THE ROLE OF LIBRARIES IN HARNESSING TECHNOLOGY FOR PROMOTING DIGITAL INCLUSION IN NIGERIA

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Abstract

In an era defined by digital advancement, librarians have become pivotal in driving digital inclusion efforts. This paper explores how librarians leverage technology in libraries to bridge the digital divide and empower communities. Librarians provide equitable access to technology infrastructure, offer tailored educational programmes to enhance digital literacy, and collaborate with local entities to address specific community needs. The paper highlights the innovative initiatives undertaken by librarians to promote digital inclusion, such as workshop, user education programme, online training and mobile libraries reaching areas that face challenges in accessing services, including educational and digital resources, due to their distance from urban centers, and collaborations with community centers and educational institutions. By fostering a culture of lifelong learning and digital empowerment, librarians are transforming lives and shaping a more inclusive future for all. The paper concluded that, harnessing technology is essential for promoting digital inclusion, and librarians are at the forefront of this endeavor. Their proactive leadership, expertise, and commitment to equity are instrumental in bridging the digital divide and ensuring that everyone has the opportunity to thrive in the digital age.

Keywords: Digital Inclusion, Digital inclusion and libraries,, digital inclusion and librarians, Nigerian Libraries and Technology

Introduction

In the contemporary era, digital inclusion is critical for societal progress, impacting education, employment, and overall well-being. Librarians play a pivotal role in promoting digital inclusion within libraries, necessitating suitable IT infrastructure, dedicated staff time, and local authority support (European Commission, 2019). This ensures equitable access to information and communication technologies (ICT), encompassing skills and support for social and economic participation. Beyond organizing books, librarians provide information literacy, integrate technology, and offer lifelong learning opportunities (ACRL, 2020), empowering individuals regardless of background and fostering personal and social advancement (Davis, 2019). This paper seeks to highlight librarians' strategies and initiatives in digital inclusion, acknowledging their pivotal role in fostering inclusive practices. By promoting digital literacy and ensuring equitable access to resources, librarians enhance educational opportunities and social mobility.

Current discussions emphasized the transformative impact of digital technology on learning and access to information, emphasizing the need for inclusive practices in

libraries. Librarians are increasingly recognized not only as custodians of knowledge but also as facilitators of digital literacy and access, crucial in the digital era's evolution. Key challenges include ensuring affordable access, promoting digital literacy, and enhancing the relevance of digital resources for diverse user groups, essential for narrowing the digital divide and maximizing the benefits of digital inclusion for all.

Librarians play a crucial role in advancing digital inclusion by facilitating access to information and technology, thereby empowering individuals and communities. They serve as educators, facilitators, and advocates, bridging the digital divide through various community-driven initiatives. Digital inclusion is essential to ensure that all individuals, regardless of background, have equal opportunities to benefit from the digital age, enabling educational advancement, economic participation, and societal integration. In education, digital inclusion facilitates personalized learning and bridges educational gaps, particularly for underserved communities, promoting equity and mobility (Warschauer & Matuchniak, 2023; OECD, 2020). It enhances library users' access to resources and educational empowerment, reducing disparities (Helsper & Reisdorf, 2017). Librarians adapt to ensure equitable technology access, recognized by the American Library Association (ALA) for promoting digital literacy and bridging divides (ALA, 2023). Librarians lead in digital inclusion, recognizing technology's role in societal empowerment and actively promoting access and participation. The aim of this paper is to examine how librarians can effectively lead initiatives for digital inclusion, leveraging their roles as educators, facilitators, and advocates within their communities. By analyzing successful strategies implemented in various contexts, this paper aims to contribute to broader societal goals of promoting digital equity and inclusion. This paper employs literatures review and analysis of case studies to explore successful strategies implemented by librarians in fostering digital inclusion, thereby contributing to broader societal goals.

The concept of digital inclusion

Digital inclusion refers to ensuring that all individuals and communities, including those traditionally marginalized or underserved, have equitable access to and effective use of information and communication technologies (ICT). This concept encompasses not only physical access to ICT infrastructure and devices but also the skills, knowledge, and support necessary to utilize digital technologies for social and economic participation.

