support inclusivity, not just symbolically, but structurally and systematically. Without such reform, libraries risk becoming irrelevant in the eyes of their most critical user groups.

Objectives

1. To analyse libraries that have successfully implemented transformative governance practices:

By analysing selected case studies, the study identifies practical strategies that have enhanced community engagement and user inclusivity. These examples provide valuable insights to inform governance reforms in other library contexts, particularly in Malaysia.

2. To Enhance User Engagement:

Develop innovative and interactive spaces that encourage collaboration, creativity, and social interaction, transforming libraries into vibrant hubs for learning and community connection.

3. To Promote Accessibility and Inclusivity:

Foster a welcoming atmosphere for patrons of all ages by incorporating design and service elements that address diverse needs, preferences, and expectations.

METHODOLOGY

This study adopts a qualitative, exploratory research design to examine how governance structures impact inclusivity within library systems. Given the focus on understanding experiences, practices, and institutional strategies, a qualitative approach allows for a better exploration of policy, participation, and community engagement in libraries. The research is grounded in interpretive analysis, drawing from both local and international case studies to illustrate the relationship between governance reform and inclusive practices.

Data collection for this study involves a combination of document review, case study analysis, and practitioner insights. First, a review of official documents and published policies from selected libraries is conducted to assess the nature and flexibility of their governance models. This includes an examination of internal regulations, user guidelines, strategic plans, and institutional reports. Particular attention is given to policies that influence user participation, service access, and inclusivity.

Secondly, comparative case study analysis is applied to selected library institutions known for innovative governance practices. These include the Helsinki Central Library Oodi (Finland), Seattle Public Library (USA), and libraries within Malaysia such as Perpustakaan Tun Abdul Razak (PTAR) and Pustaka Negeri Sarawak. These cases were chosen based on documented efforts to reform traditional rules and adopt more participatory, community-oriented models. The international examples provide benchmarks for best practices, while the Malaysian cases reflect local challenges and contextual realities.

In addition to policy documents, insights are also drawn from practitioner reflections and presentation materials, particularly the slide deck “From Snacks to Stacks: Redefining Libraries for Inclusive Communities.” This source provides real-world context, showcasing issues currently faced by Malaysian libraries and the aspirations of professionals seeking to transform the library experience through more inclusive policies and spaces.

The collected data is analysed using thematic coding to identify recurring governance attributes such as transparency, participatory mechanisms, and community representation. Themes are then compared across cases to highlight gaps between traditional governance structures and transformative, user-cantered approaches. This comparative analysis informs a set of recommendations aimed at fostering more inclusive governance models for libraries, particularly in multicultural and developing country contexts like Malaysia.

FINDINGS AND DISCUSSION

The findings of this study reveal a growing disconnection between traditional governance structures and the evolving expectations of library users, particularly among younger generations. In Malaysian libraries, both academic and public, rules remain largely rigid, with limited user involvement in decision-making. Policies such as prohibitions on food and drink, designated quiet zones, and limited collaborative spaces have been identified as barriers to engagement. These policies, while intended to maintain order and resource preservation, are increasingly perceived as outdated and misaligned with current user behaviors and preferences**.**

Observations from Perpustakaan Tun Abdul Razak (PTAR) and Pustaka Negeri Sarawak indicate that while these institutions recognize the need to adapt, policy changes often face bureaucratic delays or lack of participatory input. allowing snacks in certain zones or updating signage can significantly enhance user experience and perceptions of inclusivity. However, such reforms are slow-moving due to centralized governance and a lack of structured community feedback mechanisms.

In contrast, libraries in developed countries have demonstrated how transformative governance can lead to meaningful, inclusive change. The Helsinki Central Library Oodi is governed through a participatory model that involved community stakeholders from the early planning stages. This resulted in a multifunctional space that not only houses traditional materials but also includes media studios, event zones, and cafes, encouraging longer visits

and a wider demographic of users. Similarly, Seattle Public Library integrates patron feedback into its policy revisions and allows food in designated zones, acknowledging the importance of comfort and user autonomy in public spaces.

These international examples show that governance transformation must go beyond surface-level redesign. It involves rethinking how policies are formed, who is consulted, and how power is distributed within library systems. By engaging users as co-creators of the library environment, institutions not only foster inclusivity but also cultivate a stronger sense of ownership and loyalty among patrons.

CONCLUSION

Libraries are no longer just quiet spaces filled with books; they are dynamic social institutions that reflect the values, aspirations, and diversity of the communities they serve. This study highlights that while many Malaysian libraries remain governed by rigid, top-down structures, there is a clear and growing need for transformative governance, one that embraces inclusivity, participation, and transparency at its core.

By learning from international examples like Helsinki's Oodi Library and the Seattle Public Library, and by reflecting on local example, it becomes evident that even modest policy reforms can have significant impacts. When users are invited to be part of the governance processwhen their voices shape the rules, spaces, and services, the library evolves into a shared community hub that empowers rather than excludes.

To move forward, library leaders must be willing to rethink traditional governance models and adopt frameworks that are open, responsive, and community-driven. The future of libraries depends not just on technology or design, but on who has a voice at the decision-making table. Only by embedding inclusivity into the heart of governance can libraries truly thrive as sanctuaries of connection, equity, and lifelong learning in an ever-changing world.

REFERENCES

Bourret, G. (2021). Reflections on the public library system in Canada: Inclusivity, race and power. Journal of Interdisciplinary Management, 16.

Brophy, P. (2007). The Liibrary in the Twenty-first Century. London: Facet Publishing.

Five laws of library science.(April 14, 2024). Librarian Studies & Information Technology. https://www.librarianshipstudies.com/2017/09/five-laws-of-library-science.html

Furniture, A. (December 10, 2024). Inspirational Examples of Modern Library Design. AGATI Furniture. https://www.agati.com/:https://www.agati.com/blog/5-inspirational-examples-modernlibrary-design/

Helsinki Central Library Oodi. (April 3, 2025). Helsinki Central Library Oodi. https://oodihelsinki.fi/en/

Lancaster, F. W. (1982). Libraries and Librarians in an Age of Electronics. Arlington, Va: Information Resources Press.

Mark. (2017). More Open Libraries: A Danish Perspective. https://princh.com/blog-more-open-libraries-a-danish-perspective-on-unmanned-library-hours/

Morehart, P. (February 20, 2025). Libraries are Awesome. https://ilovelibraries.org/article/library-passport-inside-the-worlds-most-futuristic-libraries.

Pierce, D. (March 4, 2025). New Library Design: Spaces That Connect, Cultivate, and Transform Communities. https://www.libraryjournal.com/story/new-library-design-spaces-that-connect-cultivateand-transform-communities Qatar National Library. (April 3, 2025). https://www.qnl.qa/en

The Seattle Public Library. (April 4, 2025). https://www.spl.org/

Empowering Resilience: The Role of Malaysian Academic Librarians in Disaster Management Practices

Mohd Ismail Abidin[1,2], Kiran, K.[2], Samsuddin, S.F.[2]

[1]Perpustakaan Tun Abdul Razak, Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia
[2]Department of Library & Information Science, Faculty of Arts & Social Sciences, Universiti Malaya, Kuala Lumpur, Malaysia

Corresponding e-mail: ismailabidin@uitm.edu.my

ABSTRACT

Academic libraries play a vital role in higher education institutions by providing access to essential information and academic resources. However, these libraries often face significant challenges during unexpected disasters, including physical damage to collections, infrastructure loss, and operations disruption, all threatening service continuity. This study explores disaster management practices in Malaysian academic libraries, focusing on librarians' evolving role as disaster management leaders. Beyond their traditional roles as information providers, librarians continue to empower themselves to adapt and cope with new demands such as integrating digital technologies, offering psychosocial support services, and fostering inclusivity that benefits the academic community and the surrounding society. The study identifies key strategies, roles, and responsibilities for maintaining service continuity during a disaster. Qualitative data was gathered from eight (8) individual interviews involving eight (8) participants and focus group discussions with thirty one (31) library managers and library professionals staff . In the absence of disaster-specific policies, librarians face many adversities and stress during a disaster. This emphasizes the urgent need for comprehensive disaster management plans to enhance resilience and facilitate recovery. This study offers valuable insights into how academic libraries can use participatory methods involving the communities they serve to better prepare for, respond to, and recover from disasters. It highlights the need for empowering librarians to gain control over emergencies and adapt to their roles to support academic and societal needs during disasters effectively.

Keywords: Library Disaster Management; Academic Libraries; Librarian's Role; Continuity of Services; Service and User Inclusivity

INTRODUCTION

Academic libraries of the present day have undergone a substantial paradigm shift, transitioning from their traditional role as custodians of books and reference materials to that of strategic institutions that facilitate the development of knowledge, research innovation, and community engagement. Academic libraries now serve a broad and diverse user base, including students, lecturers, researchers, administrative staff, alumni, and even members of the wider public, as they are situated at the intersection of education, information access, and digital transformation. Academic libraries serve as dependable and responsive information centres that provide curated and credible resources that are specifically designed to meet the changing academic, professional, and societal requirements of their users in addition to facilitating teaching and research activities. Academic libraries are also entrusted with a more critical role in the increasingly complex landscape of higher education, which is to ensure institutional resilience in times of disaster. Libraries are becoming critical players in the implementation of disaster risk reduction (DRR) strategies (Mkhai & Kassim, 2024)as universities confront escalating challenges, including natural hazards, pandemics, cyber threats, and socio-political instability. Safeguarding physical and digital assets, guaranteeing the continuity of essential services, and addressing the emotional and informational needs of impacted academic communities are among the primary responsibilities of librarians. In numerous instances, librarians have assumed leadership roles by collaborating across institutional and external stakeholder networks, managing digital continuity systems, and coordinating emergency protocols.

Simultaneously, the disaster management landscape has been substantially altered by the integration of artificial intelligence (AI) technologies into library services(Okunlaya et al., 2022). Operational efficiency and user experience are being improved by AI-powered tools, including predictive analytics, intelligent search platforms, automated metadata generation, and virtual assistants (Xing et al., 2005). AI is increasingly being used in disaster contexts to forecast risks, model institutional vulnerabilities, and provide real-time data for rapid decision-making. These advancements not only enhance the quality of service during routine operations, but they also enhance the capacity of libraries to identify, address, and recover from disruptions. Nevertheless, academic libraries in Malaysia continue to lack comprehensive disaster management practices (Abidin et al., 2024; Siti Juryiah Mohd Khalid, 2013). Institutional preparedness at the library level remains fragmented and inconsistent, national policy frameworks such as National Disaster Risk Reduction Policy 2030 (Agensi Pengurusan Bencana Negara, 2024) that provide comprehensive guidance. The COVID-19 pandemic has revealed critical weaknesses in the resilience structures of academic libraries, particularly in maintaining physical service continuity. These shortcomings reflect a broader lack of preparedness not only for health-related crises but also for other disruptive events such as

floods, fires, and cyberattacks all of which have the potential to trigger extended campus closures.. Librarians have been compelled to act reactively, leading emergency responses and making critical decisions without formal training or institutional support, because of the absence of library-specific policies and contingency plans.

The main point of this paper is that Malaysian academic librarians are not only in charge of information, but they are also on the front lines of resilience, playing important roles in keeping services running and helping academic communities during times of crisis. These professionals are active in two important areas of resilience: structural resilience, which includes protecting infrastructure, putting policies into action, and mobilising resources; and human-centred resilience, which includes empathetic communication, making sure everyone has access, and providing psychosocial support. This study used real-life experience data from interviews and focus groups with academic librarians all over Malaysia. This paper adds to the larger academic conversation by showing that academic libraries are not just places where people can get information, but also important parts of society that help keep knowledge alive, move digital transformation forward, and make communities stronger in the face of uncertainty.

LITERATURE REVIEWS

Disaster management within the library context involves the systematic planning and implementation of preventive and responsive measures aimed at minimizing both the likelihood and the impact of disruptive events. Central to this process is the development of a disaster management plan, which serves as a strategic framework encompassing risk identification, mitigation efforts, emergency protocols, and post-disaster recovery procedures (Gohain et al., 2021; Hamilton & Brown, 2016; Matthews et al., 2009). Kahn (1993) andKaur (2009) emphasizes that integrating emergency planning into library operations is essential to preparing staff and institutions for a wide array of potential disasters. Core elements typically include insurance provisions, staff reassignment plans, salvage operations, and communication strategies to manage crises effectively. However, the effective implementation of such plans is often hindered by a lack of awareness, training, and institutional prioritization. A case study by Kaur (2009) involving two university libraries in Punjab severely impacted by flooding in 1993 revealed that nearly 70% of their collections were lost. The damage was largely attributed to inadequate disaster preparedness and the absence of staff readiness, underscoring the need for both strategic planning and institutional culture that prioritizes disaster resilience.

A broader body of literature further affirms the critical roles that libraries and librarians play in disaster contexts. Donna M. (2010)Braquet, for instance, highlights the role of libraries as essential spaces for survivors post-disaster, offering internet access, information dissemination, and physical refuge. Chancellor (2019) examines the supportive functions of libraries during episodes of civil unrest in urban settings, while Donahue & Featherstone (2013) discuss the evolving identity of librarians as disaster response facilitators and community anchors. Public libraries, as explored by Alam et al. (2022), play significant roles in delivering timely and credible information during emergencies, serving as vital touchpoints for affected communities. In the Malaysian context, the study by Abidin et al. (2024) and Siti Juryiah Mohd Khalid & Norazlina Dol (2015) reveals considerable gaps in disaster preparedness among academic libraries, including the lack of structured protocols and insufficient staff training. Eden & Matthews (1996), along with guidelines issued by the University of Washington Library (2018) and American Library Association (2022) provide practical frameworks for libraries to design and implement effective disaster management strategies, stressing the need for localized, adaptable plans and institutional support.

In addition to operational preparedness, libraries and librarians also play an educational role in disaster risk reduction. Rattan (2013) and Ihekwoaba et al. (2021) document libraries' efforts in collaboration with international bodies such as UNESCO to deliver disaster education programs aimed at building public awareness and community resilience. These initiatives often include structured training modules, digital learning platforms, and curated information resources that support emergency response capabilities. As education systems increasingly pivot toward digital and remote learning models, accelerated by the COVID-19 pandemic, academic libraries are also tasked with ensuring service continuity during prolonged closures. Fernando & Jayasekara (2020) argue that strategic preparedness for digital transformation must include librarian training in areas such as digital literacy, e-learning facilitation, and virtual instructional design. Koulouris et al. (2020) identify various digital services enabled by technological infrastructure, such as teleconferencing, online reference assistance, and electronic resource provision, all of which are critical during disruptions. Chisita (2020) and Linus et al. (2021) emphasize the necessity of maintaining credible digital access points, coupled with digital literacy education to help users navigate the influx of online content. In this regard, libraries act as “bastions of authenticity,” ensuring access to verified, reliable information during times of crisis.

In response to the COVID-19 pandemic, libraries worldwide rapidly adapted their service models to maintain connectivity with users. This included not only digitizing existing services but also creating new offerings such as e-book access, streaming media platforms, virtual

community engagement, and remote programming (Perrine, 2020; Public Library Association, 2020). Social media platforms became vital communication tools, allowing libraries to notify users of service changes, promote resources, and maintain engagement. Moreover, librarians have played an instrumental role in fostering inter-institutional collaborations, enabling resource pooling and mutual support during large-scale emergencies. Initiatives such as mutual aid agreements, joint disaster drills, and cross-library contingency planning have been crucial in sustaining operations during disruptive (Featherstone et al., 2008; Tu-Keefner et al., 2025). These findings highlight the necessity for librarians to be recognized not only as information professionals but as strategic disaster resilience actors. Through intentional planning, resource sharing, and strategic partnerships at local, national, and international levels, academic librarians contribute significantly to disaster preparedness, institutional resilience, and the overall well-being of the academic and surrounding communities.

Research Objectives

A review of existing literature highlights a significant gap in scholarly attention to disaster management practices within academic libraries, especially in Malaysia. The limited studies available suggest that many academic libraries lack formal policies, guidelines, or documented strategies related to disaster preparedness and risk management. This lack of structured planning could impede effective response and recovery efforts, placing library services and collections at considerable risk during disasters.

This study focuses on empowering resilience by examining the roles of Malaysian academic librarians in disaster management practices. It aims to understand how librarians perceive and implement their responsibilities in maintaining library services before, during, and after disaster events.

This paper addresses the following research question:

How do academic libraries perceive their role in supporting library services during and after a disaster?

By exploring the professional insights, decision-making processes, and on-the-ground practices of academic librarians, this study seeks to uncover the ways in which they contribute to institutional resilience. The findings will offer valuable perspectives for library leadership

and policymakers, supporting the development of more effective and inclusive disaster management strategies across Malaysian academic libraries.

METHODOLOGY

To explore the role of Malaysian academic librarians in disaster management and their contributions to empowering institutional resilience, this study adopted an interpretivist qualitative approach. Eight (8) academic libraries were involved in the data collection process, with libraries assigned pseudonyms AL1 to AL8. Data were gathered through semi-structured interviews and focus group discussions conducted between April and October 2023. Semi-structured interviews were carried out with Chief Librarians and Library Managers (coded as LM1–LM8), who were directly involved in decision-making and policy development concerning disaster preparedness and service continuity. Additionally, focus group discussions (FGDs) were conducted with thirty-one (31) librarians (coded FGD1–FGD31) to further capture collective experiences, insights, and practical strategies implemented within their institutions. These discussions provided deeper understanding of the librarians' operational roles during disaster scenarios. The interviews and FGDs sessions, conducted face-to-face between April and June 2023, lasted between 60 to 90 minutes. All sessions were audio-recorded, securely stored on Google Drive, and transcribed for analysis. Member-checking was performed by sharing the transcripts with the respective informants to ensure the accuracy and validity of the data, in line with the guidelines suggested by Nowell et al. (2017).

Thematic Analysis Method (TAM) was employed to identify and develop recurring themes from the qualitative data. Coding and data organization were facilitated using ATLAS.ti Version 23. Through this method, the study identified how academic librarians perceive and enact their roles in preparing for, responding to, and recovering from disasters, with emphasis on their capacity to build resilience in academic library services.

FINDINGS

Demographic Information

Table 1 presents the demographic details of the interview informants and the pseudonyms assigned to each focus group discussion session.

Table 1: Demographic information of interview informant and focus group discussion

Institutions Code	Interview Informants (Pseudonym)	Gender	Position	Length of Services in Library	Focus Group Discussion Informants (Pseudonym)
AL1	LM1	Male	Chief Librarian	35 Years	FGD1, FGD2, FGD3
AL2	LM2	Female	Deputy Chief Librarian	26 Years	FGD4, FGD5, FGD6, FGD7, FGD8
AL3	LM3	Male	Deputy Chief Librarian	15 Years	FGD9, FGD10, FGD11, FGD12
AL4	LM4	Male	Principal Asssistant Director	16 Years	FGD13, FGD14, FGD15
AL5	LM5	Male	Senior Librarian	14 Years	FGD16, FGD17, FGD18
AL6	LM6	Male	Deputy Chief Librarian	22 Years	FGD19, FGD20, FGD21, FGD22
AL7	LM7	Female	Senior Deputy Chief Librarian	25 Years	FGD23, FGD24, FGD25, FGD26
AL8	LM8	Male	Chief Librarian	16 Years	FGD27, FGD28, FGD29, FGD30, FGD31

The interviewees and FGD informants were asked to describe their evolving roles in the context of disaster events, including the strategies and services implemented both before and after such incidents. The analysis of the interview and focus group discussion (FGD) transcripts yielded 26 inductive codes, which were systematically organized into six key subthemes. These subthemes reflect how academic libraries perceive and perform their roles in sustaining and supporting library services during and after disaster crises.

The subthemes encompass a broad spectrum of functions, including the accuracy and dissemination of information, agility and adaptability in service delivery, budget allocation for emergency needs, disaster assessment processes, and the equitable distribution of resources. Additionally, innovative utilization of physical space emerged as a critical aspect of service continuity. Other significant themes include leadership and decision-making, inter-agency collaboration, policy and framework development, mental health and psychosocial support, data protection, and disaster management training for staff. The findings also underscore the importance of emergency communication systems, role delegation, performance tracking, team coordination, predictive planning, project development, and user engagement.

Furthermore, areas such as fostering community resilience, enhancing staff skills, embracing technological innovation, promoting workplace flexibility, and encouraging knowledge sharing were identified as essential strategies for academic libraries in navigating and responding to disaster-related challenges.

Table 2: Evolving role of library and librarian in supporting services during and after a disaster Thematic Analysis Matrix

Research Question	Deductive Code	Strategy of Inquiry	Inductive Code		
			Inductive Code	Subtheme	Themes
How do academic libraries perceive their changing role in supporting library services during and after a disaster crisis?	• Library Role • Librarian Role • New Services	Interview / Focus Group Discussion	• Accuracy and Dissemination of Information • Data Protection and Safety Management • Knowledge Sharing and Capacity Development • Emergency Communication and Coordination	ST1: Information Management and Dissemination	Evolving Roles of Academic Libraries in Disaster Management and Supporting Services During and After Disaster Crises
			• Changing Roles and Leadership • Agility, and Adaptability • Job Responsibilities and Role Allocation • Management and Team Support	ST2 : Leadership, Management, and Governance	
			• Budget Allocation and Income Generation • Resource Distribution	ST3 : Resource Allocation and Infrastructure	

			• Innovative Space Design and Transformation		
			• Disaster Assessment and Indicators • Disaster Management Committees and Training • Documenting and Responding to Disasters • Continuity of Services and Working Continuity	ST4 : Disaster Preparedness and Response	
			• Community Resilience and Recovery Support • Promotion, Marketing, and User Engagement • Skill Development and Engagement • Crisis and Mental Health Support Services	ST5 : Community Engagement and Support	
			• Collaboration and Coordination • Project Initiatives and Development • Technology Adaptation and Implementation	ST6 : Collaboration and Innovation	

Information Management and Dissemination Role During Disasters

In times of disaster, academic libraries play a key role in managing and sharing accurate and timely information. This involves organizing important data, protecting it from loss or misuse, and ensuring users can access reliable information even during disruptions. The findings

indicate that Malaysian academic librarians have taken steps such as securing digital files, using emergency communication tools, and keeping users updated with important notices. These actions help maintain services, support decision-making, and ensure library operations continue smoothly. This subtheme is supported by four inductive codes: (1) Accuracy and Dissemination of Information; (2) Data Protection and Safety Management, (3) Knowledge Sharing and Capacity Development and (4) Emergency Communication and Coordination
One of the librarians from AL6 (FGD16) highlighted that their library focuses on reliable communication platforms to ensure user trust during crises. This includes managing social media and other communication tools so that updates remain accurate and dependable.:

> *"Our information channels are reliable and trustworthy, so you can have confidence that the information we provide is accurate." – FGD19 (AL6)*

LM1 from AL1 shared that their library continued to provide regular updates without announcing full closures, demonstrating a focus on consistent and accurate messaging. LM6 added that they had shared their library's disaster communication practices during a professional event by the Malaysian Librarians Association, underlining the importance of effective communication:

> *"It was a sharing session about the initiatives we implemented during the Covid-19 pandemic." – LM6 (AL6)*

LM3 explained that their communication efforts followed institutional SOPs but were adapted to suit the library environment:

> *"We had to follow the relevant SOPs. However, our involvement was more focused on how we applied them in our own environment." – LM1 (AL1)*

At AL8, librarians used induction videos to brief students on safety from the beginning of their university experience, supported by fire drills involving staff and emergency services:

> *"We start with an induction video that covers safety briefings... The fire drill involves staff, students, and the fire department as well." – FGD29 (AL8)*

Other libraries, like AL6, used digital safeguards to prevent misuse of documents such as theses by adding watermarks and security settings:

> *"We placed a watermark with security settings on the documents... to stop them from copying the thesis." – FGD21 (AL6)*

In AL1, librarians were reminded to handle laptops and other equipment carefully to avoid data loss during emergencies:

> *"We're cautious with our laptops, fearing that if they're turned off, the information might be lost." – FGD3 (AL1)*

Finally, LM3 described how librarians have become more visible and confident in public communication, using platforms like Instagram and TikTok to reach users with updates and awareness messages:

> *"In the past, librarians might have been shy, but now they're confident enough to go live on Instagram, TikTok, and other platforms." – LM3 (AL3)*

Leadership, Management, And Governance Roles

In academic libraries, leadership, management, and governance refer to how library leaders guide their teams through disaster recovery and help build resilience. This includes adjusting management approaches, assigning clear staff roles, creating supportive workplace policies, and ensuring libraries follow both institutional and national disaster guidelines. Strong leadership and good governance help libraries respond quickly, support staff flexibility, and create a proactive work culture that can handle crises effectively. This subtheme is based on four inductive codes (4) inductive codes: (1) Changing Roles and Leadership; (2) Agility and Adaptability; (3) Job Responsibilities and Role; (4) Allocation, Management and Team Support.

For example, LM3 shared that when the Movement Control Order (MCO) was announced, the library had already prepared staff schedules and remote work plans:

> *"When the MCO closure directive came out, we were already prepared—we knew what needed to be done." – LM3 (AL3)*

This shows how important it is for library leaders to plan ahead and make quick decisions in times of crisis. LM6 explained that the disaster created new roles in the library and led to formal leadership changes, with department heads receiving higher-level (JUSA) appointments due to their expanding responsibilities:

> *"Our roles increased during the disaster, and leadership became more formalized." – LM6 (AL6)*

LM1 emphasized that changing staff mindset was also a key part of post-disaster resilience—especially in embracing safety, digital tools, and new service models:

> *"We're steering towards a mindset shift—safety and technology are part of our main agenda for 2023." – LM1 (AL1)*

During recovery, libraries needed flexible staffing strategies. LM6 shared that most staff completed their tasks successfully, reflecting effective role assignment and team coordination:

> *"Most staff members successfully complete their respective tasks." – LM6 (AL6)*

LM1 noted that library management supported flexible working arrangements, allowing staff to choose between working from the counter or from home:

> *"We allowed staff to work where they were most comfortable—either at the counter or remotely." – LM1 (AL1)*

LM3 added that the library issued computers for staff to use at home, showing how management anticipated and addressed technology needs during remote work:

> *"We filled out an asset movement form and took the computers home." – LM3 (AL3)*

These examples demonstrate how effective leadership and flexible policies helped academic libraries stay operational, support staff well-being, and adapt to unexpected challenges during and after disaster events.

Resource Allocation and Infrastructure

Malaysian academic libraries regard resource allocation and infrastructure development as critical duties for sustaining and rehabilitating services during and post-disasters. They perceive their function not merely as service providers but also as strategic planners, ensuring that financial resources, physical spaces, and technological infrastructure are adequately prepared to facilitate continuity and recovery.

This subtheme is drawn from two core insights: (1) budget allocation and income generation and (2) innovative space design and transformation.

According to LM6, their libraries acknowledge that while they do not have a dedicated disaster management budget, they rely on institutional support from university development units. These centrally allocated funds, often substantial, are used for building repairs, restoration

works, and equipment procurement following incidents like fires or accidents. This indirect access to financial resources shapes the libraries' understanding of their support role as one that depends heavily on inter-departmental coordination and proactive financial planning.

> *"We don't have a specific disaster fund, but the university has a management unit that handles such incidents. The budget can reach millions, used for repairs and equipment." – LM6 (8:42 ¶427 in AL6)*

Malaysian academic librarians also see themselves as contributors to institutional resilience through income-generating activities. FGD4 reported that librarians have initiated external training programs for groups, such as schoolteachers. These paid sessions generate revenue and reflect a broader vision of libraries extending their impact beyond campus boundaries, strengthening both financial stability and community resilience.

> *"We've started running paid training for teachers—it supports the library financially and builds community knowledge." – FGD4 (14:114 ¶1653 in FGD_AL2)*

In terms of infrastructure, academic librarians also view space transformation as a direct response to changing user needs during crises. LM6 shared how the introduction of a Maker Space enhanced the library's role as a hub for experiential learning. Equipped with robotics and technology tools, this space served not only university students but also external users such as local schoolchildren, particularly from military families. This reflects a perception of the library as a resilient, multifunctional environment aligned with IFLA's emphasis on community learning hubs in post-disaster settings.

> *"The Maker Space changed how people use the library—now students and even schoolkids come in for hands-on learning." – LM6 (8:166 ¶1153 in AL6)*

Additionally, libraries demonstrated flexibility in repurposing spaces to maintain academic operations. FGD16 highlighted how library areas were used for exams and research presentations when regular venues were disrupted, showing a commitment to academic service continuity.

> *"If there's a disruption, we just convert the space for such exams or research presentations; they all happen in the library." – FGD16 (12:112 ¶459 in FGD_AL5)*

Libraries also recognize the importance of digital infrastructure in sustaining services. FGD18 shared how post-pandemic network upgrades led to enhanced internet capacity, enabling

virtual training, hybrid learning, and remote meetings—improvements that have become permanent assets in the library's disaster response toolkit.

> *"We upgraded the internet after COVID—now we're better prepared for online and hybrid services." – FGD18 (12:113 ¶449 in FGD_AL5)*

Disaster Preparedness and Response Roles

Malaysian academic librarians view disaster preparedness and response as integral to their professional responsibilities, ensuring the continuity of library services during and after crises. They adopt proactive roles as planners and responders, safeguarding collections, supporting users, and maintaining essential operations throughout disaster events.

This subtheme is supported by four (4) role: (1) Risk Assessment and Disaster Indicators ; (2) Service Continuity, (3) Disaster Documentation and Response; (4) Disaster Committees and Staff Training.

To improve disaster preparedness, Malaysian academic librarians are essential in performing routine risk assessments. Libraries understand that ongoing risk assessment keeps them alert and prepared to act. An AL6 informant, for example, mentioned that two significant floods in 2006 and 2023 reaffirmed the importance of regularly reevaluating risks. Likewise, according to an AL4 informant, their team assesses possible library hazards two to four times a year to make sure readiness is up to date and efficient.

> *"We had a flood in 2006, and again in 2023. Sometimes we forget what can happen if we don't stay prepared." – FGD19 (9:31 ¶272 in FGD_AL6)*

Malaysian academic librarians also play an important role in ensuring service continuity, particularly by leveraging digital solutions. Libraries have prioritised the transition to e-services to ensure access during disruptions. As shared by LM5, their library had introduced online consultations prior to the pandemic, but widespread adoption only occurred when physical services were suspended. LM6 added that all library education sessions and postgraduate support were fully migrated online to guarantee uninterrupted user access.

> *"We had e-consultation for a long time, but during the pandemic, more users began using them out of necessity." – LM5 (7:48 ¶207 in AL5)*

In terms of disaster response, librarians see value in properly documenting every step. LM3 shared that after a major flood, the staff recorded damage to 15,000 books. Every item was

checked and logged, and procedures were followed carefully—especially since the library was undergoing ISO certification at the time.

> *"We didn't just throw damaged books away. Each one was checked and recorded. We followed proper crisis management steps." – LM3 (3:69 ¶78 in AL3)*

LM5 noted that their library representative attends university-level disaster meetings and shares updates through internal workshops. Meanwhile, in AL6, staff have clearly assigned roles such as wardens and fire officers. They participate in annual emergency drills and first aid training.

> *"Our rep joins the university's disaster committee and reports back to us in meetings or workshops." – LM5 (7:40 ¶175 in AL5)*
> *"Everyone in the emergency team has a role—some are fire wardens, some do first aid. We train every year." – FGD20 (9:35 ¶302 in FGD_AL6)*

Community Engagement and Support Roles

The role of Malaysian academic librarians in this role involves active engagement in community recovery and resilience during and after disaster events. Librarians extend beyond traditional responsibilities by providing support services, safe learning environments, digital access, and emotional well-being initiatives—not only for campus stakeholders but also for the broader community.

This role is reflected through four clustered code: (1) Community Resilience and Recovery Support; (2) Mental Health and Crisis Support; (3) User Engagement and Promotion; (4) Skill Development and Capacity Building.

During crises such as the Movement Control Order (MCO), academic librarians supported students in transitioning between home and campus environments, offering practical logistical assistance (LM4). They also volunteered at university vaccination centers (PPVs), showcasing their expanded public service roles during national emergencies.

> *"Library staff helped students move back and forth during MCO and assisted with vaccine distribution at PPVs." – LM4 (5:36–37 ¶100 in AL4)*

Libraries also operated as safe spaces for students lacking stable internet connectivity. FGD30 reported that students used library facilities to attend virtual classes, while FGD16 shared that access was even extended to students from other institutions sitting for online examinations.

> *"Some students used the library as a place for online learning because they didn't have good internet at home." – FGD30 (11:143 ¶188 in FGD_AL8)*
> *"We opened the space for students from other universities to sit for their online exams." – FGD16 (12:72 ¶269 in FGD_AL5)*

LM2 highlighted that emotional strain during the pandemic affected both mental and physical health, prompting libraries to implement flexible working hours and revised performance expectations. LM7 noted that their universities offered free counselling services, which were actively promoted by the library.

> *"Many of us were stressed during the pandemic, so the library made our schedules more flexible." – LM2 (2:39 ¶167 in AL2)*

These efforts align with IFLA's guidelines, which recognize libraries as potential support hubs for emotional recovery during disasters.

In terms of community outreach, LM8 described how librarians supported local school libraries by training teachers, upgrading facilities, and promoting reading culture.

> *"Even before the pandemic, we helped schools restructure their libraries and taught teachers how to manage them." – LM8 (4:62 ¶194 in AL8)*

Further, skill development and capacity building are recognized as key strategies for long-term recovery and resilience. LM1 emphasized efforts to produce digitally skilled librarians and data stewards aligned with national initiatives such as the Malaysian Open Science Platform. LM7 reinforced the importance of building expertise in areas like research analytics and digital repository systems, often through collaboration with IT departments.

> *"We're moving towards data-driven services. It's essential for supporting research and staying relevant." – LM7 (6:80 ¶158 in AL7)*

Collaboration And Innovation Roles

Malaysian academic librarians recognise collaboration and innovation as essential strategies for ensuring service continuity and responsiveness during and after disasters. They believe that effective partnerships, both within and beyond their institutions, combined with adaptive use of technology, are critical to sustaining operations, addressing emerging challenges, and enhancing library functions in times of disaster.

