



From Access to Empowerment: Digital Literacy Management and the Future of Inclusive Development in Nigeria

Olatunji Austine Kehinde.; Akanle Mojisola Benedicta and Oladosu Adedamola Oluwatimilehin

123William Olu-Aderounmu Library, University of Education, Science and Technology, Ikere-Ekiti, Nigeria.

*Corresponding email: 1 *Olatunji Austine Kehinde**

Abstract

In the digital era, digital literacy has become essential for driving inclusive and sustainable development. Yet, in Nigeria, dominant policy approaches remain largely centered on expanding access to devices and internet infrastructure, often overlooking the need to empower users and address contextual challenges. This conceptual paper critiques such access-oriented strategies and proposes a more holistic, empowerment-driven model for managing digital literacy. Anchored in the Capability Approach and Constructivist Learning Theory, the paper offers a four-pillar conceptual framework comprising: Access and Infrastructure, Contextualized Capacity Building, Critical Digital Agency, and Inclusive Policy and Ecosystem Support. This model redefines digital literacy as a flexible, culturally grounded, and participatory process that equips individuals to meaningfully engage with digital technologies. Through critical literature synthesis and theoretical integration, the paper highlights how existing interventions often fail to translate infrastructure into equitable digital engagement. It further argues that meaningful inclusion requires educational models and policy frameworks that emphasize agency, relevance, and systemic collaboration. The methodological approach draws on conceptual analysis to construct a strategic framework that can guide future empirical research, curriculum development, and inclusive digital policy reforms. Overall, this paper contributes a new perspective on digital literacy management in Nigeria by promoting a shift from access provision to capability expansion, with implications for long-term equity and national development.

Keywords

Digital Literacy, Inclusive Development, Empowerment, Capability Approach, Constructivist, Nigeria,

1.Introduction

In the contemporary digital era, literacy is no longer limited to reading and writing but encompasses the ability to access, evaluate, and meaningfully engage with digital technologies. Digital literacy has become essential for national development, shaping how individuals participate in education, employment, governance, and civic life. However, in Nigeria, the benefits of the digital revolution remain unevenly distributed, with significant disparities in access, infrastructure, skills, and usage between urban and rural populations, the privileged and the marginalized. While recent national policies, such as the National Digital Economy Policy and Strategy NITDA (2021), have attempted to expand digital access, the dominant discourse continues to emphasize infrastructure and device availability, often at the expense of fostering deeper digital agency and empowerment (Adeyemi & Alabi, 2020; Olanrewaju & Bakare, 2024). This narrow approach to digital inclusion has led to a persistent gap between access and actual capacity to use technology meaningfully especially among women, rural dwellers, and underserved youth (Eze & Igbo, 2023; Olaleye & Ogunniyi, 2021). Therefore, the core problem this paper addresses is the overemphasis on access in digital literacy policy and programming, which neglects the broader goal of digital empowerment. This conceptual paper seeks to reframe digital literacy management in Nigeria by shifting the focus from mere access provision to empowerment-oriented strategies that promote inclusive development. Drawing on the Capability Approach and Constructivist Learning Theory, the paper proposes a context-sensitive framework for managing digital literacy in a way that enables participation, critical engagement, and social equity. It begins by clarifying key concepts and theoretical foundations, then critiques existing literature and policy gaps, and finally outlines a holistic conceptual model designed to inform national strategies and guide future research in digital inclusion.

2. Conceptual Clarifications

To establish a coherent and analytically sound foundation for this paper's argument, four interrelated concepts must be clarified: digital literacy, digital literacy management, digital inclusivity, and inclusive development. These concepts are not only central to the discourse on digital transformation but are also integral to the reorientation proposed in this conceptual paper from access provision to empowerment.

