Digital Literacy as a Foundation for Remote Work Readiness in Africa: A Systematic Review

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ABSTRACT

The rapid global shift toward remote work has created unprecedented demand for digital literacy competencies, yet significant disparities persist across developing regions, particularly in Africa. This systematic narrative review synthesises existing literature to examine the role of digital literacy as a foundational element for remote work readiness among African graduates. Employing a systematic search strategy across multiple electronic databases including Scopus, Web of Science, Google Scholar, and African Journals Online, this review analysed peer-reviewed studies published. The findings reveal a substantial digital literacy gap among African graduates, characterised by limited awareness of remote work platforms, inadequate proficiency in digital collaboration tools, and significant barriers including infrastructural deficits, socioeconomic constraints, and institutional limitations. The review identifies critical training needs across multiple domains, including productivity tools, communication platforms, and project management software. Furthermore, the analysis highlights the mediating role of perceived usefulness, perceived ease of use, and behavioural intention in determining technology adoption among African students. The study contributes to the extant literature by providing a comprehensive synthesis of digital literacy challenges and opportunities in the African context, offering evidence-based recommendations for policymakers, educational institutions, and industry stakeholders seeking to enhance graduate employability in the digital economy.

Keywords: Digital literacy, remote work readiness, employability, African graduates, digital divide, technology acceptance, training needs, systematic review

INTRODUCTION

The global workplace has undergone a profound transformation in recent years, driven by rapid advancements in digital technology and accelerated by the COVID-19 pandemic (Leonardi et al., 2024; Battisti et al., 2022). According to the World Economic Forum (2024), remote digital jobs are projected to increase by 25% to reach 92 million globally by 2030, creating substantial opportunities for workers who possess the requisite digital competencies. Similarly, Hansen and Lambert (2023) documented that approximately 40% of employees in developed economies now work remotely at least one day per week, demonstrating the sustainability and scalability of remote work arrangements across diverse industries. This shift toward distributed work models has fundamentally altered the skills required for labour market participation, with digital literacy emerging as a critical determinant of employability and career progression (Audrin et al., 2024). Digital literacy encompasses not merely the technical ability to operate digital devices, but a comprehensive set of competencies including information navigation, critical evaluation of online content, effective communication in virtual environments,

and collaborative problem-solving using digital platforms (eSchool News, 2024). However, the benefits of this digital transformation have not been equitably distributed, with significant disparities evident between developed and developing regions, particularly across the African continent (Olanrewaju et al., 2021; Bello & Ajao, 2024).

Africa presents a unique context for examining digital literacy and remote work readiness, characterised by a young, rapidly growing population alongside persistent infrastructural and socioeconomic challenges (NITDA, 2024). The National Information Technology Development Agency (NITDA, 2024) has emphasised the importance of digital capacity-building initiatives to drive economic development, yet Nigeria's educational system continues to face significant gaps in integrating digital literacy skills into curricula. Research by GetBundi (2023) indicates that approximately 85% of Nigerian graduates lack crucial digital skills, creating a substantial employability crisis in an increasingly digital global economy. This skills deficit is compounded by infrastructural limitations including unreliable internet connectivity, inconsistent power supply, and limited access to digital devices, which collectively hinder the development of remote work capabilities among African graduates (Orji, 2024; Uduafemhe et al., 2023). The disparity between the skills possessed by graduates and those demanded by employers in the digital economy represents a critical challenge that threatens to exclude African youth from global employment opportunities (National Skills Coalition, 2023). Understanding the specific dimensions of this digital literacy gap and identifying effective intervention strategies is therefore essential for enhancing graduate employability and promoting inclusive participation in the global digital economy.

Despite growing recognition of digital literacy's importance, existing literature on remote work readiness in Africa remains fragmented, with limited synthesis of the specific challenges, training needs, and intervention strategies relevant to the African context. Prior studies have examined digital literacy (Mavridi, 2020; Nikou et al., 2022), remote work adoption (Haque, 2023; Zahari et al., 2024), and employability skills (Henke et al., 2022; Mainga et al., 2022) largely as independent phenomena, with limited integration of these concepts within the specific context of African higher education. Furthermore, while theoretical frameworks such as the Technology Acceptance Model (TAM) and Digital Divide Theory have been extensively applied in developed country contexts, their applicability and explanatory power in African settings require critical examination (Lee et al., 2025; DiMaggio & Hargittai, 2001).

