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# Strengthening Digital Inclusion: The Role of Rural Public Libraries in Fostering Literacy, Collaboration, and Community Engagement in Malaysia

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### ABSTRACT

Digital inclusion refers to strategies that ensure that individuals and communities have equal access to digital technologies and the skills needed to use them successfully. In Malaysia, Rural Public Libraries (RPLs) are critical venues for bridging the digital divide, especially in places where communities face challenges such as limited infrastructure, lower educational attainment, and socioeconomic constraints. This study investigates the function of RPLs in Pahang in promoting digital literacy and increasing community engagement to increase digital inclusion. A qualitative research approach was used, including interviews with librarians to investigate the availability and implementation of digital projects. Findings show that the Pahang RPLs actively advocate for digital literacy initiatives, collaborate with government and non-government entities, and assist users in navigating critical digital services, such as government applications. This activity highlights the critical role of libraries in ensuring that rural residents are not left out of the benefits of the digital revolution. The report highlights the importance of continuing and expanding these activities to promote equitable digital participation and enhance the long-term viability of digital technology adoption in rural Malaysia.

## 1. Introduction

In today's digital age, technology has emerged as a critical platform for communication, information discovery and social engagement. Across generations, people have increasingly relied on digital technologies for activities including social networking, online learning, gaming, artificial intelligence (AI) applications and corporate engagement. This shift has shifted traditional communication and information access modalities from physical platforms to online, resulting in

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increased efficiency, proximity, and global reach. Social media sites such as X (formerly Twitter), Facebook, Instagram and TikTok have developed as primary vehicles for communication, information distribution, marketing, and community participation. As a result, the evolution of digital technology has transformed the way people find, share, and consume information. Online databases, news portals and video platforms such as YouTube now allow anyone to access knowledge and resources from around the world, promoting lifelong learning and civic engagement. However, not all communities are experiencing the same level of digital advancement. Rural areas continue to face significant barriers due to inadequate infrastructure, low levels of digital literacy and socio-economic constraints. This digital divide prevents rural residents from fully reaping the benefits of the digital economy and society.

In this context, RPLs play a critical role in bridging the gap. RPLs promote inclusion by providing internet access, digital literacy training and guidance to communities on how to use digital tools and government services effectively. In addition to digital access, they encourage collaboration with other organisations and provide opportunities for community engagement, enabling rural residents to interact with greater networks and opportunities. This article investigates the role of rural public libraries in promoting digital inclusion in Malaysia, with a focus on Pahang. It specifically assesses the availability and effectiveness of digital literacy programmes and community engagement efforts. Rural library initiatives not only help to close the digital divide, but also to promote lifelong learning and create a more informed and connected society.

## **2. Literature**

### *2.1 Digital Inclusion*

Digital inclusion is defined as the ability of individuals and communities to connect and access computing technologies to enhance services and participate in society [1]. Bosua and Gloet [2] emphasize that digital inclusion is a form of social inclusion in the twenty-first century, ensuring that disadvantaged groups have access to, and the skills needed to use Information and Communication Technologies (ICT), thereby contributing to the growth of knowledge and the development of society. Similarly, the United Nations [3] defines digital inclusion as equal, meaningful, and safe access to digital technologies, services, and opportunities for all people, everywhere. Throughout the literature, definitions of digital inclusion revolve around three key elements: accessibility, skills, and knowledge. These variables are particularly important for marginalized populations who may be excluded due to socioeconomic barriers or inadequate living conditions. Therefore, digital inclusion is more than just connectivity; it is also about ensuring equal participation in the digital age.

### *2.2 Defining Digital Technology and Sustainability*

The term “digital technology” refers to a broad range of tools, services, applications, and devices based on hardware and software systems [4]. Chahabra [5] defines digital technology as technological devices, automated systems, and electronic instruments that can generate, process, and store data online. Similarly, Devran and Elçi [6] define it as digital tools and resources including social media, multimedia platforms, and online games. Essentially, digital technology is a system that enables the generation, processing, storage, and distribution of data and information. The rapid development of digital technology has revolutionized the way communities communicate, access information, and engage, making it indispensable for future-oriented sustainability. More recent definitions [7,8] emphasize the ability of communities and institutions to survive over time. Sustainability is increasingly recognized as a development goal worldwide, with applications in

agriculture, education, information science, and public services. Integrating sustainability and digital technology helps communities remain adaptable, resilient, and ready for a digital future.