2.1 Digital Literacy

Digital literacy has evolved from a narrow focus on basic computer use to encompass a complex set of skills, attitudes, and competencies required to navigate, evaluate, create, and communicate effectively in digital environments. Ng (2012) categorized digital literacy into three core domains: technical (operational skills), cognitive (critical thinking and information literacy), and socio-emotional (responsible and ethical digital behavior). In the African context, digital literacy must also be understood as a culturally and socially situated practice that is shaped by language, identity, and structural access (Eze & Igbo, 2023; Adeyemi & Alabi, 2020). Scholars such as Al-Awidi and Aldhafeeri (2022) argue that true digital literacy involves not only the ability to consume information but also the capacity to participate actively and critically in digital spaces a distinction that is essential for achieving digital empowerment.

2.2 Digital Literacy Management

Digital literacy management refers to the organized and strategic coordination of efforts aimed at promoting, sustaining, and evaluating digital literacy initiatives across various contexts. It includes the development of inclusive policies, curriculum design, educator training, technological infrastructure, and stakeholder collaboration. According to Adegbite et al. (2022), effective digital literacy management in Nigeria requires a multi-layered approach that involves institutional governance, curriculum contextualization, and continuous assessment of learning outcomes. Management practices should also be sensitive to local socio-cultural realities, ensuring that interventions are not only top-down but responsive to community-specific needs (Olaleye & Ogunniyi, 2021). Without coherent management systems, digital literacy efforts often become fragmented, short-lived, or misaligned with broader developmental goals.

2.3 Digital Inclusivity

Digital inclusivity encompasses equitable access to and meaningful participation in digital life for all individuals, regardless of geographic location, gender, disability, socioeconomic background, or linguistic identity. It implies more than just physical access to devices and internet connectivity; it includes affordability, content relevance, digital skills, accessibility features, and cultural appropriateness. UNESCO (2023) frames digital inclusivity as a human right in the digital age, arguing that no one should be left behind in the global information society. In Nigeria, Rahman and Norliya (2022) note that digital inclusivity remains constrained by infrastructure disparities, gender gaps, and educational inequities. Addressing these gaps requires deliberate inclusion strategies, such as multilingual digital content, community-level digital training, and policies that target marginalized groups.

2.4 Inclusive Development

Inclusive development refers to development processes that are people-centered, equitable, participatory, and aimed at expanding opportunities for all, especially the most disadvantaged. Rooted in the Capability Approach developed by Sen (1999) and further elaborated by Nussbaum (2011), inclusive development goes beyond economic growth to focus on enhancing individuals' real freedoms and agency. Within the digital context, this means ensuring that all citizens not only have access to digital tools but also possess the capabilities to use them to improve their lives, contribute to society, and shape their futures. As Olanrewaju and Bakare (2024) suggest, the integration of digital empowerment into national development strategies is crucial for addressing structural inequalities and achieving the Sustainable Development Goals (SDGs). Together, these concepts provide the intellectual scaffolding for the argument advanced in this paper: that Nigeria's current digital literacy agenda, while commendable in its expansion of access, remains incomplete without a strategic shift toward empowerment. By managing digital literacy through an inclusive, context-driven, and capability-oriented lens, it becomes possible to transform access into genuine developmental opportunity.

