

BEYOND DIGITAL ACCESS: RECONCEPTUALIZING THE DIGITAL DIVIDE THROUGH INFORMATION LITERACY AND UNIVERSITY LIBRARIANSHIP IN NIGERIAN HIGHER EDUCATION

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Abstract

The digital divide remains a significant challenge in higher education despite increasing investment in digital technologies and Internet infrastructure. Existing explanations have focused largely on disparities in technological access and digital skills, paying limited attention to the institutional processes that enable meaningful digital participation. This paper reconceptualizes the digital divide by positioning information literacy as the critical mechanism through which digital access translates into effective academic engagement, while recognising university librarians as institutional agents of digital inclusion. Adopting a conceptual research approach, the study synthesizes contemporary literature on digital divide theory, information literacy, digital inclusion, and academic librarianship to develop an integrated conceptual framework. The framework demonstrates that sustainable digital inclusion depends on the interaction among digital access, information literacy, librarian mediation, and supportive institutional environments rather than technological infrastructure alone. It further highlights the evolving role of university librarians as educators, research partners, digital scholarship specialists, and facilitators of equitable access to knowledge. The paper contributes to Library and Information Science by extending digital divide scholarship beyond technology-centred explanations and providing a framework to guide future research, institutional policy, and professional practice. It concludes that coordinated investment in information literacy education, librarian capacity development, and institutional support is essential for promoting equitable participation, strengthening research competence, and advancing digital transformation within Nigerian higher education.

Keywords: Digital Divide; Digital Inclusion; Information Literacy; University Librarians; Higher Education; Nigerian Universities.

Introduction

The rapid advancement of digital technologies has fundamentally transformed the global higher education landscape, reshaping how knowledge is created, accessed, disseminated, and preserved. Universities now rely extensively on digital infrastructures, electronic information resources, institutional repositories, learning management systems, artificial intelligence-enabled applications, and online collaborative platforms to support teaching, research, innovation, and scholarly communication. Consequently, digital technologies have become indispensable to academic participation and lifelong learning. However, despite remarkable improvements in digital infrastructure across many countries, significant disparities remain in individuals' ability to benefit equitably from these technological opportunities. These disparities have renewed scholarly interest in the concept of the digital divide, particularly within higher education where unequal digital participation directly affects learning outcomes, research productivity, and educational inclusion (UNESCO, 2023). The concept of the digital divide has undergone considerable theoretical evolution over the past three decades. Early studies conceptualized the digital divide primarily as unequal physical access to computers and Internet connectivity (Heeks, 2022). This perspective dominated initial policy interventions, which focused largely on expanding technological infrastructure and increasing Internet penetration. Although improving physical access remains important, contemporary scholarship increasingly recognizes that access alone does not

guarantee meaningful participation in the digital environment. Rather, digital inequality reflects a multidimensional process influenced by social, economic, educational, institutional, and technological factors that shape how individuals acquire digital competencies, utilize digital resources, and ultimately derive benefits from digital participation (World Bank, 2022).

This shift from a technology-centred perspective to a capability-centred understanding represents one of the most significant developments in digital divide research. According to Van Dijk (2020), digital inequality progresses through successive stages involving motivational access, physical access, skills acquisition, and usage outcomes. This perspective suggests that the availability of digital technologies constitutes only the first stage of digital inclusion. Individuals must also possess the knowledge, competencies, confidence, and institutional support necessary to transform access into meaningful educational, professional, and social outcomes. Similarly, UNESCO (2023) argues that investments in educational technologies produce limited benefits where learners lack the competencies required to evaluate, interpret, and apply digital information effectively. Consequently, contemporary digital divide scholarship has shifted attention from questions of technological availability toward broader concerns relating to digital capabilities, equitable participation, and inclusive knowledge societies.