Many experts and scholars have defined digital inclusion. According to the European Commission (2019), digital inclusion involves "the ability of individuals and groups to access and effectively use information and communication technologies (ICT) for a variety of purposes, including education, employment, healthcare, civic engagement, and social interaction." It aims to bridge the digital divide by addressing barriers such as affordability, digital literacy, and the relevance of digital resources. This definition means ensuring that everyone can access and effectively use digital technologies like computers and the internet for activities such as learning, working, healthcare, and staying connected with others.

The World Bank (2021) opined that digital inclusion involves the activities necessary to ensure that all individuals and communities, including the most disadvantaged, have access to and can use information and communication technologies (ICTs). Davis (2021) argued that digital inclusion is about ensuring that all individuals, regardless of their

background, have equal opportunities to access and use digital technologies for personal and professional development. This means making sure that everyone, regardless of their background, has fair opportunities to use digital technologies for personal and professional growth. The American Library Association (ALA) (2023) expressed that digital inclusion encompasses the equitable access to and effective use of information and communication technologies (ICT) by all members of society. The ALA's definition means that digital inclusion ensures all members of society have equal access to and can use digital technologies like computers and the internet.

The International Telecommunication Union (ITU) (2022) also defined digital inclusion as the process of ensuring that all individuals and communities have access to and can use information and communication technologies (ICTs). Warschauer and Matuchniak (2023) described digital inclusion as involving policies and practices aimed at providing individuals and communities with access to digital technologies and the skills to use them effectively for personal and societal advancement. This definition means that digital inclusion involves creating policies and practices that give individuals and communities access to digital technologies and teach them how to use these technologies to improve their lives. The Organisation for Economic Co-operation and Development (OECD) (2023) sees digital inclusion as policies and initiatives that ensure all individuals and groups have access to and can effectively use digital technologies.

Libraries and digital inclusion

Libraries are indeed crucial institutions in promoting digital inclusion due to their historical role as providers of information access and their evolving mandate to ensure equitable access to digital technologies and resources. Libraries facilitate digital inclusion by providing digital information, enabling users to access information remotely regardless of their location. Their responsibilities in this regard are multifaceted.

Libraries play a pivotal role in promoting digital inclusion by serving as community hubs where individuals can access computers, the internet, and digital resources either free of charge or at minimal cost. They offer digital literacy programs and training sessions to help patrons develop essential skills for using digital technologies effectively. These initiatives empower individuals to navigate the digital landscape with confidence, ensuring that everyone can benefit from technological advancements (ALA, 2023). The mandate and responsibilities of libraries, as emphasized by Lloyd (2022), include a strong commitment to providing equitable access to information and technology. This core mission involves advocating for digital literacy and ensuring that all members of society possess the necessary skills and resources to engage with the digital world. Libraries uphold this mandate by continually updating their services and resources to meet the evolving needs of their communities.

Libraries have a significant impact and reach in bridging the digital divide, particularly for underserved communities, including those in rural areas and low-income neighborhoods. They offer a range of programs tailored to diverse user needs, such as job searching, online learning, and accessing government services. By providing these essential services, libraries help to level the playing field, enabling individuals from all backgrounds to participate fully in the digital economy (Davis, 2019). The importance of libraries in promoting digital inclusion is recognized and supported by governments and policymakers. Numerous initiatives and funding programs aim to enhance libraries' capacity to provide digital resources and services to their communities. This recognition

underscores the critical role libraries play in fostering digital equity and inclusion, making them indispensable in efforts to bridge the digital divide (OECD, 2020). Finally, libraries not only have the mandate but also embrace the responsibility to promote digital inclusion. They are essential institutions that actively work to ensure everyone has the skills and access needed to participate fully in the digital age. Through their comprehensive programs and services, libraries continue to uphold their historical role as providers of information access while evolving to meet the digital needs of their communities.

The Role of Librarians in promoting digital Inclusion

Librarians play a crucial role in promoting digital inclusion by providing equitable access to information and technology resources for all members of their communities. Their efforts are instrumental in bridging the digital divide and empowering individuals with the skills and knowledge needed to thrive in the digital age. These efforts could be through the library's website, social media, and printed materials (Pamphlets, posters, and leaflets). Librarians would also integrate digital inclusion into programmes, workshops, and community events, emphasizing their role in providing equitable access to information and technology resources. Collaborations with local organizations and ongoing professional development within the library profession would further reinforce the message of bridging the digital divide and empowering individuals in the digital age.

