

Teachers' Adoption and Challenges of Mobile Learning Platforms in Nigerian Schools

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ABSTRACT: This study examined teachers' adoption of mobile learning platforms and the challenges associated with their integration into instructional processes in Nigerian schools. The study was guided by 5 research questions and 4 hypotheses. A descriptive survey research design was adopted, involving 173 teachers drawn from primary, secondary, and tertiary institutions across Nigeria through voluntary response or self-selection sampling. Data were collected using a validated structured digital questionnaire titled *Teachers' Adoption and Challenges in the Use of Mobile Learning Platforms Questionnaire (TAPMLPQ)*, with a reliability coefficient of 0.70 determined using Cronbach's Alpha. Descriptive statistics (mean, standard deviation, frequency, and percentage) and inferential statistics (independent sample t-test, Pearson correlation, regression analysis, and ANOVA) were used to analyze the data at the 0.05 level of significance. The findings revealed that teachers demonstrated a high level of readiness and positive attitudes toward adopting mobile learning platforms for instructional purposes. Although teachers acknowledged numerous challenges, including inadequate infrastructure, poor internet connectivity, and insufficient professional development opportunities, they recognized the significant potential of mobile learning to improve students' literacy, numeracy, engagement, and overall academic performance. The study further found no significant differences in readiness, perceived challenges, and professional development needs based on gender, teaching qualification, or years of teaching experience, whereas school ownership significantly influenced teachers' attitudes towards mobile learning adoption. The study concludes that strengthening teachers' capacity through continuous professional development, improved digital infrastructure, and supportive educational policies is essential for the successful integration of mobile learning platforms and the enhancement of teaching and learning outcomes in Nigerian schools.

KEYWORDS: Mobile Learning Platforms, Teacher Readiness, Teacher Attitudes, Professional Development, Technology Integration, Nigerian Schools.

INTRODUCTION

The rapid advancement of Information and Communication Technology (ICT) has transformed the educational landscape, creating new opportunities for teaching and learning beyond the traditional classroom (Nwokah, 2019). Among these innovations, mobile learning (m-learning) has emerged as a flexible and accessible approach that enables learners and teachers to engage in educational activities using mobile devices such as smartphones, tablets, and laptops (Mashhadi, Hussein & Fahad, 2023).

In Nigeria, the adoption of mobile learning platforms gained significant momentum during the COVID-19 pandemic, when schools were compelled to shift from face-to-face instruction to remote and blended learning (Coman, Țîru, Meseşan-Schmitz, Stanciu, & Bularca, 2020). Since then, many educational institutions have continued to explore the integration of mobile technologies into teaching practices. The widespread availability of smartphones and increasing internet penetration present opportunities for enhancing instructional delivery, improving learner engagement, and expanding access to quality education (Victor-Ishikaku, 2020). The integration of mobile learning platforms aligns with the objectives of Nigeria's National Policy on Education (Federal Republic of Nigeria, 2019), which emphasizes the application of technology to improve educational quality, expand access to learning opportunities, and develop learners' digital competencies for the twenty-first-century knowledge economy (Adenubi, Samuel, & Oyenuga, 2025; Ifegbo, Umune & Achuonye, 2026). Effective adoption of mobile learning platforms can contribute significantly to achieving Sustainable Development Goal 4 (SDG 4), which seeks to ensure inclusive, equitable, and quality education while promoting lifelong learning opportunities for all.

The effectiveness of mobile learning, however, depends largely on teachers, who serve as facilitators of learning and agents of educational innovation (Ahmed & Shittu, 2024). Teachers play a pivotal role in selecting appropriate digital resources, designing mobile-supported instructional activities, guiding learners in the effective use of mobile technologies, and evaluating learning outcomes (Achuonye, Williams, & Longjohn, 2026). Consequently, the successful integration of mobile learning platforms into

Teachers' Adoption and Challenges of Mobile Learning Platforms in Nigerian Schools

classroom instruction and other educational activities. While some teachers have embraced mobile technologies to enrich classroom instruction, others encounter numerous barriers that limit effective utilization (Achuonye, Ushie, & Williams, 2026). Such constraints affect the extent to which mobile learning can contribute to improved teaching effectiveness and student learning outcomes (Amiaya, & Ranor, 2015; Victor-Ishikaku, 2019).

Although previous studies have examined ICT integration, e-learning adoption, and technology acceptance in educational institutions, relatively few have comprehensively investigated teachers' adoption of mobile learning platforms alongside the challenges affecting their effective utilization in Nigerian schools. Against this backdrop, this study seeks to examine teachers' adoption of mobile learning platforms in Nigerian schools and identify the challenges affecting their effective utilization. The study also intends to determine how selected demographic and professional variables influence teachers' adoption of mobile learning platforms.

STATEMENT OF THE PROBLEM

The integration of mobile learning (m-learning) platforms into education has transformed teaching and learning globally by providing learners and teachers with flexible, interactive, and accessible educational opportunities. In Nigeria, the increasing availability of smartphones, tablets, and internet-enabled devices has created significant potential for mobile learning to enhance instructional delivery, facilitate communication, and improve students' learning outcomes. Despite these opportunities, the adoption of mobile learning platforms by teachers in Nigerian schools remains inconsistent and generally below expectation.

Although government agencies, educational institutions, and development partners have introduced various digital learning initiatives, many teachers still rely predominantly on traditional instructional methods. Existing evidence suggests that several factors may hinder teachers' adoption of mobile learning platforms, including inadequate digital literacy, insufficient professional training, poor internet connectivity, irregular electricity supply, limited access to appropriate mobile devices, inadequate institutional support, resistance to technological change, concerns about data costs, and the absence of clear policies guiding the integration of mobile technologies into classroom instruction. These challenges may reduce teachers' willingness and ability to effectively utilize mobile learning platforms in their teaching practices.

Furthermore, disparities in teachers' adoption of mobile learning platforms may exist based on demographic and professional characteristics such as gender, school ownership (public or private), teaching experience, academic qualification, and geographical location. Such variations could contribute to unequal access to quality digital learning experiences among students across Nigerian schools.