These developments have profound implications for higher education institutions worldwide. Universities increasingly operate within digitally mediated learning environments where students are expected to retrieve scholarly information from electronic databases, participate in virtual

classrooms, collaborate through digital platforms, evaluate diverse information sources critically, and communicate research findings using emerging technologies. The effectiveness of these activities depends not merely on access to digital infrastructure but also on learners' ability to navigate increasingly complex information environments. Consequently, digital participation has become closely intertwined with information literacy, digital literacy, critical thinking, and lifelong learning competencies that enable students to function effectively within contemporary knowledge economies (Association of College & Research Libraries [ACRL], 2016). The challenges associated with digital inequality are particularly pronounced in developing countries, where structural constraints continue to influence the pace and quality of digital transformation. Across Sub-Saharan Africa, governments and higher education institutions have invested considerably in broadband expansion, digital learning platforms, electronic library resources, and national digital transformation initiatives. Nevertheless, substantial inequalities persist because improvements in infrastructure have not always been accompanied by corresponding investments in digital competencies, institutional capacity, and inclusive educational practices (World Bank, 2022). According to UNESCO (2023), these disparities became especially visible during and after the COVID-19 pandemic, when universities rapidly transitioned to online learning and many students encountered significant barriers related not only to Internet connectivity but also to their ability to use digital technologies effectively for academic purposes.

Within the Nigerian higher education system, efforts to strengthen digital transformation have similarly accelerated over the past decade. Universities

have expanded subscriptions to electronic databases, developed institutional repositories, adopted virtual learning platforms, and invested in information and communication technology infrastructure to enhance teaching, learning, and research. National policy initiatives, including the National Digital Economy Policy and Strategy (2020–2030), further demonstrate the government's commitment to building an inclusive digital economy capable of supporting educational development and national competitiveness (Federal Ministry of Communications and Digital Economy, 2020). Despite these interventions, however, considerable disparities remain among universities and individual learners regarding effective participation in digitally mediated academic environments.

Information Literacy and the Evolving Digital Divide

The evolution of the digital divide has shifted scholarly attention from disparities in technological access to the broader capabilities required for meaningful participation in digital environments. Earlier conceptualisations viewed the digital divide primarily as unequal access to computers and the Internet, leading governments and institutions to prioritise the expansion of digital infrastructure (Heeks, 2022). While access remains an important prerequisite, contemporary research shows that connectivity alone cannot eliminate digital inequality because individuals differ in their ability to use digital technologies effectively for learning, research, communication, and innovation (Van Dijk, 2020). Consequently, the digital divide is now understood as a multidimensional phenomenon encompassing motivation, access, digital competencies, technology use, and the outcomes derived from digital

engagement. This perspective suggests that digital inclusion depends not only on the availability of technology but also on users' capacity to locate, evaluate, interpret, create, and apply information effectively (World Bank, 2022).

Within this evolving discourse, information literacy has become a fundamental competency for successful participation in digital knowledge societies. The Association of College and Research Libraries (ACRL, 2016) defines information literacy as the ability to discover, evaluate, use, and create information ethically and effectively. Unlike earlier skills-based perspectives, the ACRL Framework presents information literacy as a lifelong learning process that promotes critical thinking, scholarly inquiry, and responsible engagement with information. Although information literacy and digital literacy are closely related, they are distinct concepts. Digital literacy emphasises the ability to use digital technologies, whereas information literacy focuses on the critical evaluation, ethical use, organisation, and application of information regardless of format (Idhalama, Makori, & Oredo, 2025). Effective participation in digital environments therefore requires the integration of both competencies.

This relationship is particularly important in higher education, where teaching, learning, and research increasingly depend on digital technologies. Students are expected to retrieve information from electronic databases, evaluate scholarly sources, manage research data, collaborate through digital platforms, and communicate research findings effectively. Success in these activities depends not only on access to digital resources but also on the cognitive and analytical competencies associated with information literacy. UNESCO (2023) notes that the educational benefits of digital technologies are

realised only when learners possess the capacity to critically engage with information, while evidence from developing countries indicates that unequal digital competencies continue to limit educational outcomes despite investments in digital infrastructure (Ukachi, 2015). The Nigerian higher education system reflects these challenges. Although universities have expanded access to electronic databases, institutional repositories, and virtual learning environments, considerable differences remain in students' ability to locate, evaluate, and apply scholarly information. Studies have shown that information literacy significantly influences students' effective use of digital resources and their academic engagement (Olatokun & Bankole, 2019). These findings suggest that access to digital infrastructure alone does not guarantee improved learning outcomes.