As stated by Hildreth (2018), libraries provide digital inclusion for all users, regardless of socioeconomic status or geographic location. They assist people in learning to use technology and other web resources. Palfrey (2019), stresses that libraries are essential institutions in the digital age because they promote digital equity. They ensure that everyone, regardless of background or circumstances, has access to the tools and resources they need to succeed in the digital world.

Strategies for Promoting Digital Inclusion

The following are some of the strategies that can be adapted to enable librarians play significant roles in the digital age, and thereby promote digital inclusion in Nigeria.

1.   *Providing Access to Technology Infrastructure*
Librarians play a crucial role in providing equitable access to technology infrastructure, including computers, internet, and digital resources. As emphasized by the American Library Association (ALA) (2023), librarians are committed to "providing equitable access to information and technology". Public libraries, in particular, serve as vital centers where individuals can access computers and the internet free of charge. Librarians ensure that these resources are available to all patrons, regardless of their socioeconomic status or technological proficiency. By offering a range of digital devices and software applications, librarians enable individuals to explore and utilize technology to meet their educational, informational, and recreational needs.

2.   *Delivering Educational Programmes*
Librarians deliver a diverse array of educational programmes and resources designed to enhance digital literacy skills among patrons. These programmes encompass a wide range of topics, including basic computer skills, internet navigation, online safety, and digital citizenship. As noted by Hirsh (2019), libraries offer "a wealth of educational

opportunities for patrons of all ages," including workshops, training sessions, and one-on-one assistance with digital devices and applications. Librarians tailor these programmes to meet the specific needs and interests of their communities, fostering a culture of lifelong learning and skill development in the digital age.

3.   Collaboration for Community Solutions

Librarians engage in collaborative efforts with local organizations, schools, and government agencies to address community-specific digital inclusion challenges. These partnerships enable librarians to leverage resources, expertise, and networks to develop comprehensive solutions that meet the diverse needs of their communities. As highlighted by the Public Library Association (PLA) (2023), libraries are "partners in community development and public health". Librarians work closely with stakeholders to identify barriers to digital inclusion and co-create initiatives that promote access to technology, digital literacy, and online resources. For example, libraries offer orientation, workshops and exhibition and user education classes (e.g., GST) to teach patrons basic skills, like internet navigation, and e-books surfing, ensuring everyone has the opportunity to participate in the digital world. For instance they offer e-book lending services, allowing patrons to borrow e-books remotely from their own devices, regardless of their socioeconomic status or geographic location.

4.   Digital resource management

Librarians curate digital collections and resources, including e-books, online databases, and multimedia materials, to support patrons' educational and informational needs (Rosenfeld and Morville, 2019). They organize these resources in a user-friendly manner and provide guidance on how to access and utilize them effectively (Armitage and Nasser, 2018), (Fourie, 2019). The librarians organize digital resources in a user-friendly manner, employing classification systems and metadata to facilitate easy navigation and retrieval. They also offer guidance on accessing and utilizing digital resources effectively, assisting patrons in navigating online databases, e-book platforms, and multimedia materials

5.   Technology support and assistance

Librarians offer technology support and assistance to patrons who encounter challenges or have questions related to digital devices, software applications, or online services. They may provide one-on-one assistance, create user guides or tutorials, or offer referral services to other community resources for specialized support (Dempsey and Wilson, 2019). Librarians play a significant role in harnessing technology to empower patrons through tailored educational programmes and innovative initiatives. According to Januszewski, and Molenda (2023) defined Educational technology as the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources. Bates (2019) sees Educational technology as the systematic application of scientific and mathematical principles and practices to the design, development, implementation, and evaluation of teaching and learning activities and resources. It encompasses a wide range of tools, techniques, and strategies aimed at enhancing the educational process through the effective use of technology.

6.   Tailored Educational Programmes

Librarians offer a variety of tailored educational programmes, including workshops, training sessions, and digital collections, designed to meet the diverse needs of patrons.