Although several studies have investigated technology integration and e-learning adoption in Nigeria, relatively few have specifically examined teachers' adoption of mobile learning platforms alongside the multifaceted challenges influencing their effective utilization within the Nigerian school context. This creates a knowledge gap that limits the development of evidence-based interventions and policies aimed at promoting effective mobile learning implementation.

It is against this background that this study seeks to investigate the extent of teachers' adoption of mobile learning platforms in Nigerian schools, identify the challenges affecting their adoption and utilization, and determine whether teachers' demographic and professional characteristics significantly influence the adoption of mobile learning platforms. The findings of the study are expected to provide valuable information for policymakers, educational administrators, teacher educators, and other stakeholders in designing strategies that will enhance the effective integration of mobile learning technologies into Nigerian schools.

RESEARCH OBJECTIVES

Generally, the aim of the study is to examine teachers' readiness, attitude and perceived challenges faced in the use of mobile learning platforms for instructional processes in Nigerian schools. Specific objectives, therefore, are to:

1. determine the level of teachers' readiness to adopt mobile learning platforms for instructional processes.
2. examine teachers' attitudes toward the use of mobile learning platforms for teaching and learning.
3. identify the challenges faced by teachers in adopting and using mobile learning platforms.
4. make suggestions for effective utilization of mobile learning technology in Nigerian classrooms
5. identify teachers' professional development needs for effective integration of mobile learning platforms in instruction.

RESEARCH QUESTIONS

The study is guided by the following research questions:

1. What is the level of teachers' readiness to adopt mobile learning platforms for instructional purposes in Nigerian schools?
2. What are teachers' attitudes toward the use of mobile learning platforms in instructional processes?
3. What challenges do teachers encounter in using mobile learning platforms for instruction?
4. What are the suggestions for effective adoption of mobile learning technology in schools?
5. What form of professional development does teachers require for effective adoption of mobile learning platforms?

HYPOTHESES

Teachers' Adoption and Challenges of Mobile Learning Platforms in Nigerian Schools

1. There is no significant relationship between teachers' readiness and their adoption of mobile learning platforms for instructional processes.
2. Teachers' attitudes toward mobile learning platforms do not significantly influence their adoption for instructional purposes.
3. There is no significant difference in the challenges faced by teachers' adoption of mobile learning platforms based on school location (rural and urban).
4. There is no significant difference in suggestions for effective adoption of mobile learning platforms.

SIGNIFICANCE OF THE STUDY

The findings of this study are expected to contribute to the growing body of knowledge on the adoption of educational technology, particularly mobile learning platforms in the Nigerian educational system. The study will also provide evidence-based recommendations that can support the effective integration of mobile learning technologies into teaching and learning.

The findings will highlight how increased teacher adoption of mobile learning platforms can enhance learners' access to learning resources, improve engagement, promote collaborative learning, and support personalized learning experiences both within and outside the classroom.

It will provide insights for teachers into the factors influencing the adoption of mobile learning platforms and identify strategies for overcoming implementation challenges. This will encourage greater confidence, competence, and effectiveness in integrating mobile technologies into instructional practices.

For school administrators, the findings will offer guidance on the types of institutional support, infrastructure, and professional development required to promote the successful adoption and sustained use of mobile learning platforms in schools.

Policymakers and the Ministry of Education will also benefit because the study will provide empirical evidence to guide the formulation and implementation of policies that strengthen digital education initiatives, improve ICT infrastructure, enhance internet accessibility, and promote continuous teacher capacity building for technology-enhanced learning.

For teacher education institutions, the study will underscore the need to incorporate digital pedagogy, mobile learning competencies, and technology integration skills into pre-service and in-service teacher education programmes, thereby preparing teachers to meet the demands of 21st-century classrooms.

The findings will provide curriculum planners valuable information for reviewing and enriching school curricula to incorporate mobile learning strategies, digital competencies, and innovative teaching approaches that align with national and global educational goals.

It will serve as a useful reference for educational researchers by providing empirical data and identifying gaps for further research on mobile learning adoption, educational technology integration, and digital transformation in schools.

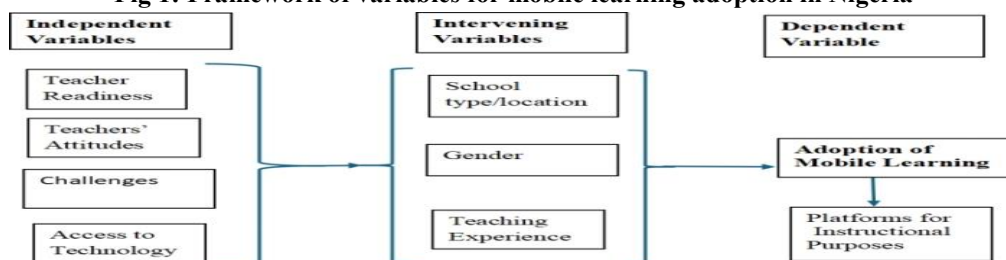
Overall, the study is expected to support stakeholders committed to improving technology-enhanced teaching and learning in Nigeria by providing practical recommendations for increasing teachers' adoption of mobile learning platforms and addressing the challenges that hinder their effective utilization.

SCOPE OF THE STUDY

The scope of this study was limited to determining teachers' adoption and perceptions of mobile learning platforms for instructional purposes in Nigerian schools. This is a notable innovation as there exist several rapid advancements in information and communications technology sweeping across the global space as well as other emerging high-speed technologies. Specifically, the study focuses on teachers in Nigerian primary, secondary, and tertiary institutions, examining their readiness, attitudes, challenges, and professional development needs regarding the use of mobile learning platforms for instructional purposes. The study was conducted in phases to ensure that proper attention and priority was given to learners across the various geo-political zones of Nigeria as there exist no evidentially concluded research of this nature. Influential factors such as gender, school type, institutional level, and school location are also considered.

