

From Chalkboard to Smartphones: Rethinking Functional Literacy in the Digital Age in Obudu Local Government Area of Cross River State

By

Ashong Matthew Isife-Oni

And

Hope Bomate Nelson

Abstract

This paper explored how definitions, pedagogy, and policy on functional literacy must be reframed in response to the ubiquity of digital technologies and the shifting demands of work, civic participation, and everyday problem-solving. Traditional literacy programmes that emphasis reading, writing, and arithmetic delivered through teacher-centred classroom instruction are increasingly inadequate. In the 21st century, functional literacy must encompass digital, media, financial, and information literacies that are practically applied to local livelihood practices. Drawing on comparative examples and contemporary debates in education and development, this paper examines how mobile technologies can democratise access; how teachers' roles are shifting from transmitters of knowledge to facilitators of multimodal learning; and why curriculum design must be locally grounded but globally relevant. It identifies three central tensions: access versus inclusion, skills versus agency, and scalability versus contextualisation and proposes actionable directions which blended community-based models, investment in teacher professional development, locally relevant digital content, and cross-sector partnerships linking literacy to livelihoods. The paper reviewed the concept of literacy: both traditional and contemporary; contextualizing global shift from traditional to digital literacies; comparative analysis of pre-digital and digital classroom practices. It also reviewed functional literacy as more than basic skill; the role of teachers, parents and policy makers among others. The paper concludes by calling for policy reforms and research agenda that view functional literacy as a hybrid socio-technical capability essential for equitable development in a digitised world.

Keywords: Functional literacy, Smartphones, Chalkboard, Digital age, Pedagogy

Introduction

In the twentieth century, literacy was narrowly defined as the ability to read and write simple sentences. UNESCO's early formulations in the 1950s equated literacy with basic decoding and encoding of text (UNESCO, 1957). While this definition facilitated the measurement of global literacy rates, it underestimated the complexity of literacy as a dynamic, socially embedded practice. Scholars such as Street (1984) and Gee (1990) distinguished between autonomous

literacy, which treats literacy as neutral technical skills, and ideological literacy, which recognises literacy as shaped by cultural, political, and economic contexts.

In the twenty first century, literacy is increasingly recognised as multidimensional. According to the OECD (2019), functional literacy now includes the ability to “locate, interpret, evaluate, and use information across multiple formats and contexts.” Stefanova (2024) further argues that functional literacy integrates operational skills (reading and writing), cultural and intercultural competencies, and critical digital engagement. Literacy, therefore, must extend beyond text to encompass the interpretation, evaluation, and creation of multimodal information.

This reconceptualization reflects the realities of globalization, digitization, and the knowledge economy. Today’s literacies include media literacy (Potter, 2018), digital literacy (Ng, 2012), information literacy (Head, 2013), and emerging areas such as AI literacy (Long & Magerko, 2020). Mishkova-Yotova (2025) demonstrates how interactive platforms such as Kahoot not only enhance vocabulary acquisition but also foster collaboration, problem-solving, and cross-cultural communication, thereby expanding the scope of literacy education.

Freire’s (1970) vision of literacy as the ability to “read the word and the world” resonates strongly in the digital era. Literacy today requires critical engagement with realities mediated by algorithms, social media, and online platforms that shape what individuals see, believe, and share. Thus, functional literacy must empower individuals to act responsibly and meaningfully within digital societies.

In sum, literacy in the digital age should be understood as the integration of technical proficiency, critical thinking, cultural competence, and digital fluency skills that enable individuals to consume, produce, and critique knowledge.

Contextualising the Global Shift from Traditional to Digital Literacies

The metaphor “from chalkboards to smartphones” captures the profound evolution of learning tools and literacy practices worldwide. Historically, education systems relied on chalkboards, textbooks, and rote memorisation tools emblematic of teacher-centred pedagogy. However, the advent of the internet, personal computers, and mobile technologies has reshaped how literacy is taught, learned, and valued (Selwyn, 2016).

Globally, literacy has expanded into a networked, multimodal practice. Learners today encounter not only printed text but also hyperlinks, infographics, videos, podcasts, and interactive

simulations (Jewitt, 2008). This demands skills in navigating, synthesising, and critically evaluating diverse information formats. The Pew Research Centre (2021) reports that more than 85% of young people in advanced economies consume news and educational content primarily via smartphones and social media. Traditional literacy instruction that overlooks these realities risks being irrelevant.