As Hirsh (2019) notes, libraries provide "a wealth of educational opportunities for patrons of all ages." For example, libraries host computer literacy workshops to teach basic digital skills, internet navigation sessions to promote online proficiency, and coding classes to foster technological fluency. Librarians also provide digital collections comprising e-books, online databases, and educational software, ensuring that patrons have access to high-quality educational resources that cater to their interests and learning objectives.

7. *Innovative Initiatives*

Librarians spearhead innovative initiatives that leverage educational technology to extend library services beyond traditional boundaries. These initiatives include library of things, digital media, virtual reality and so on. For instance, mobile libraries equipped with Wi-Fi hotspots and laptops bring technology and digital resources directly to underserved communities, overcoming barriers to access and promoting digital inclusion (Todaro, 2019). Additionally, librarians form partnerships with community centers and educational institutions to expand the reach and impact of their educational programmes. Collaborative initiatives such as joint workshops, technology fairs, and digital literacy campaigns harness the collective resources and expertise of diverse stakeholders to address digital divides and promote lifelong learning in the digital age.

Expected benefit of digital inclusion in Nigeria

Librarians' efforts in promoting digital inclusion have far-reaching impacts, fostering lifelong learning and transforming communities. The following are some of the expected benefit of digital inclusion in Nigeria:

I. Fostering Lifelong Learning: Librarians play a pivotal role in fostering a culture of lifelong learning and digital empowerment within their communities. As Todaro (2019) states, libraries serve as "centers for lifelong learning," offering a wide range of educational resources and programmes for patrons of all ages. Through workshops, seminars, and digital literacy classes, librarians empower individuals to acquire new skills, explore diverse interests, and adapt to technological advancements. By providing access to digital resources and technology training, librarians equip patrons with the tools they need to thrive in an increasingly digital world. This emphasis on lifelong learning not only enriches individual lives but also contributes to societal progress and innovation.

II. Transforming Communities: Librarians' efforts have a transformative impact on individuals and communities, promoting social inclusion, economic opportunity, and civic engagement. As revealed by Lloyd (2022), the New York Public Library (NYPL) and the Boston Public Library (BPL) offer free English as a Second Language (ESL) classes to help immigrants and non-native English speakers improve their language skills. They also provide basic computer skills and internet usage classes, job search workshops, and encourage community members to participate actively in local governance and elections. According to the American Library Association (ALA) (2023), libraries are "centers of community engagement," serving as hubs for learning, collaboration, and social interaction. Through their innovative programmes and initiatives, librarians bridge digital divides, empower marginalized populations, and create opportunities for personal and professional growth. By providing access to technology, information, and educational resources, libraries empower individuals to participate fully in the

digital economy and society. Moreover, libraries serve as catalysts for community development, facilitating partnerships and initiatives that address local needs and challenges. By fostering connections and promoting dialogue, librarians strengthen the fabric of communities and contribute to a more equitable and inclusive society.

Enhancing digital Economy

Enhancing the digital economy through digital inclusion in libraries involves empowering these institutions to ensure equitable access to digital resources, fostering digital literacy, and promoting participation in the digital economy. Libraries contribute significantly to this enhancement in several key ways.

One of the primary ways libraries enhance the digital economy is by providing access to digital resources. Libraries offer access to computers, high-speed internet, and digital databases, which are essential for individuals to engage in online activities such as job searches, entrepreneurship, and e-commerce. This access is particularly crucial for those who may not have such resources at home, thereby bridging the gap between different socioeconomic groups and enabling broader participation in the digital economy (Ayob, 2020). In addition to providing access to digital resources, libraries play a critical role in fostering digital literacy. They offer training programs and workshops to teach essential digital skills such as computer basics, internet navigation, software applications, and online safety. These skills are vital for individuals to participate effectively in the digital economy. By equipping people with the necessary knowledge and abilities, libraries help to ensure that everyone can take advantage of digital opportunities (Bawden, 2020). Libraries also support local economic development by providing resources for entrepreneurs and small businesses. This support includes access to business planning tools, market research databases, and workshops on digital marketing and e-commerce strategies. By offering these resources, libraries help entrepreneurs and small businesses to grow and succeed, contributing to the overall economic health of the community (Bopp & Smith, 2021).