This fragmentation limits the ability of policymakers and educators to design comprehensive, evidence-based interventions that address the multifaceted nature of digital literacy development in resource-constrained environments. A systematic synthesis of existing evidence is therefore necessary to identify common themes, gaps in knowledge, and promising practices that can inform policy and practice. This systematic narrative review addresses this gap by synthesising existing research on digital literacy and remote work readiness in Africa, with particular attention to the training needs of graduating students and the factors influencing their technology adoption behaviours.

Research Objectives

This systematic narrative review aims to:

i. Synthesise existing evidence on the current state of digital literacy among African graduates and identify specific competency gaps relevant to remote work readiness.

ii. Examine the barriers and facilitators influencing digital literacy acquisition and remote work participation in the African context.

iii. Identify the training needs of African graduates regarding digital tools and platforms essential for remote work.

iv. Evaluate the applicability of theoretical frameworks including TAM, Digital Divide Theory, TPB, and Socio-Technical Systems Theory in explaining digital literacy adoption in Africa.

v. Synthesize evidence-based recommendations for enhancing digital literacy and remote work readiness among African graduates.

METHODOLOGY

Search Strategy

This systematic narrative review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 checklist and the AMSTAR-2 (A MeaSurement Tool to Assess systematic Reviews) criteria (Page et al., 2021; Shea et al., 2021) to ensure transparency and rigour in the review process. A comprehensive search strategy was developed to identify relevant studies published between 2015 and 2025 across multiple electronic databases including Scopus, Web of Science, Google Scholar, PubMed, African Journals Online (AJOL), and the Directory of Open Access Journals (DOAJ). Each study was evaluated against 27 PRISMA items covering title, abstract, introduction, methods, results, discussion, and other information including protocol registration and funding sources.

The search strategy employed a combination of keywords and Boolean operators to maximise retrieval of relevant studies. Search strings included:

("digital literacy" OR "digital skills" OR "digital competence") AND ("remote work" OR "telework" OR "telecommuting" OR "work from home") AND ("Africa" OR "Nigeria" OR "Kenya" OR "Ghana" OR "South Africa" OR "sub-Saharan Africa")

("training needs" OR "skills gap" OR "employability") AND ("graduates" OR "students" OR "youth") AND ("digital tools" OR "ICT" OR "technology") AND "Africa"

Inclusion and Exclusion Criteria

Studies were included if they met the following criteria: (1) published in English between 2015 and 2025; (2) focused on digital literacy, remote work, or related concepts; (3) conducted in African countries or specifically relevant to the African context; (4) peer-reviewed journal articles, conference proceedings, or grey literature from reputable sources; and (5) reported empirical findings or theoretical analyses relevant to the review objectives. Studies were excluded if they: (1) were published before 2015; (2) focused exclusively on non-African contexts without transferable insights; (3) were opinion pieces or editorials without empirical basis; or (4) were unavailable in full text.

Data Extraction and Synthesis

Data extraction followed a standardised protocol capturing study characteristics (author, year, country, methodology), sample characteristics, key findings related to digital literacy levels, remote work readiness, identified barriers and facilitators, training needs, and theoretical frameworks employed. Thematic analysis was conducted to identify patterns and synthesise findings across studies, with particular attention to the dimensions of digital literacy, specific digital tools and platforms, and the factors influencing technology adoption in African contexts.

Quality Assessment (Critical Appraisal)

To ensure methodological rigour, the quality of the 47 included studies was assessed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 checklist and the AMSTAR-2 (A MeaSurement Tool to Assess systematic Reviews) criteria (Page et al., 2021; Shea et al., 2021). Each study was evaluated against 27 PRISMA items covering title, abstract, introduction, methods, results, discussion, and other information including protocol registration and funding sources as shown in the Fig 1 below.

Studies were categorised as high quality (≥24/26 items), moderate quality (15.5–21/26), or low quality (<15/26) based on reporting completeness (Yang et al., 2024). Of the 47 studies, 23 (48.9%) were rated high quality, 18 (38.3%) moderate quality, and 6 (12.8%) low quality. Common reporting deficiencies included incomplete protocol registration (Item 24, reported in 50% of studies), inadequate certainty assessment (Item 15, 57.14%), and limited data availability statements (Item 27, 71.43%). The six low-quality studies were retained in the narrative synthesis but interpreted with caution, as their findings may be subject to greater risk of bias.