This subtheme is informed by three inductive codes: (1) Collaboration and Coordination; (2) Project Initiatives and Development; (3) Technology Adaptation and Implementation
Libraries frequently collaborate with internal departments, academic faculties, and external organizations. These partnerships support joint academic initiatives such as writing projects, training, and seminars. As LM1 shared, such collaborations not only expand the librarians' expertise but also reinforce their roles within academic ecosystems:

> *"We've collaborated on writing projects and seminars. It helps us grow and support others too." – LM1 (1:59 ¶155 in AL1)*

Even when not formally included in the university's disaster management committees, libraries still play an active role in coordinating with decision-making bodies. LM7 noted that the library remained responsive to COVID-19 protocols by maintaining communication with the central disaster unit and implementing necessary safety measures:

> *"We're not in the university disaster committee, but we follow their instructions and coordinate when decisions need to be made—like closing the library or cleaning procedures." – LM7 (6:25 ¶66 in AL7)*

Innovation is also demonstrated through librarian-led initiatives. During the pandemic, AL6 informants described developing a mobile application from home to promote emergency awareness. The app featured visual guides on emergency signs and fire extinguisher locations:

> *"We developed an app from home to support disaster preparedness—showing emergency signs and fire extinguisher locations." – FGD19 (9:155 ¶1127 in FGD_AL6)*

In the absence of formal training, librarians self-learned new digital skills to enhance service delivery. FGD21 explained how team members used online resources such as YouTube to acquire technical abilities, including securing digital files and adding watermarks:

> *"We didn't have training, so we learned on YouTube—how to secure PDFs and add watermarks ourselves." – FGD21 (9:105 ¶639 in FGD_AL6)*

Academic libraries also embraced digital project management tools to coordinate remote work and ensure operational continuity. LM3 highlighted the use of Monday.com to manage tasks and staff across multiple campuses:

> *"I used Monday.com to track tasks for staff at three campuses—it helped give instructions and see their progress." – LM3 (3:60 ¶99 in AL3)*

Adaptation to new digital communication platforms became necessary for daily operations. LM3 emphasized the importance of rapidly learning and teaching platforms like Webex and Google Meet to their teams:

> *"We had to decide which platform to use and teach our staff. We kept learning and adapting to technology." – LM3 (3:47 ¶66 in AL3)*

LM8 echoed this sentiment, noting that the pandemic accelerated the integration of digital tools, particularly for communication and meetings:

> *"The pandemic made us shift to technology—we've learned how to use online meeting tools now." – LM8 (4:71 ¶105 in AL8)*

Through these collaborative and innovative efforts, Malaysian academic librarians have demonstrated their adaptability and leadership in disaster management, reinforcing their roles as key facilitators of continuity, problem-solving, and institutional resilience.

DISCUSSION

The results of this study show that Malaysian academic librarians have changed a lot. They are no longer just responsible for keeping knowledge safe; they are now also important players in disaster management and institutional resilience. This change is clear in the way they are actively involved in many areas, such as leadership, information governance, adapting infrastructure, integrating technology, providing psychosocial support, and reaching out to the community. Academic librarians have shown that they are more responsible when it comes to handling information during crises, especially by making sure that data is accurate, communicated quickly, and kept safe. This agrees with what the research says about libraries being trusted places to get information and shows how librarians' skills in risk communication are changing (Chancellor, 2019; Donna M., 2010). These changes show that people now see libraries as more than just places to store books; they see them as active communication centres that can share accurate information in times of crisis. This role fits with what other researchers have said about libraries being reliable sources of information during times of uncertainty. In Malaysia, this has been proven even more by the active sharing of safety rules, service updates, and changes to how things work during the COVID-19 pandemic.

Librarians were still able to take on leadership roles even though there were no formal disaster policies or training in place. Instead, a lot of library managers showed strategic agility by setting up flexible work schedules, managing remote teams, and keeping operations running smoothly. These results are similar to those of earlier studies that found librarians taking on

leadership roles in disaster situations. This shows that librarians can lead when organisations are unstable. This backs up what Donahue & Featherstone (2013) found earlier about how librarians can become leaders in disaster situations. Malaysian academic libraries quickly changed their policies and procedures to keep their staff and users safe while still giving them access to important services.

Librarians have also become infrastructure planners and financial strategists, in addition to being leaders. Without separate disaster budgets, they worked with other departments to make better use of existing spaces, manage limited resources, and start projects that would bring in money. These experiences show that more and more people are realising that academic libraries need to make disaster planning a permanent part of their operations. This includes finding long-term funding sources and setting up formal support systems that can handle future crises.

The study also found that Malaysian academic libraries are now better at planning for and responding to emergencies. Risk assessments, documentation practices, and digital service transformation are now all-important parts of being ready for a disaster. The creation of mobile apps to raise awareness of emergencies and the push for people to learn digital skills on their own show that institutions are moving towards a culture of proactive planning and resilience.

This method follows international guidelines for disaster preparedness and shows that institutions are becoming more mature in realising the importance of early intervention and organised emergency responses. Community involvement became another important part of librarianship during disasters. Librarians took on more responsibilities, such as helping people with mental health issues, making sure that everyone could safely use digital infrastructure, and reaching out to groups of users who were at risk. During the pandemic, libraries helped students who didn't have stable internet connections by giving them places to learn and take tests online and even helping them get counselling services. These programs help libraries become welcoming, healing places for emotional and educational recovery, especially during long-term crises when personal and institutional problems overlap.

Collaboration and innovation are just as important for making libraries strong. Librarians worked with academic departments, IT departments, local schools, and outside groups to come up with solutions and reach out to more people. They also showed that they could learn

on their own by using digital tools and platforms like project management systems and virtual conferencing software to keep providing services and manage teams that were spread out. This combination of collaborative practice and adapting technology is in line with global trends in library resilience, where innovation is not a one-time event but a constant process that is built into planning and redesigning services. These results are in line with recent trends in libraries that are disaster-resilient using technology to keep things going and reach more people (Koulouris et al., 2020; Okunlaya et al., 2022).

In short, Malaysian academic librarians see their roles in disaster situations as going far beyond just taking care of books and information. They see themselves as institutional stewards, giving both users and coworkers access to digital resources, emotional support, community outreach, and chances to grow professionally. They are also in charge of financial planning, making sure that digital infrastructure is used in a way that adapts to changing needs, and making long-term investments to make sure that services are available throughout all stages of a disaster. Academic librarians make a big difference in the resilience of their institutions by planning ahead, involving everyone, and providing responsive service. Their actions show that libraries are important parts of higher education and that librarians are on the front lines, dealing with uncertainty, helping users, and leading change during times of crisis. This study adds to the growing conversation about the resilience of higher education by showing how academic librarians' roles in disaster management are becoming more complex, dynamic, and strategic.

CONCLUSION

Malaysian academic librarians are no longer limited to their old roles; they now play a key role in helping institutions stay strong in the face of disaster. Their ability to adapt, lead, and come up with new ideas when things get tough shows that they have a strong sense of responsibility and care. Even though there aren't any official disaster-specific policies in place, these professionals have shown flexibility, empathy, and leadership in keeping services going, helping students make progress in school, and encouraging recovery efforts that include everyone.

This study shows that there is an urgent need for formal disaster management frameworks that are specific to academic libraries and include training, access to funding, and organised participation in institutional crisis committees. To create an academic ecosystem that is ready for disasters, it is important to give librarians the power, tools, and recognition they need.

In the end, academic libraries could be more than just places to store information. They could also be strong community centres that help institutions and societies deal with and recover from problems. As disaster risks get more complicated, it's important and timely to recognise and invest in the changing roles of academic librarians.

REFERENCES

Abidin, M. I., Kiran, K., & Samsuddin, S. F. (2024). In the line of disaster: preparedness and effective response of academic libraries in Malaysia. *Library Management*. https://doi.org/10.1108/LM-02-2024-0021

Agensi Pengurusan Bencana Negara. (2024). Dasar pengurangan risiko bencana negara 2030.

Alam, A. S. A. F., Reza, M. I. H., Begum, H., Er, A. C., & Pereira, J. J. (2015). Promoting community for disaster risk reduction. *Advanced Science Letters*, *21*(6), 1700-1703. https://doi.org/10.1166/asl.2015.6244

American Library Association. (2022, June 28). Library disaster preparedness & response: Disaster preparedness. ALA.

Chancellor, R. L. (2019). Communities in the Crossfire: Models for public library action. *Collaborative Librarianship*, *1*(1). https://digitalcommons.du.edu/cgi/viewcontent.cgi?article=1402&context=collaborativelibrarianship

Chisita, C. T. (2020). Libraries in the midst of the Coronavirus (COVID-19): researchers experiences in dealing with the vexatious infodemic. *Library Hi Tech News*, *37*(6). https://doi.org/10.1108/LHTN-03-2020-0022

Donahue, A. E., & Featherstone, R. M. (2013). New roles for hospital librarians: a benchmarking survey of disaster management activities. *Journal of the Medical Library Association : JMLA*, *101*(4), 315-318. https://doi.org/10.3163/1536-5050.101.4.014

Donna M., B. (2010). Library experiences of Hurricane Katrina and New Orleans flood survivors. *Library and Information Science Research E-Journal*, *20*(1). https://doi.org/10.32655/LIBRES.2010.1.1

Eden, P., & Matthews, G. (1996). Disaster management in libraries. *Library Management*, *17*(3), 5-12. https://doi.org/10.1108/01435129610112743

Featherstone, R. M., Lyon, B. J., & Ruffin, A. B. (2008). Library roles in disaster response: an oral history project by the National Library of Medicine. *Journal of the Medical Library Association : JMLA*, *96*(4), 343-350. https://doi.org/10.3163/1536-5050.96.4.009

Fernando, I. D. K. L., & Jayasekara, P. K. (2020). Reopening the academic library in the post-pandemic season: A lesson-learned from the COVID-19 pandemic. *Journal of the*

University Librarians Association of Sri Lanka, *23*(2). https://doi.org/10.4038/jula.v23i2.7975

Gohain, A., Tariang, B. L., & Librarian, M. S. (2021). Disaster Management in Central Library, Tezpur University: A Study. *Library Philosophy and Practice*, *2021*, 1-10.

Hamilton, R., & Brown, D. (2016). Disaster Management and Continuity Planning in Libraries. *International Journal of Risk and Contingency Management*, *5*(1), 26-41. https://doi.org/10.4018/IJRCM.2016010103

Ihekwoaba, E. C., Okwor, R. N., & Nwankwo, T. V. (2021). Ebola Outbreak Preparedness and Response: Integrating Librarians' Role into the Ebola Response Incident Management Model of Nigeria. *Library Philosophy and Practice*, *2021*, 1–-7.

Kahn, M. (1993). Mastering disaster: Emergency planning for libraries. *Library Journal*, *118*(21), 73-75.

Kaur, T. (2009). Disaster planning in university libraries in India: A neglected area. *New Library World*, *110*(3-4), 175–187. https://doi.org/10.1108/03074800910941365

Koulouris, A., Vraimaki, E., & Koloniari, M. (2020). COVID-19 and library social media use. *Reference Services Review*, *49*(1), 19-38. https://doi.org/10.1108/RSR-06-2020-0044

Linus, N. A., Mamza, W. P., & Aliyu, M. (2021). *Covid-19 Pandemic : the Role of Libraries and*. *14*(1), 26-30.

Matthews, G., Smith, Yvonne., & Knowles, Gemma. (2009). *Disaster management in archives, libraries and museums*. Ashgate.

Mkhai, E. M., & Kassim, M. (2024). Disaster preparedness at the University of Dar es Salaam Library, Tanzania. *Alexandria: The Journal of National and International Library and Information Issues*, *34*(3), 126-142. https://doi.org/10.1177/09557490241298599

Okunlaya, R. O., Syed Abdullah, N., & Alias, R. A. (2022). Artificial intelligence (AI) library services innovative conceptual framework for the digital transformation of university education. *Library Hi Tech*, *40*(6), 1869-1892. https://doi.org/10.1108/LHT-07-2021-0242

Perrine, A. (2020). *Libraries go virtual through COVID-19 pandemic*. Two River Times. https://tworivertimes.com/libraries-go-virtual-through-covid-19-pandemic/

Public Library Association. (2020). *How public libraries are responding to the pandemic*. https://americanlibrariesmagazine.org/blogs/the-scoop/public-libraries-responding-pandemic/#:~:text=The survey%2C conducted by PLA,added virtual programming (61%25).

Rattan, P. (2013). Role of library and information centres in disaster management. *Library Philosophy and Practice (Ejournal)*, *886*, 1-11. https://digitalcommons.unl.edu/libphilprac/886

Siti Juryiah Mohd Khalid. (2013). *Disaster preparedness in academic libraries in Malaysia*. International Islamic University Malaysia.

Siti Juryiah Mohd Khalid, & Norazlina Dol. (2015). Disaster preparedness for academic libraries in Malaysia : an exploratory study. *International Journal of Social, Behavioural, Educational, Economic and Management Engineering*, *9*(10), 2946-2952. http://scholar.waset.org/1999.10/10002555

Tu-Keefner, F., Hobbs, A., & Lyons, D. (2025). Libraries on the Front Lines: The Imperative for Disaster-Ready Information Professionals. *Journal of Library Administration*, *65*(1), 79-99. https://doi.org/10.1080/01930826.2024.2432230

University of Washington Library. (2018). *Disaster Response Plan for Library Collections*. https://www.lib.washington.edu/preservation/disaster/unit-plan

Xing, W., Dikaiakos, M. D., Yang, H., Sphyris, A., & Eftichidis, G. (2005). Building a distributed digital library for natural disasters metadata with grid services and RDF. *Library Management*, *26*(4/5), 230-245. https://doi.org/10.1108/01435120510596080

Smart Libraries as Catalysts for Achieving SDGs in Malaysian Universities: A Conceptual Framework

Nordelina Zulkarnain[1], Norhazura Yunus[2], Mohd Nasir Ismail[3]

[1]Perpustakaan Tengku Anis, Universiti Teknologi MARA Kelantan Branch, Kelantan, Malaysia
[2]Al-Wathiqu Billah Library, Sultan Zainal Abidin University, Terengganu, Malaysia
[3]Faculty of Information Science, Universiti Teknologi MARA Kelantan Branch, Kelantan, Malaysia

Corresponding email: delina023@uitm.edu.my

ABSTRACT

This conceptual paper explores the transformative role of smart libraries in Malaysian universities as catalysts for achieving the United Nations' Sustainable Development Goals (SDGs), particularly SDG 4 (Quality Education), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action). By integrating cutting-edge technologies such as IoT, AI, and digital repositories, smart libraries enhance accessibility, inclusivity, and sustainability in higher education. This study synthesizes existing literature from Scopus and Web of Science to identify global trends, challenges, and opportunities in the adoption of smart elements in libraries. Key findings reveal that smart libraries contribute significantly to inclusive education, reduce digital inequality, and promote environmental sustainability. However, challenges such as funding limitations, digital divides, and resistance to technological changes hinder widespread adoption. Actionable recommendations are offered to overcome these barriers, emphasizing the roles of government and university administrators in fostering an ecosystem conducive to smart library innovation. This study underscores the potential of smart libraries as a pivotal tool for achieving SDGs, driving academic excellence, and ensuring sustainable futures in Malaysian higher education.

Keywords: Smart Libraries; Sustainable Development Goals (SDGs); Smart Campus Initiatives; Higher Education Sustainability; Education 4.0

INTRODUCTION

In the age of the Fourth Industrial Revolution (IR 4.0), the idea of smart libraries has surfaced as a significant change in academic institutions, reshaping the roles of libraries beyond their conventional duties to become intelligent, user-focused knowledge centers. These libraries utilize cutting-edge technologies like the Internet of Things (IoT), Artificial Intelligence (AI), and digital archives to provide improved services that meet the changing requirements of the university communities. Within the Malaysian framework, smart libraries are progressively regarded as key facilitators that bolster the national education initiative and play a significant role in the attainment of the United Nations Sustainable Development Goals (SDGs), especially SDG 4 (Quality Education), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action).

As higher education institutions (HEIs) encounter increasing demands to stay relevant, inclusive, and sustainable, smart libraries offer a significant pathway for digital transformation. They provide solutions to close digital gaps, improve access to information, and promote lifelong learning in urban and rural areas. Prior research (Aslam et al. 2025; Hapsari et al., 2025; Igwe & Sulyman, 2022; Mohammed et al., 2019) has highlighted how global academic libraries are leveraging smart technologies to meet sustainability goals, yet literature focusing specifically on the Malaysian university landscape remains limited.

This conceptual paper aims to investigate the transformative capacity of smart libraries in Malaysian HEIs as drivers of sustainable development. It compiles worldwide literature listed in Scopus and Web of Science to pinpoint dominant trends, major challenges, and strategic opportunities. The results of this study seek to enlighten policy-makers, academic authorities, and librarians regarding the essential function of smart libraries in fulfilling academic success and wider sustainability objectives.

LITERATURE REVIEW

What Is a Smart Library

Libraries have evolved in management, services, and functions in response to the information revolution, transitioning from traditional to electronic, digital, virtual, and smart libraries. The concept of a smart library, derived from the smart city initiative, is gaining traction as a contemporary framework for libraries (Hussain and Ahmad, 2021). Zimmerman and Chang (2018) stated that the term "smart library" was introduced by Aittola, Ryhanen, and Ojala (2003), and librarians have since been engaged in various implementations of smart libraries.

Smart libraries represent a novel approach to delivering interactive and innovative services while also serving as an effective means of broadening the user base. Smart libraries consist of three primary components – smart technologies, smart personnel, and smart services (Gul & Bano, 2019). Cao et al. (2018) posited that resources in diverse formats, organized by information professionals or other experts, facilitate convenient access, whether physical, digital, bibliographic, or intellectual. These resources aim to deliver targeted programs and services with the objectives of educating, informing, or entertaining various users, thereby stimulating individual learning and promoting societal advancement.

In conclusion, a smart library signifies a notable advancement from conventional library models, embodying technological progress and evolving user expectations. This system is defined by its application of advanced computing and sensory technologies to provide personalized, efficient, and integrated services. A smart library is built on three foundational elements – smart technologies, smart people, and smart services (Figure 1), creating an interactive and innovative environment for users (Yunus et al., 2025), essential for their educational and informational development. This approach enhances the library's appeal and accessibility while ensuring its continued relevance as a resource for learning and innovation in the digital age.

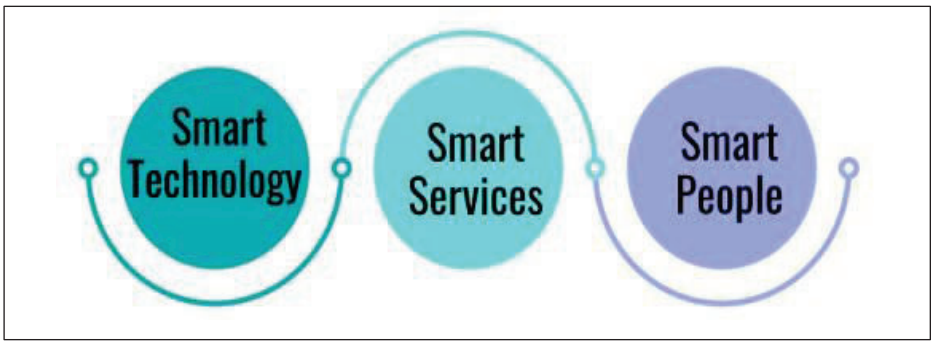


Figure 1: Smart library elements

Sustainable Development Goals (SDG) Related to the Library

Climate change has emerged as one of the most urgent challenges of the 21st century. In light of this substantial shift, sustainable development has emerged as a viable remedy for governments and institutions aiming to mitigate the adverse environmental effects resulting from the prevalent unsustainable behaviors of global people (Khalid et al., 2021). In September 2015, the United Nations (UN) initiated the worldwide initiative for sustainable development known as Transforming our World: The 2030 Agenda for Sustainable Development (UN 2030

Agenda), comprising 17 Sustainable Development Goals (SDGs). The International Federation of Library Associations and Institutions (IFLA) asserts that libraries collaborate with government entities to fulfil established objectives. Access to knowledge is vital for the achievement of the 17 SDGs, and libraries are integral to their execution. In 2016, IFLA initiated the International Advocacy Programme (IAP) to enhance the librarians' comprehension of the SDGs; advocate for the involvement of libraries in the design and execution of the UN 2030 agenda and the SDGs; and facilitate public access to information.

Academic libraries may advance SDG 4 (Quality Education) by facilitating sustainability education and granting access to resources on sustainable development. Libraries provide materials, including books, journals, and online databases that pertain to environmental issues, sustainability, and climate change. Furthermore, academic libraries may organize conferences, seminars, and other educational events focused on sustainable development to facilitate knowledge dissemination and enhance awareness (Hamad & Al-Fadel, 2021). Smart libraries play a critical role in enhancing the educational landscape by democratizing access to knowledge and fostering an equitable learning environment. By providing digital repositories and open educational resources (OER), smart libraries enable students and faculties in Malaysian universities to engage with scholarly materials anytime anywhere, thereby supporting remote learning and facilitating independent research skills. As argued by Gul and Bano (2019), smart technologies reconceptualize libraries as innovative hubs that promote digital literacy and foster creativity, thus transforming traditional educational spaces into inclusive learning environments. Moreover, the evolution of information services to incorporate user needs manifests in the architecture of smart libraries, catering to the increasing demand for accessible knowledge tailored to diverse learning requirements (Bai, 2022). In summary, smart libraries significantly elevate the quality of education by facilitating equitable access to information, enhancing learning through personalized technological tools, and fostering vital information literacy skills. Their role in Malaysian universities exemplifies how integrated, technology-enhanced educational environments contribute to inclusive knowledge landscapes beneficial for all users.

Secondly, academic libraries can aid in the achievement of SDG 11 (Sustainable Cities and Communities) by facilitating sustainable urban development. This can be accomplished by granting access to resources pertaining to sustainable architecture, urban planning, and green building practices. Academic libraries can collaborate with campus sustainability offices and other stakeholders to advocate for sustainable practices in the building and management of campus infrastructure (Wilson, 2012). They can also serve as community hubs by hosting events, workshops, and exhibitions that promote cultural preservation, enhance social

inclusion, and support urban sustainability initiatives (Sayogo et al., 2020). This transformation aligns with libraries as interactive hubs that actively contribute to community development, as underscored by Syafar et al. (2023), who argued that libraries serve as essential centres of information that can significantly improve the quality of life. In conclusion, smart libraries in Malaysian universities are not merely repositories of information. They are dynamic centres that facilitate sustainable community engagement. By leveraging smart technologies and infrastructure to promote collaborative learning and community involvement, these libraries are integral to fostering social innovation and addressing pressing societal challenges, embodying sustainability principles and community inclusivity.

Thirdly, academic libraries may advance SDG 12 (Responsible Consumption and Production) by fostering sustainable practices within their operations. This may encompass strategies such as minimizing paper waste via digitization, implementing energy-efficient lighting and heating, and embracing sustainable procurement practices. Libraries can promote responsible consumption by providing resources on sustainable products and practices (Cmor, 2016). Smart libraries promote responsible consumption and production by implementing eco-friendly practices and sustainable resource utilization. Transitioning from traditional print to digital resources significantly reduces paper consumption and minimizes the carbon footprint associated with logistics and materials production. This shift not only reflects a commitment to environmental sustainability but is also indicative of the technological transformation within libraries. As noted by Cao et al. (2018), smart libraries leverage digital technologies to provide services that are efficient and environmentally conscious, aligning with modern sustainability goals. In summary, smart libraries advocate for responsible consumption and sustainable practices. By reducing paper usage through digitization, implementing green technologies, and engaging university communities in eco-literacy and behavioural change, Malaysian university libraries exemplify the transformative potential of libraries in fostering a sustainable future.

Finally, academic libraries can support SDG 13 (Climate Action) by facilitating access to resources on climate change and environmental concerns while advocating for sustainable practices in research and education. Libraries can function as platforms for community involvement and climate change initiatives by organizing events and activities that enhance awareness and advocate for solutions (Thorpe & Gunton, 2022). Smart libraries play an essential role in climate action by embracing digital transformation and sustainable operations. By adopting cloud-based systems, these libraries significantly reduce the need for physical infrastructure, which minimizes energy consumption and resource utilization (Fedorowicz-Kruszewska, 2021). The transition to digital platforms allows library users to access materials remotely, reducing the necessity for on-site visits and consequently lowering transportation-

related emissions (Xie, 2022). This shift exemplifies efficient resource allocation and aligns with broader environmental sustainability goals. In conclusion, by leveraging cloud technology, promoting eco-literacy, and aligning with sustainability agendas, smart libraries emerge as powerful advocates for climate action, fulfilling a critical role in the ecological future both in Malaysia and globally.

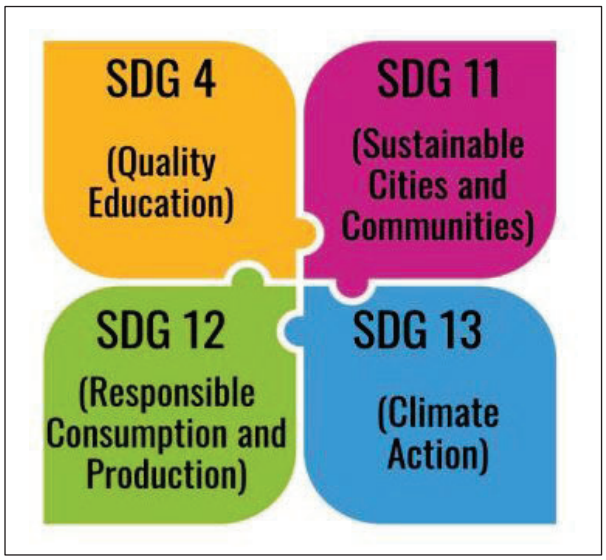


Figure 2: Sustainable Development Goals (SDG) related to smart library

METHODOLOGY

This study utilizes a library search, and an evaluation of existing literature reviews related to smart libraries and SDGs. The library performs an extensive examination of digital resources sourced from online databases such as Web of Science, Scopus, and Google Scholar. The terms used for the inquiry are smart library, green libraries, SDGs, sustainability, and sustainable library. References are solely derived from journals.

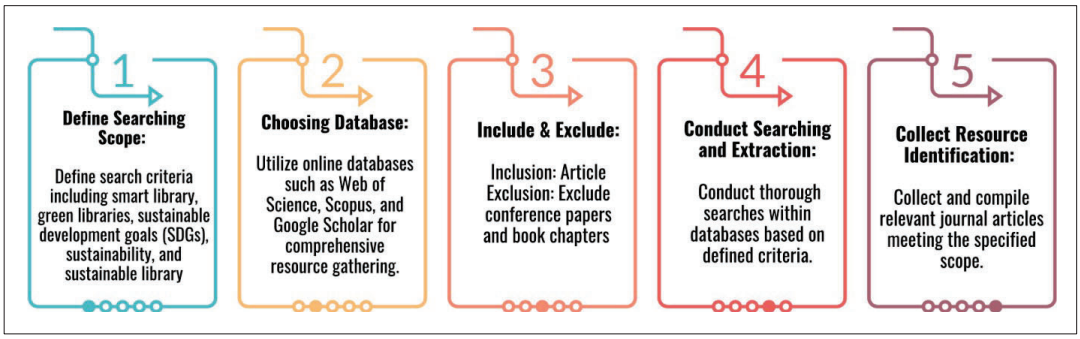


Figure 3: Methodology

Consequently, the limitations of this study may arise from the restricted availability of resources in databases, as conference papers and book chapters are removed from the search results. Figure 3 illustrates the approach to discovering resources about smart libraries and SDGs.

Conceptual Framework

The conceptual framework for smart libraries as catalysts for achieving SDGs in Malaysian universities is built upon technology, services, and people (Figure 4). Each element interconnects to foster a culture of sustainability and innovation. Smart technologies enable resource optimization and digital transformation; smart services enhance user engagement and efficiency; and smart people drive the adoption of sustainable practices and foster critical thinking. By synergizing these components, smart libraries support academic excellence and actively contribute to the broader sustainability mission of Malaysian universities.

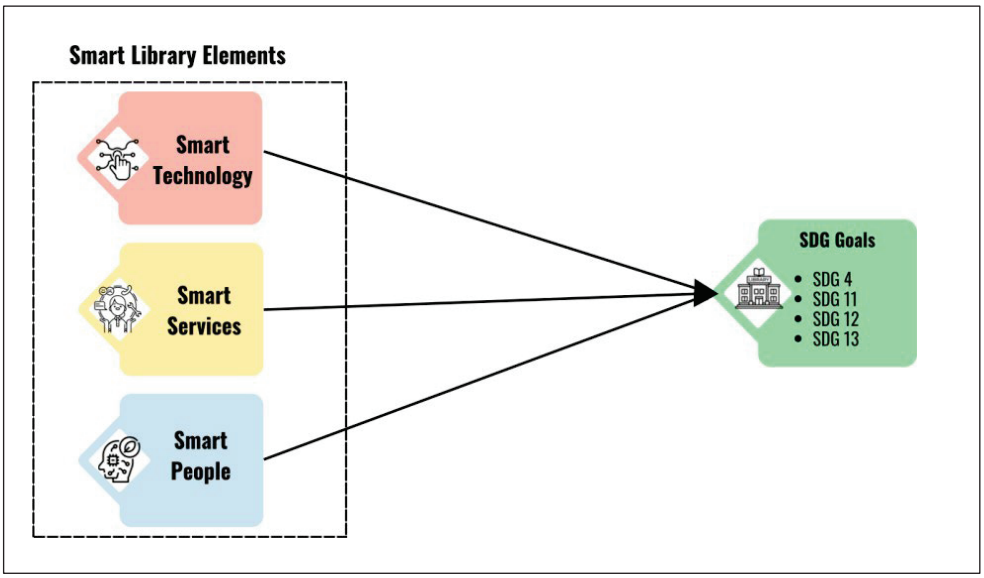


Figure 4: Research framework

FUTURE RESEARCH

Based on the results of this study, a number of future research avenues are suggested:

i. **Empirical evaluation of smart library influence**

Upcoming research should empirically assess how smart libraries influence the attainment of SDGs, especially in boosting digital literacy, decreasing inequalities, and fostering sustainable practices in Malaysian campuses.

ii. **Creation of assessment tools**

It is essential to create and validate thorough tools for evaluating sustainable smart library practices, as started by Ismail et al. (2024), which may act as standards for institutional planning and performance assessment.

iii. **Investigation of green technology incorporation**

Examining the application of eco-friendly technologies in library infrastructure and operations, based on the conceptual frameworks of green librarianship (Fedorowicz-Kruszewska, 2021), may illuminate the environmental contributions of libraries.

iv. **Comprehensive case analyses of Malaysian universities**

Case studies that examine effective smart library projects in Malaysian universities similar to the ones analyzed by Yunus and Ismail (2024), can offer valuable insights into best practices, hurdles, and contextual elements affecting implementation.

CONCLUSION

This conceptual paper highlights the transformative capacity of smart libraries as facilitators of the United Nations SDGs in Malaysian HEIs. Smart libraries enhance accessibility, inclusivity, and environmental sustainability by incorporating emerging technologies like the IoT, AI, and digital repositories. Smart libraries go beyond merely being tech-equipped environments. They embody a comprehensive system of advanced technologies, innovative services, and knowledgeable individuals, which collectively enhance academic achievement and strengthen institutional durability. Nonetheless, obstacles like restricted funding, resistance to technology, and the digital gap persist in obstructing the broad acceptance of these innovations.

Tackling these challenges demands coordinated efforts among policymakers, university leaders, and information specialists. When these factors come together, smart libraries can act as essential frameworks for sustainable development, advancing quality education (SDG 4), sustainable communities (SDG 11), responsible consumption (SDG 12), and climate action (SDG 13).

REFERENCES

Aslam, S., Jabeen, M., & Jabeen, M. (2025). Fostering innovation in smart library services: An in-depth exploration of empowered capabilities and dynamic strategies among university librarians in Pakistan. *Information Development*. https://doi.org/10.1177/02666669241305379

Badruesham, N., Nikman, K., & Mohamad Zaki, M. H. (2023). Exploring libraries, citizen science, and the sustainable development goals (SDGs): Insights from researchers and project managers. *Proceedings of the International Conference on Library and Information Science (ICoLIS)*.

Bai, Y. (2022). Construction of a smart library subject precise service platform based on user needs. *Mathematical Problems in Engineering, 2022*(1), Article 5675291. https://doi.org/10.1155/2022/5675291

Cao, G., Liang, M., & Li, X. (2018). How to make the library smart? The conceptualization of the smart library. *The Electronic Library, 36*(5), 811-825. https://doi.org/10.1108/EL-12-2016-0266

Cmor, D. (2016). Strategies for sustainable services in academic libraries. *Library Management, 37*(6-7), 298-307. https://doi.org/10.1108/LM-03-2016-0016

Fedorowicz-Kruszewska, M. (2021). Green libraries and green librarianship - Towards conceptualization. *Journal of Librarianship and Information Science, 53*(4), 645-654. https://doi.org/10.1177/0961000620921411

Gul, S., & Bano, S. (2019). Smart libraries: An emerging and innovative technological habitat of 21st century. *The Electronic Library, 37*(5), 764-783. https://doi.org/10.1108/EL-01-2018-0025

Hamad, F., & Al-Fadel, M. (2021). Advocacy of the Sustainable Development Goals in Jordanian academic libraries. *International Journal of Social Economics, 48*(4), 492-509. https://doi.org/10.1177/03400352211038300

Hapsari, D., Haryanto, H., & Firdausy, A. G. (2025). Digital library innovation and challenges in supporting sustainable development through digital transformation. In *Proceedings of the 6th BIS-STE 2024*.

https://unimma.press/conference/index.php/bistyc/article/view/186

Hussain, A., & Ahmad, P. (2021). Adoption of smart technologies in university libraries of Pakistan: A qualitative review. *Library Philosophy and Practice, 2021*, 1-11. https://digitalcommons.unl.edu/libphilprac/5471/

Igwe, K. N., & Sulyman, A. S. (2022). Smart libraries: Changing the paradigms of library services. *Business Information Review, 39*(3), 1-6. https://doi.org/10.1177/02663821221110042

Ismail, M. N., Yunus, N., & Osman, G. (2024). Assessing smart sustainable library practices in higher education: Development and validation of instrument. *International Journal of Electrical and Computer Engineering, 14*(2), 4395-4405.

Khalid, A., Malik, G. F., & Mahmood, K. (2021). Sustainable development challenges in libraries: A systematic literature review (2000-2020). *The Journal of Academic Librarianship, 47*(3), 102335. https://doi.org/10.1016/j.acalib.2021.102335

Mohammed, A. A., Thabit, T. H., & Azeez, A. A. (2019). The impact of smart libraries in enhancing the sustainable development practices. https://www.researchgate.net/publication/337981109_The_Impact_of_Smart_Libraries_in_Enhancing_the_Sustainable_Development_Practices

Sayogo, D. S., Yuli, S. B. C., & Yono, W. (2020). Determinants of smart library readiness in Indonesia. In *Proceedings of the 21st Annual International Conference on Digital Government Research* (pp.61-67). ACM. https://doi.org/10.1145/3396956.3396970

Syafar, M. N., Kianto, K., & Annas, A. (2023). Smart society development through the initiation of new library infrastructure development in Gowa Regency. *Journal of Governance and Local Politics (JGLP), 5*(2), 144-154.