Moreover, libraries promote innovation and creativity by serving as hubs for emerging technologies. They provide access to 3D printers, virtual reality equipment, and coding workshops, among other resources. These tools and programs encourage creativity and entrepreneurship among community members, fostering a culture of innovation that can lead to new businesses and economic opportunities (Brown & Venkatesh, 2021). Community engagement and collaboration are other crucial ways in which libraries enhance the digital economy. Libraries facilitate partnerships with local businesses, educational institutions, and government agencies to promote digital initiatives and economic development. They often host community events, hackathons, and networking sessions that encourage collaboration and innovation, helping to build a more connected and resourceful community (Evans & Saponaro, 2021).

Additionally, libraries play an essential role in policy advocacy for digital inclusion. They advocate for policies that promote equitable access to information and technology, working with policymakers to address barriers to digital access. By influencing policy, libraries help to ensure that everyone can benefit from the opportunities offered by the digital economy (ALA, 2023). By enhancing digital inclusion, libraries not only support individual empowerment and educational attainment but also contribute significantly to local economic growth and innovation. They play a vital role in bridging the digital

divide and creating opportunities for all members of society to thrive in the digital age. Through their multifaceted efforts, libraries are instrumental in building a more inclusive and robust digital economy.

Enhancing Participation in Civic responsibility

Enhancing participation in civic responsibility through digital inclusion in libraries involves influencing these institutions to empower individuals and communities to engage actively in civic life. Libraries play a critical role in this enhancement through several key contributions. Firstly, libraries provide access to reliable information about civic rights, responsibilities, and current events. By offering resources on these topics, libraries empower individuals to make informed decisions and participate knowledgeably in civic activities such as voting, advocacy, and community engagement. This access to accurate and comprehensive civic information is essential for fostering an informed citizenry capable of meaningful participation in democratic processes (ALA, 2023).

In addition to providing access to civic information, libraries offer digital literacy programs that teach essential skills for accessing and evaluating online civic resources. These programs help individuals understand fake news, navigate government websites, and participate in online discussions and forums related to civic issues. By enhancing digital literacy and civic education, libraries equip community members with the tools they need to critically engage with digital content and participate effectively in civic life (Bates, 2019). Libraries also promote civic engagement by hosting workshops, seminars, and community events that encourage dialogue on civic issues and foster collaboration among community members. They provide meeting spaces for local organizations and activists to organize and mobilize around important civic causes. These activities help to build a sense of community and collective responsibility, encouraging active participation in civic initiatives (Lloyd, 2023). Supporting government transparency and accountability is another crucial role of libraries. They advocate for policies that promote open access to public information and often partner with government agencies to facilitate public forums, town hall meetings, and access to public records. By promoting transparency and accountability, libraries help to ensure that government actions are visible and subject to public scrutiny, thus fostering a more accountable governance structure (Davis, 2019). Furthermore, libraries encourage diversity and inclusion in civic engagement efforts by providing resources and programming that reflect the cultural, linguistic, and socioeconomic diversity of their communities. This inclusive approach ensures that all voices are heard and represented in civic discussions, promoting a more equitable and representative civic participation (ALA, 2023).

Finally, libraries leverage digital technologies to create platforms for online civic participation, such as virtual town halls, online petitions, and community forums. These platforms expand access to civic engagement opportunities for residents who may face barriers to in-person participation. By utilizing digital platforms, libraries help to democratize access to civic activities, making it easier for more people to engage in civic life regardless of their physical location or personal circumstances (Ifijeh, James, & Adebayo, 2021). By enhancing digital inclusion and promoting civic responsibility, libraries play a vital role in strengthening democracy and fostering a more engaged and informed citizenry. They empower individuals to actively participate in shaping their communities and advocating for social change, thereby contributing to a more vibrant and participatory democratic society.

Challenges for Promoting Digital Inclusion in Nigeria

Promoting digital inclusion in Nigeria faces several challenges, including:

I. Budget Constraints: One of the primary challenges in promoting digital inclusion in Nigeria is budget constraints. The government and relevant stakeholders often face financial limitations that hinder the development and implementation of comprehensive digital inclusion programs. This affects the ability to provide necessary infrastructure, training, and resources required to bridge the digital divide (Agaka, 2024)

II. Poor Power Supply: Nigeria's unreliable power supply severely hampers the ability to sustain digital initiatives. Regular power outages and an unstable electricity grid mean that even when digital tools and services are available, their usability is inconsistent. This issue affects both urban and rural areas, making it difficult for many Nigerians to rely on digital services for essential activities like banking, education, and business(Ministry of Budget and Economic Planning, 2023).