CONCEPTUAL FRAMEWORK

Fig 1: Framework of variables for mobile learning adoption in Nigeria



Teachers' Adoption and Challenges of Mobile Learning Platforms in Nigerian Schools

Teachers: In every educational process, the teacher plays key roles which include multifaceted facilitator, manager, and mentor in the teaching-learning process, shifting from a lecturer to a guide who fosters student-centered learning (Gadyn, 2023) (fig. 1). An effective teacher consistently and rightly conducts a teaching- learning interaction to the satisfactory achievement of desired intent as well as the values of the process, to the satisfaction of the interest groups based on professionally justifiable standards, ethnics and ideals with a measure of commendable creativity (Gad, 2023).

In the digital age, teachers have shifted from primary knowledge transmitters to learning facilitators, mentors, and guides. They play a crucial role in fostering digital literacy, promoting critical thinking, ensuring ethical technology use, and providing emotional support (Femi, 2024; Victor-Ishikaku, 2018). Teachers must adapt by leveraging technology to enhance engagement and, most importantly, maintain the human connection in education (Ernest-Ekwe & Emerengwa, 2023).

Mobile Learning: This offers flexibility for learning on-the-go and is restricted to portable, handheld devices like smartphones, tablets, or smartwatches. Smedley (2010) and Achuonye, Williams, and Longjohn (2026), explained that mobile learning enables learning anytime, anywhere, leveraging mobile-specific features like touchscreens. It specializes in micro-learning, which consists of short, engaging, and highly focused modules. It is ideal for quick, "just-in-time" learning, such as reviewing materials while commuting.

Teacher Readiness: Teacher readiness refers to the comprehensive state of professional preparedness required for effective instructional practice within contemporary educational environments. In the context of technology-enhanced education, readiness reflects a teacher's capacity to integrate digital tools in ways that are pedagogically sound, contextually responsive, and aligned with curricular objectives. According to Scherer et al., (2021) readiness is a developmental condition characterized by digital competence, instructional adaptability, and sustained commitment to innovative pedagogy.

This involves not only operational familiarity with digital platforms but also the pedagogical judgment to deploy them strategically to enhance learner(s) engagement and cognitive development (Adenubi et al., 2025). Empirical findings indicate that digital self-efficacy significantly predicts teachers' willingness to adopt and sustain technology integration practices (Reyes, 2023). Educators with stronger self-efficacy beliefs are more inclined to experiment with innovative methods and are better equipped to manage technological challenges without instructional disruption (Achuonye, Williams & Longjohn, 2026).

However, teacher readiness is not determined solely by individual attributes. Institutional and systemic factors exert substantial influence on the degree to which teachers feel prepared to implement technological innovations. Research conducted in digitally transitioning educational systems demonstrates that stable connectivity, structured training programmes, and organizational encouragement significantly enhance perceived and actual readiness (Coman et al., 2020; Marin, 2022). In the absence of these enabling conditions, teachers may express favourable attitudes toward technology yet remain constrained in practical application. In essence, teacher readiness represents the convergence of individual competence and contextual facilitation.

Teacher-Attitude: This refers to the predisposed mental, emotional, and behavioral orientation that teachers hold toward instructional reforms, particularly technology-mediated practices. Attitude denotes an individual's perception and tendency to respond to an experience in either a favourable or unfavourable manner (Ikwuka et al., 2020). Attitude is an inclination to respond positively or negatively toward a specific idea, object, or situation. To Semerci and Aydin (2018), attitude is a construct that guides individual behaviour in alignment with personal feelings and thoughts. From these perspectives, attitude represents a prevailing state of mind that influences responses within a particular context. Within the context of this study, teacher attitude refers to the behavioural and psychological disposition of teachers toward the utilization of mobile technology in the teaching and learning process.

Kisanga (2016) asserted that teachers' perceptions and dispositions significantly influence their readiness to adopt emerging instructional approaches. Demographic and experiential variables including gender (Venkatesh, Thong, & Xu, 2016), years of teaching experience (Smirnov & Bogun, 2010), and frequency of computer use (Gururaja, 2021), have been shown to correlate with variations in perception and acceptance. These mediating factors influence teachers' confidence, perceived usefulness of technology, and adaptability to digital transformation (Achuonye, Williams, & Longjohn, 2026).

Professional Development (PD): Research consistently indicates that fragmented, one-off workshops without sustained follow-up rarely produce substantive changes in classroom practice (Ross, 2020; Bowman et al., 2022). Sustainable professional development models are essential for supporting teachers in student-centered, technology-enhanced learning environments. Effective PD is characterized not by isolated training sessions but by structured, continuous learning experiences that expand teachers' knowledge base and translate directly into improved instructional strategies (Audu, 2025). When professional learning is sustained over time, teachers are more likely to internalize new competencies and apply them in ways that enhance student learning outcomes.

When professional learning is explicitly aligned with curricular objectives and classroom realities, teachers demonstrate greater willingness to adopt and apply technological innovations in their instructional practice; conversely, generic training disconnected from subject-specific demands often produces limited impact (Darling-Hammond et al., 2017). Effective professional development is therefore characterized by content focus, active learning, collaborative participation, coherence with professional goals, and

Teachers' Adoption and Challenges of Mobile Learning Platforms in Nigerian Schools

sustained duration. Complementing these features, instructional coaching has emerged as a critical mechanism for deepening classroom application. Classroom-embedded coaching that provides modeling, feedback, and continuous mentorship significantly strengthens teachers' confidence and practical use of digital tools while promoting reflective practice and sustained implementation (Kraft & Blazar, 2018; Ottenbreit-Leftwich et al., 2020).

Challenges in the use of technology for instructional purposes: The effective use of technology for instructional purposes is frequently constrained by significant technical and infrastructural limitations. One of the most persistent barriers is the digital divide, which reflects disparities in access to reliable internet connectivity, functional digital devices, and supportive technological ecosystems. In many developing contexts and underserved communities, inadequate broadband infrastructure and limited device availability undermine the equitable implementation of technology-enhanced instruction (Ntorukiri et al., 2022).