Thorpe, C., & Gunton, L. (2022). Assessing the United Nations' Sustainable Development Goals in academic libraries. *Journal of Librarianship and Information Science, 54*(2), 208-215. https://doi.org/10.1177/09610006211012310

Wilson, L. A. (2012). Creating sustainable futures for academic libraries. *Journal of Library Administration, 52*(1), 78-93. https://doi.org/10.1080/01930826.2011.629964

Xie, N. (2022). Construction and promotion of reading service platform of university library based on computer network cloud platform. *Mathematical Problems in Engineering, 2022*, Article 7073566. https://doi.org/10.1155/2022/7073566

Yunus, N., & Ismail, M. N. (2024). Sustainable libraries: Harnessing smart library for a green future. *Journal of Tourism, Hospitality and Environment Management, 9*(35), 175-190.

Yunus, N., Nasir Ismail, M., & Osman, G. (2025). Smart library themes and elements: A systematic literature review. *Journal of Librarianship and Information Science, 57*(1), 175-190.

Zimmerman, T., & Chang, H. C. H.-C. (2018). Getting smarter: Definition, scope, and implications of smart libraries. In *Proceedings of the ACM/IEEE Joint Conference on Digital Libraries* (pp. 403-404). IEEE. https://doi.org/10.1145/3197026.3203881

CONSAL XIX 2025
RAPPORTEURS REPORT (17 - 18 JUNE 2025)

Opening ceremony (Dewan Merdeka, Level 4)

Rappoteur:
1. Hashimah binti Mohamed Yusof
2. Mohd Aizat bin Abd Halim

OPENING REMARKS OF 19TH CONGRESS OF SOUTHEAST ASIAN LIBRARIANS (CONSAL XIX): SPEECH BY MINISTER OF NATIONAL UNITY OF MALAYSIA – YB DATUK AARON AGO DAGANG

The opening remarks at the 19th Congress of Southeast Asian Librarians (CONSAL 19) in Kuala Lumpur, Malaysia, were delivered by the Minister of National Unity Malaysia, YB Datuk Aaron Ago Dagang.

The Minister extended a warm welcome to the 12 participants from across the region, gathered to present 89 papers, and expressed deep appreciation to the National Library of Malaysia and the Librarians Association of Malaysia for organizing the prestigious congress. The main theme of the congress, "Leveraging Inclusivity, Empowering Humanity," was highlighted as a reflection of the urgent need for equitable access to information and a collective aspiration to build more connected and informed societies.

Evolving Role of Libraries
The Minister underscored that in an era marked by rapid technological advancements and profound socio-cultural changes, with increasing demands for sustainable, inclusive development, libraries have evolved beyond mere repositories of books. Today, they are "backbones of equity," gateways to digital access, custodians of cultural heritage, and lifelong learning centers for all.

Malaysian Initiatives for Inclusive Access
Key Malaysian initiatives were presented as examples of national commitment to inclusive access to knowledge. One such initiative is U-Pustaka, an innovative national digital library platform which is accessible anytime, anywhere, at no cost. This service allows users to borrow physical books across 12 co-libraries and access digital materials including e-books, audiobooks, magazines, journals, newspapers, databases, and government publications. Additionally, the success of Malaysia's 56 Village Library Programs was noted, which continue to flourish, bringing collections, community reading events, and digital classes to remote communities. These village libraries serve as vital hubs, empowering residents with both traditional resources and digital connectivity.

Addressing Exclusions: Geography, Economy, Disability, and Language
The address further delved into the crucial aspects of ensuring true inclusivity, emphasizing that no one should be excluded due to geography, economic status, gender, ability, or language. The Minister stressed that true inclusivity means the benefits of knowledge and education reach every corner of society, including those in underserved and remote areas. To

this end, prioritizing the development of community libraries and expanding efforts such as mobile libraries, digital kiosks, and alternative service models were advocated. Recognizing the crucial role of language in a multilingual and multicultural region, libraries were urged to actively promote linguistic inclusion by offering materials in minority and indigenous languages and supporting initiatives to document and translate literature and traditions.

Crucially, the remarks stressed that accessibility for persons with disabilities should be an integral part of library design, physically and digitally, rather than an afterthought. This includes providing infrastructure like ramps and accessible toilets, resources in formats such as Braille and audiobooks, and ensuring library staff are trained to serve persons with disabilities in a dignified, informed, and proactive manner.

Bridging the Digital Divide

In today's digital era, access to the internet and digital literacy have become essential components of inclusive knowledge. Acknowledging that the digital divide remains a real and pressing issue across Asia, libraries were urged to play a more vital role in offering free or affordable internet access, digital tools, and training programs.

Regional Cooperation: ASEAN Digital Library (ADL)

A promising forward-looking regional initiative, the ASEAN Digital Library (ADL), was introduced as a collective digital platform that aggregates metadata from the national libraries of ASEAN states. This platform aims for seamless cross-access to tens of thousands of digitized materials, including manuscripts, books, artifacts, images, and newspapers. The Minister stressed the importance of investing in shared digital infrastructure, capacity building for librarians, and interoperable metadata standards to enable smooth integration of national collections.

Furthermore, support for the digitization of local knowledge systems and languages was emphasized to ensure the preservation of the full spectrum of ASEAN's rich heritage. The ADL was envisioned as more than just a digital repository; it can be a "living bridge of knowledge" connecting people, history, and future, contributing to a more inclusive, innovative, and integrated ASEAN community.

Conclusion: Investment in Human Dignity

The Minister concluded by stressing that greater regional cooperation is essential to make inclusive efforts effective and sustainable, advocating for a framework that promotes shared standards, tools, and funding for inclusive library services. Ultimately, the message was clear: inclusivity is about empowerment, and investing in inclusive knowledge systems is an investment in human dignity, equal opportunity, and sustainable development, giving every person a chance to learn, grow, and contribute to society.

OPENING SPEECH OF 19TH CONGRESS OF SOUTHEAST ASIAN LIBRARIANS (CONSAL XIX): SPEECH AND OPENING CEREMONY BY PRIME MINISTER OF MALAYSIA – YAB DATO SERI ANWAR BIN IBRAHIM

The 19th Congress of Southeast Asian Librarians (CONSAL XIX) was officially opened by the Prime Minister of Malaysia, The Honourable Dato' Seri Anwar Ibrahim. His address highlighted the critical role of libraries in national development, cultural preservation, and fostering a knowledge-based society, while also addressing the significant challenges and opportunities facing librarians today.

Libraries as Pillars of Knowledge and Civilization

The Prime Minister underscored that national growth is profoundly dependent on knowledge, a pillar significantly supported by libraries, not just educational institutions. He stated that it is incorrect to describe a country as civilized without acknowledging the importance of libraries. Historically, major libraries like the Library of Alexandria and Baitul Hikmah in Iraq have been closely linked to the history of civilization. Libraries are seen as custodians of knowledge, culture, and community within the region. The Prime Minister emphasized the foundational role of knowledge and scholarship in building great civilizations, highlighting libraries as crucial institutions for the effective dissemination of information. He also shared personal anecdotes, recalling classic novels he enjoyed, such as *The Name of the Rose* and *Foucault's Pendulum*.

Challenges to Reading Culture and the Role of Social Media and AI

A major concern raised was the "lost reading culture," characterized by a decline in interest in deep reading. Social media was identified as a primary contributor to this decline, promoting short-form content, superficial conclusions, and leading to a reduction in the culture, tradition, and capacity for reading. The Prime Minister noted that this decline has profound consequences for journalism, public knowledge, and democracy, potentially leading to ignorance and contentious debates.

The emergence of artificial intelligence (AI) also poses significant challenges for librarians in their role as effective custodians of books.

The Astonishing Power of Books and the Librarian's Evolving Role

Despite these challenges, the Prime Minister described books as astonishing artifacts that allow readers to delve into the mind of a writer and access the wisdom of the past, even writings from thousands of years ago. Drawing inspiration from Carl Sagan, he portrayed reading as a form of "magic," enabling access to minds across ages and cultures.

He challenged librarians to relook into their practices and operations to meet these challenges. While the preservation of books is important, librarians also have a crucial duty to ensure that knowledge from books is effectively disseminated and utilized by readers for self-empowerment. He emphasized that librarians must be effective "purveyors of that magic," fostering a love for reading by making books accessible and exciting, rather than merely preserving them, citing instances where books were kept pristine but unread.

Libraries as Dynamic, Vibrant Centers

The Prime Minister asserted the need for libraries to evolve into vibrant centers or social hubs. These spaces should offer users a special environment that adapts to new kinds of collections, is lively, connected, and related to culture and arts. He stressed that libraries must move beyond "monastic silence" to incorporate diverse media and foster open discussion, serving as true knowledge retrieval and consumption hubs.

While acknowledging the necessity for libraries to adapt to digital and AI advancements, he reiterated their core duty to encourage reading. He also highlighted the potential for libraries in the ASEAN region to bolster cultural confidence by promoting the rich shared heritage of the area, counteracting over-reliance on Western ideas. The Prime Minister expressed delight at the initiative of establishing a Digital Library for ASEAN.

In conclusion, despite historical upheavals, libraries are affirmed as vital centers that must continue to evolve beyond merely disseminating knowledge to become dynamic spaces that encourage reading, foster discussion, and promote cultural heritage.

Keynote 1
Libraries At The Crossroads Of Innovation: Bridging Knowledge, Technology, And Community.
Mr Pote Narittakurn, Founder and Chairman of iGroup

Rappoteur:

1. Dr A'dillah Mustafa
2. En Shaiful

This keynote focused on "Libraries at the Crossroads of Innovation: Bridging Knowledge, Technology, and Community". He outlined the evolving roles of libraries as technology hubs, leveraging AI apps for learning; community centers hosting workshops; educational allies supporting lifelong learning via e-learning programs; inclusion champions ensuring equitable access; and advocates for Sustainable Development Goals (SDGs) and Environmental, Social, and Governance (ESG) principles.

He detailed expanded librarian responsibilities, including creating welcoming spaces, educating on information literacy, championing lifelong learning, supporting AI and data literacy, fostering academic collaboration, and providing multilingual and cross-cultural access. Lee introduced the "One World Library (OWL)" vision, aiming for a space where "inclusive knowledge empowers everyone to learn, grow, and shape a better world," emphasizing bridging the digital divide, fostering lifelong learning (including for seniors through "Wisdom Academy"), and promoting SDGs.

A significant part of his presentation highlighted how AI and Institutional Repositories (IRs) can unlock "hidden knowledge" by enhancing discoverability, enabling knowledge inclusion across all reading and language levels, and ensuring data sovereignty. He listed various AI tools for IRs, such as smart search, plain language summaries, automatic metadata generation, and multilingual access. Furthermore, Lee elaborated on integrating ESG principles into library operations, from environmental practices like going paperless to social aspects like inclusive access and governance transparency.

An elaboration on the Data Sovereignty of IR model/framework. Illustrates the interaction of LLMs + IR Solutions. The model introduces how AI can help libraries unlock and share valuable knowledge stored in institutional repositories. AI tools improve how information is found and understood by offering features like smart search, summaries in plain language, and support for multiple languages. This makes content accessible to people of all ages and backgrounds. AI also helps reveal patterns and insights in large data sets, making research more powerful. Importantly, using locally hosted AI ensures that institutions keep control over their own data, protecting privacy and ownership. These capabilities transform institutional repositories into intelligent, user-centric platforms that preserve knowledge, support research, and broaden access across linguistic and technological barriers.

He concluded by showcasing iGroup's practical initiatives, including OWL programs for lifelong learning and community camps, as well as AI-enhanced solutions for institutional repositories, library OPACs, and AI-powered tutoring.

Overall, iGroup initiatives in enhancing institutional repositories by integrating AI tools that make content easier to search, access, and understand. Their AI-powered search supports multiple languages, allowing users to find information in their own language. They also offer AI-generated summaries in plain language and at different reading levels, making complex research content accessible to people of all ages and backgrounds. Additionally, iGroup's interactive chatbot helps users navigate repository content more easily by answering questions in a natural, conversational way.

Beyond accessibility, iGroup improves the efficiency and quality of repository management. Their tools automatically detect duplicate entries and generate accurate metadata, helping libraries maintain clean and organized databases. AI features also include multilingual translation, personalized content recommendations, and format conversion to ensure long-term usability. These innovations help libraries unlock hidden knowledge, reach wider audiences, and preserve valuable information for the future.

Keynote 2
Knowledge For All: Building Bridges, Not Gaps
Dato' Sri Dr Haji Irmohizam bin Haji Ibrahim, Group
Managing Director, World Trade Centre Kuala Lumpur & Board Director, World Trade Centers Association

Rappoteur:
1. Junaidah binti Rosliy
2. Dr Haziah Sa'ari

Dato' Sri Dr Haji Irmohizam delivered a compelling keynote that championed the vision of inclusive education as a foundation for societal cohesion and national progress. Drawing attention to existing educational divides and systemic inequalities, he made a strong case for transformative action that involves not only institutions and policymakers, but also the community at large. The speech highlighted both current challenges and promising solutions, which are particularly the role of libraries and librarians in democratizing access to knowledge.

Important highlights:

Inclusive knowledge as a right
The speaker introduced inclusive education as a basic human right, referencing UNICEF's definition that calls for learning systems to be welcoming and supportive of all learners. He stressed the need for adaptable curriculums, accessible school environments, and support services that ensure no one is excluded.

Malaysia's is facing the learning loss phenomena
Malaysia is currently facing one of the highest levels of learning loss among developing Asian countries. An estimated RM767.5 billion in lifetime income could be lost among more than five million students. This situation was presented as a serious national concern that demands systemic solutions and proactive intervention.

Understanding the educational divides

Several key types of educational inequality were discussed. The socioeconomic divide highlights the difficulties faced by lower-income families in accessing quality education. The technological divide refers to unequal access to devices, internet, and digital skills, especially in rural areas. The cultural divide arises from social biases that may affect inclusion and fair representation. The unseen divide includes challenges faced by students with disabilities or those from marginalized groups that are often overlooked.

Strategic bridges to inclusion

The speaker shared examples of how communities and institutions can overcome these gaps. Teach For Malaysia was highlighted as a successful initiative that addresses educational inequality through leadership in underserved schools. The JENDELA initiative was cited as a major effort to improve national digital infrastructure, bringing internet access to rural and remote communities. He also proposed the teaching of sign language as a third language in schools, as a way to foster empathy, inclusion, and better communication with the deaf community.

The role of libraries and the responsibilities of librarians are crucial

Libraries were portrayed as essential learning spaces that must evolve to meet modern educational needs. They serve as hubs for inclusive learning, providing free access to knowledge, digital tools, and community-based resources. The speaker noted examples such as UiTM's online academic platform, which supports student learning and research planning. Librarians were encouraged to take on expanded roles as educators and advocates, ensuring collections reflect diversity and that users are guided in responsible information use and digital literacy.

Closing reflections

The keynote ended with a reminder that building inclusive education requires a shared commitment. Through references such as Bill Gates's emphasis on the teacher's role, and the proverb "It takes a village to raise a child," the speaker reinforced the idea that real change is only possible through collective effort. Libraries, educators, families, and institutions must work together to transform educational gaps into bridges of opportunity.

Country report
(Dewan Merdeka, level 4)

Rappoteur:

1. Brunei : Hashimah binti Mohamed Yusoff
2. Cambodia: Hashimah binti Mohamed Yusoff
3. Indonesia: Hashimah binti Mohamed Yusoff
4. Laos: Mohd Aizat bin Abd Halim
5. Malaysia: Mohd Aizat bin Abd Halim
6. Myanmar: Mohd Aizat bin Abd Halim
7. Philippines: Mohd Aizat bin Abd Halim
8. Singapore: Dr Farrah Diana Saiful Bahry
9. Thailand: Dr Farrah Diana Saiful Bahry
10. Vietnam: Dr Farrah Diana Saiful Bahry
11. Timor Leste: Dr Farrah Diana Saiful Bahry

Brunei

The country report for Brunei Darussalam was presented by Ms Emi Suryaney binti Haji Hipny.

Brief general overview of recent major developments

I. The DBP Library has introduced a range of strategic initiatives to enhance literacy outreach, community engagement and digital transformation. The most recent being boat library service and in house digital publication accessible via libby.
II. Efforts in building and managing collections continued to be enhanced through digitization, local content creations, preservation efforts, international collaboration that support Brunei's cultural preservation and national literacy strategies.
III. Development in providing access to collections has been significantly enhanced through its digital and outreached innovations aimed at broadening community reach and improving user convenience.

Cambodia

The country report for Cambodia was presented by Mr Kimheng Sok, National Library of Cambodia (NLC)

I. The report explores the challenges and triumphs of the National Library of Cambodia (NLC) and the Cambodian Library Association, highlighting their crucial role in national reconstruction and cultural preservation. The report is supported by giving statistical data on its collections and the usage.
II. Mentioned of special initiatives including Samdech Choun National Library and the Institute of Technology.
III. Major challenges include library scarcity, funding and staffing as well as expertise rebuilding.
IV. Outlook of the Opportunities and future strategies include broader access, digital expansion and cultural preservation.

Indonesia

The country report for Indonesia was presented by Director of National Library Prof. E. Aminuddin Aziz

I. The report outlines the following topics: relationship of National Library of Indonesian to government; facts and figures; general overview of recent development; new developments in building and managing collections; collaborations at national level; collaborations at international level; and achievement and awards. The report is supported through the citation of various statistical data.
II. Various impact stories were citated in presenting the libraries transformation initiatives based on social inclusion such as in the agriculture sector, marginalized empowerment, quality education and others.
III. The POCADI: Digital Reading Corner, a key national priority programme under the Library Transformation Based on Social Inclusion Initiative has been well described in the report.

Laos

The Lao PDR country report was presented by Mr. Samlane Luangaphay, Director of the National Library of Laos.

I. The National Library of Laos (NLL), established in 1956 and operating under the Ministry of Information, Culture and Tourism, serves as the central institution for library services in the country.
II. Despite working within a traditional library model with limited digitization and online access, the NLL plays a vital role in preserving Lao cultural heritage and promoting lifelong learning. It manages extensive collections, including over 445,000 volumes of books, palm-leaf manuscripts, rare Indochina materials, newspapers, and traditional music archives.
III. However, the library faces significant challenges such as budget constraints, limited technological infrastructure, a shortage of skilled staff, and low public engagement.
IV. To address these issues, the NLL has implemented outreach programs like mobile libraries and reading activities for remote schools, and has engaged in staff development and international collaborations.
V. Moving forward, the library aims to modernize its systems, expand partnerships, improve staff capacity—especially in English proficiency—and secure greater funding to enhance its role as a dynamic hub for knowledge and culture in Laos.

Malaysia

The Malaysia Country Report was presented by Mr. Edy Irwan Zulkafli, Director General of the National Library of Malaysia highlighted the nation's robust and multi-tiered library ecosystem, reflecting a well-structured approach to information access across communities.

I. Anchored by the National Library of Malaysia, which operates under the National Library Act 1972, the country maintains a vast network of libraries including public, rural, school, academic, special, and community-based institutions.
II. Malaysia demonstrates a comprehensive commitment to literacy and lifelong learning. Each type of library plays a unique role in serving different user groups—from urban

readers to remote rural communities. Complementing this infrastructure is a growing emphasis on LIS education through various universities and training institutions that prepare future-ready librarians equipped with both traditional and digital competencies.

III. Malaysia also benefits from active professional bodies such as the Librarians Association of Malaysia (PPM), which plays a crucial role in promoting professional development, ethical standards, and regional collaboration. Together, these elements form a vibrant ecosystem that not only supports lifelong learning but also strengthens the status of librarianship as a respected profession and vital force in national development.

Myanmar

Myanmar's Country Report was presented by their Director of the National Library of Myanmar, Dr. Kay Thi Aye.

I. Its roots tracing back to the Public Free Library established in 1883 and later officially named the National Library in 1964, is committed to its vision of being a "Center of National Literary Heritage".
II. Its core mission involves comprehensively collecting and preserving all local publications, rare manuscripts, and diverse materials on Myanmar culture—both printed and non-printed, including international publications about Myanmar—to ensure access for researchers and the broader public.
III. As of the 2024-2025 fiscal year, the combined collections across its Yangon and Nay Pyi Taw branches exceed 38,000 volumes, encompassing books, serials, audio-visual materials, and digital collections.
IV. The library offers a wide array of services, from physical reading rooms, reference, and multimedia access to specialized provisions for children and disabled users, complemented by online digital resources and document delivery.
V. Furthermore, the National Library of Myanmar actively fosters professional development through its Post Graduate Diploma on Library Management (PGDLM) program, short courses, staff training for PAC, and conducting various workshops, seminars, and forums.
VI. It also spearheads reading promotion initiatives, such as the Reading Cultural Development project, which has included training workshops for children's librarians and significant book deliveries, alongside library visit and school invitation programs

Philippines

Phillippines Country Report was presented by their Deputy Director of the National Library of Phillippines Mr. Edgardo B. Quiros.

I. The National Library of the Philippines operates as the central repository for the nation's printed and recorded cultural heritage, while also supporting local government agencies in developing public libraries and serving as the national center for ISBN, ISSN, ISMN, and copyright registration.
II. It houses an extensive collection, boasting over 3.5 million physical items and preserving more than 257 million digital pages.
III. The library sector in the Philippines is robust, with nearly 70,000 libraries across the

country, championed by the Philippine Librarians Association, Inc. (PLAI), recognized as the sole Accredited Professional Organization by the Professional Regulation Commission.

IV. Significant investment in library education is evident, with 90 institutions offering various diploma, undergraduate, and graduate programs, currently enrolling over 3,000 students.

V. The country's library community observes numerous annual events, including the Library and Information Services Month and national conferences, reflecting a vibrant professional landscape.

VI. Current developments include the revision of the Bachelor of Library and Information Science (BLIS) curriculum to align with national and ASEAN qualification frameworks.

VII. The National Library of the Philippines has also achieved several milestones, such as establishing a new Children's Library, completing a conservation laboratory for dry processes, and successfully declaring key manuscripts—including Noli mi Tangere, El Filibusterismo, and Mi Ultimo Adios—as National Cultural Treasures, highlighting its dedication to cultural preservation and access

Singapore

The Singapore Country Report was presented by Ms. Soh Lin Li.

I. highlighted the National Library Board's (NLB) transformative initiatives under LAB25, which redefines libraries as learning marketplaces and platforms for civic engagement.

II. With 28 physical libraries and a vast digital presence, NLB reached over 41.8 million visitors through its pop-up "Nodes" programme. Major developments include AI-powered tools like ChatBook and StoryGen, new service models such as RefToGo and Catalyst, and curated cultural experiences like the Central Arts Library and "Book Havens of Bras Basah."

III. International collaborations were strengthened through MoUs with the British Library and the National Library of China, alongside GLAM partnerships during the Singapore Night Festival.

IV. Professionally, the LAS Competency Framework and LAS Conference 2024 promoted skills and inclusivity in the AI age, supported by dynamic training sessions and community-driven activities like LAS Socials.

Thailand

The Thailand Country Report was presented by Ms. Bubphar Chuchat, Director of the National Library of Thailand (NLT).

I. Showcased the library's alignment with Thailand's 20-year national strategy and its role in promoting lifelong learning through initiatives like "Kids Inspiration" and "NLT Edutainment." I

II. In 2024, the NLT served over 153,000 physical visitors and 1.34 million online users, with a physical collection of 5.58 million items and nearly half a million digitized records.

III. Recent developments include major digitization efforts, enhancement of ancient manuscript databases, and inclusive services such as free book delivery and

community access spaces like the NLT Theatre and Cafe

IV. Collaborative projects span from local school libraries and archives to international partnerships, including Norway's Museum of Cultural History and Russia's State Library for Foreign Literature, underscoring NLT's expanding global and regional engagement.

The Thailand Country Report II was presented by Suwakhon Siriwongworawat of the Thai Library Association.

I. Highlighted the nation's library landscape with 36,853 libraries, including over 35,000 school libraries.
II. LIS education is offered at 50 institutions with 5,000 students and 1,000 annual graduates. Key developments include digital preservation, prison libraries, green library networks, and the ReLearning Space initiative in public libraries.
III. National collaborations span from university MOUs to book donations, while international engagements include IFLA, CONSAL, and partnerships with associations in the Philippines, India, Cambodia, and Japan. The Thai Library Association operates independently with strong public-private cooperation.

Viet Nam

The Viet Nam Country Report was presented by Nguyen Yuan Dung, Director of National Library of Viet Nam.

I. Highlights the comprehensive structure, ongoing developments, and future directions of the nation's library sector.
II. Under the guidance of the Ministry of Culture, Sports & Tourism and key institutions like the National Library of Viet Nam and the Viet Nam Library Association, the country maintains a robust library network exceeding 56,000 facilities.
III. Libraries range from national and provincial institutions to military, university, school, and community libraries. Despite disparities in funding and staffing, efforts are being made to expand professional training, digitize rare collections, and promote a strong reading culture nationwide.
IV. Viet Nam's legal framework, including the Library Law of 2019, supports modern services, community engagement, and lifelong learning. The report also emphasizes the nation's commitment to international cooperation through active participation in global library organizations and partnerships, aiming to modernize and connect libraries across the country and abroad.

Timor Leste

The Timor Leste Country Report was presented by Joao Fatima De Cruz, Director of National Library of Timor Leste.

I. The National Library of Timor-Leste (NLTL) continues to develop foundational library infrastructure and services, with the government and ENI jointly funding the ongoing construction of a permanent national library building.
II. Despite lacking formally trained librarians, 57 staff with basic library knowledge actively engage in regional training initiatives.
III. The library preserves over 10,000 physical books across multiple languages, with digital

collections and visitor engagement still in early stages due to limited facilities. Key priorities include digitization in partnership with UNESCO, launching a National Digital Repository, and expanding digital access via a new submarine cable.

IV. Collaborative efforts span national archives and international partners, including MOUs with Indonesia and Portugal.

V. Challenges remain in LIS education, as no domestic university currently offers accredited library science degrees, though approximately 30,000 LIS-related students are enrolled.

VI. Timor-Leste's steady progress reflects its commitment to building a knowledge-based society through strategic partnerships and government support.

19th CONSAL Conference Dinner & PPM/LAS 70th Anniversary

Rappoteur:

1. Hashimah binti Mohamed Yusoff
2. Dr Farrah Diana Saiful Bahry

Opening Speech by the President of Librarian Association of Malaysia
Dr Ghazali Mohamed Fadzil

The President welcomed and expressed his pleasure and gratitude to all guests at the special 19th Congress of Southeast Asian Librarians dinner. Their presence reaffirms the vital role of libraries and librarianship across the South East Asia region.
Highlights:

1. The powerful theme, Inclusive Knowledge: bridging divides, empowering all is a call for action echoing across ASEAN resonating deeply with the national ethos. CONSAL 19 represents the shared aspiration of member countries in which knowledge is a unifier in building a resilient, informed and inclusive region.

2. The President tied the congress theme to Malaysia's ASEAN Chairmanship in 2025, which focused on Inclusivity and Sustainability.

3. Dr. Ghazali highlighted that librarians today are no longer just bookkeepers. Their roles now include; educators who support learning, Cultural diplomats who preserve and promote heritage, digital navigators who guide users through digital resources and stewards of truth, especially critical in combating misinformation and fake news. Librarians support job seekers, lifelong learners, and diverse communities, all while ensuring services keep pace with technological change.

4. A strong call was made to deepen collaboration within ASEAN, proposing specific areas such as cross-border digitisation projects, metadata harmonisation, multilingual digital platforms, to reflect Southeast Asia's diversity and joint professional development programs. to build capacity and share expertise. This collaborative spirit is described as knowledge diplomacy - bridging nations through shared learning and mutual respect.

5. The President also briefly described the historical development and establishment of Library Association of Malaysia and Library Association of Singapore

6. Dr. Ghazali encouraged delegates to treat the congress as a renewal of commitment to their mission. He reminded everyone to carry the spirit of the congress back to their home institutions, turning conversations into actions that benefit communities. Continue building networks and partnerships that empower people through knowledge.

7. He concluded with appreciation to the organising committee and reaffirmed the importance of unity through knowledge, encouraging everyone to enjoy the evening with a spirit of friendship, cultural sharing, and professional solidarity.

Speech by Deputy Minister of National Unity Malaysia – YB Senator Madame Saraswathy d/o Kandasami

Rappoteur:

1. Mohd Aizat bin Abd Halim
2. Dr Haziah Sa'ari

YB Senator Madame Saraswathy delivered a heartfelt and forward-looking speech during the official dinner of CONSAL XIX. Her remarks centered on libraries' unifying role in society and librarians' essential work in building inclusive and empowered communities. She drew strong connections between the congress theme and the principles of national unity championed under Malaysia MADANI while calling for greater recognition of libraries as agents of harmony and librarians as pillars of social cohesion.

Highlights:

The spirit of unity through libraries

The deputy minister acknowledged the significance of the CONSAL XIX theme, "Inclusive Knowledge: Bridging Divides, Empowering All," as deeply aligned with the core mission of libraries. She described libraries as more than book repositories; they are safe, inclusive, and transformative public spaces that bring people together regardless of their background or beliefs.

Libraries as anchors of national unity

Emphasizing her role at the Ministry of National Unity, she described libraries as some of the earliest institutions to practice true multicultural inclusion. They stand as living examples of unity in diversity, welcoming everyone equally and supporting social harmony across Malaysia's multi-ethnic and multi-religious society.

The regional role of CONSAL XIX

She praised the congress as a manifestation of ASEAN solidarity, noting its potential to act as a platform for knowledge diplomacy. With Malaysia preparing to assume ASEAN Chairmanship in 2025, she proposed that CONSAL could be a foundation for regional collaboration in areas such as digital knowledge repositories, cultural heritage preservation, and accessible services across all communities.

Recognizing the evolving role of librarians

The deputy minister highlighted the modern librarian's multifaceted role and not just as custodians of books but also as digital navigators, community leaders, educators, and advocates of cultural understanding. She called for greater investment in librarians' development and greater involvement in policymaking to reflect the evolving demands of the profession.

A call to action and celebration

She closed her address with a message of hope and collaboration, encouraging delegates to turn the conversations and partnerships formed during CONSAL XIX into meaningful and

sustained initiatives. The dinner, she said, should not mark the end of the day, but the beginning of future opportunities for regional progress rooted in shared knowledge.

CONSAL Librarian Award Ceremony

CONSAL Librarian Award Ceremony was presented by YB Senator Madame Saraswathy, Deputy Minister of Nationak Unity Malaysia.

1. The CONSAL XIX Secretariat invites the nominations for the CONSAL Outstanding Librarian Award 2025 and the CONSAL Young Librarian Award 2025 from CONSAL member countries.

2. The CONSAL Outstanding Librarian Award is to honor the significant contributions made by individuals to the library profession, or to improve relationships among libraries of the CONSAL member countries. For the CONSAL Outstanding Librarian Award, there will be Gold, Silver and Bronze Awards.

3. Meanwhile The CONSAL Young Librarian Award is a new award that will be introduced at the 19th CONSAL General Conference and Meeting. This award is to honour the contributions made by our young librarians to the library profession.

4. The winners
    I. Outstanding Librarian Awards 2025 (Gold) - Madam Chin Loy Jyoon (Malaysia)
    II. Outstanding Librarian Awards 2025 (Silver) - Madam Chin Loy Jyoon, Malaysia - Woro Titi Haryanti, MA. (Indonesia)
    III. Outstanding Librarian Awards 2025 (Bronze) - Madam Chin Loy Jyoon, Malaysia - Associate Prof. Dr. Tassana Hanpol (Thailand)
    IV. Outstanding Librarian Awards 2025 (Bronze) - Elvira B. Lapuz (Philippines)
    V. Young Librarian Award 2025 - Dr. Mayasari binti Abdul Majid, PhD (Malaysia)

Closing address by Director General of National Library of Malaysia & Co-Chair of 19th CONSAL 2025 Mr Edy Irwan Zulkafli

Rappoteur:

1. Hashimah binti Mohamed Yusoff
2. Junaidah binti Rosliy

The Closing Ceremony of the 19th Congress of Southeast Asian Librarians (CONSAL XIX) marked the culmination of a week of insightful discussions, regional collaboration, and professional celebration under the theme "Inclusive Knowledge: Bridging Divides, Empowering All."

Mr. Edy Irwan Zulkafli delivered the closing address, highlighting the transformative role of libraries in bridging digital and societal gaps, supporting inclusivity, and promoting the core values of Malaysia MADANI.

He emphasized the evolving role of modern librarians as community mentors, policy influencers, and digital navigators. As Malaysia prepared for its ASEAN Chairmanship in 2025, the role of libraries is seen as increasingly vital in achieving people-centric regional development.

Special thanks were extended to the CONSAL Executive Board, organising committee, presenters, delegates, and volunteers for their dedication and contributions. The ceremony ended with a note of hope and solidarity as the community looks forward to CONSAL XX.

Handing over of CONSAL flag to host of 20th CONSAL 2028

A symbolic and significant moment in the ceremony was the handing over of the CONSAL flag to the next host country of CONSAL XX in 2028 — Singapore.
National Library of Malaysia, as the outgoing host, officially passed the CONSAL flag to the National Library Board of Singapore, represented by its senior leadership.

The audience welcomed Singapore's appointment with a round of applause and expressed anticipation for the innovations and collaborative opportunities the next congress will bring.

Acceptance Speech by Mr. Ng Chor Pong, Chief Executive Officer, National Library Board of Singapore. host of 20th CONSAL 2028

He began with a warm expression of gratitude and extended his appreciation to Malaysia for its role in hosting and convening the consultative meeting.

He highlighted both achievements and ongoing challenges within the region's library and information sectors. The evolving role of libraries in the digital era was noted as a central theme, particularly their place as pillars of knowledge and community engagement.

There was a strong emphasis on the power of collaboration, particularly how partnerships can help transform language access and ensure inclusivity. Discussions also explored how technology continues to reshape knowledge discovery and dissemination, enabling greater connectivity and shared learning across borders.

The Prime Minister of Malaysia's opening speech was recalled, wherein he emphasized the enduring responsibility of libraries to preserve, transmit, and inspire knowledge. His remarks also underscored the importance of revitalizing libraries as dynamic community hubs in the digital age.

On behalf of Singapore, he expressed deep honour in being selected as the next host for the CONSAL in 2028. Singapore has a longstanding history with the CONSAL, having hosted it in 1970, 1983, and 2000. The country reaffirms its commitment to the CONSAL core objectives by strengthening regional relationships, advancing professional development, and promoting international cooperation.

The National Library and Archives of Singapore is preparing to host an engaging and impactful CONSAL XX, aligned with the evolving goals of the regional library community. The event in 2028 will serve as both a celebration and a forward-looking platform.