3. Theoretical and Philosophical Foundations

This paper adopts a dual theoretical lens the Capability Approach and Constructivist Learning Theory to provide a human-centered and empowerment-oriented foundation for reconceptualizing digital literacy management in Nigeria. The Capability Approach, originally developed by Amartya Sen (1999) and extended by Nussbaum (2011), shifts the development discourse from material resources to the expansion of individual freedoms and real opportunities to pursue valued life outcomes. Within the digital context, it suggests that access to technology alone is insufficient unless individuals also have the agency, skills, and enabling environments to convert that access into meaningful use (Alhassan & Salifu, 2023; Olanrewaju & Bakare, 2024). In Nigeria, this perspective challenges prevailing ICT strategies that emphasize infrastructure over capacity building, especially for marginalized groups such as rural communities, women, and persons with disabilities (Eze & Igbo, 2023; UNESCO, 2023). Instead, it calls for interventions that expand digital capabilities such as localized content, inclusive pedagogy, and culturally responsive learning spaces that support genuine empowerment. Complementing this, Constructivist Learning Theory provides an educational lens that emphasizes the importance of active, experiential, and socially situated learning. As Jonassen (1999) argued, knowledge is constructed rather than transmitted, and learning becomes meaningful when learners engage with tasks that reflect their own contexts and realities. Applied to digital literacy, this theory underscores the need for participatory, hands-on digital learning environments where learners can explore, solve problems, and collaborate using relevant technologies (Adegbite et al., 2022). Recent research in African and global South contexts supports the use of constructivist, project-based learning to build critical digital skills and enhance learner autonomy (Bolarinwa & Yusuf, 2021; Alawode & Ogunyemi, 2022). This is particularly crucial in Nigerian settings where formal ICT education is often abstract, exam-focused, or misaligned with learners lived experiences. Together, the Capability Approach and Constructivist Learning Theory offer a coherent conceptual foundation for this paper's argument: that digital literacy management must go beyond infrastructure or standardized curricula. It must instead prioritize equity, learner agency, and context-driven empowerment. These frameworks inform the proposed shift from access-focused strategies to a model that manages digital literacy as a socially embedded, transformative process that aligns with inclusive development goals in Nigeria.

4. Critical Review of Literature

Recent literature on digital literacy in Nigeria increasingly acknowledges its centrality to education, governance, and national development, particularly in the context of the digital economy and the Sustainable Development Goals (SDGs). However, much of this body of work is still predominantly shaped by access-oriented narratives that equate progress with the expansion of ICT infrastructure, device distribution, and internet connectivity (Olaleye & Ogunniyi, 2021; NITDA, 2021). National frameworks such as the Nigeria ICT Roadmap and the National Digital Economy Policy and Strategy (2020–2030) have emphasized digital inclusion yet often fall short by measuring success in quantitative terms number of connected schools, bandwidth capacity, or device deployment without sufficient attention to qualitative outcomes like digital empowerment or critical digital engagement (Rahman & Norliya, 2022; Alhassan & Salifu, 2023). Consequently, the deeper question of whether individuals, particularly those from disadvantaged or rural backgrounds, can convert access into transformative digital capabilities remains insufficiently addressed. Several scholars have called attention to the complex barriers impeding equitable digital participation. For instance, Adeyemi and Alabi (2020) and Eze and Igbo (2023) highlight how socio-economic inequality, gender disparities, inadequate teacher training, and infrastructural gaps collectively hinder effective digital literacy acquisition. Nonetheless, many existing studies remain confined to surface-level analyses, treating digital literacy as a set of functional skills rather than a multidimensional and context-dependent capability. Furthermore, a notable limitation in the literature is the tendency to apply generic or Western-centric models of digital literacy that overlook Nigeria's unique sociolinguistic diversity, informal learning cultures, and disciplinary variations in digital engagement (Al-Awidi & Aldhafeeri, 2022; Bolarinwa & Yusuf, 2021). This theoretical rigidity creates a mismatch between policy formulation and practical realities on the ground, resulting in interventions that are often misaligned with users' needs or aspirations. Emerging scholarship across Sub-Saharan Africa has begun to question whether current models of digital inclusion genuinely led to empowerment, innovation, or social justice (UNESCO, 2023; Olanrewaju & Bakare, 2024). While the importance of equity is increasingly acknowledged, there is still limited integration of educational theory such as Constructivist Learning and development theory such as the Capability Approach into digital literacy research and policy frameworks. As such, there remains a critical gap in holistic, locally grounded conceptual models that link digital literacy to empowerment, agency, and inclusive

development. This paper seeks to address that gap by offering a theoretically grounded framework that reframes digital literacy not as a static set of skills or infrastructure targets, but as a dynamic, learner-centered process. By synthesizing existing literature and situating it within a broader developmental paradigm, the paper proposes a new direction for digital literacy management in Nigeria one that centers critical engagement, social equity, and long-term transformation.