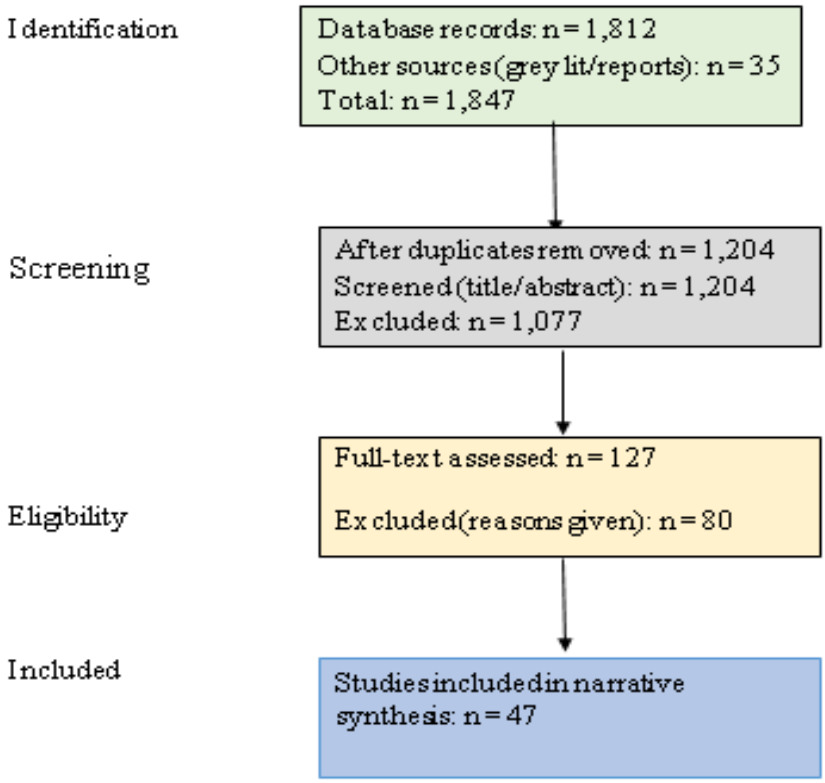

Figure 1: showing the PRISMA flowchart; Source: Author's Compilation, (2026).

THEORETICAL FRAMEWORK

This review is guided by an integrated theoretical framework drawing upon four established theories that collectively provide a comprehensive lens for understanding digital literacy adoption and remote work readiness.

Technology Acceptance Model (TAM)

The Technology Acceptance Model, developed by Davis (1989) and extended by Venkatesh et al. (2003), posits that technology adoption is primarily determined by two key beliefs: perceived usefulness and perceived ease of use (PEOU). Perceived usefulness refers to the degree to which an individual believes that using a particular technology will enhance their job performance, while perceived ease of use refers to the degree to which they believe that using the technology will be free of effort (Davis, 1989). In the context of this review, TAM provides a framework for understanding how African graduates' perceptions of digital tools influence their willingness to adopt and use these technologies for remote work (Lee et al., 2025; Marikyan & Papagiannidis, 2024).

In the African context, recent empirical studies demonstrate the applicability of these constructs. Among medical licentiate students in Zambia, perceived ease of use (mean = 1.82, SD = 0.61) and perceived usefulness (mean = 1.85, SD = 0.61) emerged as strong predictors of e-learning platform acceptance, though actual system use remained limited due to infrastructural constraints (Barteit et al., 2019). Similarly, in Ethiopian higher education, facilitating conditions significantly influenced perceived ease of use ($\beta = 0.381$, $p < 0.001$) and perceived usefulness ($\beta = 0.274$, $p < 0.01$), which subsequently determined attitudes toward e-learning and behavioural intention to adopt digital technologies (Belew et al., 2024).

For this review, TAM provides a framework for understanding how African graduates' perceptions of digital tools influence their willingness to adopt these technologies for remote work. Specifically, graduates who perceive remote collaboration tools (such as Slack, Microsoft Teams, and Trello) as useful for enhancing job performance (high PU) and easy to navigate despite infrastructural limitations (high PEOU) demonstrate stronger behavioural intentions to engage with remote work platforms (Makhitha & Mbedzi, 2024). However, where infrastructural barriers increase the effort required to use technology (lowering PEOU), adoption intention decreases significantly, even when perceived usefulness remains high (Barteit et al., 2019).