### *2.3 Digital Inclusion in Malaysia*

In Malaysia, digital inclusion is a national goal, despite significant disparities between urban and rural areas. Rural communities often struggle to access digital technologies due to inadequate infrastructure, low internet penetration, and lower socioeconomic status. According to Iqbal et al. [9], Malaysia is adapting to digital transformation through efforts including online banking, mobile health applications (e.g., MySejahtera), the Malaysian Government Mobile Application Gallery (GAMMA), and e-licensing systems. While these tools improve digital prospects, others remain digitally excluded. Rural populations face the threat of digital exclusion, defined as the inability to access or effectively use digital technologies [10], which limits their participation in economic and social growth. Horn and Gifford [11] argue that lack of ICT connectivity in remote locations hinders rural development and exacerbates inequalities. In this environment, Rural Public Libraries (RPLs) have emerged as important community hubs that connect rural populations to critical technologies, thus helping to bridge Malaysia's digital divide.

### *2.4 Rural Public Library Services*

RPLs act as important community hubs, offering not only books and news, but also internet access, computers, and digital tools [12]. RPLs are in underserved communities and provide a variety of services such as personal and civic education, student study spaces, and training in digital literacy, internet safety, and reading activities. In addition to their educational functions, RPLs promote social inclusion and cultural engagement by providing activities such as storytelling sessions, cultural exhibitions, and community festivals. They also promote lifelong learning by providing individuals with opportunities for ongoing skill development. Importantly, RPLs promote physical and online connections, making them important places for community building, cultural enrichment, and knowledge sharing.

### *2.5 Digital Literacy, Collaboration and Partnership, and Community Engagement in Rural Public Libraries*

In the digital age, the role of RPL has expanded beyond lending books to include programs on digital literacy, collaboration, and community engagement. Digital Literacy: RPL trains rural communities to successfully find, evaluate, and generate information using digital tools. According to Kelly, McGrath, and Hubbard [13], public libraries can help rural children develop digital skills, thereby bridging the rural-urban digital divide. Ali *et al.*, [14] suggest that digital education platforms in libraries enhance the knowledge and abilities of rural residents. Collaboration and Partnerships: RPLs typically work with local agencies and groups to expand their offerings. Partnerships can involve co-hosting training sessions, providing mobile library services, and developing infrastructure. Collaborations with telecommunications businesses, for example, can improve internet infrastructure, while partnerships with healthcare organizations can bring education and health services to rural areas [15]. These alliances not only increase service capacity, but also foster trust and engagement among rural residents. Community Engagement: RPLs serve as platforms for librarians to help users navigate government programs, access digital resources, and participate in community-oriented events. RPL strengthens community ties through seminars, cultural events, and

online projects, encouraging active engagement and empowering individuals to incorporate digital technology into their daily lives.

### 3. Research Methodology

This study used a qualitative research approach to investigate the role of RPLs in promoting digital inclusion, with a focus on digital literacy, collaboration, and community participation. Qualitative research is suitable for investigating lived experiences, behaviours, and perspectives as it allows researchers to gain in-depth insights through interviews and observations [16]. Data were collected through structured interviews with librarians in eight (8) RPLs in Pahang, Malaysia. Librarians were selected as key informants because they have direct experience in administering library services, developing digital initiatives, and interacting with rural residents. Their experiences provide important insights into the availability and effectiveness of digital literacy initiatives, collaborative partnerships, and community engagement tactics in libraries. The sample size of eight librarians was found to be sufficient for this qualitative study, falling within the range of 5-30 participants often recommended for in-depth qualitative research. Each interview was conducted face-to-face, allowing the researcher to gather detailed descriptions of digital inclusion practices, barriers, and opportunities in rural communities. Table 1 below show the indicator and location of RPL that already been assessed in this study.

**Table 1**  
Number of informants

No	Indicator of the Informants	Position	Organization
1.	RPL1	Assistant Librarian (S29)	Perpustakaan Desa Bandar Indera Mahkota (Zon C 01)
2.	RPL2	Assistant Librarian (S29) / Supervisor Zon 2	Perpustakaan Desa Kg. Teluk Sentang
3.	RPL3	Assistant Librarian (S29)	Perpustakaan Desa Seberang Chenor
4.	RPL4	Assistant Librarian (S29) / Supervisor Zon 4	Perpustakaan Desa PNM Kg New Zealand
5.	RPL5	Assistant Librarian (S29)	Perpustakaan Desa PNM Kampung Bukit Betong
6.	RPL6	Assistant Librarian (S29)	Perpustakaan Desa Kg Perpat
7.	RPL7	Assistant Librarian (S29)	Perpustakaan Desa Kg Pulau Rusa
8.	RPL8	Assistant Librarian (S29) / Supervisor Zone 9	Perpustakaan Desa Masjid Kg Relong

### 4. Finding and Discussion

Qualitative interview data were analyzed to determine how rural public libraries contribute to the sustainability of digital technologies. The analysis focused on three key elements aligned with the study objectives: (i) digital literacy programs, which assessed how libraries educate and build digital skills in rural communities; and (ii) community engagement, which investigated how libraries foster participation and help rural communities use digital technologies effectively. These themes emerged from formal interviews with librarians and served as a guide for the coding and interpretation of the data.