III. Poor Network Services: The quality and reach of network services in Nigeria are often inadequate. While urban areas may have better connectivity, rural and remote regions still suffer from limited or non-existent network coverage. This digital divide exacerbates inequalities, as those in underserved areas cannot access online services effectively. Efforts to expand broadband penetration are ongoing, but progress is slow and requires substantial investment and policy support (Ministry of Budget and Economic Planning, 2023).

IV. Digital Literacy: CILIP (2021) suggests that digital literacy is one of the fundamental skills necessary for digital inclusion. There is a significant gap in digital skills among the Nigerian population, which affects their ability to effectively use digital technologies for education, employment, and civic engagement (Internet World Stats, 2023).

V. Language Barriers: The Nigerian government has initiated various literacy programs over time, such as "Education for All" and the "Mass Literacy Campaign (MIC)." Despite these efforts, about one-third of adults in the country still lack fundamental literacy skills. As a nation with multiple languages, many Nigerians are only proficient in local dialects rather than English. Since most ICT resources brought into Nigeria are set up in English, a significant portion of the population is left out of digital advancements (Agaka, 2024)

VI. Cybersecurity: Internet scams, such as those carried out by "yahooboys," are widespread in Nigeria and have contributed to the perception of the internet as unsafe. Incidents involving the hacking of personal and organizational files and the leaking of sensitive documents have exacerbated the situation. This has increased people's vulnerability to online dangers like identity theft, cybercrime, and exposure to hate sites. As a result, many individuals are now wary of using computers and the internet, preferring to avoid these technologies altogether (Ifijeh, James, & Adebayo, 2016).

VII.   Digital Divide: Disparities in access to digital technologies between urban and rural areas, as well as between different socioeconomic groups, exacerbate inequalities in education, employment, and economic opportunities (Oluyi, 2023).

Conclusion

In conclusion, the article offers a comprehensive exploration of how librarians are pivotal in promoting digital inclusion through the use of educational technology. It underscores the essential role that librarians play in providing equitable access to technology and educational resources, thereby empowering communities and bridging the digital divide. By considering the technology used in libraries and the role of librarians to include all the users digitally in library collections, the high speed internet should be provided and update the equipment into modern ones. The librarians should increase the variety and volumes of digital resources to cater to diverse reading preferences and needs. Implement assistive technologies such as screen readers, magnification tools, and adaptive keyboards to ensure that all patrons, including those with disabilities, can access digital resources. Librarians should also provide multilingual resources in multiple languages to accommodate non-native English speakers. By implementing these technological improvements and enhancing the roles of librarians, libraries can significantly advance their mission of promoting digital inclusion. These efforts will help ensure that all community members have equitable access to the digital tools and resources necessary to thrive in the digital age.

Recommendations

To address the above challenges, the following recommendations were proposed by the author:

I.   To address budget constraints, Nigeria should foster public-private partnerships to enhance digital infrastructure and training. Engaging international agencies for financial and technical support can further bolster digital inclusion efforts.

II.   Nigeria should invest in renewable energy sources such as solar and wind to ensure stable power, particularly in rural areas. Implementing microgrids and encouraging solar panel use can maintain digital services during power outages.

III.   Expanding broadband infrastructure in rural and underserved areas is essential for Nigeria. Incentivizing telecom companies to extend services and providing government subsidies and grants can ensure wider, reliable internet access.

IV.   Developing digital content in Nigeria's local languages can overcome language barriers and include non-English speakers in digital advancements. Translating and creating new materials for different linguistic groups will promote broader digital participation.

V.   Enhancing cybersecurity awareness and infrastructure is critical for Nigeria. Implementing robust measures, regular training, and a regulatory framework, along with awareness campaigns, can build trust and reduce digital risks.

VI.   Bridging the digital divide requires targeted policies to ensure equitable access to technology. Providing affordable internet and devices to low-income households

and tailored training for marginalized communities can promote inclusive digital growth.

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