UNESCO (2018) highlights digital literacy as central to achieving Sustainable Development Goal 4 on quality education. The organisation stresses that literacy in the digital age should empower learners to use technology for problem-solving, civic participation, and economic growth. Yet, as Chernysheva (2025) observes in her study of Ethiopia's multilingual education system, many developing countries still grapple with basic literacy challenges even as digital demands increase. This dual reality persistent foundational struggles alongside rapid digital transformation has widened the digital divide.

The COVID-19 pandemic accelerated the transition to digital literacies. School closures compelled reliance on online platforms, digital resources, and mobile communication. While wealthier nations adapted relatively smoothly, low-resource contexts exposed stark inequalities (World Bank, 2021). In rural Nigeria, including Cross River State, the pandemic revealed both the potential of mobile-based learning and the structural barriers posed by limited electricity, high data costs, and inadequate teacher training.

These global dynamics underscore the need to re-conceptualise functional literacy as a dynamic process that equips learners to thrive in digitally mediated societies. This involves: Navigating misinformation and disinformation (Guess et al., 2020), Understanding digital privacy and ethics (Livingstone, 2014), Leveraging online platforms for collaboration and problem-solving (Selwyn, 2016), and Adapting pedagogy to local contexts while respecting cultural traditions (Chernysheva, 2025).

Thus, the shift from chalkboards to smartphones represents more than technological change; it signals a paradigm shift in the very meaning of literacy.

Historical Trajectory of Teaching Aids

The evolution of teaching aids mirrors broader societal and pedagogical shifts. Before the chalkboard, ancient education systems relied on clay tablets, papyrus scrolls, and slates

(Schneiderman, 2018). These tools emphasised rote memorisation and recall, reflecting a limited conception of literacy.

The chalkboard, introduced in the nineteenth century, revolutionised classroom instruction by allowing lessons to be delivered simultaneously to larger groups (Bala, 2025). For over a century, it symbolised the standard classroom practice, particularly in resource constrained settings. The mid-twentieth century introduced overhead projectors, filmstrips, and audiovisual materials that emphasised visual learning (Cuban, 1986). By the late twentieth century, computers and early educational software signalled the onset of digital learning (Papert, 1980).

The twenty-first century ushered in smartboards, tablets, smartphones, and AI-driven platforms. Bala (2025) contends that this shift marks not just technological change but a transformation of pedagogy: learners are now active participants in constructing knowledge.

Comparative Analysis of Pre-Digital and Digital Classroom Practices

The transition from chalkboards to smartphones reflects fundamental pedagogical contrasts:

- i. **Teacher-Centered vs. Learner-Centered** – Traditional classrooms prioritised teacher control and passive learning (Cuban, 1986). Digital classrooms empower students through platforms such as Google Classroom, Khan Academy, and WhatsApp study groups (Selwyn, 2016).
- ii. **Limited vs. Expansive Access:** Pre-digital learners relied on textbooks and teachers' expertise. Smartphones now enable access to global repositories of knowledge, though inequalities persist (Mamudu et al., 2025; World Bank, 2021).
- iii. **Linear vs. Multimodal Learning:** Chalkboard pedagogy delivered linear lessons. Digital classrooms integrate multimodal resources, enhancing engagement (Jewitt, 2008; Mamudu et al., 2025).
- iv. **Static vs. Adaptive Assessments:** Traditional assessment was largely summative. Digital tools offer adaptive, gamified, and continuous assessments (Mishkova-Yotova, 2025).
- v. **Physical vs. Virtual Learning Spaces:** Traditional learning was classroom-bound. Smartphones enable anytime, anywhere education, as seen during COVID-19 (World Bank, 2021).