5. Proposed Conceptual Model: From Access to Empowerment

Grounded in the Capability Approach and Constructivist Learning Theory, this conceptual model reframes digital literacy management in Nigeria from a narrow, access-based paradigm toward a transformative, empowerment-centered orientation. Rather than viewing digital literacy as a sequential acquisition of technical skills, the model conceptualizes it as a dynamic, context-driven process through which individuals gain the agency to navigate, interpret, and innovate within digital environments. It is structured around four interrelated pillars: Access and Infrastructure, Contextualized Capacity Building, Critical Digital Agency, and Inclusive Policy and Ecosystem Support. The first pillar, Access and Infrastructure, recognizes the essential role of connectivity and device availability, yet situates these as foundational prerequisites not ultimate goals. Access must be framed as the baseline that enables further engagement, not as the endpoint of digital inclusion policy. The second pillar, Contextualized Capacity Building, emphasizes participatory, experiential learning that aligns with learners' cultural and social realities. Drawing on constructivist pedagogy, it promotes authentic, problem-based learning environments that empower individuals to build digital competencies in meaningful ways (Adegbite et al., 2022; Alawode & Ogunyemi, 2022). At the heart of the model is Critical Digital Agency, which aligns with the Capability Approach by focusing on individuals' freedom to utilize digital tools toward self-defined goals, whether for learning, civic engagement, employment, or creative expression (Nussbaum, 2011; Alhassan & Salifu, 2023). This pillar embodies the shift from users as passive recipients of technology to active, reflective participants in the digital world. Finally, the pillar of Inclusive Policy and Ecosystem Support highlights the importance of coherent, equity-focused digital governance. It calls for collaboration across institutions governmental bodies, educational systems, civil society, and local communities to ensure that digital literacy initiatives are sustainable, inclusive, and responsive to contextual realities (Olanrewaju & Bakare, 2024; UNESCO, 2023). Collectively, these pillars offer a holistic framework that integrates infrastructural, pedagogical, socio-cultural, and governance dimensions. By centering empowerment rather than technological distribution, the model provides a strategic pathway for overcoming both visible and systemic barriers to digital inclusion in Nigeria. It also serves as a flexible blueprint for managing digital literacy in ways that foster equity, resilience, and sustainable development.