Beyond issues of access, system compatibility and technological reliability present additional challenges. Educational institutions often operate with a combination of legacy systems and contemporary digital platforms that do not seamlessly integrate. Such incompatibility can disrupt instructional flow, compel educators to devote valuable time to technical troubleshooting, and reduce overall instructional efficiency (Raffi et al., 2025). Moreover, recurring technical disruptions—such as learning management system failures, unstable virtual conferencing platforms, and cybersecurity vulnerabilities—can interrupt lessons and diminish student engagement (Ordaya-Gonzales et al., 2024). These technical inefficiencies compromise the continuity and quality of instructional delivery.

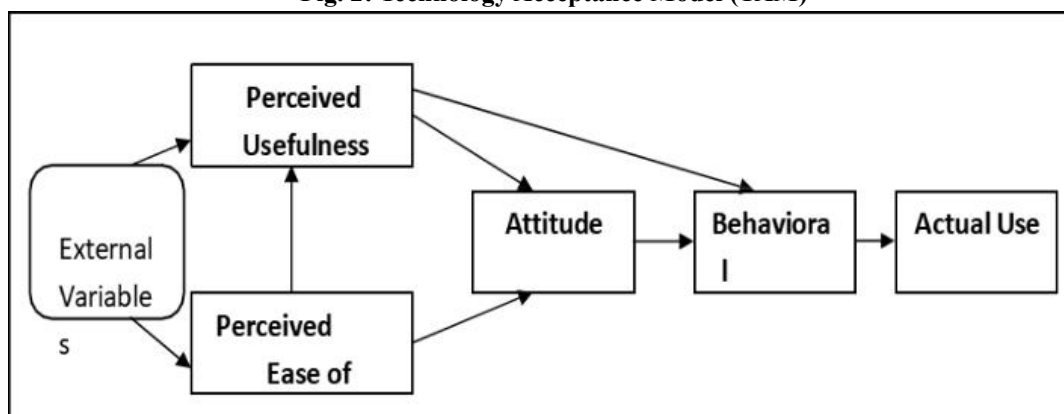
Many educational institutions, particularly in resource-constrained settings, lack the financial and technical capacity to implement robust cybersecurity frameworks (Zaid & Garai, 2024). The absence of comprehensive data protection measures not only expose institutions to legal and ethical risks but may also erode stakeholders' trust in digital instructional systems. Teachers accustomed to traditional pedagogies often encounter a steep learning curve when adapting to technology-mediated environments (Efremova & Huseynova, 2023). Simply digitizing existing materials does not guarantee improved learning outcomes; rather, meaningful integration demands the deliberate re-design of curriculum to leverage interactive multimedia tools, real-time assessment systems, collaborative digital platforms, and other innovative instructional strategies (Kivuti, 2021). Continuous, context-specific professional development is essential to equip educators with both technical proficiency and pedagogical integration skills (Salo et al., 2024).

Finally, issues of inclusivity and accessibility present ongoing concerns. Digital instructional platforms are not always designed to accommodate diverse learners, including students with disabilities or specialized learning needs. Limited accessibility features, poorly adapted content, and insufficient assistive technologies can exacerbate disparities and marginalize vulnerable learner populations (Mhlongo et al., 2023).

THEORETICAL REVIEW

The study is anchored on two theories: Technology Acceptance Model (TAM) and Engagement Theory. The Technology Acceptance Model (TAM) (Fig.2) was proposed by Fred D. Davis (1989), that perceived usefulness not only directly affect behavioral intention but also mediates the relationship between perceived ease of use and actual usage. This implies that even if a system is easy to use, adoption is unlikely unless users perceive it as beneficial to their performance. Conversely, when teachers strongly believe that a mobile learning platform enhances instructional effectiveness, they may tolerate minor usability challenges. Over time, the model has demonstrated strong explanatory power and remains widely recognized as a foundational framework in information technology adoption research (Chau, 1996).

Fig. 2: Technology Acceptance Model (TAM)



Teachers' Adoption and Challenges of Mobile Learning Platforms in Nigerian Schools

Specifically, the model helps explain whether teachers perceive mobile learning platforms as useful in improving instructional delivery, enhancing students' engagement, and increasing productivity. If teachers believe that mobile learning platforms significantly improve their teaching effectiveness, their intention to adopt such platforms is likely to increase.

On the other hand, is Engagement Theory proposed by Kearsley and Shneiderman in 1998 which at its core, emphasizes active, collaborative, and project-based learning as the foundation for educational engagement, asserting that students learn most effectively when they are cognitively, socially, and emotionally involved in purposeful tasks. The theory also identifies technology as a key enabler of meaningful learning. Digital tools, including collaborative platforms, multimedia applications, and mobile learning environments, are viewed not merely as content delivery mechanisms but as facilitators of authentic, interactive, and socially mediated learning experiences. According to Kearsley and Shneiderman (1998), technology should support cooperative learning, student autonomy, and real-world problem solving, thereby fostering intrinsic motivation and enhancing knowledge retention.

REVIEW OF RELATED EMPIRICAL STUDIES

Jennie and Hwang (2021) surveyed teachers' attitudes on the use of mobile learning. The population for the study was made up of one hundred and fifty (150) teachers from different study centres of distance education. A constructed questionnaire was used in collecting data for the study, and the results revealed a positive attitude among teachers on the use of mobile learning facility.

In a study by Al-Adwan et al. (2013) it examined teachers' perception on mobile-learning at the University of Jordan based on technology acceptance model. The findings of the study proved that teachers have positive perceptions towards the use of mobile learning and are willing to accept and utilize an advanced package of the E-learning procedure.

Ahmed and Shittu (2024) examined the readiness of public-school teachers in Kwara State to adopt e-learning, identified the challenges affecting adoption, and explored teachers' proposed solutions. A descriptive survey design was employed, with data collected from 743 teachers (379 from the State Universal Basic Education Board [SUBEB] and 364 from the Teaching Service Commission [TESCOM]). Findings revealed that teachers reported relatively high levels of technical competence, including e-learning proficiency and digital literacy, alongside the ability to support students in digital learning. However, attitudes toward full-scale implementation were very low. Teachers highlighted lack of management support, inadequate infrastructure, and insufficient professional development as the most significant challenges. Solutions proposed included curriculum integration of e-learning, provision of adequate devices, regular training, and teacher incentives.