#### 4.1 Digital Literacy Program

Digital literacy programs are activities offered by RPLs to equip community members with the skills needed to use digital technology appropriately. Digital literacy refers to the ability to analyse, search, organize, create, and communicate information using technology, as well as the promotion of responsible digital citizenship [17]. Such applications are important for improving users' skills in areas including computer operation, internet browsing, information retrieval, and online safety [18]. Libraries play an important role in helping rural residents develop the skills needed to engage with digital technology and access new knowledge resources through these programs.

In this study, the researcher looked at digital literacy initiatives implemented in RPLs around Pahang. Interview data showed that all eight libraries (RPLS 1-8) had implemented activities to improve the digital skills of rural users. The Media and Information Literacy Self-Learning System (e-LMM System) is a partnership program offered by these libraries to promote media and information literacy. In addition, many RPLs (RPLS 1, 2, 3, 4, 5, and 7) conduct ICT literacy activities such as online quizzes to promote interactive learning. Other specific programs, such as e-Business Workshops, are offered in RPLS 1, 3, 5, 6, and 7, to assist rural residents in developing digital entrepreneurial skills. Findings show that digital literacy programs not only increase rural communities' confidence in using technology, but also open doors to economic and social empowerment. The statement of the librarian for each of the rural public library as follow:

“Rural Public Library (RPL) Zon C1 in Pahang organized various programs, workshops, or activities that focus on developing digital technology skills for library users with the aim of increasing access to technology and educating the local community about right and effective use digital technology applications. Some activities have been conducted here, such as eBusiness Workshops, ICT Literacy Activities, Soduku, ICT Test Activities, e-sports and online quizzes.” (mention by RPLS 1)”.

“This rural public library also holds programs, workshops, or activities that focus on the development of digital technology skills for users with the aim of increasing access to technology and educating the local community about proper and effective use such as E-LMM (known as Media and Information Literacy Self-Learning System). In addition, virtual activities like Virtual Quiz Program are held every month on our library Facebook Page and publicized to the public for participation purposely to encourage library users with the use of digital technology.” (mention by RPLS 2)

“Rural Public Library Zon 3 at the Maran and Rural Public Library Zon 8 at the Bera also hold programs, workshops, or activities that focus on the development of digital technology skills for users with the aim of increasing access to technology and educating the local community about proper and effective use such as the eBusiness Workshop, Click Wisely Program, Advertising Workshop and AI Module and IT Literacy Activities.” (mentioned by RPLS 3)

“Rural Public Library Zone 4 also holds programs, workshops, or activities that focus on the development of digital technology skills for users with the aim of increasing access to technology and educating the local community about correct and effective use such as ICT Quiz conducted virtually on Facebook RPL Kg New Zealand, Workshop Using ICT

physically at RPL Kg Kuala Sentul, Promotion and u-Library Membership Campaign by Rural Public Library Kg Senggora. (mentioned by RPLS 4)

“Rural Public Library Zon C5, Pahang also holds programs, workshops, or activities that focus on the development of digital technology skills for users with the aim of increasing access to technology and educating the local community about proper and effective use such as eBusiness Workshops, ICT Quizzes, Access to U-Library etc. (mentioned by RPLS 5)

“The Rural Public Library in Zone C6 Pahang also holds programs, workshops, or activities that focus on the development of digital technology skills for users with the aim of increasing access to technology and educating the local community about correct and effective use such as e-Census Briefing, Online Entrepreneur Course, Pahang Zakat Application Briefing via online at RPL Bandar Tun Razak, Shopee Entrepreneur Course at RPL Tg Gemok and IT Quick Workshop at RPL Simpang Sepayang”. (mentioned by RPLS 6)

“Rural Public Library Kg Pulau Rusa also holds programs, workshops, or activities that focus on developing digital technology skills for users with the aim of increasing access to technology and educating the local community about proper and effective use such as the U-Library Campaign and the Kg Product Entrepreneurship Workshop and ICT Quiz at RPL Lamir”. (mentioned by RPLS 7)