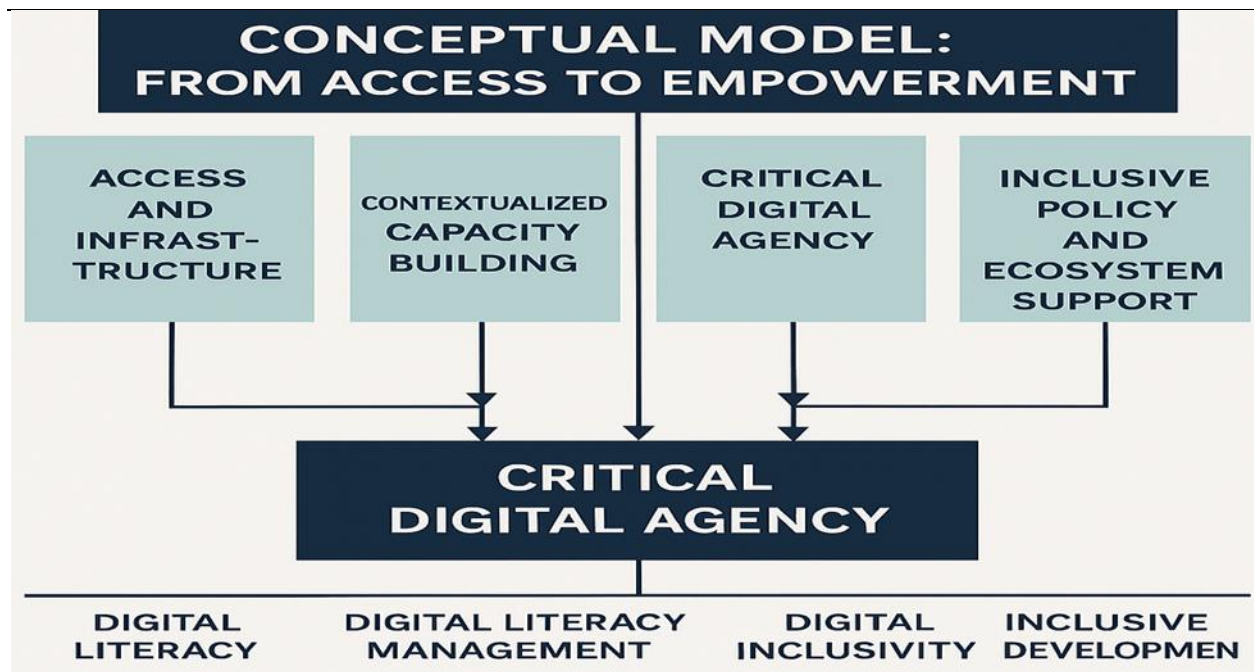


Figure 1: Conceptual Model: From Access to Empowerment.

6. Methodology

As a conceptual paper, this study does not rely on empirical data collection but instead employs theoretical synthesis, critical literature analysis, and model construction to develop a contextually relevant framework for digital literacy management in Nigeria. Conceptual papers are valuable in fields where existing knowledge is fragmented, insufficiently theorized, or misaligned with evolving realities conditions that characterize much of the discourse on digital inclusion in Sub-Saharan Africa (Gilson & Goldberg, 2015). Rather than testing hypotheses or analyzing field data, this study engages in critical integration of scholarly perspectives, identifying patterns, limitations, and gaps in existing literature on digital literacy, educational theory, and inclusive development. The analysis is grounded in two guiding frameworks: the Capability Approach and Constructivist Learning Theory, which jointly inform the design and interpretation of the proposed conceptual model. The methodology involved a purposeful review of contemporary scholarly works, policy documents, and global development reports (from 2019–2024), with emphasis on studies that examined digital inclusion, ICT in education, and equity in the Nigerian and broader African context. Sources were selected based on relevance to four core dimensions of digital literacy: access, pedagogy, empowerment, and policy. Through this process, thematic patterns were identified, contradictions were interrogated, and a new model was inductively developed to guide future thinking and practice. This approach aligns with the methodological implications discussed in Section 6.1, which call for a shift from infrastructure-based evaluations to empowerment-oriented, context-sensitive methodologies. The conceptual framework derived from this process lays the groundwork for future empirical studies that can test, adapt, or refine its components through qualitative, quantitative, or mixed methods designs. It also informs curriculum developers, policymakers, and digital equity advocates on how to design initiatives that prioritize agency, relevance, and long-term sustainability over mere technological provision.

6.1. Methodological Implications

The empowerment-focused model presented in this paper has far-reaching methodological implications for research, policy, and practice in digital literacy and inclusive development in Nigeria. Central to this shift is the recognition that traditional methodologies often focused on access metrics such as internet availability, device ownership, or usage frequency offer an incomplete picture of digital inclusion. To better capture the nuanced realities of digital literacy, future research should prioritize methodologically pluralistic approaches, combining quantitative breadth with qualitative depth. Mixed-method designs, ethnographic inquiries, participatory action research, and capability-informed assessments can illuminate the ways individuals navigate digital spaces, negotiate structural barriers, and exercise agency within context-specific environments (Alhassan & Salifu, 2023; Bolarinwa & Yusuf, 2021). Moreover, the model calls for greater sensitivity to socio-cultural variables that shape digital learning and participation. Factors such as gender, language, socioeconomic status, geographic location, and disciplinary identity should not merely be treated as background demographics but as central analytical dimensions that influence learners' digital experiences. This means developing research instruments that can uncover how contextual factors like content language, pedagogical relevance, and informal learning networks—impact engagement and empowerment (Eze & Igbo, 2023; Adegbite et al., 2022). For example, rather than assuming uniform digital needs across disciplines or regions, research should explore localized interpretations of what it means to be digitally literate within different communities and sectors. Additionally, this conceptual framework encourages a rethinking of assessment practices in digital literacy. Rather than relying solely on competency-based checklists or ICT proficiency tests, it proposes empowerment-oriented metrics that include learners' ability to critically evaluate information, create and share content, adapt tools to their contexts, and influence their environments through digital means. Such evaluative criteria can inform the design of flexible, inclusive digital curricula and policy tools that align with national goals and global developmental agendas, including the Sustainable Development Goals (UNESCO, 2023). Finally, the model implies a need for systemic, interdisciplinary collaboration in both research and practice. Researchers, educators, policymakers, and local communities must work together to co-create knowledge, co-develop interventions, and co-monitor outcomes. A system-thinking approach is essential, viewing digital literacy not as a stand-alone educational initiative but as an embedded, evolving component of broader social, cultural, and institutional systems. By adopting such inclusive and responsive methodologies, Nigeria's digital literacy agenda can shift from infrastructure-focused interventions to strategies that cultivate real, lasting digital empowerment.