Bihari and Gupta (2024) conducted an empirical investigation into teachers' perceptions of mobile learning in senior secondary schools, with a particular focus on both the advantages and challenges associated with its implementation. The researchers highlighted that teachers' perspectives are critical for identifying potential benefits, such as enhanced learner engagement, flexibility, and access to diverse learning resources, as well as challenges, including infrastructural constraints, limited training, and integration difficulties.

Yusuf et al. (2020) examined the benefits of effective utilization of mobile technologies and inquiry-based teaching methods in Nigerian universities. This research uses mobile phones because of its easy accessibility to students and lecturers. It was revealed that students always use their mobile phones for academic purposes and their academic performances improved as they used mobile phones to solve classroom questions. The time spent on using mobile phones for learning process was also unveiled and recommendations were made based on the researchers' findings.

Mojaye (2015) examined the evolution of mobile phones in Nigeria and the concomitant positive and adverse effects of its usage amongst students in tertiary institutions. It identified the positive effects to include easy access to information, instructional usage and personal convenience; while the adverse effects include distraction in the classroom, reduced cognitive ability, cheating during examinations, cyber bullying, poor writing skills and addiction. The paper then concluded that though mobile phones have positive effects on the educational and socio-economic development of Nigerian students, university authorities should take a more proactive role to reduce its adverse effects by either prohibiting the use of mobile phones during lecture hours or encouraging students to switch off their phones or put them on silence mode while receiving lectures.

METHODOLOGY

This study adopted a descriptive survey research design. The design is appropriate because it allows the researcher to collect data from many teachers to examine their readiness, attitudes, challenges, and professional development needs regarding mobile learning platform adoption.

The population of the study comprises all teachers in Nigerian schools in the following categories: primary/secondary/tertiary, public school/private school, rural/urban, male/female. A sample of 173 teachers was selected using voluntary response or self-selection sampling technique. These were the number of respondents that responded to the online questionnaire which cut across different geopolitical zones.

Data was collected using a structured online questionnaire titled *Teachers' Adoption and challenges in the use of Mobile Learning Platforms Questionnaire (TAPMLPQ)*. The instrument consists of six sections: demographic information, teacher readiness, attitudes, challenges, and professional development needs. The questionnaire was subjected to face and content validity. Copies of

Teachers' Adoption and Challenges of Mobile Learning Platforms in Nigerian Schools

the instrument were given to three experts in Educational Technology, and Measurement and Evaluation to assess clarity, relevance, and adequacy of the items.

Their suggestions were incorporated into the final version of the questionnaire. Experts reviewed the questionnaire to ensure that the items appear to measure teachers' adoption and challenges of mobile learning platforms. Each questionnaire item was mapped to the research objectives to ensure adequate coverage of all variables. Experts rated each item on relevance (1–4 scale). Items with $CVI \geq 0.75$ were retained. The reliability of the instrument was determined using Cronbach's Alpha method. A pilot study was conducted among 20 teachers outside the study area. The reliability coefficient of 0.70 was obtained showing the adequacy of the questionnaire hence the questionnaire was used for the study. The data was collected through google forms. The questionnaire was sent to respondents through digital devices and retrieved via the same means.

Data was analyzed using Statistical Package for the Social Sciences (SPSS). Descriptive statistics used were frequency counts, percentages, mean, and standard deviation to answer the research questions, while inferential statistics; Pearson correlation, regression analysis, t-test, and ANOVA were used to test the hypotheses at 0.05 level of significance.

RESULTS AND DISCUSSION

Results showed that most respondents were experienced teachers, with representation from public and private institutions, primary, secondary and tertiary institutions, and rural and urban schools. This ensured a balanced view of mobile learning adoption.

RQ1: What is the level of teachers' readiness to adopt mobile learning platforms for instructional purposes in Nigerian schools?

HO1: There is no significant relationship between teachers' readiness and their adoption of mobile learning platforms for instructional processes.

Table 1: Independent sample T-test table showing teachers' readiness of mobile learning platforms used for literacy and numeracy instructions in rural areas based on gender.

	Gender	N	Mean	Std. Dev	T	df	Sig 2-tail	Decision
How familiar are you with Mobile learning platforms designed for teaching?	Male	94	4.18	1.00	1.47	171	0.144	NS Accept HO
	Female	79	3.96	.94				
How would you rate your knowledge of how Mobile Learning Platforms can be integrated into your teaching?	Male	94	3.87	1.01	1.13	171	0.26	NS Accept HO
	Female	79	3.70	1.02				

Decision rule: Mean of 3 = moderate extent. Therefore, mean 3.5 to 4.5 = high extent.