Winners of Poster Competition

First Place:
UTM Virtual Gallery (UTM Library)

Second Place:
Sudut Lestari: A Low Carbon Community Hub @ Sultan Ismail Library (Perpustakaan Sultan Ismail, MBJB)

Third Place:
City Nature Challenge 2025: Pahang (UITM Pahang)

Fourth Place:
From Soil to Soul: Healing and Social Change in Kampung Lindungan (PPAS)

Fifth Place:
Supporting Agricultural Networks and Communities (UPM)

Conference Report
17 June 2025: 3.00 – 5.00 p.m.

Session 1: The changing roles of libraries from gatekeeping to empowerment and fostering inclusivity in society.

(Dewan Tun Hussein Onn 1, Level 2)

Moderator: Mr Luke Chua (Singapore)

Rapporteur: 1. Dr. Hajah Imilia Ibrahim
2. Puan Husriati Hussain

Paper 1: Best Practices: A Showcase Of Library Inclusivity And Innovation In Southeast Asia And Around The World.
John Hickok (USA)

The speaker presents a global showcase of best practices from libraries in Southeast Asia and beyond, with a focus on innovative, inclusivity-driven initiatives across national, academic, public, and school libraries. Drawing on a multi-year study involving hundreds of in-person visits across three continents, the paper highlights exemplary models from dozens of libraries. These include a Malaysian public library with outstanding community outreach, a German academic library offering 24-hour user access, and a U.S. school library that bridges economic and cultural divides to support immigrant children. Collectively, these case studies illustrate how libraries worldwide are advancing inclusivity and equitable access through creative and impactful practices.

Paper 2: Tegal Harum Village Library Innovation, Denpasar City Through The SIPESAT Program.
Luh Gede Mareta Indah Wulandari, Richard Togaranta Ginting, Kadek Indriyani Subakti & Gede Rai Hridyananda (Indonesia)

The presenter highlighted the vital role of village libraries as accessible public spaces that support literacy, meet information needs, and offer recreational opportunities within local communities. A notable example is the Sastra Mahottama Library in Denpasar, Bali, which has implemented inclusive, community-focused innovations. Using qualitative research methods such as interviews, observations, and literature studies, the initiative showcases how digital tools can transform library services. The development of the SIPESAT application—an Effective, Responsive, and Accurate User Service System—has greatly enhanced user experience and access. This innovation led the Sastra Mahottama Library to become the only village library in Bali to win the National PLM competition for Library Transformation Based on Social Inclusion.

Paper 3: The Provenance Of Phya Anuman Rajadhon's Book Collection: Unlocking A Hidden Memory In National Library Of Thailand.
Thanachcha Suwannavach (Thailand)

The presentation explored the cultural and scholarly significance of Phya Anuman Rajadhon's personal Thai-language book collection, housed at the National Library of Thailand. Honoured by UNESCO in 1988, Phya Anuman's contributions to Thai cultural policy continue to influence research and knowledge production. The survey identified 1,226 volumes, with provenance traced to both individual and institutional ownership, and insect damage noted as the primary form of deterioration. Despite its historical value, the collection remains largely inaccessible due to a lack of cataloguing. The study recommends future research into the English and foreign-language materials in the collection to enhance accessibility, verify authenticity, and guide preservation efforts.

Paper 4: Libraries As Hubs Of Action: Enhancing Biodiversity Awareness Via Citizen Science Project At ICSBC 2024.
Haliza binti Zainal, Khairulbahiyah binti Yaakub & Nor Asikin Mohamad (Malaysia)

The speaker presents a case study of the 2024 International Citizen Science Boot Camp (ICSBC) at Universiti Teknologi Malaysia Library, demonstrating the vital role academic libraries can play in advancing citizen science. By bridging academic expertise and community participation, the program successfully documented 36 bird species and 126 insect types through collaborative efforts and effective use of scientific tools. The initiative highlights how libraries can drive meaningful public engagement, foster environmental awareness, and promote sustainability. Looking forward, plans include expanding to new locations, integrating emerging technologies, and sustaining long-term community involvement—affirming libraries as key facilitators of citizen-led scientific discovery and action.

Paper 5: Spark!Lab™ Singapore: Fostering Inclusive Innovation Through Tinkering.
Rasyidah Angullia (Singapore)

The presenter highlighted *Spark!Lab™*, a Do-It-Yourself (DIY) tinkering space developed in collaboration with the Smithsonian Institution, which has been thoughtfully adapted to suit Singapore's diverse audience, including children with special needs. Through inclusive design and tailored strategies, *Spark!Lab™* offers a safe and supportive environment where all children can freely explore materials and develop creative solutions. This hands-on approach not only enhances their knowledge and problem-solving abilities but also nurtures confidence and competence. Ultimately, *Spark!Lab™* aims to cultivate lifelong, self-directed learners by empowering children to take charge of their own learning journeys through exploration and innovation.

Paper 6: Religious Libraries As Gateways To Inclusivity: Insights From Mosque And Church Libraries.
Nur Leyni Nilam Putri Junurham, **Mohamad Hafizuddin Mohamed Najid** & Nor Azzah Momin (Malaysia)

The presenter shared a study that explored the similarities and differences between mosque libraries and church libraries, aiming to understand how religious institution libraries fulfill their respective roles. The findings highlighted that, despite their differing religious contexts, both types of libraries are deeply committed to preserving sacred texts and supporting

educational initiatives. This comparative research addresses a notable gap in the field of library studies and offers valuable insights into the role of religious libraries as instruments of inclusivity—bridging diverse communities and fostering social harmony.

Paper 7: Transforming Academic Libraries Into Dynamic Learning Hubs: The Role Of Immersive Learning In Enhancing STEM Education In Perak, Malaysia.
Maria Hani Mustaffa, Zaidah Mahmud & Noor Affendy M. Ali (Malaysia)

The presenter highlighted a study that examines the implementation and educational impact of two innovative Immersive Reality Books (IRBs)—*Earth Fossil Explorer* and *Rocks and Minerals*—within the Department of Education in Perak, Malaysia. Grounded in Constructivist Learning Theory, the research demonstrates how Augmented Reality (AR) and 3D technologies can transform learning by fostering active engagement and immersive, experiential understanding. Employing a mixed-methods approach, the study reveals that these IRBs significantly enhance students' comprehension, retention, and interest in Science, Technology, Engineering, and Mathematics (STEM) subjects. The findings indicate that integrating IRBs into the national curriculum, particularly in areas such as geology and environmental science, has the potential to address existing educational disparities and support more equitable learning outcomes. Moreover, the study highlights the pivotal role of libraries in enabling access to such technological innovations—promoting lifelong learning, critical thinking, and a sustained interest in STEM, in alignment with Malaysia's broader educational transformation goals.

Questions and Comments
Q1. Puan Mazmin Mat Akhir (Perpustakaan Tuanku Syed Faizuddin Putra, UNIMAP) ask a question to Rasyidah Angullia (Singapore). Her question is regarding the collaboration between Sparklab and Smithsonian Institute. She asked whether the Smithsonian Institute set KPIs for them to fulfil.
Answer: The Smithsonian do set KPIs. Among them is a set of operation hours and continued reports and example booklets. But since they would mutually benefit from the collaborations, they agreed for the purpose of betterment of Sparklab as a whole.

17 June 2025: 2.30 – 4.45 p.m.
Session 2: Bridging divides through SDGs as libraries make the impossible, possible.

(Dewan Tun Hussein Onn 2, Level 2)

Moderator: Myat Sann Nyein

Rapporteur: 1. Puan Sabariah Abd Samad
2. Puan Siti Marlia Abd Rahim

Paper 1: Strategic Transformation of Inclusive Libraries in Malaysia: Challenges and Opportunities.
Mohamad Salbihan Salman, Mohd Helmi Masor @ Mansor, Fatimah Ahmad Bashir & Mohd Azhar Azhari (Malaysia)
This presentation examined the critical role of libraries in promoting inclusivity and social equity within the framework of the United Nations Sustainable Development Goals (SDGs), particularly aligned with the universal value of "Leaving no one behind." Drawing from the IFLA definition of inclusivity, which emphasizes equitable access to information and creative works, the paper focused on the challenges faced by public and academic libraries in Malaysia, a country characterized by rich ethnic and cultural diversity. It assessed existing gaps in service provision for individuals with special needs, rural communities, and low-income populations, highlighting the persistent issues of the digital divide, infrastructure limitations, and insufficient funding for accessible facilities. The study evaluated national initiatives such as u-Pustaka (National Digital Library) and mobile libraries, alongside selected international best practices, to measure the effectiveness of current strategies aimed at fostering library inclusivity. Based on this analysis, the paper proposed a set of strategic recommendations including the expansion of digital infrastructure, the development of user-centric and inclusive collections, and the enhancement of librarian training in inclusive service delivery. The presentation concluded with a call to action, affirming that with a comprehensive and well-structured inclusivity plan, libraries in Malaysia can serve as transformative agents in bridging social and informational divides, ensuring equitable access to opportunities and resources for all communities, especially the marginalized.

Paper 2: Advancing towards Sustainable Philippine Libraries: An Exploratory Study On SDG Initiatives And Librarians' Perceptions.
Eunice Ann Yutuc Chua, Sharon Maria S. Esposo-Betan & Martian A. Jinio (Philippines)
This presentation highlighted the proactive efforts of Filipino librarians in advancing the **United Nations 2030 Sustainable Development Goals (SDGs)** through the initiative **SDG Sulong (Forward)**. Recognizing the essential role of libraries as drivers of sustainability, information access, and public awareness, the initiative was established to raise awareness of the SDGs, document related library programs across the country, and motivate institutions and communities to act and share best practices. In partnership with **CE-Logic Inc.**, SDG Sulong organized a nationwide workshop in **July 2024**, which engaged approximately **1,400 participants** from various types of libraries. The workshop served as a platform to explore and document ongoing SDG-aligned efforts. The study aims to examine **Filipino librarians' perceptions of the SDGs** and conduct a **thematic analysis** of the workshop outputs to map the contributions of Philippine libraries toward sustainable development. The presentation

emphasized the evolving role of libraries not only as information centers but also as **socially responsible institutions** contributing to equity, resilience, and sustainability. Looking ahead, SDG Sulong aspires to build a robust network of engaged libraries and professionals that support the global sustainability agenda, thereby reinforcing the library sector's vital contribution to building a **sustainable and inclusive future for all**.

Paper 3: PKI And 1965: Libraries As Gateways To Justice And Peace Under SDG 16.
Soraya Hariyani Putri (Indonesia)This presentation examined the **1975 Indonesian Communist Party (PKI) tragedy** as a historically significant and politically sensitive episode, characterized by mass human rights violations and military conflict under Soeharto's regime. With over 500 lives lost and the suffering of approximately 1.1 million individuals, the discussion framed this event within the context of **Sustainable Development Goal 16 (SDG 16)**, which promotes peace, justice, and strong institutions. The study emphasized the pivotal role of the **National Library of Indonesia** in supporting reconciliation and justice through the preservation and democratization of access to rare and previously restricted historical materials, including the *PKI Manifesto* and other significant collections. Applying a **factorial theoretical framework**, the presentation drew upon the works of **Patricia Hill Collins**, **Kevin Rio**, and **John Rawls** to advocate for equitable access to knowledge, intellectual activism, and fairness. Through a qualitative methodology involving literature reviews, direct observations, and librarian interviews, the study demonstrated how inclusive access to sensitive archives enhances public transparency, collective memory, and civic dialogue. Recommendations included organizing public discussions, thematic exhibitions, and developing digital platforms in partnership with academia and civil society to strengthen the library's social impact. Overall, the presentation positioned the National Library as a key factor in advancing SDG 16 and promoting justice through informed historical engagement.

Paper 4: Empowering Sustainable Development Goals Through Library Programs: National Library of Malaysia's Approach.
Rayson Clinsmund Anak Jensonray & Yazid bin Ibrahim (Malaysia)
In this presentation, the speakers examined how the **National Library of Malaysia (NLM)** contributes to six key **Sustainable Development Goals (SDGs)** namely **SDG 1 (No Poverty)**, **SDG 4 (Quality Education)**, **SDG 10 (Reduced Inequalities)**, **SDG 11 (Sustainable Cities and Communities)**, **SDG 12 (Responsible Consumption and Production)**, and **SDG 17 (Partnerships for the Goals)** through a strategic blend of language-based programs and sustainable development initiatives. Drawing upon annual reports from **2017 to 2023**, the paper emphasized NLM's role in promoting free access to knowledge for disadvantaged populations, fostering lifelong learning through literacy campaigns, and supporting inclusive education for indigenous and disabled communities. The library's investments in rural outreach, assistive services, and emerging platforms like the Metaverse exemplify its commitment to digital equity. Cultural preservation efforts, including the digitization of thousands of Malay manuscripts, strengthen community identity and resilience, while programs like the Document Delivery System and interlibrary loans highlight resource efficiency and knowledge sharing. NLM's extensive collaborations with over 40 domestic and international partners, ranging from universities to global library networks, demonstrate the power of cross-sector cooperation in advancing national SDG strategies. In conclusion, the presenters affirmed that the National Library of Malaysia serves as a model for how libraries can be proactive agents of inclusive growth, sustainable progress, and community

empowerment, echoing Cicero's timeless sentiment: *"If you have a garden and a library, you have everything you need."*

Paper 5: Implementation Of SDG 10 (Reduced Inequality) In The Library of UIN Sunan Kalijaga Yogyakarta, Indonesia.
Marwiyah & Labibah Zain (Indonesia)
This presentation explored how the **Library of UIN Sunan Kalijaga Yogyakarta** is advancing **Sustainable Development Goal 10 (Reduced Inequalities)** through the development of inclusive infrastructure, services, and resources for students of diverse abilities and backgrounds. With a focus on addressing inequalities based on disability, age, sex, and ethnicity, the paper emphasized the university's efforts to create a learning environment that supports equitable access to information. Using **qualitative methods**—including campus observations and librarian interviews—the study assessed key areas such as **physical accessibility**, **assistive technology**, and **inclusive service design**. The library provides features such as wide, marked parking areas, barrier-free entrances, tactile pathways, color-contrasted stairways, and accessible interior spaces. Technological supports include screen readers (JAWS), OCR scanners, talking books, and dedicated workstations for visually impaired and wheelchair users. Additionally, the library maintains a **shared repository of accessible textbooks** to address the high cost of materials, supporting both learning and resource equity. These initiatives not only reflect a practical implementation of SDG 10 but also align with the broader global agenda of **bridging divides** and ensuring full participation of persons with disabilities in academic life. The presenters underscored that libraries serve as neutral, inclusive spaces where diversity is respected, and access to knowledge is a right, not a privilege. In doing so, the academic library at UIN Sunan Kalijaga demonstrates that **inclusive design and thoughtful service provision** are essential components in making the goals of the SDGs both actionable and achievable.

Paper 6: USM Library SDG's Initiative In Preserving The Cultural Identity And Heritage of Melayu Tanjong/Jawi Pekan In Pulau Pinang.
Fujica Azura Fesal, Radia Banu Jan Mohamad & Noor Azlinda Wan Jan (Malaysia)

This presentation detailed the **University of Science Malaysia (USM) Library's initiative** to support the **Sustainable Development Goals (SDGs)** by preserving and promoting the **cultural identity and heritage of the Melayu Tanjong/Jawi Pekan communities** in Pulau Pinang. Aligned particularly with **SDG 11 (Sustainable Cities and Communities)**, the project aims to safeguard intangible cultural heritage through digital preservation, community engagement, and accessible platforms. The speakers emphasized the importance of **community journalism and oral history** as tools for documenting local narratives, referencing descendants. Through the use of digital applications, USM Library has developed an **online exhibition** accessible to the public, serving as a dynamic portal for education and cultural continuity. The initiative integrates traditional knowledge with modern technology, ensuring that cultural resources remain **inclusive, interactive, and widely accessible**. Future directions include enriching the content with **subject-specific language**, **spiritual elements**, and **contextual cues** to further deepen cultural understanding and inclusivity. The presenters concluded with an open invitation for collaboration and feedback, reinforcing the library's role as a **catalyst for heritage preservation, digital innovation, and community empowerment** within the framework of sustainable development.

Paper 7: Achieving Quality Education (SDG 4) Through Literacy: Story From #Sepekan1Buku Program

Yaya Ofia Mabruri & Ilsa Nurul Oktaviani (Indonesia)

This presentation highlighted the #Sepekan1Buku literacy initiative as a strategic and impactful response to advancing **Sustainable Development Goal 4 (Quality Education)** in Indonesia through grassroots library engagement. Launched in 2020, the program mobilized literacy activities across **23 provinces, 95 districts, and 200 schools**, involving nearly **1,000 participants** and generating over **1,700 book reviews**. Against the backdrop of concerning results from the **2022 PISA assessment**, which reported Indonesia's reading literacy scores below OECD averages, the presenters underscored the urgent need to go beyond promoting reading habits by fostering **comprehension, critical evaluation, and expressive literacy**. Utilizing a **mixed-method research approach**, the program combined quantitative data from national submissions with qualitative insights from focus group discussions, particularly from the **Subocasa Tompu challenge**, which guided students through stages of reading, journaling, and creating both written and video reviews. The initiative, which engaged over **20,000 participants**, showed strong outcomes in enhancing **critical thinking and literacy engagement**, particularly in book discussions. However, technical issues—especially around account creation and video submission were identified as areas for improvement. Feedback from students and school literacy teams affirmed the program's positive impact on reading culture, book borrowing, and active use of library resources. Moving forward, the presenters recommended **annual expansion**, enhanced **digital literacy support**, simplified technical interfaces, and greater **collaboration with families, local libraries, and social media**. Concluding with a call to action, the presentation reinforced the role of libraries as key enablers of educational transformation, literacy innovation, and sustainable development, aligning directly with the targets of SDG 4.

Questions and Comments

Question 1: Sustainability and Urgency in SDG Implementation
Asked by Kevin Shonko, Faculty Member, Polytechnic University of the Philippines
Mr. Shonko raised a critical concern regarding the **urgency of sustainability efforts**, emphasizing that global actions toward achieving the 17 Sustainable Development Goals (SDGs) have been significantly delayed. He questioned how libraries and academic institutions can meaningfully contribute despite the **pressing time constraints**, and what strategies could be adopted to **accelerate progress** in alignment with the SDG framework.

Response:
Speakers acknowledged the urgency and emphasized the need for **institution-specific prioritization** of SDGs. Libraries, in particular, must act promptly by leveraging their **existing strengths** and aligning them with the most relevant SDGs. Institutions should adopt **localized and collaborative approaches** to enhance impact and avoid a one-size-fits-all strategy.

Question 2: Access to Restricted Collections in Indonesia
Anonymous audience participant
An inquiry was made about the evolving access policies concerning historically **restricted collections in Indonesian libraries**, particularly those censored during the Soeharto regime.

The participant sought clarity on how access has changed and the implications for research and historical transparency.

Response:

Speakers explained that many previously restricted materials, referred to informally as *"for me that"* books, have since been **declassified and made publicly accessible**. This shift reflects a **progressive governmental stance** toward transparency and academic freedom, enabling researchers and the public to engage with contested histories and support **SDG 16 (Peace, Justice and Strong Institutions)** through informed dialogue.

Conclusion of the Session

The Q&A session fostered a rich dialogue between participants and presenters, underscoring the importance of **timely, targeted, and inclusive action** in achieving the Sustainable Development Goals. The discussion reaffirmed the evolving role of libraries as **active partners in sustainable development**, whether by promoting access to knowledge, enabling historical transparency, or tailoring programs to institutional strengths. The engagement and thoughtful inquiries from the audience significantly enriched the session and highlighted a shared commitment to leveraging libraries for **meaningful and measurable impact**.

17 June 2025: 2.30 – 4.45 p.m.
Session 3: Building knowledge ecosystems for the disabled and marginalised
(Dewan Tun Dr Ismail 1, Level 2)

Moderator: Associate Professor Dr. Labibah Zain (Indonesia)
Rapporteur: 1. Puan Noor Farhana Mohd Saleh
2. Puan Suhana Ishak

Paper 1: Mainstreaming Sign Language Skills For Indonesian Librarians.

Zulfa Avidiansyah, Muhammad Rifky Nurpratama, Ika Nur Azizah & Gani Nur Pramudyo (Indonesia)

This study emphasizes the urgent need for Indonesian librarians to acquire sign language proficiency to better serve the Deaf Community and bridge existing communication gaps. Through a comprehensive literature review, the research explores prior studies on disability services, professional sign language skills, and library accessibility strategies. Despite recognition of its importance, sign language training remains absent from formal librarian development initiatives. The study advocates for bottom-up efforts, recommending the integration of sign language as a core professional competency. Policy support and structured training programs are essential to promote inclusive library services nationwide.

Paper 2: Empowering, Enabling and Enriching Persons With Disabilities Through Co-Creation And Inclusive Services At National Library Board Singapore.

Yvonne Ng (Singapore)

The National Library Board (NLB) Singapore shared its inclusive approach to library services, focusing on partnerships with Persons with Disabilities (PwDs), caregivers, special education schools, and disability organizations. Through co-created programs, NLB empowers PwDs—such as those who are deaf, visually impaired, or on the autism spectrum—to showcase their talents and sell their products in libraries. Innovations such as sign language interpretation, assistive technologies, accessible reading materials, and calm spaces were introduced based

on data analytics and community feedback. These initiatives not only enhance accessibility but also promote interaction between PwDs and the wider public, fostering empathy and understanding. NLB's ongoing efforts have successfully redefined libraries as inclusive, empowering community spaces for all.

Paper 3: Shelves, Skills, and Inclusion: The Development Of A Workplace Immersion And Literacy Project Of Henry Luce III Library For Individuals With Developmental Disabilities.
Vince Ervin V. Palcullo, Joan Iven Abello, Ma. Cynthia T. Peleña & Merle L. Junsay (Philippines)
The presentation showcased how the Henry Luce III Library of Central Philippine University partnered with a Special Education Center to implement a workplace immersion and literacy program for individuals with developmental disabilities. The project provided valuable skills training and community integration, supporting the UN Sustainable Development Goals, specifically SDG 4 (Quality Education) and SDG 10 (Reduced Inequalities). Using interviews and case analysis, the study highlighted how the library planned and carried out the program, the challenges faced, lessons learned, and future plans. The initiative demonstrated how libraries can be inclusive spaces that actively promote social development.

Paper 4: From Trends To Practice: Exploring The Role Of Disabled Librarians In Building Inclusive Knowledge Ecosystems For Persons With Disabilities.
Destiya P. Prabowo & Suharyanto (Indonesia)
This study explores the underrecognized role of disabled librarians in promoting inclusive and accessible library services through a mixed-methods approach combining bibliometric analysis (1978–2024, Scopus, PRISMA) and in-depth interviews. Findings underscore their unique contributions and call for stronger inclusivity policies, targeted training, and strategic collaborations with stakeholders. These efforts are essential for building a sustainable and equitable knowledge ecosystem.

Paper 5: Library And Information Services For Students With Special Educational Needs.
Megay Jamil Umali Dimaano (Philippines)
This study explored the inclusivity of library and information services for Special Education (SPED) students in Quezon City, Philippines, aiming to foster equitable knowledge ecosystems for marginalized learners. Using qualitative methods and interviews with librarians and SPED teachers from 15 schools, the research found that while dedicated resources for SPED students were lacking, librarians provided support through creative and interactive activities. Key challenges identified included insufficient resources, limited understanding of SPED information needs, and financial constraints. Nonetheless, the commitment of librarians in creating a supportive environment was commendable. The study calls for inclusive programs, assistive technologies, and social integration initiatives to transform school libraries into fully inclusive and empowering spaces.

Paper 6: From Marginalization To Inclusion: National Library Of Indonesia (NLI) Bridges The Gap For Street Children In Supporting SDGs.
Restu Putri Sholikhah & Suharyanto Mallawa (Indonesia)
The presenter highlighted the efforts of the National Library of Indonesia (NLI) in supporting street children through inclusive education and empowerment programs, aligning with SDG 4 (Quality Education) and SDG 10 (Reduced Inequalities). Using a qualitative approach, the study explored NLI initiatives such as the Protap Jelita literacy program, creative writing workshops,

and partnerships with the Kartini Emergency School in Jakarta. These programs have successfully provided street children with access to education, safe spaces, and personal development opportunities. Through interviews with beneficiaries and stakeholders, the study found that NLI's efforts significantly contributed to reducing social inequality and promoting inclusion. The article recommends expanding these programs through policy support and multi-stakeholder collaboration to further strengthen libraries' roles in transforming the lives of marginalized children.

Paper 7: A Research Study On The Challenges Faced By Students With Disabilities Enrolled In Bachelor Of Library And Information Science (BLIS) In Terms Of Physical Barriers, Stigma And Discrimination, And Inadequate Accommodations During On-The-Job Training (OJT).

Kayla Erika V. Juanzo (Philippines)

This study investigates the challenges faced by students with disabilities enrolled in the Bachelor of Library and Information Science (BLIS) program during their On-the-Job Training (OJT), focusing on physical barriers, stigma and discrimination, and inadequate accommodations. Key findings highlight inaccessible facilities, marginalization, and delays in support services as major hindrances to their academic success. Despite existing policies, institutional shortcomings persist, calling for urgent reforms. The study aligns with the UN Sustainable Development Goals (SDGs), particularly Goals 4 and 10, emphasizing the need for inclusive and equitable education. Recommendations include improving campus accessibility, training staff on diversity and inclusion, and streamlining accommodations to support the success of students with disabilities in the LIS field.

Questions and Comments

Question 1:

How many libraries in Indonesia have sign language services?

Asked by **Dr. Labibah Zain*(Indonesia)***

Response:

by ***Mr. Zulfa Avidiansyah (Indonesia)***

Only the National Library of Indonesia.

Dr. Labibah added that Universiti Islam Negeri Sunan Kalijaga, Jogjakarta has offered vario services in sign language, such as signage etc.

Question 2:

Do blind students still require Braille materials, even though they may rely on audio resources?

Asked by ***Dr. Labibah Zain*** **(Indonesia)**

Response:

by ***Vince Ervin V. Palcullo*** **(Philippines)**

Depending on the situation, we need to balance between these 2 resources. Not all resourc are converted to audio format yet, but we have to agree that audio resources are mo accessible to the blind students.

Question 3:

Do you have any activities or services that help people with dementia?

Asked by ***Dr Labibah Zain (Indonesia)***

Response:

by ***Yvonne Ng (Singapore)***

Yes, the National Library Board (NLB) of Singapore has wellness programs that support peop with dementia, especially seniors. These programs are created in collaboration with healthca institutions and aim to both help those with dementia and raise public awareness.

by ***Restu Putri Sholikhah (Indonesia)***

The Metro Library of Indonesia has implemented initiatives aimed at supporting elder individuals, particularly those affected by dementia. Specific programs and subunits have bee developed to address dementia-related topics, with the objective of raising awareness ar providing relevant information. These programs have engaged participants from an elder school in Jakarta, and sessions were conducted with the involvement of invited medic professionals.

Question 3:

Asked by ***Dr Labibah Zain (Indonesia)***

Do you have any friends with special abilities?

Response:

by ***Kayla Erika V. Juanzo (Philippines)***

Kayla shared a heartfelt story about a fellow librarian with a similar disability. While the speaker experiences speech limitations due to a congenital condition and the absence of fingers, her friend faces even greater challenges in verbal communication. Despite these difficulties, her friend is now a mother and works at a public library. What stood out was her deep dedication—not just to her profession, but also to serving others, especially beyond her identity as a person with disability (PWD). When asked why she does not focus more on advocating for fellow PWDs, she responded that motherhood transformed her perspective and widened her sense of purpose. The speaker reflected that while her own passion for librarianship is strong, her friend's drive—shaped by both disability and motherhood—is even greater and more selfless.

Conclusion of session: Disability is not always visible, and libraries should be naturally inclusive spaces that provide equitable access to information for all. Guided by IFLA's principles, libraries must remain committed to serving disabled and marginalized communities. Ensuring access is not just a technical task, but a matter of mindset. Instead of overthinking, libraries should take action and start offering meaningful services for all, especially persons with disabilities.
Dr Labibah Zain (Indonesia)

17 June 2025: 2.30 – 4.45 p.m.
Session 4: Libraries as partners forging new synergies in community development.
(Dewan Tun Dr Ismail 2, Level 2)

Session Chair: Professor Noorhidawati Abdullah
Rapporteur: 1. Puan Nur Avalina Abdullah
2. Puan Wan Emilin Wan Mat Alli

Paper 1: Transit-Friendly Library - Why We Do It
Mastura Hj.Muhamad, Norelmin Sapuan,et al (Malaysia)

The speaker shares about the Transit-Friendly Library initiative, launched in 2024 with support fr aims to provide safe, comfortable, and supportive spaces for children and families, featuring a assistance. A key collaboration with Adab Youth Garage in Kota Damansara has enhanced comm urban areas. Within six months, the library welcomed over 10,000 visitors and hosted more t alignment with Selangor's "Leaves no one behind" vision.

Paper 2: Social Responsibility: Paving the Way for Library and Society Partnerships
Norhafizah Abdul Latif (Malaysia)

This study explores the involvement of librarians in social responsibility initiatives within Malaysia and focus group discussions with 36 library professionals. The findings indicate that these libr Social Responsibility (LSR), focusing on community development and well-being. LSR practices n performance but also foster social cohesion through shared values, trust, and stronger commur

Paper 3: Public-Private Partnership: The Way To Build And Share Benefits For The Community O
Trang Hoang Thi Thu, Lan Tran Thi Phuong & Phuong Nguyen Thi Thu (Vietnam)

This paper examines the National Library of Vietnam's (NLV) adoption of a public-private partner and enhance library development. Through collaborations with domestic and international org

such as the S.hub Sharing Space and the Children's Cultural Library, aimed at improving engagement. The study, based on document analysis, field surveys, and interviews, highlights be leveraging partnerships to drive sustainable library and community development.

Paper 4: Public Libraries As Catalysts For Health Literacy: How Public Libraries Can Collaborate V Community Health And Well-Being.
Zhou Hongli (Malaysia)

This study explores how public libraries contribute to community health by collaborating with educational institutions, non-profits, and government agencies. Based on 30 studies published b roles—including as information facilitators, safe spaces, and training hubs—offering both d initiatives. Despite facing challenges like limited resources and cultural barriers, the findings high in advancing equitable access to health information and services.

Paper 5: The Role Of Public Library In The Development Of Social Capital In Local Commun Karangasem, Bali, Indonesia.
Dian Novita Fitriani & **Woro Titi Haryanti** (Indonesia)

This study highlights the Bukit Village Library's role in empowering local women's communit training, and stakeholder partnerships that support economic self-sufficiency. Through initiatives food preparation, and handicrafts, the library connects community members with coaching, m to national organizations. These efforts demonstrate how libraries can serve as platforms for build sustainable livelihoods and reduce dependency.

Paper 6: Cultural Connections In Action: Collaborative Partnerships For Sarawak Cultural Heritag
Nur Amanina Mastani, **Lilian Baun Pulo** & Izaruddin Moss (Malaysia)

Collaborative efforts between Pustaka Negeri Sarawak and local councils have played a pivotal cultural heritage through curated exhibitions and interactive activities during local festivals. T public engagement and pride in local history, while enriching Pustaka's special collections for fut as resource limitations and sustainability concerns, proposed strategies—including formal p strengthen the impact and ensure long-term cultural empowerment and community developme

Questions and Comments

Q1: Prof. Noorhidawati expressed interest in learning about the initiatives undertaken by the F key challenges faced by the library and how PPAS has managed to address and overcome these

Dato' Mastura highlighted the importance of redefining the role of libraries in contemporary so of libraries from being merely a "second home" to becoming vibrant spaces of happiness an fundamental change in how libraries operate and engage with their communities. By adopti differently, libraries have the potential to significantly contribute to the socio-economic upl financial literacy and social well-being.

Q2: Niswa Nabila (librarian from National Library of Indonesia) praised the women panelists in th Madam Woro Titi emphasized the need to empower women and how libraries can help this.

Q3: Suzliana Abd Hamid (Deputy Director, Selangor State Library) asked how the Sarawak State L such as the Borneo Cultural Festival.

Miss Norhafizah responded by emphasizing the importance of creating a positive and engaging
are encouraged to actively participate and have fun during the festival, which helps foster a sens
within the community. This approach not only boosts morale but also strengthens the library's c
engagement.

Q4: Prof. Noorhidawati inquired about the most pressing issues in forming partnerships betwee
Trang Hoang Thi Thu from the National Library of Vietnam identified two major challenges:

1. Legal barriers, which often complicate the formalization and execution of partnerships
2. Limited mutual understanding and alignment of goals between libraries and private enti
and long-term commitment.

Q5: Prof. Noorhidawati asked about the most pressing issue in the social responsibility of librarie
Answer: The presenter emphasized the concept of social capital as the central issue. Public libra
to building trust, fostering relationships, and strengthening community networks. This resp
information—it involves actively engaging with local communities to promote inclusion, civic pa

Q6: Prof. Noorhidawati asked about the most pressing issue in health literacy.
Miss Zhou Hongli highlighted that public libraries play a vital role in promoting health literacy
spaces where communities can access reliable health information, making them key partners i
public understanding of health issues.

Conclusion of session: The session showcased diverse approaches to fostering synergy between c
public and private agencies. Key themes included cultural heritage preservation, women's empo
collaborations not only strengthen the connection between communities and libraries but also e
to contribute meaningfully to societal development.

18 June 2025: 9.00 – 11.00 a.m.
Session 5 The changing roles of libraries from gatekeeping to empowerment and fostering inclusivity in society.
(Dewan Tun Hussein Onn 1, Level 2)

Moderator: Dr. Ahmad Nadzri (Malaysia)

Rapporteur: 1. Puan Husriati Hussain
2. Puan Suhana Ishak

Paper 8: Impacts Of Innovative Applications Of Immersive Technology In Vietnamese Academic Libraries: A Case Study Of Vin University Library.
Tam Ha, Tony Tin, Vu Nguyen, Khin Sone & Hang Bui (Vietnam)
This paper explores the innovative use of immersive technologies—such as virtual reality, metaverse, and 3D tools—at VinUniversity Library in Vietnam to enhance user experience and information access. These technologies were utilized for virtual tours, online information literacy sessions, and access to Vietnam's metaverse collection, proving especially impactful during the COVID-19 pandemic. The study, using a mixed-method approach, found that immersive applications offered engaging experiences while significantly improving access to library resources. Despite challenges like limited budgets and staffing, librarians showed creativity and initiative in implementing the tools and encouraging student participation. The paper positions VinUniversity Library as a pioneering model for other academic libraries in Southeast Asia to follow.