Critical Reflections on the Shift

The digital turn is not without challenges as the following are prominent:

- 1 **Equity and Access:** Unequal access to technology and infrastructure widens educational disparities (Bala, 2025).
- 2 **Teacher Preparedness:** Many educators trained in chalkboard pedagogy lack digital proficiency, highlighting the need for professional development (Pankeaw & Satayaban, 2025).
- 3 **Misinformation and Overload:** Digital spaces expose learners to unfiltered information, requiring stronger digital literacy (Guess et al., 2020).
- 4 **Cultural Continuity** – Overemphasis on digital tools risks erasing indigenous pedagogies; hybrid approaches may be more sustainable in contexts like Cross River State

Conceptualising Functional Literacy in Contemporary Society

Functional literacy has long been a debated concept in education. Earlier definitions often restricted it to the capacity to read and write at a level adequate for employment and everyday social participation. For instance, UNESCO (1978) described functional literacy as the ability to “engage effectively in all those activities in which literacy is normally assumed in his or her culture or group.” While significant at the time, such definitions have since been critiqued for their narrowness, privileging economic functionality over the broader personal, social, and civic dimensions of literacy (St. Clair, 2012).

In contemporary scholarship, functional literacy is increasingly conceptualised as multidimensional, encompassing more than the mechanics of reading and writing. Stefanova (2024) emphasises that literacy should be seen as a cluster of competencies, including basic operational skills (reading, writing, numeracy), intercultural awareness, and higher-order cognitive capacities such as critical thinking. From this perspective, decoding text alone is insufficient; individuals must also interpret meaning, challenge assumptions, and apply knowledge to solve practical, socially relevant problems.

Functional literacy also intersects with empowerment and civic engagement, echoing Freire’s (1970) seminal argument that literacy is inherently political. Beyond economic survival, literacy enables individuals to exercise agency in their communities for example, through interpreting ballot papers, engaging with public health campaigns, or understanding financial

agreements. Such tasks demand not only comprehension but also judgment and application in socially meaningful ways.

Moreover, the demands of contemporary societies position functional literacy as inseparable from lifelong learning. In contexts where knowledge and skills rapidly become obsolete, literacy is less about acquiring static abilities than about cultivating adaptability. The Organisation for Economic Co-operation and Development (OECD, 2019) noted that the modern workplace increasingly requires teamwork, problem-solving, and innovation all extensions of functional literacy beyond its conventional boundaries.

Thus, in the twenty-first century, functional literacy must be re-conceptualised as a holistic and evolving set of competencies cognitive, cultural, civic, and technological that equip individuals not merely to function but to thrive within dynamic and complex social environments

The Role of Teachers, Parents, and Policymakers in digital literacy

Teachers remain the linchpins of blended pedagogy. Without their professional competence, even the most sophisticated technologies risk being underutilised. Professional development must therefore go beyond technical training to emphasise digital pedagogy helping teachers integrate mobile applications, interactive content, and collaborative tools into everyday classroom practice (Pankeaw & Satayaban, 2025). Incentives and continuous mentoring are also crucial to sustain teacher motivation and adaptability in contexts where technological change is constant.

Parents likewise play an indispensable role, particularly in rural communities where skepticism about digital tools remains widespread. Awareness campaigns can help reframe technologies such as smartphones and social media from distractions into meaningful learning aids. Parents who support their children in navigating online spaces responsibly can reinforce digital literacy at home, complementing school-based instruction (Livingstone, 2014).

Policymakers provide the broader enabling environment. Investment in infrastructure, affordable internet policies, and mechanisms for digital equity are all required to prevent rural learners from falling further behind. Policy must also be culturally sensitive, recognising that digital literacy models developed in urban or international contexts may not translate directly into rural realities without adaptation.

Policy Implications and Pathways to Inclusive Digital Literacy

For digital literacy to become inclusive reform must take place at both local and national levels. At the school level, administrators can introduce ICT clubs, peer-to-peer training, and the development of localised content that reflects community realities. At the national level, governments should mainstream digital literacy into curricula from early grades, positioning it as a core competency alongside reading and numeracy (OECD, 2019).

Nigeria's National ICT Policy in Education provides an initial framework, but significant implementation gaps remain, especially in rural areas. Stronger budgetary allocations, targeted teacher training, and transparent monitoring systems are required to close this gap. In addition, reforms should prioritise low-bandwidth and offline solutions, such as digital libraries stored on portable drives, which are particularly suited to communities with poor internet access.