“Rural Public Library Zon 9 also holds programs, workshops, or activities that focus on the development of digital technology skills for users with the aim of increasing access to technology and educating the local community about proper and effective use such as the u-Pustaka Workshop”. (mentioned by RPLS 8)

In terms of development of user **computer literacy skills**, the majority librarian state that the rural public library will ensure that the necessary skill is equipped to the library user regarding the computer literacy program. RPLS 1, RPLS 2, RPLS 3, RPLS 4, RPLS 5, RPLS 6, RPLS 7 and RPLS 8 state that RPL will equip the library user with the computer literacy skills, so library user learns and understands about the computer literacy. While RPLS 8 state the activity that organized by Rural Public Library Masjid Kg Relong such as learn about Microsoft Office, Canva and others. As follows the statement by Rural Public Library Staff (RPLS):

“The programs at our library also help to ensure that rural communities have the necessary skills by collaborating with the Rural Internet Center (PID) to implement computer literacy programs. (mentioned by RPLS 1, RPLS 2, RPLS 3, RPLS 4, RPLS 5, RPLS 6, RPLS 7, RPLS 8)

“The programs at RPL Zone 9, Pahang also help to ensure that rural communities have the necessary skills such as the use of Microsoft Office, Canva and others by collaborating with the Rural Internet Center (PID) and the Malaysian Family Digital Economy Center (PEDi) to implement computer literacy programs.” (Mentioned by RPLS 8)

For the **internet browsing skills**, the RPL organizes a program related to internet browsing skills for the library users, to ensure the user can surf the internet in a safe and good manner. All the

librarians which are RPLS 1, RPLS 2, RPLS 3, RPLS 4, RPLS 5, RPLS 6, RPLS 7, and RPLS 8 state that their RPL has organized a program related with the internet browsing purposely to improve users' digital literacy. RPLS 5 states that the program related to internet browsing is CLICK wisely. The statement is as follows by all librarians:

“This RPL also organizes a program related to internet browsing to improve users' digital literacy, to ensure they can use the internet in a safe and responsible manner”. (mentioned by RPLS 1, RPLS 2, RPLS 3, RPLS 4, RPLS 5, RPLS 6, RPLS 7, RPLS 8)

“PNM Village Library Zone C5, Pahang also organizes a program on internet browsing to improve users' digital literacy, to ensure they can use the internet in a safe and responsible manner. For example, CLICK wisely”. (Mentioned by RPLS 5).

While, regarding the **education about online safety**, majority of the rural public library in Pahang state does not organize any program related to online safety to the rural community. However, only librarian or officer in RPL has given exposure regarding the online security. The following statement by RPLS 1, RPLS 2, RPLS 3, RPLS 4, RPLS 5, RPLS 6, RPLS 7 and RPLS 8 mention the same statement in which:

“In terms of consumer education about online safety, no program like that but the librarian and officer only been given exposure and brief on the online safety” (mention by RPLS 1, RPLS 2, RPLS 3, RPLS 4, RPLS 5, RPLS 6, RPLS 7 and RPLS 8).

According to the findings, all participating librarians (RPLS1-RPLS8) claimed that rural public libraries (RPLs) in Pahang organized various digital literacy programs. These projects included ICT literacy activities, online browsing and surfing skills workshops, and other technology-related programs designed to improve the digital competence of rural communities. While each RPL may conduct different activities, some common programs were identified across libraries, including e-Business workshops, ICT literacy training, and Reading Encouragement Activities (AGM), all of which aimed to increase technological awareness and encourage digital engagement among Pahang library users. Furthermore, the data showed that libraries had made efforts to improve computer literacy by offering training, which promoted Microsoft Office, Canva and other secure products.

However, in terms of internet safety, all RPLs claimed that exposure and training were provided largely to library staff, but not to the public. This highlighted a significant gap: rural communities remain vulnerable due to a lack of awareness of online threats. The study also showed that rural public libraries play a key role in equipping users with technical and digital skills. This supports Martzoukou and Elliott's [19] claim that public librarians must improve users' technical skills while also meeting the needs of their communities. Such capabilities are essential for developing informed societies and empowering rural areas to access reliable online information, thereby limiting exposure to misinformation. However, the lack of initiatives addressing online safety, data privacy and cybersecurity remains a major issue. Addressing these issues is essential to ensure that rural communities can use digital technologies responsibly and protect themselves from potential dangers such as fraud, data theft and cyberattacks.