Paper 9: Technology Integration Into Library Operation And Services.
Herrick Yeap Han Lin, Chew Zhe Zhi, Lim Le Ying, Brandon Chow Cheng Hong, Ho Zhengying, Gan Zhi Yun, Chan Yong Yee, Tan Ley Yee & Yap Kian Meng (Malaysia)

The School of Engineering and Technology at Sunway University collaborated with the Sunway University Library to develop a robot aimed at automating shelf reading and inventory tasks, which are typically labor-intensive. The robot was tailored to match the physical layout of the library and equipped with features such as RFID detection and navigation in narrow shelf spaces. This initiative involved regular collaboration between the Library, IT Services, and Faculty to address technical challenges. Findings showed that while the robot improved time efficiency, its accuracy was slightly below manual methods. Overall, the project highlights that successful technology integration in libraries depends not only on functionality but also on service quality, user needs, and institutional image.

Paper 10: Transforming University Libraries In The Yangon Region: Exploring Digital Services And Operations For Empowerment And Inclusivity.
Khin Lay Soe (Myanmar)
This study explores the digital transformation of university libraries in the Yangon Region, focusing on services such as e-books, online journals, library systems, and digital literacy initiatives. It highlights challenges including infrastructure limitations, insufficient funding, and lack of digital skills among users and staff. Survey and interview results reveal inconsistent digital adoption across institutions, pointing to the need for strategic investments in technology and capacity-building. The study emphasizes the role of digital libraries in promoting academic inclusivity, research advancement, and accessible learning. It calls for

policy and institutional reforms to overcome barriers and strengthen the role of libraries in Myanmar's digital education ecosystem.

Paper 11: Generative AI And Library Services: How AI Could Support Reference Services.
Darren Seow (Singapore)
This study investigates the potential of generative AI, such as ChatGPT and Perplexity AI, in enhancing library reference services. Using real reference inquiries from the Lee Kong Chian Library's online Reference Point, the research compared AI-generated responses with those of human librarians, evaluating them on quality, accuracy, relevance, and completeness. The findings highlight both the strengths and limitations of generative AI in addressing complex user queries. While AI tools show promise in providing quick and relevant responses, they still require human oversight to ensure reliability and context sensitivity. The study offers insights into how librarians can effectively integrate AI into their reference services to improve efficiency and user support.

Paper 12: Elevating Literacy: The Role Of Librarians In Building Digitally Inclusive Library Spaces.
Mariella DC. Dorado & Marvilyn M. Rodriguez (Philippines)
This study investigates how academic librarians from the South Manila Educational Consortium (SMEC) Library Committee promote digital inclusion and literacy among marginalized groups, including students with disabilities, international students, and underserved communities. It highlights the importance of inclusive practices such as adaptive technologies, culturally responsive programs, and targeted information literacy training. Despite challenges like limited resources and diverse user needs, librarians are making efforts to bridge digital access gaps. The findings underscore the need for collaborative policy-making, staff development, and user-centred service design to foster truly inclusive academic libraries. The study concludes with practical recommendations to advance digital equity and empower all learners in today's technology-driven educational environment.

Paper 13: Enhancing Systematic Search Support Across Disciplines: A Case Study from NTU Library.
Sam C. F. Lena, Yasmin Lynda Munro & Yasmin Ally (Singapore)
This study highlights Nanyang Technological University (NTU) Library's successful expansion of its Systematic Search Service beyond medical research to include disciplines such as Business, Engineering, and Social Sciences. Using a phased approach, the library began with librarian training and user workshops, later evolving into a comprehensive program offering both systematic review support and structured search guidance. Key developments include discipline-specific training, integration of AI tools, and the creation of a robust knowledge base. This adaptive, user-centred model ensures methodological rigor while catering to varying research needs and skill levels. NTU's experience provides a practical framework for academic libraries aiming to scale evidence synthesis support across diverse subject areas.

Paper 14: The Library Transformation Based On Social Inclusion Program In Indonesia: A Media Monitoring Perspective Using Machine Learning.
Alditta Khoirun Nisa, Irhamni Ali & Radhitya Purnama (Indonesia)
This study explores how Indonesian libraries are evolving into inclusive community hubs by analyzing over 12,000 media items using unsupervised machine learning. The research reveals

that libraries are frequently portrayed as key agents in addressing socioeconomic and digital inequalities through initiatives such as digital literacy programs and community development efforts. Sentiment analysis and thematic clustering highlight a strong public narrative positioning libraries as spaces of empowerment for marginalized populations. These findings underscore the growing societal role of libraries in bridging educational and technological gaps. The study provides important insights for Southeast Asian libraries aiming to enhance their impact on social inclusion and digital equity.

Questions and Comments

Question 1:
Asked by **Dr. Mohamad Salbihan Salman (Malaysia)**
In Singapore University, is there or not a policy on the use of AI in academic writing or research?

Question 2:
Asked by **Dr. Mohamad Salbihan Salman (Malaysia)**
In the use of AI, what is the role of librarian to ensure that students or the users can use AI wisely?

Response:
by **Darren Seow (Singapore)**
Yes, AI is now widely used around the world, including in libraries. There has already been substantial research on its application in the library field, particularly in reference services, which is my area of focus. Given the rapid development of AI, it's expected that even more studies and implementations will continue to emerge in the future.

Response
by **Yasmin Ally (Singapore)**

At NTU, we do have a policy regarding the use of generative AI tools. While their use is allowed, users are required to include a disclaimer indicating that the content was generated using AI tools. I can't speak for other universities, as each may have its own policy.
As librarians, our role goes beyond internal awareness, we also educate researchers and students about responsible AI use. Interestingly, our students are often more tech-savvy than the staff when it comes to generative AI. Our job is to guide them, reminding them that they cannot rely solely on these tools for writing theses or reports. There are detection tools available now, and we actively use them to ensure academic integrity.

Question 3:
Asked by **Dr. Mohamad Salbihan Salman (Malaysia)**
Basically, how many percent for the security index for the AI usage?

Response
by **Yasmin Ally (Singapore)**
It really varies, but when I use generative AI detection tools, it's mainly to check whether a piece of work was produced by a student or generated using AI. This is important because it helps identify content that may not be the student's own work. Our lecturers and professors

also need to be aware of this. In addition to plagiarism checkers like Turnitin, there are now tools specifically designed to detect AI-generated content, and these are increasingly being used to maintain academic integrity.

Question 4:
Your university doesn't have any any percentage number?
Asked by **Dr. Mohamad Salbihan Salman (Malaysia)**

Response
by **Yasmin Ally (Singapore)**
The library itself does not directly conduct checks for AI-generated content. Instead, we work closely with lecturers and professors who are responsible for that process. As for whether NTU's research support office has conducted any surveys or studies on this matter, we are not aware of any, even if such data exists.

Added by
by **Darren Seow (Singapore)**
Just to add on to your last question about librarians can play a role in educating people using AI.
Yes, research shows that AI tools often use certain common phrases and patterns. If you're familiar with how AI writes, you can sometimes spot these repeated phrases and guess that the work may have been AI-generated.

Added by
Khin Lay Soe (Myanmar)
As librarians, we really need to think outside the box in this AI era. Our role is shifting—not just teaching traditional search skills like Boolean operators, but now guiding users on how to work with generative AI tools.
For example, in my library, I transformed our usual short story contest by allowing students to use AI to write stories and create illustrations. At first, some colleagues were against it, thinking it would make students lazy. But I designed it as a learning experience—students used Google Docs to draft their ideas, explored different AI models like ChatGPT and Gemini, and reflected on the process.
Surprisingly, we received nearly 50 submissions. It showed that with the right approach, we can still promote creativity and critical thinking while embracing new technology. This experience reminded me that librarians must be open-minded, creative, and willing to adapt to better engage users today.

18 June 2025: 9.00 – 11.00 a.m.
Session 6 Bridging divides through SDGs as libraries make the impossible, possible.
(Dewan Tun Hussein Onn 2, Level 2)

Moderator: Yazid Ibrahim

Rapporteur: 1. Puan Sabariah Abd Samad
2. Puan Nur Avalina Abdullah

Paper 8: From Gaps To Growth: Advancing SDGs Through Academic Libraries In Brunei Darussalam.
Ahmad Safwan Hj Jalil (Brunei Darussalam)
The presentation highlighted the vital role of academic libraries in advancing the United Nations Sustainable Development Goals (SDGs), with a specific focus on the Universiti Brunei Darussalam (UBD) Library. The speaker detailed how the library aligns its initiatives with SDG 4 (Quality Education), SDG 10 (Reduced Inequalities), SDG 3 (Good Health and Well-Being), and SDG 17 (Partnerships for the Goals). Key initiatives include transliteration projects, mental health awareness programs, and digital inclusion efforts. The findings underscore how the UBD Library empowers communities, bridges digital divides, and fosters international collaboration. The presenter recommended expanding digital literacy programs, enhancing library infrastructure, and strengthening cross-sector partnerships. Overall, the session emphasized academic libraries' potential as drivers of inclusive, sustainable development.

Paper 9: Beyond The Screen: Academic Libraries In The Philippines Navigating The Digital SDG Landscape.
Miriam Charmigrace Q. Salcedo (Philippines)
The presentation explored how academic libraries in the Philippines are leveraging technology to support the United Nations Sustainable Development Goals (SDGs). Drawing on data from 56 higher education institutions across Luzon, Visayas, and Mindanao, the study analysed digital initiatives through content from library websites, social media, repositories, and annual reports between 2022 and 2024. Key findings highlighted a strong emphasis on SDG 4 (Quality Education) through e-learning platforms and digital literacy efforts, as well as SDG 10 (Reduced Inequalities) through digital inclusion programs targeting underserved communities. The research also revealed differences in technological adoption, with larger universities focusing on open access repositories and smaller colleges excelling in mobile and local outreach solutions. The study provides practical insights into how academic libraries in developing regions can strategically harness technology for sustainable development.

Paper 10: Library Websites as Catalysts for Open Science: Exploring SDG Connections in Selected Academic Libraries in the Philippines
Marie Chezka G., Tamayo **Simon V. De Leon** & Marvin A. Factor (Philippines)The presentation examined how academic library websites support open science as a means to advance SDG 9 (Industry, Innovation, and Infrastructure) and SDG 17 (Partnerships for the Goals). Using a mixed-methods approach, the study analysed a diverse sample of library websites to assess access to open-access journals, the promotion of open educational resources (OER), and support for interdisciplinary research collaboration. Key indicators included the presence of repositories, OER guides, and research partnership initiatives.

Findings showed varying levels of engagement with open science, with leading institutions demonstrating strong user-centered design, accessibility, and alignment with SDG values. However, the study also identified gaps in resource discoverability and integration of global and local SDG objectives. The presenter emphasized the need to strengthen digital infrastructure to enhance the role of library websites in promoting innovation, inclusivity, and sustainable development.

Paper 11: Divides In Malaysian Academic Libraries: Integrating Waqf, Green Management, And SDGs Awareness For Inclusive Sustainability.
Mohd Dasuki Sahak, Haziah Sa'ari, Haslina Abu Seman @ Talib, Zuhaini Abdul Samad, **Noor Syafini Zamani** & Azizan Arshad (Malaysia)
The study highlighted the evolving role of Malaysian academic libraries in promoting sustainability, social equity, and education by aligning their initiatives with SDG 4 (Quality Education), SDG 10 (Reduced Inequalities), and SDG 13 (Climate Action). It examined how Waqf funding has been strategically used to enhance library infrastructure, digital access, and inclusive services, creating a culturally rooted and sustainable funding model. Green management practices, assessed through UI GreenMetric criteria, further demonstrated libraries' commitment to environmental stewardship through efforts such as energy conservation and renewable innovations. The paper also discussed SDG awareness initiatives within universities and proposed a Waqf-Green Management Hybrid Framework that integrates blockchain, AI, and interdisciplinary strategies for improved transparency and resource optimization. Despite notable progress, challenges remain in governance and scalability. The study presents a replicable model for other Muslim-majority countries, showcasing academic libraries as vital agents of sustainable development and ethical innovation.

Paper 12: Some Solutions For Implementing Open Educational Resources Models In Academic Libraries In Vietnam.
Tran Thi Thuy Kieu & Nguyen Thi Bich Ngoc (Vietnam)
The paper focused on the role of Open Educational Resources (OER) in university libraries as a means of advancing SDG 4, which promotes inclusive, equitable, and quality education. The study examined sustainable OER models from both global contexts and within Vietnam, evaluating their contributions to enhancing the quality of higher education. An online survey involving librarians from three universities in Ho Chi Minh City provided insight into local implementation practices and challenges. Findings highlighted the positive influence of OER on access to learning resources and educational equity, while also identifying the need for stronger institutional support and infrastructure. The presenter concluded with key recommendations to guide the development of an effective OER framework in Vietnamese university libraries and offered broader implications for national adoption. The session emphasized OER as a strategic tool for lifelong learning and sustainable educational transformation.

Paper 13: AI For SDG Data: Enhancing Decision-Making In Sustainable Development Through Data Analytics In Academic Libraries.
Marie Chezka G., Tamayo **Simon V. De Leon** & Marvin A. Factor (Philippines)The presentation examined how academic libraries can leverage AI-driven data analytics to support decision-making in alignment with the Sustainable Development Goals (SDGs). Using a descriptive

mixed-methods approach, the study analyzed case studies and strategic documents from libraries employing AI tools for data processing and visualization. The findings highlighted that AI integration significantly enhances operational efficiency, data accuracy, and the ability of libraries to align services with specific SDG indicators. Despite these benefits, challenges such as limited technical expertise, budget limitations, and resistance to new technologies were noted. The study offered practical recommendations to address these barriers and proposed a framework to guide AI implementation in academic libraries. Overall, the session emphasized the strategic role of libraries in advancing sustainable development through innovative data solutions.

Questions and Comments

Mr. Yazid asked to Miriam what are the main challenge when implementing the digital initiatives to support SDG,especially in rural areas.

Miriam replied : So there are three.Usually it's the SDG awareness.This is one of the challenge that most librarians or still doesn't realize that what they are doing also implies that they're doing some SDG initiatives. Number two is that investment on the technology especially other regional or smaller state universities,they have less budget.And then number three is the lack of documentation and research. Some universities or academic libraries are active in posting in the social media in 2023/2024. However not everyone post the annual report.

Mr Yazid asked Mr Simone "Great data comes with great responsibility".
Answer:
Everyone should be on board. what should be the policy? Philosophy of etchical and ethics. Other than that, collaboration should take much of stakeholder. Getting everyone in the room to participate with benchmark and exchange note.

Mr Yazid asked Madam Syafnie "#######".
Answer:
Even your library have limited budget, it doesnt means you cant do the development. She give an example of things that happening in her library during the covid. The library's staff had innovate "book pick-up" to support and ensure the sustainability of the library roles during Covid.

18 June 2025: 9.00 – 11.00 a.m.
Session 7 Building knowledge ecosystems for the disabled and marginalised.
(Dewan Tun Dr Ismail 1, Level 2)

Moderator: Miss Soh Lin Li (Singapore)

Rapporteur: 1. Dr. Hajah Imilia Ibrahim
2. Puan Wan Emilin Wan Mat Alli

Paper 8: Enhancing Access To Reading Materials For Visually Impaired Individuals: Implementation And Implications Of The Marrakesh Treaty At The National Library Of Malaysia.
Tamimi bin Taib & Mohd Ikhmil Firdausz bin Mohd Hanif (Malaysia)

On June 30, 2022, the National Library of Malaysia (PNM) was officially designated as an authorized entity under the Copyright (Authorized Entities) Order and Guidelines 2022 to support access to reading materials for individuals with visual impairments. While PNM has made initial strides by offering Braille and audiobook collections, challenges such as limited digital resources, insufficient assistive technologies, and low public awareness hinder full implementation of the Marrakesh Treaty. The study recommends staff training, partnerships with NGOs, and increased digital outreach to strengthen inclusive library services and ensure equitable access to information.

Paper 9: General Sciences Library Of Ho Chi Minh City: Activities And Services To Support The Visually Impaired Access To Knowledge And Integration Into The Community.
Thi Hanh Bui (Vietnam)
The presenter shared the initiatives of the General Sciences Library of Ho Chi Minh City to support the visually impaired in accessing knowledge and integrating into the community. Key services include on-site and home borrowing, a mobile library with door-to-door delivery, inter-library lending, and reading activities. The library also organizes the "Family Reading for the Visually Impaired" contest, skill training, experiential book-related activities, and computer usage tutorials. Online book readings and consultations are conducted via the “Zalo Group of Visually Impaired Readers,” and the library’s website is accessible with screen-reading devices. Efforts are also made to raise public awareness through mass media and to produce accessible materials. The library continues to enhance the quality of its services to better serve the visually impaired in the future.

Paper 10: Access To Information And Knowledge For Blind Users: Case Study At The Mitra Netra Indonesia Foundation Library.
Damaji Ratmono, Gustina Aisyah Tazun, Susanti & Armita Rahmawati Sandra (Indonesia)
The presentation focuses on the Mitra Netra Foundation’s digital library in South Jakarta, which offers accessible formats such as Braille, EPUB, and audio books for blind users, accessible via screen reader applications. It explores the types of services and collections available, as well as the challenges in delivering information to visually impaired individuals. The findings emphasize the need to expand the collection and promote technological awareness to support the progress of the blind community.

Paper 11: Developing School Library As Knowledge Ecosystem For Deaf Students: A Case Study In Sekolah Luar Biasa Negeri 1 Cicendo, Bandung, Indonesia.
Dian Novita Fitriani & **Niswa Nabila Sri Bintang Alam** (Indonesia)
The speaker discussed the development of the school library as a knowledge ecosystem for deaf students at Sekolah Luar Biasa (SLB) Negeri 1 Cicendo in Bandung, Indonesia. The study highlights that deaf students—often part of an "invisible disability" group—receive limited attention in traditional library services. It emphasizes the importance of creating an inclusive learning environment that addresses varying degrees of hearing loss, communication needs, and language skills. The library at SLB Negeri 1 Cicendo plays a vital role in supporting both the educational and personal growth of its deaf students.

Paper 13: Sticker Stories: Unleash Your Imagination, One Peel At A Time!
Haizatul Afni binti Bakhtiar & Mohammad Shafri bin Mohamad Ros (Malaysia)

The speaker showcased "Sticker Stories," an innovative storytelling approach used in public libraries to engage children, including those in the Special Education Integration Programme (Program Pendidikan Khas Integrasi). By incorporating stickers as visual aids, the program enhances narrative skills, stimulates imagination, and encourages self-expression through art and language. This interactive method fosters creativity, communication, critical thinking, and collaboration. Suitable for children aged three and above, it also supports vocabulary development and makes storytelling accessible and enjoyable for learners of all abilities.

Paper 14: Implementation Of The Gema Arca Program In Growing Community Literacy In The Klungkung District, Bali.
Ni Putu Melati Widya Putri & Richard Togaranta Ginting (Indonesia)The presentation explores the role of the Gema Arca literacy program in enhancing reading interest in Klungkung Regency through creative and interactive activities initiated by the local Archives and Library Service. Using a descriptive qualitative approach, the study highlights how Gema Arca fosters a fun and inclusive reading culture, especially in areas with limited access to literacy education. The program serves as a strategic effort to empower communities with better literacy skills and promote lifelong learning.

Questions and Comments
Q1: Arlene Matias (University of Santo Tomas, Philippine) How libraries identify and engage with marginalised communities who are unaware of library roles and services provided to them?
Answer:

1. Tamimi bin Taib: Almost every special person doesn't know about services for them in the library. With the internet services available we approach them through our online services like the Upustaka where people even in the rural area could access library collections. Other than that, we utilize the social media like TikTok dan Facebook to reach out.
2. Thi Hanh Bui & Damaji Ratmono: Our library prepared all the activities based on the needs of the users. The users are basically those registered to the visually impaired associations

3. Mohd Fathi: We always engage the District Education Office in identifying and connecting with our users. With this kind of engagement and collaborations we could approach bigger number of audience and we can do continuous activities with our users.

18 June 2025: 9.00 – 11.00 a.m
Session 8 Libraries as partners forging new synergies in community development.
(Dewan Tun Dr Ismail 2, Level 2)

Moderator: Mrs. Soe Soe Lynn (Myamnar)

Rapporteur: 1. Puan Siti Marlia Abd Rahim
2. Puan Noor Farhana Mohd Saleh

Paper 8: Nurturing Artistic Embryos in Libraries: The Creative Residency Programme in The National Library of Singapore.
Luke Chua (Singapore)

This presentation showcased the **Creative Residency Programme** by the National Library of Singapore, which positions the library as a dynamic space for artistic inspiration, storytelling, and creative exploration. The paper highlighted three key pillars of the programme: *Headspace*, where the library serves as a sanctuary for in-depth research and reflection; *Encounters*, enabling artists to uncover and connect with unique collections; and *Conversations*, fostering meaningful exchanges between artists and library users. Through these elements, the programme demonstrates how libraries can play a transformative role in the artistic process. In conclusion, the presentation compellingly affirmed that libraries are not only invaluable partners for artists but also vibrant hubs for nurturing and sustaining a thriving artistic community.

Paper 9: Beyond Book Clubs: Seeding and Sustaining 130 Learning Communities in Singapore.
Chloe Tong, Melissa Lim & Zulkifli Amin (Singapore)
This presentation highlighted the **LearnX Communities Project** initiated by Singapore's **National Library Board (NLB)** as a dynamic model for transforming libraries into active ecosystems of **informal, peer-led learning**. Originating from efforts by former librarian Melissa Lim and now led by project manager Chloe Tong, the initiative evolved from a collection of disconnected book clubs into a robust network of over **130 learning communities**, including digital clubs, art clubs, mental health support groups, and zine-making collectives. Defined as groups that regularly engage in shared knowledge and social connection, these communities operate on principles of **social learning**, where members alternate roles as learners and facilitators. The team's strategy focused on three pillars: **attracting communities** by emphasizing the library's unique offerings (librarian support, resource access, free space); **engaging participants as stakeholders** through events, exhibitions, and online platforms; and **ensuring sustainability** by fostering core leadership teams and introducing the external LearnX framework to support independent, off-site groups. Despite natural attrition73 groups dissolved due to life changes, the project achieved **83% growth in internal groups** from 2020 to 2024, supplemented by 19 external communities. The success of the initiative is rooted in human connection, with learning emerging organically through shared experiences. The project demonstrates how libraries can evolve into **inclusive, people-centered spaces** that promote continuous learning, personal development, and community resilience.

Paper 10: Leveraging Knowledge Management, Innovative Technology, And Public-Private Partnerships for Sustainable Community Development
Sarifah Abdullah, Rashidah Othman & Geeta Albert (Malaysia)
This presentation highlighted the vital role of libraries in advancing sustainable community development through effective knowledge management (KM) and strategic public-private partnerships. It identified key challenges during KM implementation, such as system setup and staff readiness, and emphasized success factors like strong leadership, technology use, and stakeholder engagement. Case studies demonstrated how librarians leverage collaborative tools to improve service delivery, knowledge sharing, and operational efficiency. The paper underscored the librarian's evolving role as a Knowledge Manager, recommending capacity-building to strengthen this leadership function. Overall, libraries were positioned as essential agents of change, bridging sectors and driving impactful, sustainable development initiatives.

Paper 11: Redefining Library Roles: A Case Study of Mobile Makerspaces for Community Empowerment and Inclusivity.

Maria Hani Mustaffa, Zaidah Mahmud & Noor Affendy M. Ali (Malaysia)
This paper highlighted the **innovative Mobile Makerspace Project** initiated by the **Information Resource Center at Universiti Teknologi PETRONAS (UTP)** as a transformative model for redefining the role of academic libraries as **inclusive, community-centered hubs of learning and empowerment**. Launched in response to challenges in STEM education access, particularly in rural Perak, the initiative reflects a powerful shift in how libraries can actively contribute to **national development goals**. Aligned with **Malaysia's National STEM agenda**, the program engaged over **1,000 schools** through hands-on, mobile STEM activities—robotics challenges, digital literacy workshops, and maker projects—delivered in collaboration with university students, local educators, and policymakers. The project emphasized that **inclusivity is not only about access but also about empowerment**, targeting Form Three students at a pivotal point in their academic journey to cultivate curiosity, creativity, and problem-solving skills. With an impressive **87% increase in science stream enrollment** and the formation of school-based robotics clubs, the initiative clearly demonstrated its educational impact. Now rebranded as **EduSpark**, it has garnered multi-stakeholder interest and is emerging as a **scalable model** for other academic libraries. The presentation reinforced that academic libraries, when equipped with purposeful innovation, cross-sector partnerships, and community-driven strategies, can extend their impact well beyond campus boundaries to become **dynamic agents of national education, inclusion, and sustainable development**.

Paper 12: The Children's Biodiversity Library by S.E.A. Aquarium: A Public-Private Partnership.
Christabel Sim & Melissa Kawasoe (Singapore)
This presentation showcased the **Children's Biodiversity Library by the S.E.A. Aquarium (CBLSEAA)** as an exemplary public-private partnership between the **National Library Board (NLB) of Singapore** and **Resorts World Sentosa (RWS)**, illustrating how libraries can be transformed into immersive, educational spaces that promote sustainability and community engagement. Developed under the Lab Twenty Five initiative, the revamped children's section of the Central Public Library integrates marine biodiversity themes and interactive features through a ten-year, $1 million collaboration agreement signed in November 2023. The library now features over **100,000 children's resources**, eco-conscious design elements, and uniquely themed zones—including the Intertidal, Coral, and Sea Jelly zones—each tailored to specific age groups with educational storytelling, gamified learning, and hands-on activities. From January to March 2024, the library hosted **196 programs** on topics such as marine ecosystems and sustainability, reaching over **27,000 participants** through initiatives like *Ocean Tales*, *A Day in the Life Aquarium Edition*, and *Magnificent Mangroves*. The project has garnered widespread acclaim, attracting **nearly 489,000 visitors** in its first year and receiving coverage in **28 media outlets**, including *BBC Earth*. The presentation emphasized how strategic partnerships, creative content, and intentional design can redefine the library experience, positioning libraries as **vibrant hubs for experiential learning and environmental education**. Future plans include ongoing content refreshes to ensure continued relevance and impact, reinforcing the role of libraries as **dynamic platforms for lifelong learning and community development**.

Paper 13: Collaborating for Impact: The Power of Volunteering.
Grace Sim & Nurulhuda Subahan (Singapore)
This presentation by Grace Sim and Nurulhuda Subahan from Singapore's **National Library Board (NLB)** showcased the **transformative role of volunteers** in enhancing community impact

through structured engagement, capacity-building, and inclusive service. The Volunteer Management Team outlined a four-pillar framework under **Lab 25's LET Unified strategy**, emphasizing collaboration as a catalyst for social contribution. In **Pillar 1: Building a Learning Marketplace**, volunteers support over **130 LearnX communities**, facilitating knowledge exchange among individuals and nonprofits. Examples include the **Chatbot LearnX Committee**, which promotes AI for social good, and **Zen Tanglers**, who use art for mental wellness. **Pillar 2: Nurturing an Informed Citizenry** focuses on combating misinformation through the **SHUWR methodology**, where volunteers act as community champions, tailoring outreach to various age groups and languages. In **Pillar 3: Inspiring Singapore Storytellers**, volunteers deepen public engagement with national heritage by serving as docents, translators, and archival assistants in exhibitions and library tours. The **Equalizer Pillar** highlights inclusive volunteer roles supporting persons with disabilities, low-income children, and community beautification efforts. Volunteers also contribute to **mega events** and **technology outreach**, simplifying digital concepts for seniors and broader audiences. The **SPARK Strategy**—Support, Participation, Accessibility, Recognition, and Knowledge—was introduced as a guiding principle to sustain volunteer motivation and match roles with aspirations. While facing staffing limitations and challenges in retaining episodic volunteers, the team mitigates this by embedding volunteer officers across divisions and promoting open communication. The **Punggol Regional Library** was cited as a model of integrated volunteer collaboration. Looking ahead, the presenters emphasized that **volunteering will continue to evolve**, offering diverse, meaningful opportunities aligned with personal growth and collective community development, with libraries serving as a unifying platform for civic participation and lifelong learning.

Paper 14: Developing Reading Habits among University Students through Collaboration with Book Club and Library: A Case Study at the University of Science, Vietnam National University, Ho Chi Minh City.

Hoa Luong Minh, Toan Pham Ba, Bao Le Nguyen Gia, Nhi Nguyen Ngoc Trang & Lien Tran Le Tuyet (Vietnam)

This presentation explored the collaborative efforts between book clubs and the library at the University of Science, Vietnam National University, Ho Chi Minh City, in promoting reading habits among university students. Using a mixed-methods approach, the study examined students' reading preferences, motivations, and participation through surveys, complemented by interviews with library staff and book club organizers. Findings revealed that joint initiatives such as book discussions, reading seminars, and digital engagement significantly encourage reading culture on campus. Challenges like time constraints, limited resources, and digital distractions were identified, with proposed solutions including enhanced library services, creative reading spaces, and integrated programming. The study emphasized that strategic collaboration between libraries and book clubs holds strong potential to foster a sustainable reading culture within academic environments.

Questions and Comments

Question 1: Art Residency and Library Resource Integration

Answered by Luke Chua (Singapore)

An audience member inquired whether artists participating in the National Library's residency program are encouraged or required to utilize resources beyond the library's collection and if the artistic process—including specific references or inspirations from the collection—is documented. The concern was raised that a heavy reliance on external materials might affect the selection or outcome of the residency.

Response: Luke Chua explained that the residency is designed to support long-term artistic processes, which often extend beyond the formal residency period. While artists may not always complete their projects within six months, they are encouraged to base their work on the National Library's collections and acknowledge these contributions in subsequent exhibitions. The library values the creative process and supports engagement with its resources as both a foundation and inspiration for artistic output.

Question 2: Volunteer Engagement and Retention Strategies

Answered by Grace Sim (Singapore)

An attendee asked about how libraries maintain engagement with volunteers, especially after their required service hours have been completed.

Response: Grace Sim acknowledged the challenge of volunteer retention post-commitment and shared that NLB employs a **rewards and recognition framework** to incentivize continued participation. Although monetary rewards are not offered, volunteers are recognized through a **tiered acknowledgment system** based on hours served. The goal is to rekindle interest and highlight the value of their contributions, with efforts focused on fostering long-term volunteer relationships beyond initial service motivations.

Question 3: Knowledge Management in Special Libraries

Answered by Sarifah Abdullah & Geeta Albert (Malaysia)

A participant asked how librarians facilitate knowledge management, particularly in special library contexts, and how tacit knowledge is preserved.

Response: Sarifah Abdullah and Geeta Albert emphasized that librarians play a key role as **knowledge facilitators**, using tagging, categorization, and structured organization to make both explicit and tacit knowledge accessible. They discussed the use of knowledge management tools—such as the **Kilometers framework**—to enhance user access, decision-making, and service quality. By bridging information gaps, libraries can support users in retrieving relevant content efficiently and meaningfully.

Question 4: Challenges in Preserving Corporate Memory

Answered by Puan Rashidah Othman (Malaysia)

The final question addressed the difficulties libraries face in preserving corporate memory, particularly in digitizing legacy materials stored on outdated formats such as CDs.

Response: Puan Rashidah Othman acknowledged the significant challenge of **digital preservation**, citing over 5,000 CDs of photo archives that remain inaccessible due to obsolete technology. She noted that the process of converting and updating formats is

resource-intensive and ongoing, but necessary to ensure that valuable institutional memory is not lost. The situation underscores the need for long-term strategies in **digital archiving and format migration** to sustain corporate knowledge.

18 June 2025: 11.30 a.m. – 1.10 p.m.
Session 9: The changing roles of libraries from gatekeeping to empowerment and fostering inclusivity in society.
(Dewan Tun Hussein Onn 1, Level 2)

Moderator: Kevin Conrad (Philippines)

Rapporteur: 1. Puan Siti Marlia Abd Rahim
2. Puan Sabariah Abd Samad

Paper 15: Empowering Inclusive Access For People With Disabilities: A Comprehensive Accessibility Analysis Of Southeast Asian National Libraries' Social Media.
Agus Triyanto & **Yaya Ofia Mabruri** (Singapore)
This presentation examined the **accessibility of social media content** by national libraries in Southeast Asia, focusing on how well these institutions serve users with disabilities through adherence to the **Web Content Accessibility Guidelines (WCAG)** established by the W3C. Through a **quantitative analysis** of 390 Instagram posts across various national library accounts, the study evaluated four core accessibility principles: **perceivability, operability, understandability, and robustness**. Findings revealed that **less than 1% of posts addressed disability-related content**, pointing to a general lack of awareness and targeted inclusion. Significant shortcomings included the widespread **absence of alternative text** for images and limited **audio or voice-over features** in video content, though **77.17% of videos included transcripts**. While the overall use of captions and clear language was commendable, with the **National Library of Singapore** standing out for consistent application of accessible layouts, many posts still lacked navigational aids and remained **incompatible with assistive technologies**. The presenters emphasized the need for national libraries to enhance their digital inclusivity by prioritizing **accessible design, richer multimedia support, and intentional content strategies** to ensure equitable access for users with disabilities, particularly within the evolving landscape of **social media engagement**.

Paper 16: Words Matter: Evaluating Inclusive Language On Malaysian And Philippine Library Websites.
Nur Azleen Binti Hasan, Janice Peñaflor & Efren Torres, Jr. (Philippines)
This presentation explored the use of **inclusive language** on academic library websites in **Malaysia and the Philippines**, analyzing their digital communication practices through a 32-item checklist developed by **Morgan-Daniel et al. (2024)**. The study focused on the **home page, "about us," and services pages** of top academic institutions, evaluating the presence of **gender-neutral terminology**, **accessibility considerations**, and **diversity representation**. Preliminary findings show that most libraries employ gender-neutral terms such as "patrons" and avoid ableist language; however, **gender-inclusive honorifics and pronoun options** remain notably absent in staff directories and online forms. While accessibility services are generally included, they predominantly focus on **physical disabilities**, with limited acknowledgement of **invisible or cognitive impairments**. Furthermore, **Diversity, Equity, and Inclusion (DEI) statements**, when

present, vary widely in visibility and comprehensiveness. The presenters emphasized that library websites function as critical **entry points for equitable access to knowledge**, and thus must reflect inclusive language and design. The study's findings offer **actionable recommendations** that institutions can adapt across **cultural and operational contexts**, ultimately supporting broader regional DEI initiatives and reinforcing the role of libraries as **inclusive digital gateways in higher education**.