Partnerships (Government, NGOs, and the Private Sector)

No single actor can bridge the digital literacy gap alone. Governments, NGOs, and private sector partners each bring unique strengths. NGOs often introduce innovative, low-cost solutions, while the private sector contributes technical expertise and funding. Mobile network operators across Africa, for instance, have supported education by subsidising data packages or providing zero-rated access to learning platforms (World Bank, 2021).

In Cross River State, partnerships between state authorities, local NGOs, and global actors such as UNESCO could create sustainable ecosystems for digital literacy. Public-private partnerships (PPPs) should emphasise capacity building and long term sustainability, avoiding the pitfall of one-off donations of devices that often become obsolete or underutilised.

Lessons from Global Best Practices

Developing nations can also learn from successful models elsewhere. Finland, for example, demonstrates the value of empowering teachers to lead digital innovation, while Singapore highlights the importance of aligning education policy with industry and community development (OECD, 2019). India's large-scale use of low-cost mobile platforms illustrates how scalable, context-sensitive solutions can drive mass literacy.

Across these contexts, key lessons emerge:

Teacher development must take priority over technology acquisition.

Digital literacy should be embedded into daily learning practices rather than treated as an optional “add-on.”

Equity should remain central, with targeted strategies for marginalised populations.

The Uniqueness of Local Adaptations in Cross River State

Global best practices provide important guidance, but effective integration ultimately depends on local adaptation. In Cross River State’s Northern Senatorial District, cultural traditions such as oral storytelling can be digitised into multimedia tools, aligning modern pedagogy with indigenous learning practices (Okoi, 2019). Informal initiatives, such as WhatsApp study groups among secondary school students, demonstrate how low-cost technologies already function as powerful vehicles for digital learning (Ekpe, 2020).

Unlike advanced economies where digital infrastructure is abundant, Cross River State requires resilient, low-bandwidth solutions and deep community engagement. Its uniqueness lies in blending global insights with indigenous traditions to create pedagogies that are both modern and culturally grounded.

Conclusion

This paper discussed functional literacy in terms of moving from Chalkboard to Smartphones in Obudu Local Government of Cross River State. The paper started by reviewing the concept of Literacy beyond reading and writing; discussing also global shift from traditional to digital literacies; did a comparative analysis of pre-Digital and Digital classroom practices including a critical reflection on the shift with particular references to the challenges arising from shifting. It looked closely on functional literacy as more than a basic skill; analysing the roles of teachers, parents and policy makers in achieving this shift. It ended with an introduction of lessons from Global best practices and the uniqueness of local adaptations in Cross River State Local Government of Obudu.

Suggestions

1. Strengthen Digital Infrastructure in Rural Areas: Governments and local authorities should prioritise the expansion of reliable electricity and affordable internet in rural communities like the Northern Senatorial District of Cross River State. Without these, digital literacy reforms cannot be sustained.

2. Invest in Teacher Training and Continuous Professional Development Teachers remain the backbone of literacy advancement. Tailored training programmes on digital pedagogy, blended learning methods, and technology integration should be implemented to empower educators as facilitators of 21st-century literacy.
3. Promote Community-Based Digital Literacy Initiatives: Schools and NGOs should collaborate to design programmes that connect traditional learning practices (e.g., oral storytelling, local knowledge) with digital tools. This will increase acceptance and reduce cultural resistance to technology.
4. Leverage Mobile Technologies for Inclusive Learning: Mobile phones should be adopted as primary tools for digital learning in rural communities, supported by low-data applications, offline learning platforms, and subsidised data bundles from telecom providers.
5. Foster Multi-Stakeholder Partnerships: Collaboration between government, NGOs, private tech companies, and local communities is essential for resource mobilisation and the development of sustainable solutions. Public–private partnerships should be encouraged to support affordable access to devices and connectivity.
6. Embed Digital Literacy into National and Local Curricula: Policymakers should institutionalise digital literacy as a core competency across all levels of education, ensuring it is not treated as an “add-on” but as integral as reading and numeracy.
7. Cultural Sensitivity in Policy and Pedagogy: Digital learning strategies must be context-sensitive. Local languages, indigenous knowledge, and cultural practices should be integrated into digital content to ensure relevance and inclusivity.
8. Monitoring, Evaluation, and Feedback Mechanisms: Clear systems should be established to monitor the impact of digital literacy programmes, evaluate progress, and provide continuous feedback for policy improvement

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