Viewed through the lens of digital divide theory, information literacy functions as the critical mechanism linking digital access with meaningful educational participation (Julien et al., 2020). While access creates opportunities, information literacy determines how effectively learners utilise those opportunities to acquire knowledge, evaluate evidence, and participate in academic discourse. Reconceptualising information literacy as a mediating dimension of the digital divide therefore provides a more comprehensive explanation of digital inclusion and establishes the theoretical basis for examining the institutional role of university librarians in promoting equitable participation within Nigerian higher education.

University Librarians as Institutional Agents of Digital Inclusion

The growing complexity of digital learning environments has transformed the role of university librarians from custodians of information resources to strategic contributors to teaching, research, and knowledge creation. Traditional responsibilities such as collection development, cataloguing, and reference services have expanded in response to technological innovation, changing user expectations, and the digitisation of scholarly communication. Consequently, academic libraries now support digital scholarship, information literacy education, research data management, scholarly publishing, and open knowledge dissemination (Deja et al., 2021). As universities increasingly rely on digital platforms for learning and research, effective participation depends not only on access to electronic resources but also on institutional support that enables users to develop the competencies required to use them effectively. Within this context, university librarians have become key institutional agents of digital inclusion.

One of the most significant ways librarians promote digital inclusion is through information literacy instruction. They design and deliver programmes that equip students with the ability to identify information needs, locate and evaluate credible sources, use information ethically, and communicate research findings effectively. These competencies are widely recognised as essential for independent learning, critical thinking, and lifelong learning in digitally mediated environments (ACRL, 2016). Information literacy is therefore no longer an isolated library service but an integral component of academic success and meaningful digital participation. Beyond instructional activities, university librarians provide specialised research support through services such as research consultations, bibliometric analysis, reference management training,

research data management, institutional repository administration, open access publishing support, copyright guidance, and digital preservation. These services strengthen scholarly communication while improving the visibility, accessibility, and long-term preservation of institutional research outputs (Nwosu & Udo-Anyanwu, 2023). Their expanding responsibilities demonstrate that librarians contribute directly to the creation, organisation, dissemination, and preservation of knowledge within universities.

These responsibilities are particularly significant within Nigerian higher education, where universities have invested considerably in electronic databases, institutional repositories, and online learning platforms. Despite these investments, students' ability to benefit from digital resources remains uneven. Studies indicate that librarians help address these disparities through user education, information literacy instruction, digital reference services, and research support programmes (Ezeani & Ezema, 2021). Their contribution extends beyond providing access to information by enabling students to locate, evaluate, synthesise, and apply scholarly information effectively. This institutional role also extends existing digital divide theory. Although digital divide research emphasises access to technology and digital skills (Popoola & Haliso, 2022), it pays comparatively less attention to the institutional structures that transform technological opportunities into meaningful educational outcomes. Universities are not merely collections of technology users but learning environments where policies, curriculum design, professional support, and academic services collectively influence digital participation. Recognising librarians as institutional agents therefore broadens digital divide scholarship by

demonstrating that digital inclusion depends not only on individual competencies but also on institutional support systems.

Viewing librarians through this institutional lens provides a stronger explanation for persistent inequalities in higher education. Students with similar access to digital technologies may achieve different academic outcomes because they receive varying levels of information literacy instruction, research guidance, and academic support. By mediating between digital resources and effective knowledge use, librarians strengthen research competence, academic confidence, and equitable participation in learning. This perspective also broadens contemporary understandings of librarianship by recognising librarians as educators, digital mentors, research partners, and collaborators in institutional transformation. Consequently, university librarians occupy a central position in connecting digital access, information literacy, and educational success, providing the conceptual foundation for the integrated framework proposed in this study.