#### *4.2 Community Engagement*

Community engagement is the practice of working with people in the community, whether they are library patrons, residents, students, teachers, or partner organizations, for the collective good of

the community. The American Library Association emphasizes the importance of libraries in developing informed and empowered communities for a sustainable future. The data analysis in this study looked at the many actions taken by RPLs to engage their communities, particularly in adapting to the disruptions brought about by digital technology in library services. The findings show that librarians at RPLs actively assist communities in accessing government digital applications, such as the PADU application. This application is an important Malaysian government program that consolidates individual and family profiles for citizens and permanent residents over the age of 18. By helping users access and navigate such platforms, librarians not only promote digital adoption but also enhance their position as intermediaries involved in the critical rural population. the country's digital transition. RPLS1, RPLS4, RPLS5, RPLS6, and RPLS7 all reference this statement:

“In our library, the staff will interact with users, especially regarding information literacy through PADU registration at selected RPLs.” (statement by RPLS1)

“Rural Public Library Zone 4 also interacts with users especially in relation to information literacy through PADU registration at selected RPLs, namely RPL Kg Kuala Sentul”. (statement by RPLS 4)

“PNM Village Library Zone C5, Pahang also interacts with users, especially regarding information literacy through PADU registration at selected RPLs.”

“Rural public library oversee by me in the Zone C6 also interacts with users especially in relation to information literacy through PADU registration at selected RPL which is RPL Simpang Sepayang.” (statement by RPLS6)

“RPL Zone C7 Pahang also interacts with users especially regarding information literacy through PADU registration at selected RPLs.” (statement by RPLS7)

While RPLS 2, RPLS3 and RPLS 8 also engage with the community using the new application that was introduced by the government like PADU. However, it is different from other RPLS because RPLS 2, RPLS3 and RPLS 8 collaborated with the local government on how to be using the PADU application. Based on RPLS 2:

“All RPL in Temerloh Zone 2 also interact with users especially regarding information literacy through PADU registration at RPL Tg Kerayong on 25/3/2024, RPL Bintang 26/3/2024, RPL Batu Sawar 27/3/2024 and at RPL Teluk Sentang on 29/3/2024. We also cooperate with local authority District Statistics Department to successfully implement this PADU registration.”

Same with rural public library in area of Chenor. According to RPLS 3:

“RPL Zone 3 and Zone 8 also engage with users especially regarding information literacy through PADU registration at selected PDs. The PADU counter was opened for the first time at the Rural Public Library Sri Buntar in collaboration with the JPKK Sri Buntar on March 14, 2024. In addition, the Rural Public Library Batu Papan was also involved with the PADU registration counter on March 23, 2024. The PADU received great benefits to ensure the community in the form of assistance or protection”



Department to explain and make sure the community register the PADU apps. Based on RPLS 8:

“Our rural public library also interacts with users, especially in relation to information literacy through PADU registration in selected RPLs such as the RPL Bukit Nikmat Kg, Jerantut in collaboration with the Jerantut District Statistics Department. The program received a very encouraging response throughout the two days the program was held.”

Based on informant interviews, findings indicate that all RPL officers are actively engaged with library users, particularly by helping them use PADU, a newly established government application. This application is of great importance to Malaysian citizens as it serves as a national profiling system, ensuring that individuals receive appropriate benefits, support, or protection under various people-focused government initiatives. RPLS1, RPLS4, RPLS5, RPLS6 and RPLS7 reported working directly with communities to help them navigate and use the PADU program. Meanwhile, RPLS2, RPLS3 and RPLS8 encouraged partnerships with both local communities and government institutions to promote widespread adoption of the application among Malaysian individuals. Findings demonstrate the importance of community collaboration in educating residents on how to use digital technologies in their daily lives. This is consistent with Welsler, Khan and Dickard’s (2019) argument that online learning communities and social support networks can significantly increase digital skills, especially among rural communities.

## 5. Conclusion

This study highlights the critical role of rural public libraries in helping rural communities engage with digital technologies, particularly smartphones, social media, and the internet. Findings show that rural public libraries in Pahang aggressively promote digital literacy, community participation, and partnerships with local organizations. Initiatives such as e-Business Workshops, ICT Literacy Activities, Sudoku, ICT Tests, e-sports, and online quizzes have helped rural communities improve their digital skills and knowledge. These activities have not only increased the capacity of rural communities to use digital tools successfully, but also helped Malaysians become more informed. However, the findings highlight a programming gap: rural public libraries have yet to address important issues such as online safety, data privacy, and cybersecurity knowledge. These are key areas for improvement. Organizing online safety programs will teach rural communities how to use digital technology responsibly and protect themselves from harmful behaviours such as phishing, fraud, data theft, and other cyber risks. Addressing this gap is essential to ensuring that rural residents embrace digital technology for personal and professional development while remaining safe, secure, and informed.

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