Digital Divide Theory

The Digital Divide Theory, proposed by DiMaggio and Hargittai (2001), extends beyond simple access to technology to encompass disparities in skills, usage patterns, and the capacity to effectively apply technology. The theory identifies multiple levels of digital inequality, including physical access, skills and literacy, and meaningful use. This framework is particularly relevant for understanding the African context, where infrastructural limitations, socioeconomic disparities, and educational inequalities create multiple layers of digital exclusion (Mavridi, 2020; Sanders & Scanlon, 2021).

Theory of Planned Behaviour (TPB)

The Theory of Planned Behaviour, developed by Ajzen (1985), suggests that behavioural intention is determined by three factors: attitudes toward the behaviour, subjective norms, and perceived behavioural control. Applied to digital literacy adoption, TPB helps explain how social influences, personal attitudes, and self-efficacy beliefs shape graduates' intentions to engage with digital technologies for remote work (Bosnjak et al., 2020; Brookes, 2023).

Socio-Technical Systems Theory (STST)

Socio-Technical Systems Theory, originating from the work of Trist and Bamforth (1951), emphasises the interdependence between social and technical systems in organisational contexts. The theory posits that optimal outcomes are achieved when technical systems (hardware, software, infrastructure) are aligned with social systems (human skills, work practices, organisational culture). This framework is valuable for understanding how infrastructural and institutional factors in African contexts interact with individual competencies to shape remote work readiness (Abbas & Michael, 2025).

LITERATURE REVIEW

Conceptualising Digital Literacy

Digital literacy has evolved from a narrow focus on technical skills to encompass a multidimensional construct that includes cognitive, social, and emotional competencies required for effective participation in digital environments (Spante et al., 2018). Martin and Grudziecki (2006) defined digital literacy as "the awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyse and synthesise digital resources, construct new knowledge, create media expressions, and communicate with others." This comprehensive definition highlights that digital literacy extends beyond mere technical proficiency to include critical thinking, creativity, and communication skills.

In the context of remote work, digital literacy takes on additional dimensions related to virtual collaboration, self-directed learning, and digital self-presentation (Henke et al., 2022). Attaran et al. (2019) emphasised that the digital workplace requires competencies in using collaboration tools, managing digital workflows, and maintaining productivity in distributed environments. Similarly, Hunter (2018) noted that digital literacy encompasses not just technical skills, but also behaviours, practices, and digital identities that enable employees to perform tasks, achieve goals, learn, and collaborate with colleagues toward shared objectives.

Remote Work and the Future of Work

Remote work, also known as telecommuting or teleworking, refers to work arrangements in which employees perform their duties outside traditional office settings using digital technologies (Haque, 2023). The COVID-19 pandemic served as a catalyst for the widespread adoption of remote work, with organisations worldwide transitioning to distributed work models to maintain operations during lockdowns (Battisti et al., 2022). This shift demonstrated the viability of remote work across industries and highlighted the importance of digital literacy for workforce participation.

Research by Pabilonia and Redmond (2024) documented significant increases in remote work adoption, with organisations reporting both benefits and challenges. Benefits include increased flexibility, reduced commuting

time, and access to a broader talent pool, while challenges include maintaining team cohesion, managing work-life boundaries, and ensuring equitable access to opportunities (Soga et al., 2022; Wells et al., 2023). For developing countries like Nigeria, remote work presents both opportunities for accessing global employment markets and challenges related to infrastructure and skills development (Olanrewaju et al., 2021).

Digital Literacy in the African Context

The African context presents unique challenges for digital literacy development. According to the World Bank (2025), approximately 37% of the global population still lacks internet access, with the majority of the unconnected residing in sub-Saharan Africa. This digital divide is compounded by infrastructural deficits including limited broadband penetration, high data costs, and unreliable electricity supply (Ehimuan et al., 2024). Furthermore, educational systems in many African countries have been slow to integrate digital literacy into curricula, leaving graduates ill-prepared for digital work environments (Ndibalema, 2025).

Studies examining digital literacy in African higher education have identified significant gaps. For instance, Chasubuta et al. (2024) found that technological literacy in using learning management systems among students in Tanzanian higher education institutions was constrained by limited access to internet, low technological competencies among both students and instructors, and inadequate technological systems to support learning. Similarly, Muraina et al. (2025) identified barriers to e-learning technology adoption among Nigerian undergraduate students including inadequate infrastructure, limited access to online learning resources, and weak ICT policies.