Development of the Conceptual Framework

Conceptual frameworks provide structured explanations of relationships among key concepts and extend existing theoretical knowledge by integrating established theories and empirical evidence (MacInnis, 2011). In Library and Information Science (LIS), they are particularly valuable for synthesising multidisciplinary knowledge and guiding research, policy, and professional practice. The framework proposed in this paper was developed through an integrative review of literature on digital divide theory, information literacy, academic librarianship, and digital inclusion in higher education. Consistent with

the approaches of Webster and Watson (2002) and Snyder (2019), the review emphasised conceptual integration rather than descriptive summarisation, while drawing on empirical evidence from Nigerian universities to enhance contextual relevance.

The framework is primarily grounded in Van Dijk's (2020) digital divide model, which explains digital inequality as a progression from motivation and physical access to digital skills and patterns of technology use. Although this model advances understanding beyond access-based explanations, it gives limited attention to the institutional environments that enable learners to develop and apply digital competencies. The present framework addresses this limitation by introducing information literacy as the mediating construct linking digital access with meaningful educational participation. While digital access provides opportunities for engagement, information literacy enables students to locate, evaluate, synthesise, and ethically use information for learning and research. This perspective aligns with contemporary views that define digital inclusion in terms of critical engagement, knowledge creation, and meaningful participation rather than technology access alone (UNESCO, 2023).

The framework further extends digital divide scholarship by recognising university librarians as institutional agents of digital inclusion. Existing studies largely focus on individual users, often overlooking the institutional actors who facilitate digital participation. Within universities, librarians design information literacy programmes, support digital scholarship, provide access to electronic resources, promote ethical information use, and collaborate with academic staff to enhance teaching and research. Their professional expertise creates the

institutional conditions through which students acquire the competencies required to benefit from digital technologies. Accordingly, the framework integrates three interrelated dimensions: digital access, information literacy, and librarian mediation. Digital access provides the technological foundation through internet connectivity, digital infrastructure, and electronic resources. Information literacy mediates the relationship between access and educational outcomes by enabling learners to identify, evaluate, organise, and apply information effectively. Librarian mediation represents the instructional, technological, and professional support that strengthens students' digital capabilities and promotes effective use of information resources. Together, these dimensions contribute to digital inclusion outcomes, including improved research competence, critical thinking, academic achievement, and lifelong learning.

Hence, by integrating technological, educational, and institutional dimensions, the framework reconceptualises digital inclusion as a collaborative educational process rather than a technological outcome. It extends digital divide theory, strengthens information literacy scholarship, and highlights university librarians as strategic partners in teaching, learning, and digital transformation. The framework also provides a practical foundation for higher education institutions, particularly in Nigeria, by demonstrating that sustainable digital inclusion requires coordinated investment in digital infrastructure, information literacy education, and librarian capacity development.

Conceptual Framework Linking Digital Divide, Information Literacy, and Librarian Mediation