Paper 17: Community Service: Equipping Teachers And Librarians In Improving Students' Digital Literacy In The Mentawai Islands.
Lolytasari Lolytasarim (Indonesia)
This presentation addressed the urgent need to improve **digital literacy** in the **Mentawai Islands**, a region with the **lowest Human Development Index (IPM)** in West Sumatra. Highlighting critical gaps in education, infrastructure, and information access, the study positioned **digital literacy** as a transformative tool for empowering local communities and repositioning libraries as **technology-enabled knowledge centers**. Central to the initiative is the **Senayan Library Management System (SLiMS)**, a digital library platform offering scalable solutions for expanding access to learning resources and enhancing technological proficiency. The project utilized a **qualitative approach** to explore the implementation of SLiMS in **Tuapejat Village**, focusing on capacity-building through training programs for teachers and librarians. These efforts aim to enhance digital library management skills, improve the quality of education, and equip local educators to better prepare students for the demands of the digital era. The study demonstrates how strategic library-based interventions can contribute to improving the region's IPM while reinforcing the role of libraries in supporting **inclusive access, community resilience, and lifelong learning** in underserved areas.

Paper 18: Innovating Library Services And Spaces: Towards An Interactive Approach.
Ahmad bin Samsudin & **Lilian Baun Pulo** (Malaysia)
This presentation by Pustaka Negeri Sarawak emphasized the library's strategic evolution in response to **technological advancement and changing societal needs**, reinforcing its role as a **dynamic and inclusive public knowledge institution**. While continuing to deliver traditional services such as books, journals, and learning spaces, the library has embraced innovation by introducing **interactive spaces, community festivals, and research-driven competitions** aimed at fostering creativity, collaboration, and lifelong learning. Serving a diverse user base, Pustaka Negeri Sarawak has actively repositioned itself as a **community-centric hub**, creating programs that invite participation across age groups and sectors. These initiatives, developed in collaboration with **government bodies, NGOs, individuals, and library associations**, have strengthened community engagement and deepened the library's impact. The paper underscored the importance of **continuous innovation and adaptability** in ensuring libraries remain relevant, particularly in the digital age, where users expect more personalized, engaging, and participatory experiences. Ultimately, the presentation reaffirmed the library's commitment to serving as a **vibrant platform for knowledge, inclusion, and cultural enrichment**, setting a model for future-oriented public library development.

Paper 19: Evaluating The Impact Of Read Aloud Programs In Indonesia: A Case Study On Inclusivity And Empowerment In Library Services.
Sadariyah Ariningrum Wijiastuti, Dewi Imelda Verawati Rambet, Yudhi Firmansyah, Fredy Ilafi, Josan Kusuma & Irhamni Ali (Indonesia)

This presentation explored the **transformative role of read-aloud programs** in enhancing literacy and promoting **inclusive and empowering library services** across diverse Indonesian communities. Conducted by the **National Library of Indonesia**, the study applied **t-test analysis** to assess the effectiveness of read-aloud sessions in improving **reading comprehension, language development, and participant engagement**, particularly among populations with limited access to formal education. The findings revealed significant improvements in literacy skills across all participating regions and highlighted the program's ability to transcend **age, occupation, and geographic barriers**, making it a powerful tool for **inclusive literacy outreach**. Read-aloud programs were shown to foster not only language acquisition but also community connection and self-confidence, especially among children and underserved groups. The study emphasized the evolving role of libraries from traditional custodians of information to **inclusive platforms for community learning and empowerment**. By implementing interactive and accessible programs like read-aloud sessions, libraries can bridge educational disparities and create **equitable learning opportunities** that strengthen social inclusion. The paper strongly advocates for the continued expansion of such initiatives as a means of building **resilient, literate, and empowered communities**.

Questions and Comments

Q1 Noor Mohd (UKM)

Activities with schools, and there are a lots of red tapes you need to face. May I know, how Pustaka attract more users from school despite all the difficulties?

Answer:

Lilian of Pustaka Negeri Sarawak mentioned that she agreed with Mr Noor Mohd about the difficulties in doing a collaboration with schools these days, compared to before. So, they had done a lots of partnership with PPD, get the approval earlier, and fulfill requirement set up by PPD such as the participants from schools must be given foods and drinks. Beside that, they also actively doing a partnership with other agencies as well.

Q2:

How do we know the improvement after the program? (related to digital literacy)

Answer:

Madam Lolytasari mentioned that even after the activities being conducted, they are still communicating in with the participants. This was done in order to monitor whether students still using the method they shared. WhatsApps group was maintained, therefore the communication will be continued with the participants.

18 June 2025: 11.30 a.m. – 1.10 p.m.
Session 10: Bridging divides through SDGs as libraries make the impossible, possible.
(Dewan Tun Hussein Onn 2, Level 2)

Moderator: Mr. Simon De Leon (The Philippines)

Rapporteur: 1. Puan Noor Farhana Mohd Saleh
2. Puan Nur Avalina Abdullah

Paper 15: Malaysian Reading Profile: A Comprehensive Study.

Nor Azlina binti Ab. Ghani, **Norsharyna binti Shafawi**, Noor Syahierah binti Mohd. Rohana & Nurfarhana binti Mohamad Roslan (Malaysia)

This presentation highlighted the National Library of Malaysia's (NLM) long-standing commitment to fostering a reading culture and building a knowledge-based society through various national reading initiatives. A key focus was the large-scale Malaysian Reading Profile study conducted in 2022, involving 100,000 respondents across diverse demographics. Findings revealed a promising 88.6% interest in reading among Malaysians, with an average of 24 books read annually, though most preferred printed religious books, magazines, and newspapers. The study also identified key barriers to reading, such as competing interests, time constraints, and low motivation. In response, the paper emphasized the need to establish a National Reading Index (NRI) to better evaluate reading habits and guide strategic policy-making under the National Reading Decade framework, reinforcing the library's central role in shaping an informed and literate society by 2030.

Paper 16: Reenergizing School Libraries To Make The Impossible, Possible: The Experience Of Myanmar.

Myat Sann Nyein, Sandra Chit Hpo, Mi Mi & Su Su (Myanmar)

This paper highlights the critical role of school libraries in equipping students with the knowledge and skills needed to become active contributors to sustainable and equitable development. In Myanmar, however, school libraries face significant obstacles, including limited financial resources, outdated materials, and a shortage of qualified librarians. In response, the Myanmar Library Association (MLA) launched the "Reenergising School Libraries" project in 2015, employing a strategic approach built on the principles of Communication, Coordination, and Collaboration—the 3Cs. Through a structured six-step framework, the MLA has focused on empowering local library communities, enhancing professional capacity, engaging stakeholders, and providing essential resources. By 2024, the initiative successfully revitalised 767 school libraries nationwide, resulting in improved facilities, a strengthened reading culture, and increased government support. Aligned with the UN Sustainable Development Goals (SDGs), the project offers a sustainable and replicable model for transforming school libraries into inclusive, future-ready learning environments, especially in resource-constrained contexts.

Paper 17: Resilience In Action: The Evolution And Struggles Of Summer Shelter Library In Fostering Community And Educational Reform

Thida Htway (Myanmar)

This presentation traced the inspiring journey of the **Summer Shelter Library** in Taunggyi, Myanmar, established in 2011 as a grassroots initiative advancing multiple UN Sustainable Development Goals (SDGs). The library has evolved into a vibrant community hub, promoting quality education, environmental sustainability, reduced inequalities, and strong local partnerships through impactful programs such as Eco-bricks for plastic waste reduction, digital literacy training, and food security workshops using Bokashi composting. Despite challenges like limited funding, volunteer shortages, and environmental threats, the library has shown remarkable resilience and community-driven innovation. The paper emphasized the importance of long-term partnerships, enhanced volunteer engagement, and creative funding strategies to sustain and expand its initiatives. This case stands as a powerful example of how local libraries can meaningfully contribute to the SDGs through inclusive, sustainable, and community-centered actions.

Paper 18: Libraries Empowering SDG Through Citizen Science: Insights From The Borneo Adventures Program.

Nurfarawahidah, B., Mohd Faizal Hamzah, Zawawi Tiyunin, Cik Ramlah Che Jaafar & Muniratul Husna Mohamad Zaki (Malaysia)

The speaker presents *The Borneo Adventures: Citizen Science in Action*, a pioneering initiative that illustrates the transformative potential of libraries in driving community development through citizen science. Spearheaded by the Librarians Association of Malaysia (PPM) in collaboration with Sekitar Kita and supported by the U.S. Embassy in Kuala Lumpur, the project engaged diverse participants from Sarawak and Sabah—including students, researchers, and the general public—in efforts to monitor biodiversity and water quality. Through hands-on workshops, field documentation, and the use of platforms like iNaturalist, the initiative fostered environmental awareness and empowered local communities to contribute meaningfully to ecological data collection. By aligning with key UN Sustainable Development Goals—namely SDG 15 (Life on Land) and SDG 6 (Clean Water and Sanitation)—the program underscores the critical role libraries can play as knowledge hubs and facilitators of grassroots scientific engagement. The speaker concludes with recommendations to broaden the program's reach to other regions and enhance its impact through the integration of advanced technologies, reaffirming the library's role in building sustainable, informed, and engaged communities.

Paper 19: Citizen Science And Myanmar Community Libraries: Advancing The Sustainable Development Goals (SDGs).

Ah Win & **Myat Sann Nyein** (Myanmar)

This presentation underscored the powerful intersection between **citizen science and community libraries** as catalysts for advancing the Sustainable Development Goals (SDGs) at both local and global levels. Through case studies involving six community libraries, the paper illustrated how librarians contribute to SDGs such as Quality Education (SDG 4), Sustainable Cities (SDG 11), Climate Action (SDG 13), and Partnerships for the Goals (SDG 17). Citizen science initiatives within libraries were shown to empower communities, enhance scientific literacy, promote digital inclusion, and address challenges like climate change, public health, and inequality. A key strategy includes cascade training to engage younger generations and build community resilience. The findings call for greater integration of citizen science into library programming, backed by investments in infrastructure, partnerships, and policy support to position libraries as vital platforms for sustainable development and community empowerment.

Questions and Comments

Q1: In your future collaborations and future citizen science projects, are there any AI tools that will be adapted or adopted by your citizen science team project members?

Asked by Nor Diana Jasni, Malaysia

A:The team has already integrated AI tools, including species recognition from pictures, improving continuously since its inception by a master's student in California. This demonstrates practical AI adoption in citizen science for biodiversity monitoring plans including using apps like DEP and IC Change, which incorporate AI to support citizen science, especially related to climate change initiatives, indicating a forward-looking approach to AI integration in community science projects. **Answered by Nurfarawahidah**

Q2: With regards to your study, do you think that digital materials help in promoting reading, the habit of reading versus statistical books. So do you recommend acquiring digital materials?
Asked by Simon De Leon, The Philippines
A: Recent studies show a significant increase in digital material consumption, with Malaysians receiving more digital copies (24 per year) compared to print (16 copies), highlighting the growing dominance of digital reading formats. Reading habit is operationally defined as the practice of reading and comprehending various materials, measured through detailed questionnaires assessing frequency and type of reading materials, including non-print formats across multiple devices. **Answered by Nor Sharyna**

Q3: How do you define reading habits? Because in terms of it in your study, habits can be interpreted in different ways. So how was habit defined?
Asked by Dr. Diljit Singh, Malaysia

Q4: How did you measure in terms of the non print reading materials? Because non print materials can be read whether it's on the computer, whether it's on the phone, or on different sources in there. So how did you measure or make the equivalent of the nonprint reading materials?
Asked by Dr. Diljit Singh, Malaysia
A: In accordance with the operational definition adopted in the present study, reading is conceptualized as the practice of engaging with and comprehending written texts. Consequently, the questionnaire includes items that explore the types of reading materials participants typically engage with. As previously noted by the researcher, the instrument also investigates the frequency of reading activities, whether on a daily, weekly, or monthly basis. **Answered by Nor Sharyna**

Q5: Our niche area at Al Bukhari International University is social business. So what is your opinion on how citizen science initiatives at AIU empower local communities to actively contribute to innovative social science solutions?
Asked by participant from Al Bukhari International University, Malaysia
A: That is an important question, as there is often a misconception that citizen science is limited to the natural sciences. In fact, it extends to the social sciences as well. To address this question, it is essential to begin by understanding the community—specifically, their needs, their motivations for engaging in research, and the knowledge they seek. From there, we can identify potential opportunities for collaborative citizen social science projects that are relevant and mutually beneficial. **Answered by Nurfarawahidah**

Q6: Following the presentation of the study results and recommendations, I'd like to inquire about the next step for implementing these findings. Specifically, I am interested in exploring the potential and practical applications and how these recommendations can be translated into actionable strategies. (how do we translate all of these researchers into further initiatives and actionable items).
Asked by Marvin, The Philippines
A: With regard to the citizen science papers, I intend to focus on this area. Within the field of library and information science, citizen science presents significant intersections. This study

will explore how libraries can leverage their resources, professional expertise, and existing infrastructure to support and actively participate in citizen science initiatives. **Answered by Nurfarawahidah**

18 June 2025: 11.30 a.m. – 1.10 p.m.
Session 11: Building knowledge ecosystems for the disabled and marginalised.
(Dewan Tun Dr Ismail 1, Level 2)

Session Chair: Restu Putri Shollikah (Indonesia)

Rapporteur: 1. Dr. Hajah Imilia Ibrahim
2. Puan Husriati Hussain

Paper 15: Empowering Education For Indigenous People At Chenan Cherah, Cameron Highlands: A Case Study From Tuanku Bainun Library.
Firdausiah Ahamad, Muliati Samad, Muhammad Fazlie Nordin & Anuar Ali (Malaysia)
The speaker discussed how the Tuanku Bainun Library of Universiti Pendidikan Sultan Idris (UPSI), in collaboration with the Cameron Highlands District & Land Office and Universiti Teknologi MARA, established a partnership support the educational needs of the indigenous Chenan Cherah community in Cameron Highlands, Pahang. The initiative focused on bridging accessibility gaps by providing library infrastructure, developing collections, offering English classes, and organizing community activities and events—demonstrating a commitment to inclusive education and community empowerment.
Paper 16: Foot Librarians: Collaborative Exploration And Exchange Of Knowledge With Indigenous Communities.
Mark Edzel R. Gonzales, Alvin E. Halcon, Razel Natalie D. Muñoz, Leonora H. Astete & Marilyn L. Ngales (Philippines)
The paper highlights the work of "foot librarians" who bring library services to indigenous communities through read-alongs, storytelling, literacy support, infrastructure development, and the creation of community libraries. Based on a decade of engagement, the study shares their volunteer experiences using narratives, interviews, and document analysis. It underscores the reciprocal nature of knowledge exchange, where librarians not only share information but also learn from the rich cultural traditions, oral histories, and sustainable practices of the communities they serve—demonstrating that true knowledge enrichment flows both ways.

Paper 17: Driving Change: The National Information Literacy Agenda For Marginalized Communities.
Yazid bin Ibrahim, Nor Edzan Che Nasir & Mohd Jeffri Abu Hassan Vadival (Malaysia)
The paper highlights the National Information Literacy Agenda (NILA), led by the National Library of Malaysia, which has made significant progress through inclusive, targeted modules developed with various stakeholders. Aimed at bridging digital and socio-economic divides—especially for Orang Asli communities and persons with disabilities—NILA promotes equitable access to information and lifelong learning. Aligning with Sub-Theme 3 and SDG 4, the initiative positions libraries as key agents of inclusivity and empowerment, and calls for policymakers to adopt the NILA framework to better support marginalized groups in a knowledge-based society.

Paper 18: Bringing Knowledge And Empowerment To People With Disabilities In Vietnam.

Nguyen Manh Hai, Lưu Quang Đa & Le Thi Huyen Trang (Vietnam)
The presentation highlights Vietnam's efforts to empower people with disabilities, focusing on the inspiring work of disabled librarians who have established free, inclusive libraries across the country. These initiatives not only address the challenges faced by individuals with disabilities but also promote knowledge sharing and a sustainable reading culture. The stories demonstrate how libraries can go beyond their traditional roles to become platforms for empowerment, inclusion, and social connection—offering opportunities that help build a more equitable future.

Questions and Comments
Dr Nor Edzan (PPM) asked how the project sustains the engagement with the community that they have chosen .

Vietnam: the project received financial support from books donated, financial and technological support from agencies and communities. .

2. Soraya National Library of Indonesia. Q for En Yazid: How to ensure that NILA remains adaptable and responsive to new marginalized group over time?
Answer: We always organized workshops with practitioners and it is important to update the modules to ensure they are compatible and suitable to the marginalized community. cooperation with other agencies to ensure the modules and up to date. the modules were encouraged to be used by all kinds of libraries.

3. Moderator: to philippines. How to ensure indigenous knowledge is preserved and not exploited.
Answer: we work with national commissioner indigenous people. we offer masters of indigenous library in the uni therefore we have the experts who would assist and guide the advocacies of the indigenous knowledge preservation.

18 June 2025: 11.30 a.m. – 1.10 p.m.
Session 12: Libraries as partners forging new synergies in community development.
(Dewan Tun Dr Ismail 2, Level 2)

Moderator: Professor Dr. Noorhidawati Abdullah

Rapporteur: 1. Puan Wan Emilin Wan Mat Alli
2. Puan Suhana Ishak

Paper 15: Jepara Regency Library Stakeholder Synergy In Leveraging
Library Transformation For Social Inclusion
Muhammad Irsyad Alfatih, Perwitasari Rengganingytastuti, Amelia Marihesya[3]
The transformation of libraries in Jepara Regency—from the Perpuseru initiative to a Social Inclusion-Based model—highlights the impact of collaborative, community-driven efforts in creating inclusive public spaces. This qualitative study, based on interviews and observations, illustrates how libraries have become centers of social empowerment through innovative programming, local engagement, and strategic partnerships. Key enablers of success include supportive policies, sustainable funding, and active citizen involvement. Jepara's model has

become a national reference point, demonstrating how localized solutions can strengthen literacy, education, and regional development. This case offers critical insights for policymakers aiming to replicate inclusive library practices across Indonesia.

Paper 16: General Science Library of Ho Chi Minh City is an essential partner in community development

Le Dinh Quoc Huy (Vietnam)

This paper highlights the collaborative efforts of the General Science Library of Ho Chi Minh City in promoting community development through partnerships with local libraries and organizations. Key initiatives include mobile library trips, STEM courses for rural communities, and the production of accessible materials such as talking and Braille books for individuals with disabilities. The library's active role in national literacy events underscores its commitment to fostering a reading culture, with recommendations to further support disadvantaged groups through targeted outreach and inclusive information access.

Paper 17: Of Comics, Garfield, and the News: Innovating Library Services through Public-Private Partnerships.

Alex Foo & Winnie Tan (Singapore)

The National Library Board Singapore's (NLB) Libraries and Archives Blueprint 2025 showcases the transformative impact of strategic public-private partnerships in reimagining library services. Through innovative initiatives such as the pop-up Comics Library in a shopping mall, the Garfield x Mr Kiasu cultural fusion, and the digital news collaboration with Singapore Press Holdings Media Trust, NLB has successfully expanded its reach and relevance. These case studies highlight how libraries can engage diverse audiences by integrating popular culture, commercial spaces, and digital media. By embracing creative experimentation with private sector partners, NLB demonstrates how libraries can remain culturally vibrant and educationally impactful. This approach serves as a model for libraries worldwide aiming to deepen community engagement through inventive and inclusive collaborations.

Paper 18: Libraries and Art Studios: The Relationship of Libraries as Centers of Innovation and Creativity in Tampaksiring,Bali

Richard Togaranta Ginting, **Salsabilla Woro Damayanti** & Ni Ayu Ketut Nirmala Dewi (Indonesia)

The presenter examines the literacy challenges in Tampaksiring, Gianyar, where limited access to information has contributed to low reading skills among youth aged 13 to 15. The Suradiva Literature Library, located in the Suradiva Arts Center, serves as a vital initiative to enhance literacy by providing a space for learning and cultural engagement. Using qualitative methods, the study highlights the library's role in bridging knowledge gaps and encourages similar innovations to support literacy development in underserved communities.

Conclusions:

Today's session highlighted powerful examples of how libraries and partnerships can drive community development and social inclusion. From Vietnam, we saw efforts supporting marginalized communities through rehabilitation, STEM activities, and mobile libraries. In Singapore, innovative public-private collaborations and creative programs showcased new ways libraries can engage and empower.

Overall, it was an inspiring and insightful sharing session, emphasizing innovation, creativity, and the evolving role of libraries in empowering society.

Professor Dr. Noorhidawati Abdullah (Malaysia)

Questions and Comments
No Question due to time Constraint

18 June 2025: 2.30 – 3.30 p.m.
Session 13: Pecha Kucha Postgraduate Forum
(Dewan Tun Hussein Onn 1, Level 2)

Moderator: Mrs Radia Banu Jan Mohamad

Rapporteur: 1. Puan Wan Emilin Wan Mat Alli
2. Puan Husriati Hussain

Presentation 1: An Overview Of Library Development Trends Towards SCOPUS Database Sustainable Development Goals: A Bibliometric Analysis.
Kanokwan Buangam & Chokthamrong Chongchorhor (Thailand)
This research analyzes library development trends related to the Sustainable Development Goals (SDGs) using Scopus data from 2016 to 2024. It includes 80 relevant publications, mostly from 2024. The most cited author is Siviwe Bangani, and the top-cited article is by Fiona Bradley (2016). Key journals include Library Philosophy and Practice and IFLA Journal. Nigeria led in international collaborations. The findings highlight libraries' ongoing efforts to support SDGs through improved resources, services, and staff development.

Presentation 2: Research Data Management Service Sustainability: A Framework For Malaysian Universities.
Wei Haan Goh, Yanti Idaya A.M.K. & Kiran Kaur (Malaysia)
The presenter highlighted a study exploring the sustainability of research data management (RDM) services in Malaysian universities, where challenges such as weak infrastructure, governance issues, and limited collaboration affect service effectiveness. A qualitative methodology was employed, involving interviews with librarians, IT personnel, research administrators, and university leaders, complemented by document analysis. The findings revealed fragmented governance, inconsistent service provision, and unstable resource allocation as key barriers. To address these, the study proposed a comprehensive framework aimed at enhancing institutional coordination and long-term sustainability of RDM services. The presenter concluded with practical recommendations to improve RDM practices in line with global research standards.

Presentation 3: Research Data Management In Citizen Science Project: A Case Study Of Practices, Challenges And Strategies At Malaysian Research University.
Cik Ramlah Che Jaafar, Asmadi Md Ghazali & Mad Khir Johari Abdullah Sani (Malaysia)
This study explores Research Data Management (RDM) in citizen science projects at Malaysian research universities. Through interviews with project managers, it identifies diverse data practices using tools like GIS and cloud platforms, but also highlights challenges such as unclear data ownership, limited tech awareness, and lack of institutional policies. To address these issues, the study recommends integrating RDM into grants, using open platforms, building capacity, and enforcing clear data-sharing policies. These strategies aim

to align with global standards and support sustainable development. Future research should focus on policy integration, advanced technologies, and long-term impacts of improved RDM.

Presentation 4: Bridging Knowledge: The Evolving Role Of Academic Libraries In Citizen Science.
Nurfarawahidah, B., Kiran, K. & Yanti Idaya, A.M.K. (Malaysia)
The presenter shared findings from a study on how academic libraries are evolving to support citizen science initiatives within the broader framework of open science. Using a qualitative approach, the study involved semi-structured interviews with librarians and stakeholders engaged in citizen science across higher education institutions. The results highlighted libraries' key roles in volunteer engagement and data management, while also noting challenges in sustaining collaborations and meeting diverse community expectations. The presenter emphasized the need for librarians to develop skills in project coordination, digital literacy, and facilitation. Recommendations included the adoption of institutional policies, interdepartmental collaboration, and practical training to strengthen libraries' involvement in citizen science and enhance their contributions to community-engaged research.

Questions and Comments
Q1: Zairi from Universiti Teknikal Melaka raised a question about the most challenging factor in redefining traditional library policies to support citizen science (CS).
Nurfarawahidah responded by emphasizing the importance of addressing concerns from library administrators, who play a key role in policy adaptation. She noted that the citizen science movement is gaining relevance within academic libraries and presents a valuable extension to existing corporate social responsibility (CSR) initiatives. As such, libraries should consider integrating CS into their programs to enhance community engagement and broaden their societal impact.

Q2: Dr Nor Edzan commented this forum is for the audience to critically comment on the research by the postgraduate students so that they may improve their research.

Q3: Dr. Namtip Wipawim (Lecturer, Sukhothai Thammathirat Open University, Thailand) inquired about the current state of Research Data Management (RDM) policies in Malaysia.
Wei Han Goh shared that her research indicates RDM policies are still limited across Malaysian universities, with only a few institutions having formal frameworks in place. Cik Ramlah added that while all five research universities in Malaysia have some form of RDM policy, there is still a lack of clear and consistent guidelines—particularly in addressing the ethical dimensions of research data management.

18 June 2025: 2.30 – 3.30 p.m.
Session 14: Pecha Kucha Postgraduate Forum
(Dewan Tun Hussein Onn 2, Level 2)

Moderator: Dr. Diljit Singh

Rapporteur: 1. Puan Suhana Ishak
2. Puan Noor Farhana Mohd Saleh

Presentation 1: Forging Synergies Between Libraries And Educational Institutions To Develop Digital Skills: Universities' Central Library.

Khin Thazin Myint (Myanmar)

This study highlights the evolving role of university libraries as key enablers of digital skill development, directly contributing to the UN Sustainable Development Goals, particularly SDG 4 (Quality Education) and SDG 10 (Reduced Inequalities). Focusing on a University Central Library, the research explores collaborative efforts with educational institutions to bridge digital divides and improve technological competencies. Using a mixed-method approach, it reveals both achievements and persistent challenges in digital service delivery, drawing insights from staff, faculty, and students. The findings emphasize the importance of customized programs, inclusive digital literacy initiatives, and strategic partnerships to enhance the library's outreach and impact. The study offers concrete recommendations to ensure university libraries continue to drive equitable access to digital resources and lifelong learning in the digital age.

Presentation 2: How Transparency And Openness Improve The Reproducibility Of Social Science Research? A Route Across Open Science.

Noor Masliana Razlan, Ali Fauzi Ahmad Khan, Samsul Farid Samsuddin & A. Abrizah (Malaysia)

This study explores how greater transparency and openness can help resolve the reproducibility crisis in social sciences, drawing from interviews with 20 leading Malaysian researchers and a survey of 218 scholars. The findings highlight that clear methodologies, standardized reporting, and data sharing significantly boost reproducibility, although ethical concerns and limited resources remain key obstacles. Nine essential attributes of transparency were identified, showing how structured tools can improve research quality while saving time. Reproducibility is shown to enhance academic credibility, support collaboration, and ensure research findings can inform evidence-based policymaking. The study recommends institutional support through open access policies, data infrastructure, and researcher training to foster a transparent and trustworthy research culture, aligning with global open science efforts.

Presentation 3: How Academic Libraries Drive OER Adoption In Malaysian Universities: Insights From OER Experts.

Nurul Diana Jasni, Noorhidawati Abdullah & Yanti Idaya, A.M.K. (Malaysia)

This study examines the role of Malaysian academic libraries in advancing community development through Open Educational Resources (OER), emphasizing librarians as key connectors between educators and institutions. Interviews with OER experts reveal that while libraries champion open access and equitable learning, they face persistent challenges such as limited training, low stakeholder awareness, and the absence of cohesive policy support. The research underscores the importance of collaborative efforts among librarians, faculty, and administrators to build a stronger OER ecosystem in higher education. Recommendations include capacity-building programs, institutional policy formulation, and national-level strategies to empower libraries as central OER hubs. Overall, the study highlights how academic libraries can play a pivotal role in achieving SDG 4 by fostering inclusive, sustainable educational practices.

Presentation 4: The Road Less Travelled: A Comparative Study Of Information-Seeking In Special Education Teachers Across Four States.

Nur Aswani Mohd Azhar, Nur Leyni Nilam Putri Junurham, Muna Azuddin, Aishah Hanim Abd Karim & Roosfa Hashim (Malaysia)

This study investigates the information-seeking challenges faced by special education teachers in four Malaysian regions, uncovering notable disparities in their access to and use of educational resources. Despite recognizing the importance of diverse information sources, many educators struggle with limited information literacy skills, further hindered by inconsistent institutional support across regions. The findings underscore the need for region-specific training programs and improved resource access to strengthen teachers' research and information management capabilities. Such efforts are essential to supporting more inclusive and effective special education environments. The study also calls for further research to evaluate how enhanced information literacy influences teaching practices and student outcomes in special needs education.

Questions and Comments

Question 1

What is your PhD about?

Asked by **Dr Diljit Singh (Malaysia)**

Response

by **Khin Thazin Myint (Myanmar)**

My research focuses on how the University Central Library bridges digital skills with education, highlighting its role as a key information hub. Despite offering many digital resources, there is a gap in user awareness and access, revealing opportunities to improve outreach future research will expand to libraries nationwide.

Response

by **Noor Masliana Razlan (Malaysia)**

My PhD research explores the attitudes and behaviors of social science researchers in scientific publishing, assessed through nine attributes including authorship, open access, ethics, and reproducibility. In the recent session, I focused on transparency, revealing that researchers view methodological transparency as crucial for enhancing responsibility in social science research.

Response

by Nurul Diana Jasni (Malaysia)

My study explores the adoption of Open Educational Resources (OER) in Malaysian higher education institutions, focusing on insights from both OER expert teams and academic libraries. It aims to identify current practices, adoption levels, and highlight differences in strategies between Malaysia currently still in the adoption stage and other countries.

Response

by **Nur Aswani Mohd Azhar (Malaysia)**

My Study explores the information needs of the deaf and blind by providing accessible sources. Libraries main an important role to provide more sources to support them.

Question 2:

Should teachers use AI tools to support their teaching?

Asked by **Nurul Diana Jasni (Malaysia)**

Response

by **Nur Aswani Mohd Azhar (Malaysia)**

It depends on the teacher's attitude. Older teachers may find it harder to use AI, while younger teachers are generally more comfortable with it.

Question 3:

In all the recommendations that you have made, what would be the first step that you would take?

Asked by Dr Diljit Singh (Malaysia)

Response

Nurul Diana Jasni (Malaysia)

The main recommendation is to strengthen collaboration and synergy between academic libraries and OER expert teams. Currently, these teams mostly consist of educators, with little involvement from libraries.

Response

by **Noor Masliana Razlan (Malaysia)**

My first recommendation is to establish clear standards for transparency and openness in scientific publishing. Many researchers are unaware of the need to share data and detailed methods, which are often required by publishers. Through my survey, some respondents realized this only after participating, showing the importance of clear guidelines for researchers.

Response

by by **Khin Thazin Myint (Myanmar)**

The first step should be improving internet and technical support. Then, the library can offer joint digital training with academic departments, as it serves as the university's central hub.

18 June 2025: 2.30 – 3.30 p.m.
Session 15: Pecha Kucha Postgraduate Forum
(Dewan Tun Dr Ismail 1, Level 2)

Moderator: Dr Janaki Sinnasamy (Malaysia)

Rapporteur: 1. Puan Nur Avalina Abdullah
2. Puan Siti Marlia Abd Rahim

Presentation 1: The Urban Digital Divide And Access Challenges: Experiences of Brgy. Camputhaw, Cebu City Residents. Frances **Riscel S. Padin (Philippines)**
This presentation explored the **persistent urban digital divide** in Brgy. Camputhaw, Cebu City, focusing on lower-middle, low-income, and poor households whose participation in the digital world remains hindered despite Cebu's urbanization. Using a **phenomenological research design** and **semi-structured interviews** with five residents, the study revealed that while cellphones are the primary devices for internet access, their usage quality is constrained by factors such as **socioeconomic status, digital literacy, internet affordability, and infrastructure limitations**. Younger, more educated individuals showed broader digital literacy and usage, while older and less educated residents faced greater barriers. The research aligns with **Sustainable Development Goals (SDGs) 9 and 10**, advocating for **resilient infrastructure** and **reduced inequalities**, and underscores the need for **targeted interventions**—such as digital literacy programs, public Wi-Fi installations, and strategic partnerships—to ensure **equitable digital access**. The presenter emphasized that bridging the digital divide requires not only increasing access but also **enhancing user experience**, fostering skills development, and ensuring that all citizens—regardless of age or income—can meaningfully benefit from digital resources. This study positions libraries and local institutions as critical partners in advancing **digital inclusion and social equity**.

Presentation 2: Conceptualizing Health Literacy Programs For Older Adults With Chronic Diseases In Public Libraries.
Zhou Hongli (Malaysia)
This presentation introduced a **comprehensive framework for developing health literacy programs** in public libraries, specifically designed to address the needs of **older adults living with chronic diseases**. Emphasizing the growing importance of libraries as **accessible and non-stigmatizing health information hubs**, the paper proposed a multi-phase model beginning with a **Needs Assessment** to identify health challenges and information gaps among aging populations. The framework underscores the **collaborative role of healthcare providers, community organizations, and library staff** in designing inclusive health education programs. The

proposed **Program Design** integrates digital and print materials, peer support systems, and interactive workshops that cater to the learning styles and health conditions of older adults. **Implementation strategies** prioritize flexibility and inclusivity through both in-person and online delivery methods, while the **Evaluation and Sustainability phase** offers metrics for measuring program impact and guidance for long-term continuation via strategic partnerships and funding. By equipping older adults with the skills and confidence to **make informed health decisions**, the model positions public libraries as essential partners in **promoting health equity, chronic disease self-management, and improved quality of life** within aging communities.

Presentation 3: Exploring the Role of Popular Burmese Picture Books in a Suburban Library: A Case Study in Seikkyi Khanaungtoe Township,Yangon

Su Thant San (Myanmar)

This presentation investigated the impact of **Burmese picture books** on children's reading experiences at a suburban public library in **Seikkyi Khanaungtoe Township, Yangon**, highlighting the role of culturally relevant materials in supporting **early literacy and community engagement**. Utilizing **qualitative methods**, including content analysis and case studies of reading sessions, the study explored how locally themed narratives—centered around childhood experiences, cultural values, and familiar settings—resonated with young readers. Survey responses revealed that children formed meaningful connections with the stories and characters, finding them engaging and relatable. The study emphasized the importance of access to local literature in fostering a **lifelong love of reading**, promoting **non-toxic perspectives**, and strengthening ties to local culture. Recommendations include aligning **collection development** with children's preferences, integrating **diverse cultural narratives**, and enhancing **library programming** to position libraries as inclusive, educational, and inspiring **community learning spaces**. The findings reinforce the essential role of libraries in offering **culturally meaningful literacy experiences** that nurture positive identity formation and reading motivation.