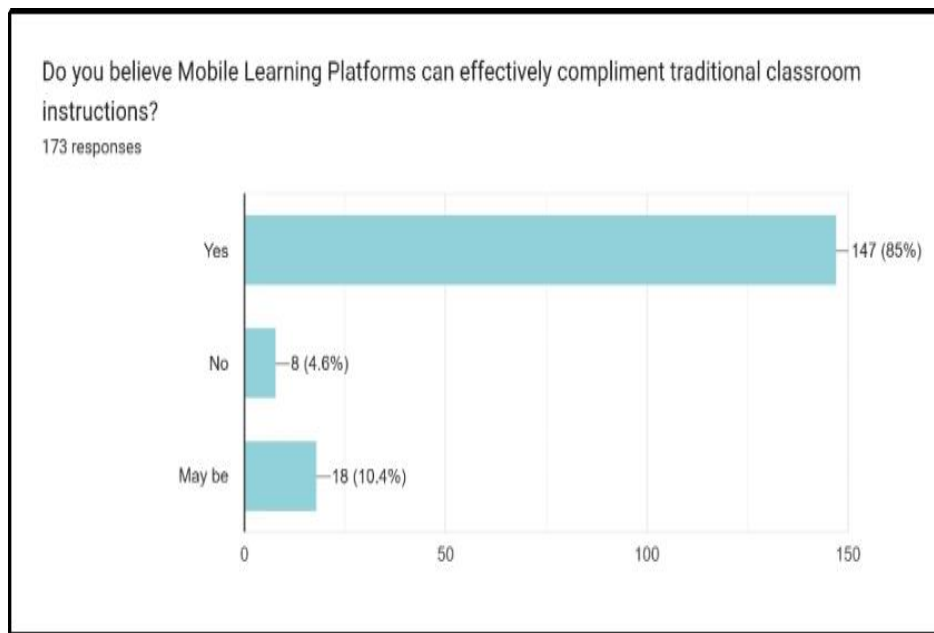
Table 1 shows that since all the mean scores are above 3.5, both male and female teachers have the readiness to use mobile learning platforms for literacy and numeracy instructions to a high extent. Though the male teachers have slightly higher mean values than the female teachers indicating that they are slightly more familiar with the use of mobile learning platforms used for literacy and numeracy instructions. However, the independent t-test analysis shows that there is no significant difference in the level of readiness of the teachers based on gender since the t-values are 1.47 and 1.13, $df=171$, and significant 2-tail values=0.14 and 0.26 both higher than the accepted value of 0.05. This implies that the Hypothesis which states that there is no significant difference in the teachers' readiness to use mobile learning platforms for literacy and numeracy instructions in rural Nigerian schools based on gender is accepted.

RQ2: What are teachers' attitudes toward the use of mobile learning platforms in instructional processes

HO2: Teachers' attitudes toward mobile learning platforms do not significantly influence their adoption for instructional purposes.

Fig. 3: Graph of teachers' belief on capability of Mobile Learning to compliment traditional learning process

Teachers' Adoption and Challenges of Mobile Learning Platforms in Nigerian Schools



From Figure 3, it is obvious that most teachers agree that Mobile Learning can complement traditional classroom activities. Fig. 4. Is more specific, reveals the extent of teachers' confidence on Mobile Learning technology.

Fig. 4: Graphic representation of teachers' confidence

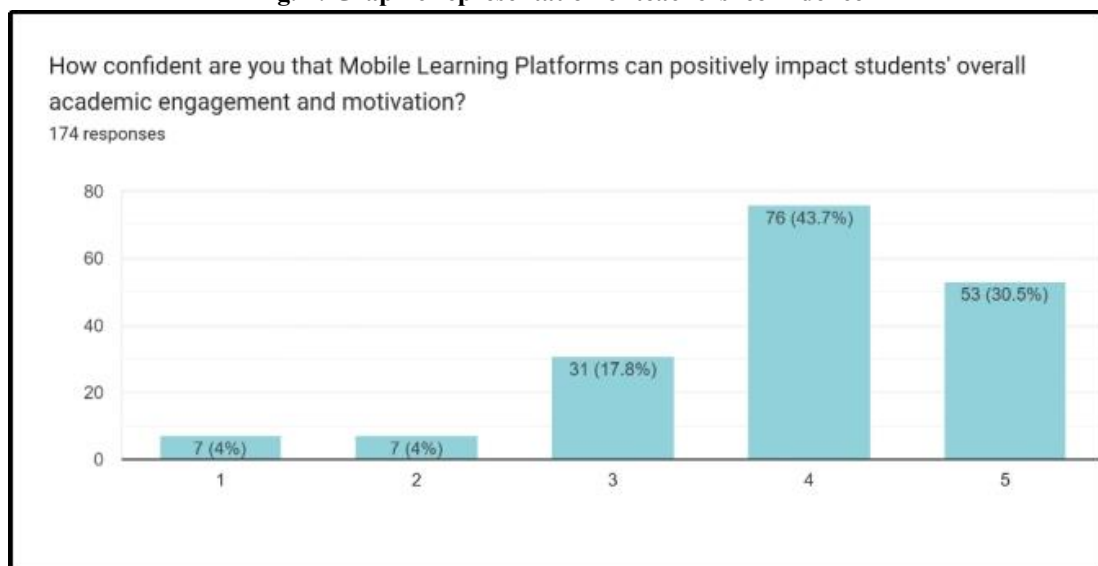


Figure 4 shows a graphic representation of number and percentages of teachers' responses on their confidence on the efficacy of Mobile Learning platforms' positive impact on students' overall academic engagement and motivation. A total of 160 (92%) affirmed their confidence on the effectiveness of Mobile learning platform to deliver learning while only a meager sum of 14 (8%) are on the negative. This result proves that teachers have strong belief that mobile learning platforms positively enhance learning and therefore impact their adoption of the platforms for instructional purposes.

RQ3: What challenges do teachers encounter in using mobile learning platforms for instruction?

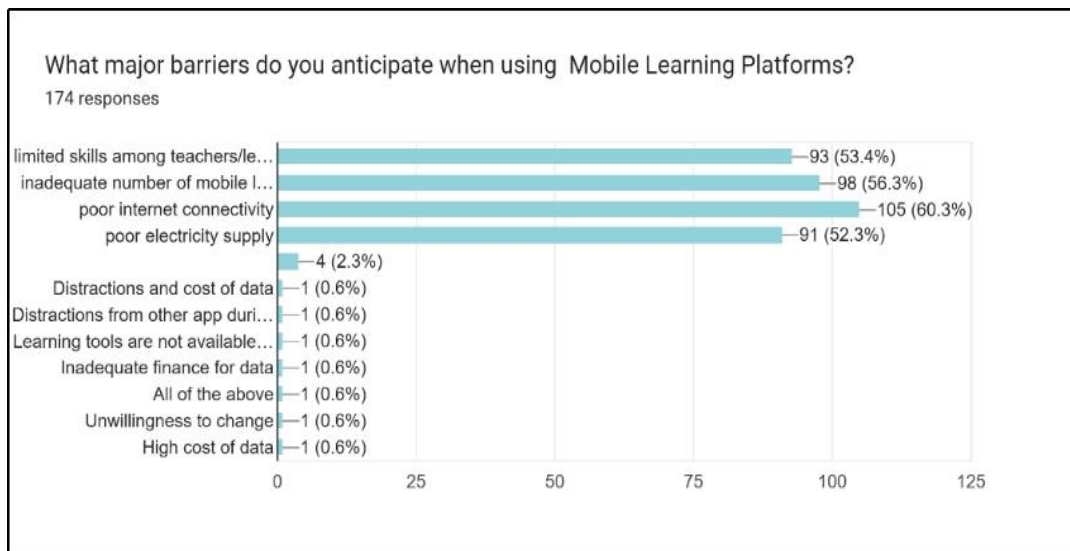
HO3: There is no significant difference in challenges faced by teachers' adoption of mobile learning platforms based on their highest qualifications.