7. Findings, Interpretation of the Framework, and Discussion

The conceptual synthesis of theories and empirical scholarship in this paper highlights a fundamental gap in how digital literacy is framed and operationalized in Nigeria. The prevailing emphasis on technological access such as distributing devices, increasing internet coverage, or building ICT centers while necessary, has not sufficiently translated into transformative digital empowerment for many Nigerian learners, particularly those in under-resourced communities (Olaleye & Ogunniyi, 2021; Alawode & Ogunyemi, 2022). National strategies like the Nigeria ICT Roadmap and the National Digital Economy Policy often prioritize physical infrastructure without addressing the socio-pedagogical conditions required for learners to use digital tools critically, creatively, or meaningfully (NITDA, 2021; UNESCO, 2023). The framework advanced in this paper proposes conceptual reorientation shifting the focus from access to empowerment through a four-pillar model: Access and Infrastructure, Contextualized Capacity Building, Critical Digital Agency, and Inclusive Policy and Ecosystem Support. This model is not linear but integrative and dynamic, emphasizing that access is merely a starting point, not the endpoint, of meaningful digital inclusion. The emphasis on contextualized capacity building directly challenges the use of generic, Western-centric digital curricula that often ignore learners' linguistic backgrounds, cultural values, and everyday realities (Adegbite et al., 2022; Bolarinwa & Yusuf, 2021). Instead, it calls for localized, participatory pedagogies that empower users to construct digital knowledge based on relevance and lived experience an approach particularly important in Nigeria's multilingual and multi-ethnic context. The framework's pillar of critical digital agency is especially vital in interpreting Nigeria's digital literacy challenges. Many learners especially those in rural areas, girls, and persons with disabilities may have nominal access to ICTs but lack the autonomy, confidence, or support to engage with these tools effectively (Eze & Igbo, 2023; Adeyemi & Alabi, 2020). Digital agency, as envisioned here, moves beyond skill acquisition to include the ability to question, adapt, and leverage digital technologies for one's own learning, livelihood, and civic participation. This aligns with the Capability Approach,

which frames development as the expansion of people’s real freedoms to lead lives they value (Sen, 1999; Nussbaum, 2011). Furthermore, the model draws attention to systemic and governance-related factors through its final pillar: inclusive policy and ecosystem support. Existing digital policies in Nigeria often operate in isolation or are poorly implemented due to fragmented institutional coordination, weak accountability mechanisms, and limited engagement with grassroots realities (Rahman & Norliya, 2022; Olanrewaju & Bakare, 2024). The model, therefore, advocates for a multi-stakeholder, cross-sectoral approach that integrates government efforts with academic expertise, civil society engagement, and community input. This is crucial to overcoming deep-seated digital divides that are not just infrastructural but also educational, cultural, and political. In sum, this conceptual framework offers both a diagnostic and prescriptive lens for reimagining digital literacy in Nigeria. It diagnoses the limitations of current access-focused strategies and prescribes an integrated, empowerment-driven approach that prioritizes learner agency, contextual relevance, and systemic inclusion. By grounding the model in robust theoretical and contextual insights, the framework responds to the urgent need for strategic, inclusive, and transformative digital literacy management not only to bridge the digital divide but to ensure that digital development in Nigeria is genuinely equitable and sustainable