Presentation 4: Exploring Digital Asset Management (DAM) For Film Collections In The Malaysian State Libraries. **Nur Haziqah Hapiz** & Ranita Hisham Shunmugam (Malaysia)

This presentation examined the **preservation and management challenges** faced by **film collections in Malaysian State Libraries** and proposed the integration of **Digital Asset Management (DAM) systems** as a sustainable solution. Recognizing film collections as **vital cultural and historical assets**, the study identified serious issues such as **physical deterioration**, **media obsolescence**, **inconsistent cataloging**, and **underutilisation**, particularly with outdated formats like VHS tapes, CDs, and DVDs. Utilizing a **qualitative, exploratory approach**, the research involved **semi-structured interviews with librarians and stakeholders** across five state libraries, supported by institutional reports and expert opinions. The findings highlighted key inefficiencies in existing workflows, including labor-intensive cataloging, limited public access, and inadequate storage and playback infrastructure. The presenters advocated for a **tailored DAM system** that would enable automated cataloging, digital preservation, and centralized access through digital platforms, thereby increasing discoverability and engagement. By integrating DAM into library operations, state libraries can ensure **long-term preservation**, improve public accessibility, and **safeguard Malaysia's audiovisual heritage** for future generations, reaffirming libraries' evolving role in **cultural stewardship and digital transformation**.

Questions and Comments

Presenter 1:

Q1: Audience asked presenter 1 whether any influence your research on the gender?

Presenter 2:

Q2: Nor Muhammad form UKM Conceptual Framework

Presenter 3:

Q3.1: How many picture books you have in your library

2,000 picture books

Q3.2:

Q4.1:

Q4.2: Any interested film that you found?

Answer: Adat pepatih Negeri Sembilan

Q4.3:

Q5: Digitizing

Q6:

Question from Moderator:

Internet is misused, does that include in your research?

Answer: Yes especiallycontent creator that high possibilities. educate them to check fake news etc. digital information literacy

18 June 2025: 2.30 – 3.30 p.m.
Session 16: Pecha Kucha Postgraduate Forum
(Dewan Tun Dr Ismail 2, Level 2)

Moderator: Dr. Ali Fauzi Ahmad Khan

Rapporteur: 1. Dr. Hajah Imilia Ibrahim
2. Puan Sabariah Abd Samad

Presentation 1: Information Seeking Behaviour Of MLBB Players

Khosyi Maulana (Indonesia)

This study explores the *information-seeking behaviour* (ISB) of *Mobile Legends: Bang Bang* (MLBB) players through the lens of **Stebbins' Serious Leisure Perspective** and **Everyday Life Information-Seeking (ELIS)** framework. The research adopted an **explanatory sequential mixed-methods design**, beginning with a quantitative phase followed by qualitative inquiry.

A total of **473 survey Responses** were collected, with **413 completed Responses** used for analysis—surpassing the required sample size of 384. Quantitative data were analysed using **descriptive statistics** and the **Chi-Square test** via Qualtrics to determine the relationship between ISB and serious leisure activities. The findings indicate a **statistically significant relationship** ($p < 0.05$) between the two variables.

In the qualitative phase, **eight semi-structured interviews** were conducted online. Thematic analysis, preceded by transcription and translation, was used to identify patterns in players' information-seeking behaviour. Key themes included **competitive engagement, gaming intensity, community involvement, and gameplay experience**. These factors reveal how

MLBB players approach gaming not only as entertainment but as a structured and meaningful leisure pursuit.
The study concludes that MLBB players demonstrate serious leisure characteristics in their information-seeking activities. The findings offer insights into how digital game players actively search for knowledge, form communities, and enhance their gaming experience through structured learning and interaction.
This research contributes meaningfully to the discourse in **information science** and **leisure studies**, highlighting the evolving role of online games in shaping everyday information behavior. The presenter recommends further studies to explore causal relationships and deepen understanding of ISB within broader digital leisure contexts.
Overall, this was a well-executed and timely study with practical and theoretical implications.

Presentation 2: Reviving Inclusivity Through Transformative Governance.
Sabariah Abdul Samad & Imilia Ibrahim (Malaysia)
This insightful presentation addressed the evolving role of **transformative governance** in reshaping libraries as inclusive, accessible, and responsive institutions. The paper critically examined how **traditional, hierarchical governance models** can unintentionally marginalize underserved communities by maintaining rigid policies and top-down structures. Such approaches risk alienating key user groups, especially in diverse and multi-generational societies.
The presenters advocated for a **paradigm shift** in library governance, calling for a move toward **participatory, user-centred, and adaptive practices**. Central to their argument is the idea that libraries must become **community-led spaces**—not just service providers, but co-creators of knowledge and social connection. Strategies such as **inclusive policy reform, participatory decision-making, community representation**, and **transparent governance** were highlighted as key enablers.
The presentation was enriched by both **local and international case studies**, showcasing successful governance transformations in Malaysian libraries as well as prominent global examples such as the **Seattle Public Library** and **Oodi Library in Helsinki**. These examples illustrated how libraries can reimagine their governance to foster **creativity, learning, and civic engagement**.
Key findings suggest that libraries embracing **transformative and collaborative governance models** are better positioned to become inclusive hubs for knowledge, equity, and cultural exchange. The study emphasizes that governance reform is not merely administrative, but deeply tied to the **social mission** of libraries in building inclusive futures.
Overall, the presentation delivered a strong, research-informed argument for rethinking library leadership structures to better align with contemporary societal needs. It was a timely and thought-provoking contribution to discussions on institutional innovation and community empowerment.

Presentation 3: Empowering Resilience: The Role Of Malaysian Academic Librarians In Disaster Management Practices.
Mohd Ismail Abidin, Kiran, K. & Samsuddin, S.F. (Malaysia)
This presentation explored the **critical role of academic libraries** in ensuring service continuity during disasters, with a specific focus on **Malaysian academic libraries**. The study highlighted the vulnerabilities faced by these institutions during unexpected crises—such as

physical damage to collections, infrastructure loss, and operational disruption—which can severely impact access to academic resources.

The research emphasized the **transformative role of librarians**, who are increasingly moving beyond their conventional duties as information providers to assume **leadership in disaster management**. Librarians are now expected to integrate digital technologies, provide **psychosocial support**, and promote **inclusive recovery strategies** that benefit both the academic community and society at large.

Data were collected through **eight individual interviews** and **focus group discussions involving 31 library managers and professionals**. The qualitative findings revealed a significant **lack of disaster-specific policies**, placing librarians under pressure during emergency situations. This gap underscores the urgent need for formalized **disaster preparedness and Response frameworks** in academic libraries.

The study identified several key strategies for enhancing resilience, including **participatory planning**, **community engagement**, and empowering librarians to lead during crises. The presenters stressed the importance of **training, resource allocation, and institutional support** to enable librarians to manage and recover from disruptions effectively.

By positioning librarians as proactive leaders in disaster scenarios, the study advocates for a **paradigm shift in library governance and disaster policy**. It concludes that empowering librarians not only strengthens the resilience of academic institutions but also supports broader societal recovery in times of crisis.

This presentation made a timely and impactful contribution to discussions on **library resilience, emergency preparedness, and institutional adaptability**, especially in the context of growing global uncertainties.

Presentation 4: Smart Libraries As Catalysts For Achieving SDGs In Malaysian Universities: A Conceptual Framework.

Nordelina Zulkarnain, **Norhazura Yunus** & Mohd Nasir Ismail (Malaysia)

This conceptual paper explores the **transformative potential of smart libraries** within Malaysian universities, positioning them as strategic enablers of the **United Nations Sustainable Development Goals (SDGs)**—specifically **SDG 4 (Quality Education), SDG 10 (Reduced Inequalities),** and **SDG 13 (Climate Action)**.

Drawing on an extensive literature review from **Scopus and Web of Science**, the presenter synthesised global trends and insights on the integration of **smart technologies**—including **IoT, Artificial Intelligence, and digital repositories**—in academic libraries. These technologies are reshaping how information is accessed, shared, and preserved, thus reinforcing the role of smart libraries in promoting **inclusive, equitable, and sustainable higher education**.

Key findings indicate that smart libraries enhance **accessibility** to learning resources, **bridge digital inequalities**, and support environmentally conscious practices. For instance, automated energy systems and digital collection management contribute to climate action, while virtual learning platforms extend educational opportunities to underserved groups.

Despite their promise, the paper highlights several **implementation challenges**: funding constraints, technological resistance, and infrastructural disparities. These issues hinder the widespread adoption of smart technologies across all Malaysian university libraries.

The paper presents **actionable recommendations**, advocating for stronger **policy support, strategic funding, stakeholder training, and institutional collaboration**. It emphasizes the critical roles of government agencies and university administrators in fostering a **digital ecosystem** where smart library innovation can thrive.

Overall, the presentation provided a **forward-looking and solutions-driven perspective**, reaffirming the role of smart libraries not only as knowledge hubs but also as agents of change in advancing the SDG agenda. The study calls for greater commitment to transforming libraries into inclusive, sustainable, and future-ready institutions.

Questions and Comments

Q1:

Mr Razif from Malaysia

To the second presenter. “How can we change or revise the policy, if there are some people in the agency who are reluctant to accept the changes? Although the changes are good for the patrons?

Answer:

Sabariah in her cynical tone asked Mr Razif to change “that person”. However, in her serious note, she said that if, the librarians have some difficulties to revise or make changes in their libraries, she suggested that ask their patrons to voice out or give suggestions on ways of improvement to the top management of the libraries. Through this “bottom up” techniques, normally organization will listen to their patron’s needs, as the patrons are normally the “king” that have power in making changes in the library .

Q2:

Mr Dasuki from UPM Library mentioned that occupational health has not been a main concern in most libraries in Malaysia. Therefore, he asked what is the main theory that presenter three used as guidance for his research was.

Answer: Although the authors did not explicitly state a theoretical framework, future studies may benefit from grounding the analysis in established theories such as Resilience Theory or Role Theory. Integrating such theoretical lenses could enhance the conceptual depth of the research and contribute more meaningfully to the broader discourse within Library and Information Science (LIS) scholarship.

Q3: Soleha Puteri Mohamad Ramli from IIUM also mentioned that disaster management is not a priority of the library management. She then asked what can be done to sustain the library collections.

Answer: Disaster planning should be **emphasized from the very beginning—during the design and strategic planning stages of a library**, not after it has already started operations. Once a library is running, the importance of disaster management often goes unnoticed or is deprioritized. However, as shared by Ismail, the recent **flood incident served as a wake-up call**. It clearly demonstrated to many stakeholders just how crucial it is for institutions—especially libraries—to have proper disaster planning in place. Only when a crisis happens do people begin to realize how essential it is to prepare, protect collections, and ensure continuity of services.

Q4 Aishah from UBD Library asked about information literacy for gamers and how educators and librarians could assist gamers to have better literacy skills

Answer: As Kyoshhi mentioned, **what gamers need most is support**, not traditional forms of instruction. Gamers tend to **seek information through non-traditional channels**, such as YouTube, gaming forums, live streams, and by **observing experienced or senior players**. They

often **learn by watching gameplay**, studying strategies from different games, and engaging in conversations within the **gaming community**.
Since they do not rely heavily on conventional academic resources, **educators and librarians can assist by recognizing and validating these alternative information practices**. Support can be offered by **guiding them on how to assess the credibility** of the content they consume online and by helping them develop **critical thinking and digital literacy skills** that align with their real-life information-seeking behaviors.

Conference Resolutions:

1. The 19th CONSAL resolves that librarians reaffirm their commitment to transforming libraries from traditional gatekeeping institutions into inclusive, empowering spaces that champion equity, access, and representation.

2. The 19th CONSAL resolves that librarians support the transformation by promoting accessible services, embracing technology, and curating diverse, representative collections that reflect the needs of all communities.

3. The 19th CONSAL resolves that libraries, by aligning with the UN SDGs, play a vital role in transforming social challenges into opportunities for sustainable and equitable development.

4. The 19th CONSAL resolves that to build inclusive knowledge ecosystems that prioritize the needs of persons with disabilities and marginalized communities by creating supportive environments that ensure equitable access to information and empower those facing barriers in traditional learning.

5. The 19th CONSAL resolves that libraries be recognized as key partners in forging new synergies for community development through meaningful collaborations and innovative initiatives that enhance the well-being and growth of the communities they serve.

6. The 19th CONSAL acknowledges and supports the valuable contributions of postgraduate and institutional research on diverse topics within the library and information science domain as a means of advancing research, innovation, and professional development in the field.

COMMITTEE

CONSAL XIX 2025 EXECUTIVE BOARD

- Chair - Ghazali bin Mohamed Fadzil, Ph.D. Co-
- Chair - Edy Irwan bin Zulkafli
- Secretary - Wan Mazli bin Wan Razali

CONSAL XIX 2025 ORGANISING COMMITTEE

- Chair - Ghazali bin Mohamed Fadzil, Ph.D. Co-
- Chair - Edy Irwan bin Zulkafli
- Secretary - Chin Loy Jyoon
- Assistant Secretary - Mohd Ismail bin Abidin Treasurer -
- Rohaya binti Umar

COMMITTEE CHAIR

- Conference Management - Nor Edzan binti Che Nasir, Ph.D.
- Opening Ceremony, Dinner and Closing Ceremony - Rajeswari A/P Karuppiah
- Accommodation and Transportation - Norhayati binti Manan
- CONSAL Boulevard and Exhibition - Yazid bin Ibrahim
- Contribution and Sponsorship - Ghazali bin Mohamed Fadzil, Ph.D.
- Cultural Event - Zawawi bin Tiyunin
- Media & Protocol - Mohd Zairul bin Masron
- Program Development - Mohd Faizal bin Hamzah, Ph.D.
- Promotion - Shamsiah binti Abu Bakar
- Publications - Samsul Farid bin Samsuddin, Ph.D.
- Registration - A. Azli bin Abd Rahim
- Risk Management - Katrun Nada binti Haji Hashim
- Safety and Emergency - Tamimi bin Taib
- Technical, Logistics, ICT and Hospitality - Mohd Azmi bin Aziz
- Tourism and Library Visits - Ali bin Rashid
- Venue and Banquet - Nor Shamsinar binti Baharom
- Volunteers - Beghum Ulfhat Shehnaaz binti Amir Razli

PROGRAMME

16 JUNE 2025 | MONDAY

16 June 2025 (Monday): CONSAL Executive Board Meeting **Venue: Bilik Redang, Level 3**	
8.00 am to 8.30 am	Registration of CONSAL Executive Board members
8.30 am to 11.00 am	19th CONSAL 3rd Executive Board Meeting
11.00 am to 1.00 pm	19th CONSAL Executive Board Workshop: Restructuring a Strategic Roadmap for CONSAL
1.00 pm to 2.00 pm	Closing and lunch
16 June 2025 (Monday): Registration Venue: Main Registration Counter, Level 2	
2.30 pm to 5.30 pm	Early Registration to 19th CONSAL General Conference and Meeting
16 June 2025 (Monday): 19th CONSAL Pre-Conference Workshop: **Inclusive Knowledge In The Age Of AI: Empowering Libraries To Bridge Divides And Amplify Impact** **Venue: Grand Ballroom, Sunway Putra Hotel, Kuala Lumpur**	
8.00 am to 9.00 am	Registration to 19th CONSAL Pre-Conference Workshop
9.00 am to 9.30 am	Opening address by Mr. Lee Pit Teong, CEO, iGroup
9.30 am to 10.30 am	The AI Revolution: Will Libraries Survive? Keynote by Dr. Lee Chu Keong, Senior Lecturer, Nanyang Technological University, Singapore
10.30 am to 10.50 am	Tea break
10.50 am to 11.20 am	Scholarly Communication, AI Strategies And IEEE Paul Canning, Director of International Sales, IEEE
11.20 pm to 12.00 pm	AI Adoption In Libraries: From Inception To Execution Wong Woei Fuh, iesResearch, Singapore
12.00 pm to 1.30 pm	Lunch
1.30 pm to 2.40 pm	AI Adoption In Universities: Case Studies On Ethical Use And Proper Citation Wilson Tsu, CEO & Founder of PowerNotes, USA
2.40 pm to 3.00 pm	Tea break
3.00 pm to 3.30 pm	AI Tool: How To Select The Right AI Tools For Library Users Iris Hsu, iesResearch, Singapore
3.30 pm to 4.30 pm	Panel discussion Moderator: KC Tang, iesResearch, Malaysia

PROGRAMME

17 JUNE 2025 | TUESDAY

17 June 2025 (Tuesday): 19th CONSAL General Conference and Meeting	
8.00 am to 9.00 am	Registration (Main Registration Counter, Level 2)
9.30 am to 10.30 am	Opening ceremony (Dewan Merdeka, Level 4) 1. Speech by Minister of National Unity of Malaysia - YB Datuk Aaron Ago Dagang 2. Speech and opening by Prime Minister of Malaysia - YAB Dato Seri Anwar bin Ibrahim
10.30 am to 11.00 am	Tea break (Dewan Tun Razak, Level 4)
11.30 am to 12.00 pm	Keynote address (Dewan Merdeka, Level 4) 1. Libraries At The Crossroads Of Innovation: Bridging Knowledge, Technology, And Community. Mr Pote Narittakurn, Founder and Chairman of iGroup 2. Knowledge For All: Building Bridges, Not Gaps Dato' Sri Dr Haji Irmohizam bin Haji Ibrahim, Group Managing Director, World Trade Centre Kuala Lumpur & Board Director, World Trade Centers Association
12.00 pm to 1.30 pm	Country reports (Dewan Merdeka, Level 4) 1. Brunei 2. Cambodia 3. Indonesia 4. Laos 5. Malaysia 6. Myanmar 7. Philippines 8. Singapore 9. Thailand 10. Vietnam 11. Timor Leste
1.30 pm to 2.30 pm	Lunch (Dewan Tun Razak, Level 4) and visit to exhibitions
2.30 pm to 4.45 pm	General Conference
	Session 1: The Changing Roles Of Libraries From Gatekeeping To Empowerment And Fostering Inclusivity In Society (Dewan Tun Hussein Onn 1, Level 2)
	Paper 1: Best Practices: A Showcase Of Library Inclusivity And Innovation In Southeast Asia And Around The World. John Hickok (USA)
	Paper 2: Tegal Harum Village Library Innovation, Denpasar City Through The SIPESAT Program. Richard Togaranta Ginting, Kadek Indriyani Subakti & Gede Rai Hridyananda (Indonesia)
	Paper 3: The Provenance Of Phya Anuman Rajadhon's Book Collection: Unlocking A Hidden Memory In National Library Of Thailand. Thanachcha Suwannavach (Thailand)
	Paper 4: Libraries As Hubs Of Action: Enhancing Biodiversity Awareness Via Citizen Science Project At ICSBC 2024. Haliza binti Zainal, Khairulbahiyah binti Yaakub & Nor Asikin Mohamad (Malaysia)

	Paper 5: Spark!Lab™ Singapore: Fostering Inclusive Innovation Through Tinkering. Rasyidah Angullia (Singapore)
	Paper 6: Religious Libraries As Gateways To Inclusivity: Insights From Mosque And Church Libraries. Nur Leyni Nilam Putri Junurham, Mohamad Hafizuddin Mohamed Najid & Nor Azzah Momin (Malaysia)
	Paper 7: Transforming Academic Libraries Into Dynamic Learning Hubs: The Role Of Immersive Learning In Enhancing STEM Education In Perak, Malaysia. Maria Hani Mustaffa, Zaidah Mahmud & Noor Affendy M. Ali (Malaysia)
	Session 2: Bridging Divides Through SDGs As Libraries Make The Impossible, Possible **(Dewan Tun Hussein Onn 2, Level 2)**
	Paper 1: Strategic Transformation Of Inclusive Libraries In Malaysia: Challenges And Opportunities. Mohamad Salbihan Salman, Mohd Helmi Masor@Mansor, Fatimah Ahmad Bashir & Mohd Azhar Azhari (Malaysia)
	Paper 2: Advancing Towards Sustainable Philippine Libraries: An Exploratory Study On SDG Initiatives And Librarians' Perceptions. Eunice Ann Yutuc Chua, Sharon Maria S. Esposo-Betan & Martian A. Jinio (Philippines)
	Paper 3: PKI And 1965: Libraries As Gateways To Justice And Peace Under SDG 16. Soraya Hariyani Putri (Indonesia)
	Paper 4: Empowering Sustainable Development Goals Through Library Programs: National Library of Malaysia's Approach. Rayson Clinsmund Anak Jensonray & Yazid bin Ibrahim (Malaysia)
	Paper 5: Implementation Of SDG 10 (Reduced Inequality) In The Library of UIN Sunan Kalijaga Yogyakarta, Indonesia. Marwiyah & Labibah Zain (Indonesia)
	Paper 6: USM Library SDG's Initiative In Preserving The Cultural Identity And Heritage of Melayu Tanjong/Jawi Pekan In Pulau Pinang. Fujica Azura Fesal, Radia Banu Jan Mohamad & Noor Azlinda Wan Jan (Malaysia)
	Paper 7: Achieving Quality Education (SDG 4) Through Literacy: Story From #Sepekan1Buku Program. Yaya Ofia Mabruri & Ilsa Nurul Oktaviani (Indonesia)
	Session 3: Building Knowledge Ecosystems For The Disabled And Marginalised **(Dewan Tun Dr Ismail 1, Level 2)**
	Paper 1: Empowering, Enabling and Enriching Persons With Disabilities Through Co-Creation And Inclusive Services At National Library Board Singapore. Yvonne Ng (Singapore)
	Paper 2: Shelves, Skills, And Inclusion: The Development Of A Workplace Immersion And Literacy Project Of Henry Luce III Library For Individuals With Developmental Disabilities. Vince Ervin V. Palcullo, Joan Iven Abello, Ma. Cynthia T. Peleña & Merle L.Junsay (Philippines)

PROGRAMME

17 JUNE 2025 | TUESDAY

	Paper 3: From Trends To Practice: Exploring The Role Of Disabled Librarians In Building Inclusive Knowledge Ecosystems For Persons With Disabilities. Destiya P. Prabowo & Suharyanto (Indonesia)
	Paper 4: Library And Information Services For Students With Special Educational Needs. Megay Jamil Umali Dimaano (Philippines)
	Paper 5: From Marginalization To Inclusion: National Library Of Indonesia (NLI) Bridges The Gap For Street Children In Supporting SDGs. Restu Putri Sholikhah & Suharyanto Mallawa (Indonesia)
	Paper 6: A Research Study On The Challenges Faced By Students With Disabilities Enrolled In Bachelor Of Library And Information Science (BLIS) In Terms Of Physical Barriers, Stigma And Discrimination, And Inadequate Accommodations During On-The-Job Training (OJT). Kayla Erika V. Juanzo (Philippines)
	Session 4: Libraries As Partners Forging New Synergies In Community Development (Dewan Tun Dr Ismail 2, Level 2)
	Paper 1: Transit-Friendly Library - Why We Do It. Mastura Hj. Muhamad, Norelmin Sapuan, Fahrurazi Md Shukri, Noraina Arifin, Juliana Es Mohd Munawir, Hikmah Hassan & Ziana Sidek (Malaysia)
	Paper 2: Social Responsibility: Paving The Way For Library And Society Partnership. Norhafizah Abdul Latif, Kiran, K. & Samsuddin, S.F. (Malaysia)
	Paper 3: Public-Private Partnership: The Way To Build And Share Benefits For The Community Of The National Library Of Vietnam. Trang Hoang Thi Thu, Lan Tran Thi Phuong & Phuong Nguyen Thi Thu(Vietnam)
	Paper 4: Public Libraries As Catalysts For Health Literacy: How Public Libraries Can Collaborate With Stakeholders For Community Health And Well-Being. Zhou Hongli (Malaysia)
	Paper 5: The Role Of Library In The Development Of Social Capital In Local Communities: A Case Study In Bukit Village Library, Karangasem, Bali, Indonesia. Woro Titi Haryanti & Dian Novita Fitriani (Indonesia)
	Paper 6: Cultural Connections In Action: Collaborative Partnerships For Sarawak Cultural Heritage Preservation. Nur Amanina Mastani, Lilian Baun Pulo & Izaruddin Moss (Malaysia)
4.45 pm to 5.15 pm	**Tea break (Dewan Tun Razak, Level 4) and visit to exhibitions**
8.30 pm to 11.30 pm	19th CONSAL Conference Dinner & PPM/LAS 70th Anniversary Dinner and Cultural Show (Dewan Merdeka, Level 4) 1. Speech by President of Persatuan Pustakawan Malaysia for PPM & LAS - Dr Ghazali Mohd Fadzil 2. Speech by Deputy Minister of National Unity Malaysia - YB Senator Madame Saraswathy d/o Kandasami 3. Cultural show 4. Book Launching

PROGRAMME

18 JUNE 2025 | WEDNESDAY

18 June 2025 (Wednesday): 19th CONSAL General Conference and Meeting	
9.00 am to 11.00 am	General Conference
	Session 5: The Changing Roles Of Libraries From Gatekeeping To Empowerment And Fostering Inclusivity In Society (Dewan Tun Hussein Onn 1, Level 2)
	Paper 8: Impacts Of Innovative Applications Of Immersive Technology In Vietnamese Academic Libraries: A Case Study Of VinUniversity Library. Tam Ha, Tony Tin, Vu Nguyen, Khin Sone & Hang Bui (Vietnam)
	Paper 9: Technology Integration Into Library Operation And Services. Herrick Yeap Han Lin, Chew Zhe Zhi, Lim Le Ying, Brandon Chow Cheng Hong, Ho Zhengying, Gan Zhi Yun, Chan Yong Yee, Tan Ley Yee & Yap Kian Meng (Malaysia)
	Paper 10: Transforming University Libraries In The Yangon Region: Exploring Digital Services And Operations For Empowerment And Inclusivity. Khin Lay Soe (Myanmar)
	Paper 11: Generative AI And Library Services: How AI Could Support Reference Services. Darren Seow (Singapore)
	Paper 12: Elevating Literacy: The Role Of Librarians In Building Digitally Inclusive Library Spaces. Mariella DC. Dorado & Marvilyn M. Rodriguez (Philippines)
	Paper 13: Enhancing Systematic Search Support Across Disciplines: A Case Study from NTU Library. Sam C. F. Lena, Yasmin Lynda Munro & Yasmin Ally (Singapore)
	Paper 14: The Library Transformation Based On Social Inclusion Program In Indonesia: A Media Monitoring Perspective Using Machine Learning. Alditta Khoirun Nisa, Irhamni Ali & Radhitya Purnama (Indonesia)
	Session 6: Bridging Divides Through SDGs As Libraries Make The Impossible, Possible (Dewan Tun Hussein Onn 2, Level 2)
	Paper 8: From Gaps To Growth: Advancing SDGs Through Academic Libraries In Brunei Darussalam. Ahmad Safwan Hj Jalil (Brunei Darussalam)
	Paper 9: Beyond The Screen: Academic Libraries In The Philippines Navigating The Digital SDG Landscape. Miriam Charmigrace Q. Salcedo (Philippines)
	Paper 10: Library Websites As Catalysts For Open Science: Exploring SDG Connections In Selected Academic Libraries In The Philippines. Marie Chezka G., Tamayo Simon V. De Leon & Marvin A. Factor (Philippines)
	Paper 11: Divides In Malaysian Academic Libraries: Integrating Waqf, Green Management, And SDGs Awareness For Inclusive Sustainability. Mohd Dasuki Sahak, Haziah Sa'ari, Haslina Abu Seman @ Talib, Zuhaini Abdul Samad, Noor Syafini Zamani & Azizan Arshad (Malaysia)
	Paper 12: A Sustainable Open Educational Resources (OER) Model In Vietnamese University Libraries. Tran Thi Thuy Kieu, Duong Chi Thanh, Bui Thu Hang & Nguyen Thi Bich Ngoc (Vietnam)

PROGRAMME

18 JUNE 2025 | WEDNESDAY

18 June 2025 (Wednesday): 19th CONSAL General Conference and Meeting	
	Paper 13: AI For SDG Data: Enhancing Decision-Making In Sustainable Development Through Data Analytics In Academic Libraries. Marie Chezka G., Tamayo Simon V. De Leon & Marvin A. Factor (Philippines)
	Session 7: Building Knowledge Ecosystems For The Disabled And Marginalised (Dewan Tun Dr Ismail 1, Level 2)
	Paper 8: Enhancing Access To Reading Materials For Visually Impaired Individuals: Implementation And Implications Of The Marrakesh Treaty At The National Library Of Malaysia. Tamimi bin Taib & Mohd Ikhmil Firdausz bin Mohd Hanif (Malaysia)
	Paper 9: General Sciences Library Of Ho Chi Minh City: Activities And Services To Support The Visually Impaired Access To Knowledge And Integration Into The Community. Thi Hanh Bui (Vietnam)
	Paper 10: Access To Information And Knowledge For Blind Users: Case Study At The Mitra Netra Indonesia Foundation Library. Damaji Ratmono, Gustina Aisyah Tazun, Susanti & Armita Rahmawati Sandra (Indonesia)
	Paper 11: Developing School Library As Knowledge Ecosystem For Deaf Students: A Case Study In Sekolah Luar Biasa Negeri 1 Cicendo, Bandung,Indonesia. Dian Novita Fitriani & Niswa Nabila Sri Bintang Alam (Indonesia)
	Paper 12: Mainstreaming Sign Language Skills For Indonesian Librarians. Zulfa Avidiansyah, Muhammad Rifky Nurpratama, Ika Nur Azizah & Gani Nur Pramudyo (Indonesia)
	Paper 13: Sticker Stories: Unleash Your Imagination, One Peel At A Time!. Haizatul Afni binti Bakhtiar & Mohammad Shafri bin Mohamad Ros (Malaysia)
	Paper 14: Implementation Of The Gema Arca Program In Growing Community Literacy In The Klungkung District, Bali. Ni Putu Melati Widya Putri & Richard Togaranta Ginting (Indonesia)
	Session 8: Libraries As Partners Forging New Synergies In Community Development. (Dewan Tun Dr Ismail 2, Level 2)
	Paper 8: Nurturing Artistic Embryos In Libraries: The Creative Residency Programme In The National Library Of Singapore. Luke Chua (Singapore)
	Paper 9: Beyond Book Clubs: Seeding And Sustaining 130 Learning Communities In Singapore. Chloe Tong, Melissa Lim & Zulkifli Amin (Singapore)
	Paper 10: Leveraging Knowledge Management, Innovative Technology, And Public-Private Partnerships For Sustainable Community Development. Sarifah Abdullah, Rashidah Othman & Geeta Albert (Malaysia)
	Paper 11: Redefining Library Roles: A Case Study Of Mobile Makerspaces For Community Empowerment And Inclusivity. Maria Hani Mustaffa, Zaidah Mahmud & Noor Affendy M. Ali (Malaysia)

PROGRAMME

18 JUNE 2025 | WEDNESDAY

18 June 2025 (Wednesday): 19th CONSAL General Conference and Meeting	
	Paper 12: The Children's Biodiversity Library By S.E.A. Aquarium: A Public Private Partnership. Christabel Sim & Melissa Kawasoe (Singapore)
	Paper 13: Collaborating For Impact: The Power of Volunteering. Grace Sim & Nurulhuda Subahan (Singapore)
	Paper 14: Developing Reading Habits Among University Students Through Collaboration With Book Club And Library: A Case Study At The University Of Science, Vietnam National University, Ho Chi Minh City. Hoa Luong Minh, Toan Pham Ba, Bao Le Nguyen Gia, Nhi Nguyen Ngoc Trang & Lien Tran Le Tuyet (Vietnam)
11.00 am to 11.30 am	Tea break (Dewan Tun Razak, Level 4)
11.30 am to 1.10 pm	General Conference
	Session 9: The Changing Roles Of Libraries From Gatekeeping To Empowerment And Fostering Inclusivity In Society (Dewan Tun Hussein Onn 1, Level 2)
	Paper 15: Empowering Inclusive Access For People With Disabilities: A Comprehensive Accessibility Analysis Of Southeast Asian National Libraries' Social Media. Agus Triyanto & Yaya Ofia Mabruri (Indonesia)
	Paper 16: Words Matter: Evaluating Inclusive Language On Malaysian And Philippine Library Websites. Nur Azleen binti Hasan, Janice Peñaflor & Efren Torres, Jr. (Malaysia & Philippines)
	Paper 17: Community Service: Equipping Teachers And Librarians In Improving Students' Digital Literacy In The Mentawai Islands. Lolytasari Lolytasari (Indonesia)
	Paper 18: Innovating Library Services And Spaces: Towards An Interactive Approach. Ahmad bin Samsudin & Lilian Baun Pulo (Malaysia)
	Paper 19: Evaluating The Impact Of Read Aloud Programs In Indonesia: A Case Study On Inclusivity And Empowerment In Library Services. Sadariyah Ariningrum Wijiastuti, Dewi Imelda Verawati Rambet, Yudhi Firmansyah, Fredy Ilafi, Josan Kusuma & Irhamni Ali (Indonesia)
	Session 10: Bridging Divides Through SDGs As Libraries Make The Impossible, Possible (Dewan Tun Hussein Onn 2, Level 2)
	Paper 15: Malaysian Reading Profile: A Comprehensive Study. Nor Azlina binti Ab. Ghani, Norsharyna binti Shafawi, Noor Syahierah binti Mohd. Rohana & Nurfarhana binti Mohamad Roslan (Malaysia)
	Paper 16: Reenergizing School Libraries To Make The Impossible, Possible: The Experience Of Myanmar. Myat Sann Nyein, Sandra Chit Hpo, Mi Mi & Su Su (Myanmar)
	Paper 17: Resilience In Action: The Evolution And Struggles Of Summer Shelter Library In Fostering Community And Educational Reform. Thida Htway (Myanmar)