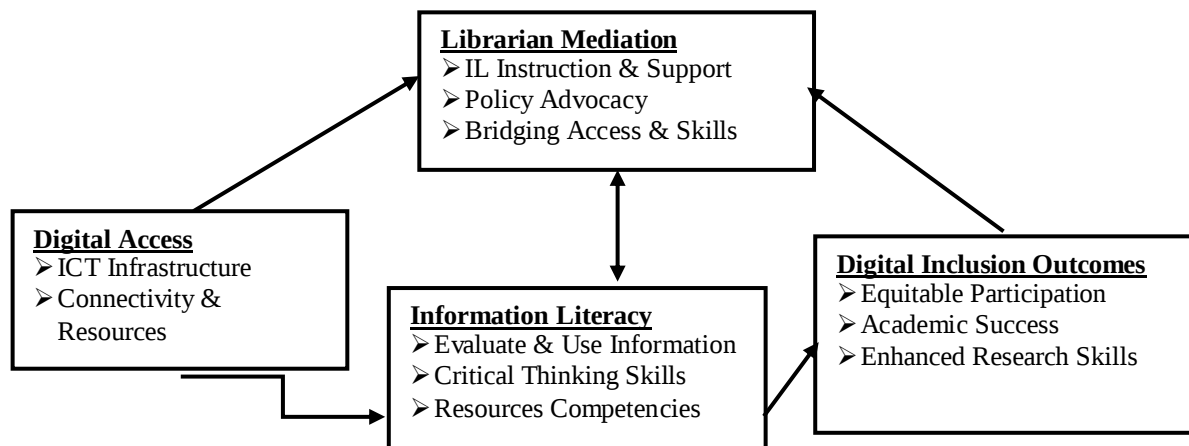


Figure 1. Conceptual Framework for Reconceptualizing the Digital Divide through Information Literacy and University Librarianship

The framework advances existing digital divide scholarship by moving beyond technology-centred explanations that primarily emphasize physical access to digital technologies. It conceptualizes information literacy as the mediating mechanism through which digital access is transformed into meaningful educational participation, while positioning university librarians as institutional agents who facilitate this transformation through information literacy instruction, research support, digital scholarship, user education, and related academic services. Unlike conventional digital divide models that focus largely on infrastructure and connectivity, the proposed framework integrates technological, educational, and institutional dimensions into a single explanatory model. It therefore provides a more comprehensive perspective for understanding digital inclusion within Nigerian higher education and offers a conceptual foundation for future empirical investigation.

Implications for Library and Information Science

The conceptual framework developed in this paper has important implications for theory, research, policy, and professional practice within Library and Information Science (LIS). By integrating digital access, information literacy, and librarian mediation into a single explanatory model, the framework advances understanding of digital inclusion beyond traditional technology-centred perspectives. Rather than viewing the digital divide simply as unequal access to technological infrastructure, it demonstrates that digital participation is shaped through continuous interaction between technological opportunities, users' information competencies, and institutional support systems. This broader perspective provides a more comprehensive explanation of digital inequality within higher education and responds to contemporary calls for more holistic approaches to digital inclusion.

1. Theoretical Implications: The proposed framework extends digital divide scholarship by moving beyond technological access to emphasise the institutional contexts that shape digital inclusion. While existing models recognise the importance of access, motivation, digital skills, and technology use (Lythreatis et al., 2022), they pay less attention to how universities develop these competencies. This framework addresses that gap by introducing institutional mediation as a key dimension, recognising universities as environments where digital capabilities are fostered through structured learning, policy support, and professional guidance (Heeks, 2022). The framework further positions information literacy as the mediating construct linking digital access with educational outcomes, demonstrating that meaningful digital participation depends on learners' ability to locate, evaluate, synthesise, and ethically use

information (Association of College & Research Libraries [ACRL], 2016). By integrating technological, cognitive, educational, and institutional dimensions, it reconceptualises information literacy as a strategic institutional capability that promotes academic engagement and lifelong learning, while providing a stronger conceptual foundation for future research (Julien et al., 2020).

2. Implications for Library and Information Science Research: The proposed framework provides important directions for future research in Library and Information Science (LIS). It encourages researchers to adopt multidimensional perspectives on digital inequality that extend beyond technological access to include institutional support, information literacy, and organisational factors influencing digital participation (Lythreatis et al., 2022). The framework also offers a basis for empirical validation using quantitative, qualitative, or mixed-methods approaches to examine the mediating role of information literacy and the influence of librarian interventions on students' digital competence, research engagement, and learning outcomes (Association of College & Research Libraries [ACRL], 2016). Furthermore, it promotes interdisciplinary collaboration among researchers in Library and Information Science, Education, Information Systems, and Higher Education to develop more comprehensive explanations of digital inclusion and inform evidence-based policies and practices for enhancing equitable participation in digitally enabled learning environments (UNESCO, 2023).