Figure 5 reveals that teachers encounter several challenges when using mobile learning in instructional processes. However, the four major hindrances in their order of intensity are

1. Poor internet connectivity (105(60.3%))
2. Inadequate number of mobile learning devices/tools (98 (56.3%))
3. Limited digital skills among teachers and learners (93 (53.4%), and
4. Poor electricity supply (91(52.3%))

Fig. 5: Graphic representation of challenges to effective utilization of mobile learning platforms

Teachers' Adoption and Challenges of Mobile Learning Platforms in Nigerian Schools



Other obstacles are classified as minor (1(0.6%) each summed up as distractions, cost of data, limited tools, poor funding, and resistance to change. Since all the mean scores are above 2.5, all the teachers are aware of challenges encountered in the use of mobile learning platforms for instructions to a high extent irrespective of their years of teaching experience, school type, and school location.

Table 2: ANOVA table showing differences in the teachers' challenges based on highest qualification

Items	Sum of Squares	Df	Mean Square	F	Sig.	Decision
Between Groups	11.321	3	3.774	1.227	.302	NS – Accept HO
Within Groups	519.882	169	3.076			
Total	513.202	172				

The ANOVA analysis in table 2 shows that there is no significant difference in the level of perceived challenges of the teachers based on highest teaching qualification with $F=1.227$, $df=3, 169$, and significant 2-tail $=0.302$ which is higher than the accepted value of 0.05. This implies that the hypothesis which states that there is no significant difference in the teachers' perceived challenges in the use of mobile learning platforms for literacy and numeracy instructions in rural Nigerian schools based on highest teaching qualification is accepted.

Table 3: ANOVA table showing differences in the teachers' awareness based on teaching experiences

Items	Sum of Squares	Df	Mean Square	F	Sig.	Decision
Between groups	14.882	4	3.720	1.211	.308	NS – Accept HO
Within groups	516.320	168	3.073			
Total	531.202	172				

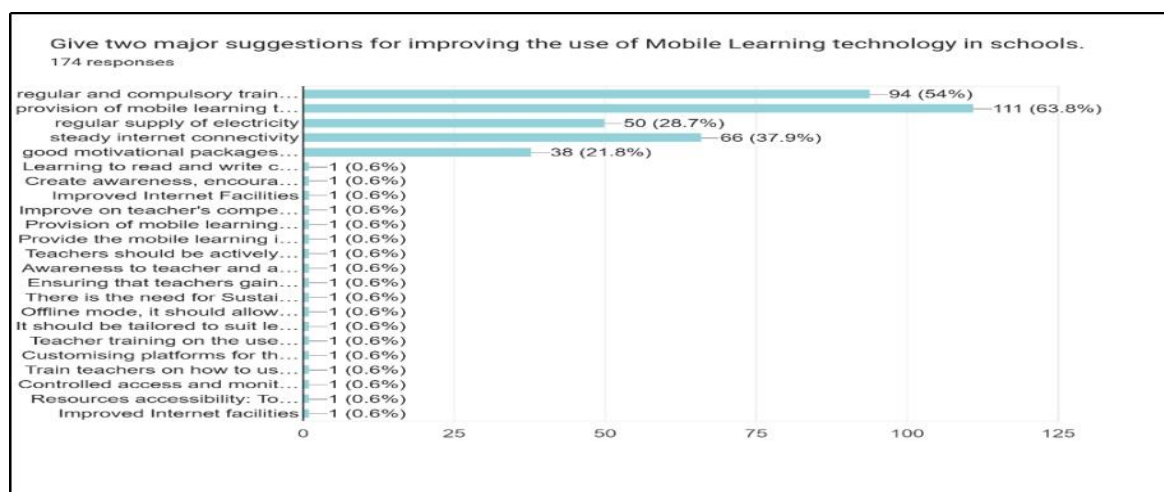
The ANOVA analysis in table 3 shows that there is no significant difference in the level of challenges encountered by the teachers based on years of teaching experience with $F=1.211$, $df=4, 168$, and significant 2-tail $=0.308$ which is higher than the accepted value of 0.05. This implies that the Hypothesis which states that there is no significant difference in the challenges faced by teachers in the use of mobile learning platforms for instructions in rural Nigerian schools based on years of teaching experience is accepted.

RQ4: What are the suggestions for effective adoption of mobile learning technology in schools?

Figure 5 shows that since all the mean scores are above 2.5, all the teachers are aware of challenges encountered in the use of mobile learning platforms for instructions to a high extent irrespective of their years of teaching experience and hence, could suggest solutions to overcome these challenges.

Fig. 6: Graphic representation of suggestions for improving the use of mobile learning technology

Teachers' Adoption and Challenges of Mobile Learning Platforms in Nigerian Schools



Decision rule: Mean of 3 = moderate extent. Therefore, mean 3.5 to 4.5 = high extent.

Hence, Figure 6 reveals five distinct suggestions in the order of highest percentage as -

1. Provision of mobile learning tools and platforms for teachers and learners (111(63.6%),
2. Regular and compulsory training of teachers (94 (54%)
3. Steady internet connectivity (66(37.9%),
4. Regular supply of electricity (50 (26.7%), and
5. Good motivational packages (38 (21.8%)

Some minor suggestions (1(0.6%) each include learning to read and write, create awareness, improve teachers' competence/train teachers, match the content of the mobile learning app with those of the school curriculum, etc.