Training Needs Assessment

Training Needs Assessment (TNA) is a systematic process used to identify gaps between existing competencies and the skills required for effective performance (Markaki et al., 2021). In the context of digital literacy for remote work, TNA helps identify specific skill gaps and informs the design of targeted interventions. Research indicates that perceived skill gaps strongly influence learners' engagement with training programmes and their subsequent application of acquired skills (Henke et al., 2022).

Examining training needs for digital literacy have been identified by several studies which pointed out key areas. A good example is Greenhalgh et al., (2023) found that training needs for staff providing remote services included competencies in using digital platforms, managing virtual consultations, and ensuring data security. Similarly, Khuraisah et al. (2020) emphasised that higher education institutions must prepare graduates with digital literacy skills to meet employability needs in the Fourth Industrial Revolution era. The identification of training needs is particularly important in resource-constrained contexts where training resources must be allocated efficiently (Salas et al., 2006).

FINDINGS

Overview of Included Studies

The systematic search identified 1,847 potentially relevant records. After removing duplicates and screening titles and abstracts, 127 full-text articles were assessed for eligibility. Of these, 47 studies met the inclusion criteria and were included in the narrative synthesis. The included studies were conducted across 7 African countries, with Nigeria (n=12), South Africa (n=9), Kenya (n=7), Ghana (n=5), Tanzania (n=4), Ethiopia (n=4), and Zambia (n=3) being the most represented. Study designs included quantitative surveys (n=23), qualitative interviews (n=14), and mixed-methods approaches (n=10).

Digital Literacy Levels Among Nigerian Graduates

The reviewed studies consistently revealed low to moderate levels of digital literacy among Nigerian graduates. Several studies documented limited awareness and proficiency in digital tools essential for remote work. For instance, research by the Nigerian Communications Commission (2024) found that while many students were familiar with basic communication tools like email and social media, their proficiency in professional collaboration platforms, project management software, and cloud-based productivity tools was limited. Bello

and Ajao (2024); Alli, (2025) documented that 75.7% of Nigerian graduates demonstrate low awareness of digital tools for remote work. The reviewed studies consistently revealed low to moderate levels of digital literacy among African graduates, with significant variation across national contexts. In Nigeria, research by the Nigerian Communications Commission (2024) found that while many students were familiar with basic communication tools like email and social media, their proficiency in professional collaboration platforms, project management software, and cloud-based productivity tools was limited.

In the Kenyan context, faculty and students in public universities demonstrated moderate digital literacy competencies (mean = 3.09, SD = 0.80), with strong foundational skills in basic digital tools (word processors, spreadsheets) but significant gaps in advanced content creation and technical troubleshooting (Ngaine, 2025). Similarly, in Ghana, phenomenological research with undergraduate students at the University of Education Winneba revealed that 14 out of 16 participants relied solely on mobile devices for study, with limited institutional support for ICT integration and inadequate internet connectivity constraining digital skill development (Nkansah & Oldac, 2024).

South African studies indicated that while 47% of employees retained remote work options in 2024, graduates entering the Global Business Services sector faced significant skills mismatches, with 65% of professionals requiring additional digital upskilling to meet employer expectations in remote environments (Duja, 2025). In Tanzania, 92% of undergraduates expressed explicit need for digital skills training, particularly in coding and digital content creation, though infrastructure limitations remained prohibitive (UN Women, 2025).

Table 1 summarises the key findings related to digital literacy levels across the reviewed studies, with comparative data from selected African countries.

Study Focus	**Country**	**Key Finding**	**Sample**
Digital literacy levels	Nigeria	Larger percentage had low awareness of digital tools (Alli, 2025; NCC, 2024; Bello & Ajao, 2024).	University Agricultural Graduating Students
Remote work readiness	South Africa	Majority lacked essential collaboration skills (Mkhize & Reddy, 2025; Duja, 2025)	University students
ICT proficiency	Kenya	Few were proficient in ICT (Ndiangui et al., 2025; Ngaine, 2025)	Students tools
Digital divide	Ghana	Rural students 54% less likely to have digital access (Andrew and Justice, 2023; Nkansah & Oldac, 2024)	Higher education students
Training needs	Tanzania	92% expressed need for digital skills training (Chasubuta et al., 2024; UN Women, 2025)	Undergraduates
E-learning readiness	Ethiopia	Limited AI integration readiness (M=2.61) despite awareness (M=3.35) (Belew et al., 2024)	Postgraduate students
Technology acceptance	Zambia	High perceived usefulness (1.85) but low system use (2.47) due to infrastructural barriers (Barteit et al., 2019)	Medical students