3. Policy Implications for Nigerian Higher Education: At the policy level, this study highlights the need for Nigerian higher education authorities to formally embed information literacy into digital inclusion strategies. Although

universities have expanded access to electronic information resources and digital learning platforms, disparities in students' digital competencies persist, indicating that infrastructure development alone is insufficient (Shuaibu, Aliyu, & Umar, 2024). This underscores the need to integrate information literacy into national digital education policies and institutional strategies. A major policy gap is the absence of clearly defined responsibility for information literacy instruction, which is often delivered inconsistently across academic units (Heeks, 2022). To address this challenge, the National Universities Commission's Core Curriculum and Minimum Academic Standards (CCMAS) should mandate the systematic integration of information literacy across disciplines. In addition, sustained investment in librarians' professional development, particularly in digital pedagogy and instructional technologies, is essential for effective implementation (Deja et al., 2021). Incorporating information literacy indicators into institutional quality assurance frameworks would further strengthen accountability and ensure that digital transformation promotes meaningful learning outcomes rather than merely expanding technological access (Okonedo & Popoola, 2019).

4. Implications for Professional Practice: The proposed framework reinforces the evolving role of university librarians as strategic agents of digital inclusion in higher education. Rather than serving solely as custodians of information resources, librarians are increasingly expected to function as educators, research partners, digital scholarship specialists, and learning facilitators who actively support teaching, learning, and research (Adebayo & Adetimirin, 2019). Their contribution extends beyond collection management to

promoting information literacy, ethical information use, and effective engagement with digital learning environments. Evidence indicates that the effectiveness of library services is closely linked to librarians' digital competencies and their ability to provide instructional and research support (Idhalama, Makori, & Oredo, 2025). Likewise, structured librarian-led instruction enhances students' use of digital resources, research competence, and academic engagement (Julien et al., 2020). These developments require continuous professional development in digital pedagogy, instructional design, research data management, digital scholarship, bibliometric analysis, and artificial intelligence applications in libraries (Pinfield et al., 2017).

However, stronger collaboration between librarians and academic staff is equally essential. Stating further, Olaniyi & Akinyoola (2023) emphasized that embedding librarians in curriculum development, research projects, and information literacy instruction will strengthen students' research capabilities and digital participation while reinforcing academic libraries as strategic partners in institutional excellence and digital inclusion (Adebayo & Adetimirin, 2019). Overall, the framework demonstrates that sustainable digital inclusion depends on the integration of digital infrastructure, information literacy, institutional commitment, and professional librarian support.

Recommendations

Drawing from the conceptual discussions presented in this paper, the following recommendations are proposed to strengthen digital inclusion within

Nigerian higher education and enhance the contributions of Library and Information Science to national digital transformation.

1. **Universities should institutionalize information literacy as a core component of the curriculum:** Information literacy should be embedded across undergraduate and postgraduate programmes rather than being limited to orientation programmes or isolated library sessions. Integrating information literacy into disciplinary curricula will enable students to develop critical information competencies progressively throughout their academic journey and improve their ability to engage effectively with digital learning environments (Baro & Zuokemefa, 2011).
2. **University libraries should be repositioned as strategic partners in teaching, learning, and research:** Institutional policies should formally recognize librarians as collaborators in curriculum development, digital pedagogy, research support, and academic quality assurance. This collaborative approach will strengthen the integration of information literacy into teaching while enhancing students' research competencies and digital participation (Yahaya, 2019).
3. **Greater investment should be made in continuous professional development for academic librarians:** Universities should provide regular training in emerging areas such as artificial intelligence applications in libraries, research data management, digital scholarship, bibliometric analysis, open science, digital preservation, and instructional design. Strengthening librarians' competencies will improve their capacity to

support evolving academic and technological needs (Adebayo & Adetimirin, 2019; Deja et al., 2021).