RQ 5: What form of professional development do teachers require for effective adoption of mobile learning platforms?

Concerning the need for professional teachers' development, Figure 6 further reveals that 94 (54%) teachers responded in affirmation that regular and compulsory training of teachers is the right way to go. This positive response is irrespective of gender differences.

Summary of Findings: In summary, the findings show that -

1. Teachers, irrespective of gender, have the readiness to adopt mobile learning platforms for literacy and numeracy instructions in both urban and rural schools,
2. teachers in both public and private schools have positive attitude in the adoption of mobile learning platforms for literacy and numeracy instructions,
3. there are challenges facing the use of mobile learning platforms in Nigeria,
4. challenges facing the use of mobile learning platform could be surmounted if concerted efforts are made based on some major suggestions, and
5. mobile learning platforms hold great potential to improve instructional process with continuous teacher professional development.

DISCUSSION OF FINDINGS

The study showed that teachers have the readiness to use mobile learning platforms for literacy and numeracy instructions to a high extent, and so, supports the findings by Ahmed and Shittu (2024). Though the male teachers have slightly higher mean values than the female teachers; indicating that they are slightly more familiar with the use of mobile learning platforms for literacy and numeracy instructions. However, the independent t-test analysis shows that there is no significant difference in the level of readiness of the teachers based on gender. This implies that the Hypothesis which states that there is no significant difference in the teachers' readiness to use mobile learning platforms for literacy and numeracy instructions in rural Nigerian schools based on gender is accepted. This is in line with the findings of Jennie and Hwang (2021) and Abubakar and Yunusa (2024) indicating that teachers are ready to integrate mobile learning platforms into their teaching and learning activities.

The study also revealed that both teachers in public and private schools have positive attitude towards mobile learning platforms used for literacy and numeracy instructions to a high extent. Though the teachers in private schools have slightly higher mean values than those in public schools, they indicate that they are slightly more positive in their attitude with the use of mobile learning platforms for literacy and numeracy instructions. The independent t-test analysis shows that there is a significant difference in the level of positive attitude of the teachers based on school ownership. This implies that the hypothesis which states that there is no significant difference in the teachers' attitude to mobile learning platforms used for literacy and numeracy instructions in Nigerian schools based on school ownership is rejected. Teachers generally displayed positive attitudes toward mobile learning platforms,

Teachers' Adoption and Challenges of Mobile Learning Platforms in Nigerian Schools

agreeing that they enhance engagement and instructional effectiveness (Ifegbo, Umune, & Achuonye, 2026). However, the attitude of teachers in private schools is more positive than those in public schools.

This could likely be because of the attention given to private school owners as they would want to maintain quality education standards as to attract patronage. This also supports the finding of Bello (2018) on the adoption and utilization of mobile learning facilities. The study revealed that in Private universities learning facilities are adequate and accessible to users, and most teachers are comfortable with utilization of various facilities during classes compared to most public tertiary institutions although the utilization has not been maximized.

The study again revealed that all the teachers adopt mobile learning platforms for literacy and numeracy instructions to a high extent irrespective of their highest teaching qualification. This is a pointer to the fact that teachers appreciate the role of technology in enhancing teaching and learning process and are willing to use them despite the challenges faced in its usage. This also corroborates with the findings of Al-Adwan et al., (2013); Achuonye, Williams, and Longjohn, (2026), that teachers have positive perception on the use of mobile learning platforms for instruction and are willing to use them. This implies that positive attitudes are crucial for sustained use of mobile learning platforms. Bello (2018) found that attitude of users, inadequate internet facility, and inadequate training of users affect successful adoption.

The study further revealed that challenges encountered in the use of mobile learning platforms for instructions are of high extent irrespective of teachers' years of teaching experience. This also supports the findings of Bello (2018), Abubakar and Yunusa (2024). Based on the challenges, suggestions for provision of regular training and retraining of teachers, provision of facilities for mobile learning, amongst others were proffered which are substantiated by Achuonye, Ushie, and Williams (2026).

The study also showed that teachers, irrespective of their gender perceive to a high extent that the professional development of teachers has a great role to play in enhancing the use of mobile learning platforms for literacy and numeracy instructions. The corresponding independent t-test analysis all shows that the differences between the mean values of the male and female teachers are not significant. Hence the hypothesis which states that there is no significant difference in teachers' professional development for effective adoption of mobile learning platforms in improving students' literacy and numeracy skills based on gender is accepted. This goes to say that teachers' professional development is very key to the implementation of any innovation in the instructional process. It therefore calls for the regular training and retraining of teachers to be abreast with current trends in the education industry. This is in line with the findings of Abubakar and Yunusa (2024) and Ahmed and Shittu (2024) which stated that training and retraining is key for effective integration of mobile learning.

CONCLUSION

The study stresses that teachers' readiness, attitudes and professional development significantly influence the adoption of mobile learning platforms. It is therefore very necessary for professional development (learning from experts) programmes to incorporate ICTs into the teaching and learning processes. And unless teachers and educators model effective approach to the use of these facilities in their classes, it will not be possible to prepare a new generation of teachers who will effectively use the new tools for learning. The research also revealed that the introduction of mobile learning platforms will greatly excite and arouse the interest of learners, leading to increased attention and improved academic performance. However, challenges such as poor infrastructure and limited digital skills can hinder effective implementation. Addressing these challenges is essential for maximizing the benefits of Mobile Learning technology in Nigerian schools.

RECOMMENDATIONS

Based on the findings, the study recommends as follows:

1. Government and school administrators should provide regular professional development training on mobile learning.
2. Schools should improve internet connectivity and access to digital devices.
3. Educational policies should support the integration of mobile learning platforms.
4. Teachers should be encouraged to adopt innovative instructional strategies using mobile technologies.
5. Relying only on traditional teaching methods cannot improve the interest of learners in this 21st century (digital) era, therefore educational technology should be given more attention in our primary and secondary schools to provide better teaching strategies.

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