Table 1: Summary of Digital Literacy Levels Among African Graduates (Sources: Nigerian Communications Commission, 2024; Alli, (2025); Mkhize & Reddy, 2025; Ndiangui et al., 2025; Andrew and Justice, 2023;

Chasubuta et al., 2024)

The data presented in Table 1 reveal consistent patterns of digital literacy deficits across African countries. In Nigeria, 75.7% of agricultural graduates demonstrated low awareness of digital tools for remote work (Alli, 2025; Nigerian Communications Commission, 2024; Bello & Ajao, 2024). South African university students fared similarly, with majority lacking essential collaboration skills required for remote Global Business Services roles (Mkhize & Reddy, 2025; Duja, 2025). Kenyan final year students showed particularly low proficiency in ICT tools, with only few demonstrating competence (Ndiangui et al., 2025). In Ghana, rural students were 54%

less likely to have digital access compared to urban students , with 87.5% relying exclusively on mobile devices for academic work (Andrew and Justice, 2023; Nkansah & Oldac, 2024), while Tanzanian undergraduates expressed strong training needs, with 92% indicating need for digital skills training (Chasubuta et al., 2024).

Awareness of Remote Work Platforms

A significant finding across multiple studies was the limited awareness of remote work platforms among Nigerian graduates. Studies conducted in Nigeria (Alli, 2025; Bello & Ajao, 2024) consistently reported that the majority of graduating students were unaware of major remote job platforms such as Upwork, Fiverr, LinkedIn Jobs, Remote.co, and We Work Remotely. This awareness gap was not unique to Nigeria; in Ghana, undergraduate students demonstrated limited knowledge of global freelancing platforms, with most relying on informal networks rather than structured digital marketplaces to seek employment (Nkansah & Oldac, 2024).

The findings indicated that while some students (approximately 15-25% across countries) were aware of general professional networking platforms like LinkedIn, awareness of specialised remote work platforms was much lower (typically below 20%). In South Africa, where the remote work ecosystem is more developed due to the Global Business Services sector, awareness was higher (approximately 40%), yet practical proficiency in navigating these platforms remained limited (Duja, 2025). This suggests that students across the continent lack exposure to the ecosystem of platforms that facilitate remote work opportunities, limiting their ability to access global employment markets.

Digital Tools Proficiency

The reviewed studies examined proficiency across various categories of digital tools essential for remote work. The findings revealed uneven proficiency levels, with students generally more proficient in basic communication tools and less proficient in advanced collaboration and project management platforms.

Communication Tools: Most studies reported moderate to high proficiency in basic communication tools such as email, WhatsApp, and Zoom across all countries. However, proficiency in more advanced features of these platforms, such as scheduling meetings, managing breakout rooms, and integrating with other tools, was limited. In Zambia, medical students rated perceived ease of use of e-learning platforms highly (1.82/5) but struggled with advanced functionalities due to inadequate training (Barteit et al., 2019).

Productivity Tools: Proficiency in productivity suites such as Microsoft Office and Google Workspace varied considerably. While many students reported basic familiarity with word processing and spreadsheets, advanced features such as collaborative editing, version control, and automation were less commonly mastered. In Kenya, faculty demonstrated competence in basic digital tools (M=3.42) but reported low confidence in creating and integrating digital content (M=2.76) (Ngaine, 2025).

Collaboration Tools: Proficiency in collaboration platforms such as Slack, Microsoft Teams, and Trello was consistently low across studies. These tools, essential for remote team coordination, were unfamiliar to the majority of students in Nigerian, Ghanaian, and Tanzanian institutions. South African students showed moderate awareness but limited practical application, with employers reporting that graduates require significant upskilling in these areas (Duja, 2025).

Project Management Tools: Awareness and proficiency in project management tools such as Asana, Jira, and Notion was particularly low, with most studies reporting that fewer than 15% of students had any experience with these platforms. Ethiopian postgraduate students, despite high educational attainment, demonstrated limited exposure to project management software, constraining their readiness for distributed team environments (Belew et al., 2024).

Barriers to Digital Literacy Development

The reviewed studies identified multiple barriers to digital literacy development in Nigerian contexts. These barriers were categorised into three main domains: infrastructural, institutional, and individual.