4. **Government and higher education regulatory agencies should adopt a more holistic approach to digital inclusion:** National digital transformation initiatives should extend beyond infrastructure provision to include sustained investment in information literacy education, digital skills development, library modernization, and institutional support services. Digital inclusion policies should recognize that meaningful participation depends on both technological resources and users' competencies (Federal Ministry of Communications and Digital Economy, 2020; OECD, 2021; UNESCO, 2023).
5. **The National Universities Commission (NUC) should incorporate information literacy into institutional accreditation and quality assurance processes:** Universities should be encouraged to demonstrate evidence of structured information literacy programmes, librarian-academic collaboration, and digital learning support as indicators of educational quality. Such measures would promote consistency in the development of students' digital competencies across institutions (Association of College & Research Libraries [ACRL], 2016; National Universities Commission, 2022).
6. **University management should strengthen investment in digital library infrastructure and scholarly information resources:** Continuous funding should be provided for electronic databases, institutional repositories, broadband connectivity, digital learning technologies, and modern library facilities. These investments should be complemented by sustainable

maintenance strategies to ensure equitable access to high-quality information resources (Federal Ministry of Communications and Digital Economy, 2020; World Bank, 2023).

7. **Library and Information Science schools should review their curricula to reflect emerging developments in digital librarianship:** Programmes should place greater emphasis on digital scholarship, information literacy instruction, learning technologies, artificial intelligence, data curation, research support services, and digital transformation to prepare future librarians for expanding professional responsibilities (Aina, 2020; ACRL, 2016).
8. **Stronger interdisciplinary collaboration should be encouraged within universities:** Librarians, faculty members, educational technologists, information technology specialists, and instructional designers should work collaboratively to design learning environments that promote digital inclusion, critical information use, and student success. Such collaboration would improve the effectiveness of institutional digital transformation initiatives (Deja et al., 2021).
9. **Future research should empirically validate the conceptual framework proposed in this study:** Researchers should examine the relationships among digital access, information literacy, librarian mediation, and educational outcomes using quantitative, qualitative, and mixed-methods approaches. Comparative studies across different institutional types and geographical regions would further refine the framework and enhance its applicability within higher education (Snyder, 2019).

10. Library associations and professional bodies should advocate policies that recognize the strategic role of university librarians in promoting digital inclusion: Professional advocacy should emphasize librarians' contributions to information literacy education, digital scholarship, research support, and national knowledge development. Greater recognition of these roles will strengthen the visibility and impact of the profession within higher education and national development initiatives (Adebayo & Adetimirin, 2019).

The recommendations presented above emphasize that meaningful digital inclusion requires coordinated efforts from universities, policymakers, academic librarians, and professional bodies. However, these recommendations also reinforce the central argument advanced throughout this paper: sustainable solutions to the digital divide extend beyond technological investment to include the development of information literacy competencies and institutional mechanisms that support effective digital participation. This perspective provides the basis for the concluding reflections presented below.

Conclusion

The digital transformation of higher education has reshaped how students access information, engage with knowledge, and participate in academic activities. Despite significant investments in digital infrastructure, persistent inequalities indicate that technological access alone cannot eliminate the digital divide (Heeks, 2022). Meaningful digital inclusion requires the

integration of information literacy, institutional support, and enabling learning environments.

This paper reconceptualized the digital divide by positioning information literacy as the mechanism through which digital access translates into meaningful academic participation. It further identified university librarians as institutional agents of digital inclusion whose instructional, advisory, and research support roles enhance students' information competencies and effective use of digital resources. By integrating digital access, information literacy, and librarian mediation into a unified conceptual framework, the study extends digital divide scholarship and strengthens the theoretical foundation of Library and Information Science. The framework also highlights the need for coordinated investment in digital infrastructure, structured information literacy programmes, continuous professional development for librarians, and stronger collaboration among librarians, academics, educational technologists, and policymakers. It provides a valuable foundation for future empirical research and policy initiatives aimed at advancing equitable digital inclusion in Nigerian higher education.

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