8. Conclusion

This paper set out to conceptualize a transformative model of digital literacy management that transcends access-centric approaches and aligns with the broader developmental aspirations of Nigeria. Drawing on the Capability Approach and Constructivist Learning Theory, it argued that digital inclusivity cannot be achieved through infrastructure expansion alone but must be driven by empowerment ensuring that all individuals, particularly those in disadvantaged contexts, can critically and meaningfully engage with digital technologies. The conceptual model developed comprising access and infrastructure, contextualized capacity building, critical digital agency, and inclusive policy and ecosystem support offers a holistic and context-sensitive framework for bridging the country’s persistent digital divide. The review of literature and theoretical grounding revealed that existing digital inclusion strategies in Nigeria largely emphasize hardware distribution and connectivity statistics, often neglecting the cognitive, cultural, and pedagogical processes that empower users to convert access into capability. Moreover, current models frequently adopt uniform, imported frameworks that overlook Nigeria’s complex socio-linguistic, gendered, and disciplinary diversity. In contrast, the proposed model recognizes the interplay between physical access and socio-educational empowerment, emphasizing learner agency, relevance, and local ownership as critical dimensions of sustainable digital inclusion. The findings synthesized from both empirical gaps and conceptual insights highlight that sustainable development in a digital age is not solely about connecting individuals to the internet but about equipping them with the freedom and skills to shape, navigate, and benefit from digital environments. In this sense, digital literacy becomes a development tool not merely a technical skill when it enables marginalized populations to participate fully in education, governance, innovation, and the economy. This reframing also aligns with global goals such as SDG 4 (inclusive quality education) and SDG 10 (reduced inequalities), further reinforcing the relevance of the model. In conclusion, this paper offers both a critique of prevailing digital literacy strategies and a constructive path forward. It provides a conceptual foundation for policymakers, educators, and researchers to rethink digital literacy as a managed, participatory process rooted in empowerment and inclusive development. By bridging theoretical insight with contextual realities, the paper contributes to a much-needed paradigm shift in Nigeria’s digital transformation agenda from access to agency, from inclusion to empowerment, and from fragmentation to systemic equity.

9. Recommendations

Considering the conceptual insights and framework developed in this paper, several strategic recommendations are proposed to enhance digital literacy management for inclusive and sustainable development in Nigeria. First, there is a pressing need to reframe national digital literacy policies by moving beyond access-based metrics to incorporate empowerment-focused indicators such as learner agency, contextual relevance, and capability development. Policies must acknowledge that infrastructure alone does not ensure meaningful participation. Furthermore, digital literacy curricula should be localized to reflect Nigeria’s rich linguistic, cultural, and disciplinary diversity. Teaching content and delivery methods must be adapted to suit the realities of rural communities and marginalized populations. Equally important is the integration of constructivist pedagogy into digital instruction across educational levels. Problem-solving, project-based learning, and collaborative engagement should be prioritized to help learners build

and apply digital skills in authentic contexts. To support this, inclusive assessment tools should be developed to measure not only technical proficiency but also critical thinking, creativity, and the ability to adapt digital tools meaningfully. Strengthening cross-sectoral collaboration is also vital; partnerships among government agencies, academic institutions, civil society, and local communities must be institutionalized to ensure sustainability and responsiveness in digital literacy initiatives. Educator training must be continuous and holistic, equipping facilitators not just with technical knowledge but also with pedagogical skills that empower learners. Finally, mechanisms for feedback, monitoring, and evaluation should actively include voices from underrepresented groups, ensuring that digital literacy interventions remain inclusive and effective. These recommendations align with global development goals and offer a pathway to transform Nigeria's digital literacy landscape from one of inequality to one of equity and empowerment.

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Olatunji Austine Kehinde *

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