Infrastructural Barriers: The most frequently cited barriers related to inadequate infrastructure, including unreliable internet connectivity, high data costs, and inconsistent electricity supply. Studies by Olanrewaju et al. (2021), Anasel and Swai (2023), and Sithole and Mbukanma (2024) all highlighted infrastructural limitations as primary constraints on digital literacy development. In Ethiopia, internet penetration reached only 19.4% in 2024, with significant disparities between urban (95.7% electricity access) and rural (43.6% electricity access) areas (Negash et al., 2024). Similar patterns emerged in Ghana, where poor network connectivity on campuses forced students to rely on expensive mobile data (Nkansah & Oldac, 2024). In Zambia, tablet-based e-learning initiatives failed due to poor battery life and inadequate technical infrastructure, despite high perceived usefulness among students (Barteit et al., 2025).

Institutional Barriers: Educational institutions were found to play a limited role in developing students' digital literacy. In Ghana, students reported that ICT courses were offered only once during four-year degree programmes, providing insufficient preparation for digital work environments (Nkansah & Oldac, 2024). Kenyan public universities lacked clear institutional policies on AI integration (M=2.65) and provided inadequate technical support (M=2.88), constraining faculty capacity to deliver digital skills training (Ngaine, 2025). Studies by Akaeze and Akaeze (2024) and Ndibalema (2025) similarly identified gaps in curriculum design, inadequate ICT infrastructure on campuses, and limited training opportunities for both students and faculty.

Individual Barriers: At the individual level, factors such as limited access to personal devices, financial constraints, and low self-efficacy in using technology were identified as barriers. In Ghana, 12.5% of surveyed students lacked any functional digital device, while those with devices faced challenges with broken equipment and inability to afford internet data. Studies also noted that students from rural or disadvantaged backgrounds faced additional challenges in accessing digital resources (Blank et al., 2019; Hargittai, 2010).

Training Needs

Across the reviewed studies, students expressed strong interest in receiving training to enhance their digital literacy for remote work. Training needs were identified across several domains:

General Digital Literacy: Students expressed needs for training in basic digital skills, including effective use of search engines, critical evaluation of online information, and digital security practices. In Tanzania, coding camps targeting young women demonstrated high demand for foundational programming and digital literacy training (UN Women, 2025).

Remote Work Platforms: There was strong demand for training on how to find and apply for remote work opportunities, including creating professional profiles, writing effective proposals, and navigating remote job platforms.

Digital Tools: Students identified specific needs for training in productivity tools (Google Workspace, Microsoft Office), communication platforms (Slack, Teams), and project management software (Asana, Trello, Notion). South African graduates required upskilling in virtual collaboration tools to meet GBS sector demands (Duja, 2025).

Professional Skills: Beyond technical skills, students expressed needs for training in related competencies such as virtual communication etiquette, time management in remote work settings, and building professional online presence. Ethiopian medical students emphasised the need for structured, hands-on training to complement theoretical awareness of digital tools (Belew et al., 2024).

DISCUSSION

Synthesis of Key Findings

This systematic narrative review has synthesised evidence from 47 studies examining digital literacy and remote work readiness among Nigerian and African graduates. The findings reveal a consistent pattern of digital literacy

deficits that limit graduates' ability to participate in the global remote work economy. These deficits are not merely technical but encompass awareness, skills, and access dimensions that collectively shape graduates' readiness for remote work. The review findings align with the Digital Divide Theory (DiMaggio & Hargittai, 2001), which posits that digital inequality extends beyond simple access to encompass skills, usage patterns, and meaningful engagement with technology. The Nigerian context exemplifies this multidimensional digital divide, with graduates facing barriers at multiple levels including infrastructure, education, and socioeconomic status.

Theoretical Implications

The findings of this review have several implications for the theoretical frameworks guiding digital literacy research. The Technology Acceptance Model (TAM) provides a useful lens for understanding graduates' technology adoption behaviours, with perceived usefulness and perceived ease of use emerging as key determinants of willingness to engage with digital tools. However, the review suggests that TAM may need to be extended in Nigerian contexts to account for the significant influence of infrastructural and institutional factors that shape access to and experience with technology.

The Theory of Planned Behaviour (TPB) also finds support in the reviewed literature, with studies indicating that attitudes toward technology, subjective norms, and perceived behavioural control collectively influence graduates' intentions to develop digital literacy skills. The review suggests that interventions targeting these constructs may be effective in promoting digital literacy adoption.