PROGRAMME

18 JUNE 2025 | WEDNESDAY

18 June 2025 (Wednesday): 19th CONSAL General Conference and Meeting	
	Paper 18: Libraries Empowering SDG Through Citizen Science: Insights From The Borneo Adventures Program. Nurfarawahidah, B., Mohd Faizal Hamzah, Zawawi Tiyunin, Cik Ramlah Che Jaafar & Muniratul Husna Mohamad Zaki (Malaysia)
	Paper 19: Citizen Science And Myanmar Community Libraries: Advancing The Sustainable Development Goals (SDGs). Ah Win & Myat Sann Nyein (Myanmar)
	Session 11: Building Knowledge Ecosystems For The Disabled And Marginalised **(Dewan Tun Dr Ismail 1, Level 2)**
	Paper 15: Empowering Education For Indigenous People At Chenan Cherah, Cameron Highlands: A Case Study From Tuanku Bainun Library. Firdausiah Ahamad, Muliati Samad, Muhammad Fazlie Nordin & Anuar Ali (Malaysia)
	Paper 16: Foot Librarians: Collaborative Exploration And Exchange Of Knowledge With Indigenous Communities. Mark Edzel R. Gonzales, Alvin E. Halcon, Razel Natalie D. Muñoz, Leonora H. Astete & Marilyn L. Ngales (Philippines)
	Paper 17: Driving Change: The National Information Literacy Agenda For Marginalized Communities. Yazid bin Ibrahim, Nor Edzan Che Nasir & Mohd Jeffri Abu Hassan Vadival (Malaysia)
	Paper 18: Bringing Knowledge And Empowerment To People With Disabilities In Vietnam. Nguyen Manh Hai, Lưu Quang Đa & Le Thi Huyen Trang (Vietnam)
	Session 12: Libraries As Partners Forging New Synergies In Community Development **(Dewan Tun Dr Ismail 2, Level 2)**
	Paper 15: Jepara Regency Library Stakeholder Synergy In Leveraging Library Transformation For Social Inclusion. Muhammad Irsyad Alfatih, Perwitasari Rengganingytastuti & Amelia Marihesya (Indonesia)
	Paper 16: General Science Library Of Ho Chi Minh City Is An Essential Partner In Community Development. Le Dinh Quoc Huy (Vietnam)
	Paper 17: Of Comics, Garfield, And The News: Innovating Library Services Through Public-Private Partnerships. Alex Foo & Winnie Tan (Singapore)
	Paper 18: Libraries And Art Studios: The Relationship Of Libraries As Centers Of Innovation And Creativity In Tampaksiring, Bali. Richard Togaranta Ginting, Salsabilla Woro Damayanti & Ni Ayu Ketut Nirmala Dewi (Indonesia)
1.10 pm to 2.30 pm	Lunch (Dewan Tun Razak, Level 4) and visit to exhibitions

PROGRAMME

18 JUNE 2025 | WEDNESDAY

18 June 2025 (Wednesday): 19th CONSAL General Conference and Meeting	
2.30 pm to 3.30 pm	General Conference
	Session 13: Pecha Kucha Forum (Dewan Tun Hussein Onn 1, Level 2)
	Presentation 1: An Overview Of Library Development Trends Towards SCOPUS Database Sustainable Development Goals: A Bibliometric Analysis. Kanokwan Buangam & Chokthamrong Chongchorhor (Thailand)
	Presentation 2: Research Data Management Service Sustainability: A Framework For Malaysian Universities. Wei Haan Goh, Yanti Idaya Aspura, M.K. & Kiran K. (Malaysia)
	Presentation 3: Research Data Management In Citizen Science Project: A Case Study Of Practices, Challenges And Strategies At Malaysian Research University. Cik Ramlah Che Jaafar, Asmadi Md Ghazali & Mad Khir Johari Abdullah Sani (Malaysia)
	Presentation 4: Bridging Knowledge: The Evolving Role Of Academic Libraries In Citizen Science. Nurfarawahidah, B., Kiran, K. & Yanti Idaya Aspura, M.K. (Malaysia)
	Session 14: Pecha Kucha Forum (Dewan Tun Hussein Onn 2, Level 2)
	Presentation 1: Forging Synergies Between Libraries And Educational Institutions To Develop Digital Skills: Universities' Central Library. Khin Thazin Myint (Myanmar)
	Presentation 2: How Do Transparency And Openness In Scholarly Publishing Improve The Reproducibility Of Social Science Research? Noor Masliana Razlan, Ali Fauzi Ahmad Khan, Samsuddin, S.F. & A. Abrizah (Malaysia)
	Presentation 3: How Academic Libraries Drive OER Adoption In Malaysian Universities: Insights From OER Experts. Nurul Diana Jasni, Noorhidawati Abdullah & Yanti Idaya Aspura, M.K. (Malaysia)
	Presentation 4: The Road Less Travelled: A Comparative Study Of Information-Seeking In Special Education Teachers Across Four States. Nur Aswani Mohd Azhar, Nur Leyni Nilam Putri Junurham, Muna Azuddin, Aishah Hanim Abd Karim & Roosfa Hashim (Malaysia)
	Session 15: Pecha Kucha Forum (Dewan Tun Dr Ismail 1, Level 2)
	Presentation 1: The Urban Digital Divide And Access Challenges: Experiences of Brgy. Camputhaw, Cebu City Residents. Frances Riscel S. Padin (Philippines)
	Presentation 2: Conceptualizing Health Literacy Programs In Public Libraries For Older Adults With Chronic Diseases. Zhou Hongli, Noorhidawati Abdullah & Ali Fauzi Ahmad Khan (Malaysia)

PROGRAMME

18 JUNE 2025 | WEDNESDAY

	Presentation 3: Exploring the Role of Popular Burmese Picture Books in a Suburban Library: A Case Study In Seikkyi Khanaungtoe Township, Yangon. Su Thant San (Myanmar)
	Presentation 4: Exploring Digital Asset Management (DAM) For Film Collections In The Malaysian State Libraries. Nur Haziqah Hapiz & Ranita Hisham Shunmugam (Malaysia)
	Session 16: Pecha Kucha Forum (Dewan Tun Dr Ismail 2, Level 2)
	Presentation 1: Information Seeking Behaviour Of MLBB Players. Khosyi Maulana (Indonesia)
	Presentation 2: Reviving Inclusivity Through Transformative Governance. Sabariah Abdul Samad & Imilia Ibrahim (Malaysia)
	Presentation 3: Empowering Resilience: The Role Of Malaysian Academic Librarians In Disaster Management Practices. Mohd Ismail Abidin, Kiran, K. & Samsuddin, S.F. (Malaysia)
	Presentation 4: Smart Libraries As Catalysts For Achieving SDGs In Malaysian Universities: A Conceptual Framework. Nordelina Zulkarnain, Norhazura Yunus & Mohd Nasir Ismail (Malaysia)
3.30 pm to 4.30 pm	Tea break (Dewan Tun Razak, Level 4) and visit to exhibitions
4.30 pm to 5.30 pm	Closing ceremony (Dewan Tun Dr Ismail, Level 2) 1. Closing address by Director General of National Library of Malaysia & Co-Chair of 19th CONSAL 2025 Mr Edy Irwan Zulkafli 2. Handing over of CONSAL flag to host of 20th CONSAL 2028

PROGRAMME

19 JUNE 2025 | THURSDAY

19 June 2025 (Thursday): Library and social visits	
9.00 am to 4.30 pm	Library and social visits Package A: Kuala Lumpur ● National Library of Malaysia (NLM) ● Petronas Resource Center (PRC KLCC) Package B: Shah Alam ● Tun Abdul Razak Library, Universiti Teknologi MARA (PTAR UiTM) ● Raja Tun Uda Library, Selangor State Library (PPAS) Package C: Petaling Jaya ● Tun Hussein Onn Library, Sunway University ● Financial Services Library, Central Bank of Malaysia Package D: Negeri Sembilan ● Kampung Kuala Serdang Rural Library, Kuala Pilah ● Tun Abdul Razak Library, Universiti Teknologi MARA Negeri Sembilan Branch, Rembau Campus (PTAR UiTM Rembau)

LIST OF PRESENTERS

No	Authors And Title Of Papers
Sub - Theme 1: The Changing Roles Of Libraries From Gatekeeping To Empowerment And Fostering Inclusivity In Society	
1	John Hickok (USA) Best Practices: A Showcase Of Library Inclusivity And Innovation In Southeast Asia And Around The World.
2	Richard Togaranta Ginting, Kadek Indriyani Subakti & Gede Rai Hridyananda (Indonesia) Tegal Harum Village Library Innovation, Denpasar City Through The SIPESAT Program.
3	Thanachcha Suwannavach (Thailand) The Provenance Of Phya Anuman Rajadhon's Book Collection: Unlocking A Hidden Memory In National Library Of Thailand.
4	Haliza binti Zainal, Khairulbahiyah binti Yaakub & Nor Asikin Mohamad (Malaysia) Libraries As Hubs Of Action: Enhancing Biodiversity Awareness Via Citizen Science Project At ICSBC 2024.
5	Rasyidah Angullia (Singapore) Spark!Lab™ Singapore: Fostering Inclusive Innovation Through Tinkering.
6	Nur Leyni Nilam Putri Junurham, Mohamad Hafizuddin Mohamed Najid & Nor Azzah Momin (Malaysia) Religious Libraries As Gateways To Inclusivity: Insights From Mosque And Church Libraries.
7	Maria Hani Mustaffa, Zaidah Mahmud & Noor Affendy M. Ali (Malaysia) Transforming Academic Libraries Into Dynamic Learning Hubs: The Role Of Immersive Learning In Enhancing STEM Education In Perak, Malaysia.
8	Tam Ha, Tony Tin, Vu Nguyen, Khin Sone & Hang Bui (Vietnam) Impacts Of Innovative Applications Of Immersive Technology In Vietnamese Academic Libraries: A Case Study Of VinUniversity Library.
9	Herrick Yeap Han Lin, Chew Zhe Zhi, Lim Le Ying, Brandon Chow Cheng Hong, Ho Zhengying, Gan Zhi Yun, Chan Yong Yee, Tan Ley Yee & Yap Kian Meng (Malaysia) Technology Integration Into Library Operation And Services.
10	Khin Lay Soe (Myanmar) Transforming University Libraries In The Yangon Region: Exploring Digital Services And Operations For Empowerment And Inclusivity.
11	Darren Seow (Singapore) Generative AI And Library Services: How AI Could Support Reference Services.
12	Mariella DC. Dorado & Marvilyn M. Rodriguez (Philippines) Elevating Literacy: The Role Of Librarians In Building Digitally Inclusive Library Spaces.
13	Sam C. F. Lena, Yasmin Lynda Munro & Yasmin Ally (Singapore) Enhancing Systematic Search Support Across Disciplines: A Case Study From NTU Library.
14	Alditta Khoirun Nisa, Irhamni Ali & Radhitya Purnama (Indonesia) The Library Transformation Based On Social Inclusion Program In Indonesia: A Media Monitoring Perspective Using Machine Learning.
15	Agus Triyanto & Yaya Ofia Mabruri (Indonesia) Empowering Inclusive Access For People With Disabilities: A Comprehensive Accessibility Analysis Of Southeast Asian National Libraries' Social Media.
16	Nur Azleen binti Hasan, Janice Peñaflor & Efren Torres, Jr. (Philippines) Words Matter: Evaluating Inclusive Language On Malaysian And Philippine Library Websites.
17	Lolytasari Lolytasari (Indonesia) Community Service: Equipping Teachers And Librarians In Improving Students' Digital Literacy In The Mentawai Islands.

LIST OF PRESENTERS

No	Authors And Title Of Papers
18	Ahmad bin Samsudin & Lilian Baun Pulo (Malaysia) Innovating Library Services and Spaces: Towards An Interactive Approach.
19	Sadariyah Ariningrum Wijiastuti, Dewi Imelda Verawati Rambet, Yudhi Firmansyah, Fredy Ilafi, Josan Kusuma & Irhamni Ali (Indonesia) Evaluating The Impact Of Read Aloud Programs In Indonesia: A Case Study On Inclusivity And Empowerment In Library Services.
Sub - Theme 2: Bridging Divides Through SDGs As Libraries Make The Impossible, Possible	
20	Mohamad Salbihan Salman, Mohd Helmi Masor @Mansor, Fatimah Ahmad Bashir & Mohd Azhar Azhari (Malaysia) Strategic Transformation Of Inclusive Libraries In Malaysia: Challenges And Opportunities.
21	Eunice Ann Yutuc Chua, Sharon Maria S. Esposo-Betan & Martian A. Jinio (Philippines) Advancing Towards Sustainable Philippine Libraries: An Exploratory Study On SDG Initiatives And Librarians' Perceptions.
22	Soraya Hariyani Putri (Indonesia) PKI and 1965: Libraries As Gateways To Justice And Peace Under SDG 16.
23	Rayson Clinsmund Anak Jensonray & Yazid bin Ibrahim (Malaysia) Empowering Sustainable Development Goals Through Library Programs: National Library of Malaysia's Approach.
24	Marwiyah & Labibah Zain (Indonesia) Implementation Of SDG 10 (Reduced Inequality) In The Library of UIN Sunan Kalijaga Yogyakarta, Indonesia.
25	Fujica Azura Fesal, Radia Banu Jan Mohamad & Noor Azlinda Wan Jan (Malaysia) USM Library SDG's Initiative In Preserving The Cultural Identity And Heritage Of Melayu Tanjong/Jawi Pekan In Pulau Pinang.
26	Yaya Ofia Mabruri & Ilsa Nurul Oktaviani (Indonesia) Achieving Quality Education (SDG 4) Through Literacy: Story From #Sepekan1Buku Program.
27	Ahmad Safwan Hj Jalil (Brunei Darussalam) From Gaps To Growth: Advancing SDGs Through Academic Libraries In Brunei Darussalam.
28	Miriam Charmigrace Q. Salcedo (Philippines) Beyond The Screen: Academic Libraries In The Philippines Navigating The Digital SDG Landscape.
29	Marie Chezka G., Tamayo Simon V. De Leon & Marvin A. Factor (Philippines) Library Websites As Catalysts For Open Science: Exploring SDG Connections In Selected Academic Libraries In The Philippines.
30	Mohd Dasuki Sahak, Haziah Sa'ari, Haslina Abu Seman @ Talib, Zuhaini Abdul Samad, Noor Syafini Zamani & Azizan Arshad (Malaysia) Divides In Malaysian Academic Libraries: Integrating Waqf, Green Management, And SDGs Awareness For Inclusive Sustainability.
31	Tran Thi Thuy Kieu, Duong Chi Thanh, Bui Thu Hang & Nguyen Thi Bich Ngoc (Vietnam) A Sustainable Open Educational Resources (OER) Model In Vietnamese University Libraries.
32	Marie Chezka G., Tamayo Simon V. De Leon & Marvin A. Factor (Philippines) AI For SDG Data: Enhancing Decision-Making In Sustainable Development Through Data Analytics In Academic Libraries.
33	Nor Azlina binti Ab. Ghani, Norsharyna binti Shafawi, Noor Syahierah binti Mohd. Rohana & Nurfarhana binti Mohamad Roslan (Malaysia) Malaysian Reading Profile: A Comprehensive Study.

LIST OF PRESENTERS

No	Authors And Title Of Papers
34	Myat Sann Nyein, Sandra Chit Hpo, Mi Mi & Su Su (Myanmar) Reenergizing School Libraries To Make The Impossible, Possible: The Experience Of Myanmar.
35	Thida Htway (Myanmar) Resilience In Action: The Evolution And Struggles Of Summer Shelter Library In Fostering Community And Educational Reform.
36	Nurfarawahidah, B., Mohd Faizal Hamzah, Zawawi Tiyunin, Cik Ramlah Che Jaafar & Muniratul Husna Mohamad Zaki (Malaysia) Libraries Empowering SDG Through Citizen Science: Insights From The Borneo Adventures Program.
37	Ah Win & Myat Sann Nyein (Myanmar) Citizen Science And Myanmar Community Libraries: Advancing The Sustainable Development Goals (SDGs).
Sub - Theme 3: Building Knowledge Ecosystems For The Disabled And Marginalised	
38	Yvonne Ng (Singapore) Empowering, Enabling and Enriching Persons With Disabilities Through Co-Creation And Inclusive Services At National Library Board Singapore.
39	Vince Ervin V. Palcullo, Joan Iven Abello, Ma. Cynthia T. Peleña & Merle L. Junsay (Philippines) Shelves, Skills, And Inclusion: The Development Of A Workplace Immersion And Literacy Project Of Henry Luce III Library For Individuals With Developmental Disabilities.
40	Destiya P. Prabowo & Suharyanto (Indonesia) From Trends To Practice: Exploring The Role Of Disabled Librarians In Building Inclusive Knowledge Ecosystems For Persons With Disabilities.
41	Megay Jamil Umali Dimaano (Philippines) Library And Information Services For Students With Special Educational Needs.
42	Restu Putri Sholikhah & Suharyanto Mallawa (Indonesia) From Marginalization To Inclusion: National Library Of Indonesia (NLI) Bridges The Gap For Street Children In Supporting SDGs.
43	Kayla Erika V. Juanzo (Philippines) A Research Study On The Challenges Faced By Students With Disabilities Enrolled In Bachelor Of Library And Information Science (BLIS) In Terms Of Physical Barriers, Stigma And Discrimination, And Inadequate Accommodations During On-The-Job Training (OJT).
44	Tamimi bin Taib & Mohd Ikhmil Firdausz bin Mohd Hanif (Malaysia) Enhancing Access To Reading Materials For Visually Impaired Individuals: Implementation And Implications Of The Marrakesh Treaty At The National Library Of Malaysia.
45	Thi Hanh Bui (Vietnam) General Sciences Library Of Ho Chi Minh City: Activities And Services To Support The Visually Impaired Access To Knowledge And Integration Into The Community.
46	Damaji Ratmono, Gustina Aisyah Tazun, Susanti & Armita Rahmawati Sandra (Indonesia) Access To Information And Knowledge For Blind Users: Case Study At The Mitra Netra Indonesia Foundation Library.
47	Dian Novita Fitriani & Niswa Nabila Sri Bintang Alam (Indonesia) Developing School Library As Knowledge Ecosystem For Deaf Students: A Case Study In Sekolah Luar Biasa Negeri 1 Cicendo, Bandung, Indonesia.

LIST OF PRESENTERS

No	Authors And Title Of Papers
48	Zulfa Avidiansyah, Muhammad Rifky Nurpratama, Ika Nur Azizah & Gani Nur Pramudyo (Indonesia) Mainstreaming Sign Language Skills For Indonesian Librarians.
49	Haizatul Afni binti Bakhtiar & Mohammad Shafri bin Mohamad Ros (Malaysia) Sticker Stories: Unleash Your Imagination, One Peel At A Time!.
50	Ni Putu Melati Widya Putri & Richard Togaranta Ginting (Indonesia) Implementation Of The Gema Arca Program In Growing Community Literacy In The Klungkung District, Bali.
51	Firdausiah Ahamad, Muliati Samad, Muhammad Fazlie Nordin & Anuar Ali (Malaysia) Empowering Education For Indigenous People At Chenan Cherah, Cameron Highlands: A Case Study From Tuanku Bainun Library.
52	Mark Edzel R. Gonzales, Alvin E. Halcon, Razel Natalie D. Muñoz, Leonora H. Astete & Marilyn L. Ngales (Philippines) Foot Librarians: Collaborative Exploration And Exchange Of Knowledge With Indigenous Communities.
53	Yazid bin Ibrahim, Nor Edzan Che Nasir & Mohd Jeffri Abu Hassan Vadival (Malaysia) Driving Change: The National Information Literacy Agenda For Marginalized Communities.
54	Nguyen Manh Hai, Lưu Quang Đa & Le Thi Huyen Trang (Vietnam) Bringing Knowledge And Empowerment To People With Disabilities In Vietnam.
	Sub -Theme 4: Libraries As Partners Forging New Synergies In Community Development
55	Mastura Hj. Muhamad, Norelmin Sapuan, Fahrurazi Md Shukri, Noraina Arifin, Juliana Es Mohd Munawir, Hikmah Hassan & Ziana Sidek (Malaysia) Transit-Friendly Library - Why We Do It.
56	Norhafizah Abdul Latif, Kiran, K. & Samsuddin, S.F. (Malaysia) Social Responsibility: Paving The Way For Library And Society Partnership.
57	Trang Hoang Thi Thu, Lan Tran Thi Phuong & Phuong Nguyen Thi Thu (Vietnam) Public-Private Partnership: The Way To Build And Share Benefits For The Community Of The National Library Of Vietnam.
58	Zhou Hongli (Malaysia) Public Libraries As Catalysts For Health Literacy: How Public Libraries Can Collaborate With Stakeholders For Community Health And Well-Being.
59	Woro Titi Haryanti & Dian Novita Fitriani (Indonesia) The Role Of Library In The Development Of Social Capital In Local Communities: A Case Study In Bukit Village Library, Karangasem, Bali, Indonesia.
60	Luke Chua (Singapore) Nurturing Artistic Embryos In Libraries: The Creative Residency Programme In The National Library Of Singapore.
61	Chloe Tong, Melissa Lim & Zulkifli Amin (Singapore) Beyond Book Clubs: Seeding And Sustaining 130 Learning Communities In Singapore.
62	Sarifah Abdullah, Rashidah Othman & Geeta Albert (Malaysia) Leveraging Knowledge Management, Innovative Technology, And Public-Private Partnerships For Sustainable Community Development.

LIST OF PRESENTERS

No	Authors And Title Of Papers
63	Maria Hani Mustaffa, Zaidah Mahmud & Noor Affendy M. Ali (Malaysia) Redefining Library Roles: A Case Study Of Mobile Makerspaces For Community Empowerment And Inclusivity.
64	Christabel Sim & Melissa Kawasoe (Singapore) The Children's Biodiversity Library By S.E.A. Aquarium: A Public-Private Partnership.
65	Grace Sim & Nurulhuda Subahan (Singapore) Collaborating For Impact: The Power Of Volunteering.
66	Hoa Luong Minh, Toan Pham Ba, Bao Le Nguyen Gia, Nhi Nguyen Ngoc Trang & Lien Tran Le Tuyet (Vietnam) Developing Reading Habits Among University Students Through Collaboration With Book Club And Library: A Case Study At The University Of Science, Vietnam National University, Ho Chi Minh City.
67	Muhammad Irsyad Alfatih, Perwitasari Rengganingytastuti & Amelia Marihesya (Indonesia) Jepara Regency Library Stakeholder Synergy In Leveraging Library Transformation For Social Inclusion.
68	Le Dinh Quoc Huy (Vietnam) General Science Library Of Ho Chi Minh City Is An Essential Partner In Community Development.
69	Alex Foo & Winnie Tan (Singapore) Of Comics, Garfield, And The News: Innovating Library Services Through Public-Private Partnerships.
70	Richard Togaranta Ginting, Salsabilla Woro Damayanti & Ni Ayu Ketut Nirmala Dewi (Indonesia) Libraries and Art Studios: The Relationship of Libraries as Centers of Innovation and Creativity in Tampaksiring, Bali.
71	Nur Amanina Mastani, Lilian Baun Pulo & Izaruddin Moss (Malaysia) Cultural Connections In Action: Collaborative Partnerships For Sarawak Cultural Heritage Preservation.
Pecha Kucha Forum	
72	Kanokwan Buangam & Chokthamrong Chongchorhor (Thailand) An Overview Of Library Development Trends Towards SCOPUS Database Sustainable Development Goals: A Bibliometric Analysis
73	Wei Haan Goh, Yanti Idaya Aspura, M.K. & Kiran K.(Malaysia) Research Data Management Service Sustainability: A Framework For Malaysian Universities.
74	Cik Ramlah Che Jaafar, Asmadi Md Ghazali & Mad Khir Johari Abdullah Sani (Malaysia) Research Data Management In Citizen Science Project: A Case Study Of Practices, Challenges And Strategies At Malaysian Research University.
75	Nurfarawahidah, B., Kiran, K. & Yanti Idaya Aspura, M.K. (Malaysia) Bridging Knowledge: The Evolving Role Of Academic Libraries In Citizen Science.
76	Khin Thazin Myint (Myanmar) Forging Synergies Between Libraries And Educational Institutions To Develop Digital Skills: Universities' Central Library.
77	Noor Masliana Razlan, Ali Fauzi Ahmad Khan, Samsuddin, S.F. & A. Abrizah (Malaysia) How Do Transparency And Openness In Scholarly Publishing Improve The Reproducibility Of Social Science Research?.
78	Nurul Diana Jasni, Noorhidawati Abdullah & Yanti Idaya Aspura, M.K. (Malaysia) How Academic Libraries Drive OER Adoption In Malaysian Universities: Insights From OER Experts

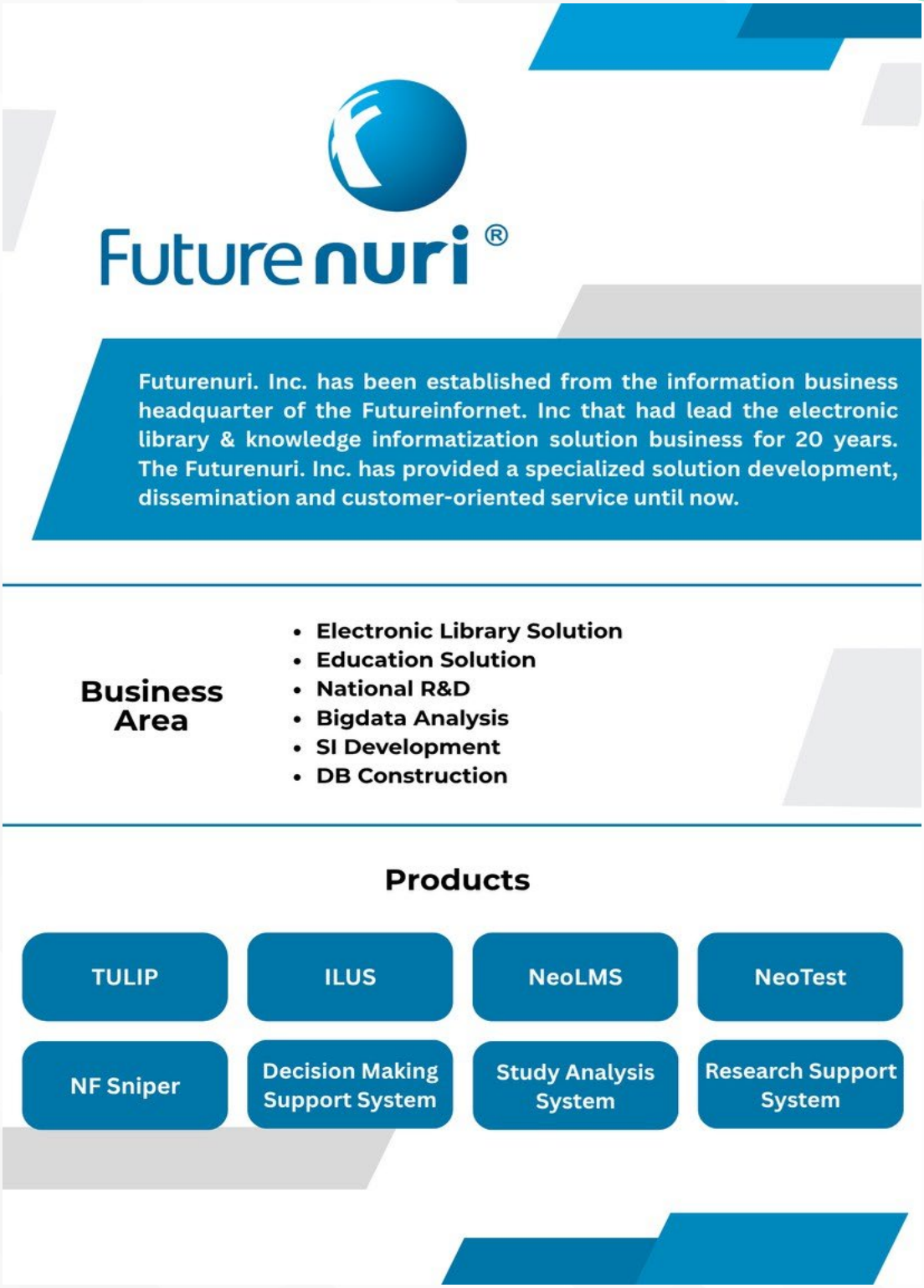
LIST OF PRESENTERS

No	Authors And Title Of Papers
79	Nur Aswani Mohd Azhar, Nur Leyni Nilam Putri Junurham, Muna Azuddin, Aishah Hanim Abd Karim & Roosfa Hashim (Malaysia) The Road Less Travelled: A Comparative Study Of Information-Seeking In Special Education Teachers Across Four States.
80	Frances Riscel S. Padin (Philippines) The Urban Digital Divide And Access Challenges: Experiences of Brgy. Camputhaw, Cebu City Residents.
81	Zhou Hongli, Noorhidawati Abdullah & Ali Fauzi Ahmad Khan (Malaysia) Conceptualizing Health Literacy Programs In Public Libraries For Older Adults With Chronic Diseases.
82	Su Thant San (Myanmar) Exploring The Role Of Popular Burmese Picture Books In A Suburban Library: A Case Study In Seikkyi Khanaungtoe Township,Yangon.
83	Nur Haziqah Hapiz & Ranita Hisham Shunmugam (Malaysia) Exploring Digital Asset Management (DAM) For Film Collections In The Malaysian State Libraries.
84	Khosyi Maulana (Indonesia) Information Seeking Behaviour Of MLBB Players.
85	Sabariah Abdul Samad & Imilia Ibrahim (Malaysia) Reviving Inclusivity Through Transformative Governance.
86	Mohd Ismail Abidin, Kiran, K. & Samsuddin, S.F. (Malaysia) Empowering Resilience: The Role Of Malaysian Academic Librarians In Disaster Management Practices.
87	Nordelina Zulkarnain, Norhazura Yunus & Mohd Nasir Ismail (Malaysia) Smart Libraries As Catalysts For Achieving SDGs In Malaysian Universities: A Conceptual Framework.

SPONSORS


iGroup
Empowering Research and Education Across Asia-Pacific
WHO WE ARE
iGroup is a leading provider of innovative solutions tailored for education and research professionals. With a presence in 20 countries across the Asia-Pacific region, we bridge global expertise with local insights to advance learning and knowledge-sharing.
CORE VALUES
Our foundation is built on the unwavering principles of Transparency, Respect, Unity, Social Responsibility, and Truth (TRUST). These values guide our mission to foster integrity, collaboration, and positive impact in everything we do.
GLOBAL REACH
With over 5,000 customers worldwide, iGroup empowers academia, government, corporate, and healthcare sectors with innovative information solutions.
FIND OUT MORE
https://www.igroupnet.com
marketing@igroupnet.com
OUR PRODUCTS & SERVICES
Academic Content Solutions
Publishing Platforms
Research & Productivity Tools
Library Automation
K-12 Digital Educational Tools
Consultancy Services
WHY CHOOSE iGROUP?
Over 40 years of industry expertise
Partnerships with leading global publishers and tech providers
Customized solutions for academic and research institutions
Dedicated customer support and consultancy services
Join us in shaping the future of research and education!

SPONSORS


Futurenuri®
Futurenuri. Inc. has been established from the information business headquarter of the Futureinfornet. Inc that had lead the electronic library & knowledge informatization solution business for 20 years. The Futurenuri. Inc. has provided a specialized solution development, dissemination and customer-oriented service until now.
Business Area
Electronic Library Solution
Education Solution
National R&D
Bigdata Analysis
SI Development
DB Construction
Products
TULIP
ILUS
NeoLMS
NeoTest
NF Sniper
Decision Making Support System
Study Analysis System
Research Support System

Compilatio

The Leading **AI and Plagiarism detection** solution in Europe,
Celebrating **20 Years of Championing** Academic Integrity Worldwide

Transparent & Stable pricing,
cheaper than most solutions in
the market.

Trusted by Education Institutions **in more than 40+ countries**

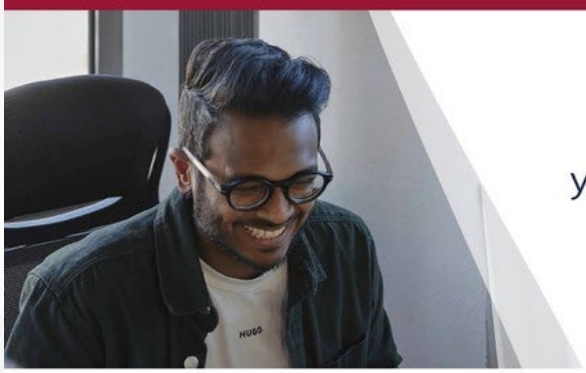
Reliable Multilingual AI detector with

98.5%

accuracy

Scan this QR code

To try our AI and plagiarism detector **for free!**



When choosing Compilatio, you also get **tools and support** to help you suceed in your **academic integrity journey**.

They trust us, why not you?

acp Gerebro Pukunui DIGITOS TekCreAte MegaTEXTS

SPONSORS


MDPI


CDSOL


nexbib
your library company


EBSCO


Sage


万方数据
WANFANG DATA


visit EBSCO.com
for more information


GALE


CE NEXUS
By C&E Adaptive Learning Solutions


Springer


Mc
Graw
Hill


library & archives
solutions pte ltd

SPONSORS


Electric Library


WISERF
Inspiring Library Innovation


Clarivate


CNKI 中国知网
www.cnki.net


excel


Preservation Technologies
A world leader in collections preservation


SUNWAY UNIVERSITY
A CLASS ABOVE


emerald PUBLISHING


ZEUTSCHEL
Cultural Heritage is our Passion


Wolters Kluwer


EDU APPS (M) SDN. BHD.

ACKNOWLEDGEMENT

The CONSAL XIX 2025 Organizing Committee would like to express their deepest appreciation to the following for their support and commitment in this event.

- Prime Minister's Office, Malaysia
- Ministry of National Unity Malaysia
- Ministry of Foreign Affairs Malaysia
- Ministry of Home Affairs Malaysia
- Ministry of Higher Education Malaysia
- Ministry of Tourism, Arts and Culture Malaysia
- Ministry of Communications Malaysia
- Ministry of Health Malaysia
- Radio Televisyen Malaysia (RTM)
- Immigration Department of Malaysia
- Royal Malaysia Police
- Malaysia National News Agency
- Kuala Lumpur City Hall
- Malaysian Volunteer Department (RELA) Malaysia
- Convention and Exhibition Bureau Tourism Malaysia
- Ceremonial and Protocol Division and Secretariat of International Conference
- Malaysia Airports (Sepang) Sdn. Bhd.
- World Trade Centre Kuala Lumpur
- iGroup Asia Pacific Limited (Access Dunia)
- Futurenuri, Inc (MathVictory Services)
- MDPI AG
- CD Solutions Sdn. Bhd. (NEXBIB.com)
- EBSCO
- Sage Publications
- Wanfang Data Corporation (International) Limited
- Springer Nature Singapore Pte Ltd
- Electric Library (Malaysia) Sdn. Bhd.
- WISERF Technologies Sdn. Bhd
- Zeutschel GmbH / Galaxy Automation Sdn. Bhd
- Library & Archives Solutions Pte Ltd (LAAS)
- CE Nexus Pte Ltd. (C&E Adaptive Learning Solutions) Emerald
- Publishing Limited
- Cengage Learning Asia Pte Ltd. (Gale)
- McGraw Hill
- Clarivate (Malaysia) Sdn. Bhd.
- China National Knowledge Infrastructure (CNKI)
- Excel Envirotech Resources Sdn. Bhd.
- Preservation Technologies Pte Ltd.
- Sunway University Sdn Bhd Wolters
- Kluwer Health Australia Compilatio
- Organizations or individuals who have been inadvertently left out.

Proceedings of CONSAL XIX Malaysia: 19th Congress of Southeast Asian General Conference and Meeting

e ISBN 978-967-25842-3-0



Persatuan Pustakawan Malaysia

(online)

CONSAL XIX
MALAYSIA 2025