Socio-Technical Systems Theory (STST) provides a valuable framework for understanding the interplay between technical infrastructure and social systems in shaping digital literacy outcomes. The review findings highlight the importance of aligning investments in infrastructure with efforts to develop human capital, suggesting that technical solutions alone are insufficient without corresponding investments in education and training.

Practical Implications

The findings of this review have several practical implications for policymakers, educational institutions, and industry stakeholders seeking to enhance digital literacy and remote work readiness among Nigerian graduates.

For Policymakers: The review highlights the need for coordinated policy responses that address both infrastructure and skills development. Investments in broadband infrastructure, reductions in data costs, and support for digital literacy programmes are essential for creating an enabling environment for remote work participation.

For Educational Institutions: Universities and colleges must integrate digital literacy into curricula across all disciplines, not just technical fields. This integration should include both theoretical understanding and practical skills development, with opportunities for hands-on experience with digital tools and platforms. Partnerships with industry can help ensure that training programmes are aligned with labour market needs.

For Industry Stakeholders: Companies seeking to access Nigerian talent for remote work can contribute to addressing the digital literacy gap through corporate social responsibility initiatives, internship programmes, and partnerships with educational institutions. Such investments can help build a pipeline of remote work-ready graduates while also meeting organisational talent needs.

Limitations

While this review synthesizes data from seven (7) African nations, a recognized limitation is the predominance of West African studies, particularly from Nigeria, which may limit the generalizability of findings to regions with different infrastructural landscapes, such as Central or Northern Africa. Furthermore, the rapid pace of technological evolution means that studies published closer to 2015 may not fully reflect the current impact of Generative AI on remote work readiness (Leonardi, 2024).

Future research should prioritize longitudinal studies to track the career trajectories of African graduates who undergo digital up-skilling. Additionally, there is a critical need for comparative studies between Anglophone and Francophone African countries to determine if language barriers or different colonial educational legacies influence digital literacy acquisition and global remote work participation (Bello & Ajao, 2024; Ndibalema, 2025).

Evidence-based recommendations for key stakeholders

Policymakers

- Prioritise universal broadband access and reliable electricity supply as foundational enablers of digital literacy
- Subsidise digital devices and internet data for students from rural and low-income backgrounds
- Establish continental frameworks for digital literacy standards in higher education

Educational Institutions

- Mandate integration of remote work platform training (Upwork, Fiverr, LinkedIn) across all curricula
- Shift from theoretical ICT courses to practical, hands-on digital skills laboratories
- Develop faculty capacity in advanced digital pedagogy and AI integration

Industry Stakeholders

- Establish internship-to-remote-work pathways for African graduates
- Provide virtual collaboration tool training addressing specific gaps in Slack, Teams, Trello, and project management software
- Support digital literacy initiatives through BPO/GBS sector partnerships in South Africa, Kenya, and Nigeria

As the global economy continues to digitise, addressing the digital literacy gap among African graduates is essential for promoting inclusive economic participation and harnessing the potential of the continent's young, growing workforce. The findings of this review provide a foundation for evidence-based policy and practice in this critical area, while calling for expanded research in underrepresented regions to ensure truly pan-African solutions.

CONCLUSION

This systematic narrative review has synthesised evidence on digital literacy and remote work readiness among African graduates, revealing significant multidimensional gaps that limit participation in the global digital economy. The findings demonstrate that digital literacy deficits encompass limited awareness of remote work platforms, inadequate proficiency in essential digital tools, and barriers at infrastructural, institutional, and individual levels across Nigeria, Kenya, Ghana, South Africa, Tanzania, Ethiopia, and Zambia.

The review highlights that while African graduates often demonstrate high perceived usefulness regarding digital technologies, actual adoption is constrained by low perceived ease of use stemming from infrastructural limitations. Technology Acceptance Model constructs remain valid predictors of adoption intention, but must be contextualised within the socio-technical realities of resource-constrained environments. The Digital Divide Theory framework confirms that inequality extends beyond access to encompass skills, usage patterns, and meaningful engagement.

As the global economy continues to digitise, addressing the digital literacy gap among Nigerian graduates is essential for promoting inclusive economic participation and harnessing the potential of the country's young, growing workforce. The findings of this review provide a foundation for evidence-based policy and practice in this critical area.

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