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RESEARCH ARTICLE

Investigating academic staff behavioral intention and readiness to utilise mobile devices for instructional delivery among tertiary institutions in Sokoto State, Nigeria

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Abstract: This research investigates academic staff's behavioural intentions and technological readiness regarding integrating mobile devices for instructional delivery among tertiary institutions in Sokoto State, Nigeria. Descriptive statistics were used to analyse responses from 325 academic staff members regarding their behavioural intentions, technological readiness, challenges, and perceptions of mobile device integration. The findings reveal a generally positive disposition among academic staff towards mobile device utilisation, with high mean scores indicating willingness to integrate mobile devices into teaching activities and positive perceptions of their impact on student learning outcomes. Despite challenges such as inadequate technological infrastructure, limited professional development opportunities, and resistance to change, it is crucial to implement strategic interventions. Recommendations have been made to improve institutional collaboration, infrastructure, technical support systems, and professional development to facilitate effective mobile device integration. These findings contribute to the discourse on technology-enhanced learning in Nigerian higher education and offer practical insights for policy-makers, administrators, and educators seeking to harness the potential of mobile devices for educational advancement.

Keywords: mobile learning, behavioural intentions, technological readiness, tertiary institutions

1 Introduction

Mobile devices have transcended their initial role as technological novelties and have become integral to the human experience, permeating various facets of daily life (Hedman et al., 2019; Jurayev, 2023). Once considered luxury items, mobile devices are now essential tools that enable communication, provide constant access to extensive information repositories, and facilitate global social interactions (Tülübaş et al., 2023). This shift is particularly notable in Nigeria, where mobile device proliferation has exceeded the total population (with a penetration rate estimated at over 100%), offering a unique opportunity to revolutionise education (Canton, 2021). In Sokoto State's evolving educational environment, a transformative movement redefines conventional pedagogical frameworks (Smith, 2018). The prevalent adoption of mobile devices, including smartphones and tablets, has catalysed this educational metamorphosis (Johnson & Williams, 2021). The escalating ownership rates of mobile devices worldwide, and in Nigeria specifically, herald a significant prospect for re-envisioning and reforming educational delivery in ways previously unimagined. As society advances toward a digital epoch, the assimilation of these portable devices into educational contexts has evolved from a fleeting trend to an imperative necessity (Brown & Jackson, 2019; Lavidas et al., 2022). This study embarks on an in-depth investigation into the academic psyche and institutional structures, aiming to decode the complexities of academic staff's behavioural intentions and their preparedness to harness the power of mobile devices for instructional delivery among tertiary institutions in Sokoto State.

In technology-enhanced learning, recent discourse has shifted from the confines of physical classrooms to the boundless opportunities afforded by mobile devices (Chen & Jones, 2022; Lavidas et al., 2022). Mobile learning devices can potentially revolutionise education by broadening the accessibility of educational materials and experiences beyond conventional settings. Such versatility and convenience are particularly advantageous in Sokoto State, enabling students to engage in educational pursuits at any time and location, thus promoting continuous learning (Uzunboylu, 2019). The remarkable ubiquity of smartphones and tablets

has opened avenues for pedagogical innovation, offering dynamic, interactive, and personalised learning experiences (Garcia & Smith, 2019). With the diminishing distinction between formal and informal learning and the increased availability of knowledge, it is essential to comprehend the perceptions and adaptability of academic staff to these advancements in technology (Wang & Ke, 2018), particularly in a developing country context. The significance of this study extends beyond the mere integration of devices into the educational framework; instead, it seeks to understand the fundamental shift in pedagogical paradigms, challenging educators to adapt, innovate, and engage, which is critical in the quest for an improved educational standard (Nafisat et al., 2016).

Integrating technology into the educational process offers many benefits, including acquiring essential skills and competencies that align with the contemporary workforce's demands (Karakose et al., 2021). The alignment holds paramount significance in shaping Sokoto State's future workforce, echoing the worldwide transition towards a dynamic job market centred on skills—a transition that attracts substantial interest from educators, policymakers, and industry leaders (Igwe et al., 2021). These stakeholders, including educators, politicians, and industry magnates in Sokoto State, have a profound stake in deploying mobile technology within educational spheres (Karakose et al., 2021). Their investment stems from the capacity of such technology to facilitate the enactment of efficacious policies and to enhance transparency and accountability in providing educational services (Jummai, 2021). Furthermore, they perceive mobile technology as a conduit for advancing the quality of education, bolstering the employability of graduates, and advancing the successful execution of policies in line with overarching national objectives (Nwajiuba et al., 2020). In light of this background, the present study seeks to enrich the expanding corpus of research regarding the perception of Mobile devices and the behavioural intention to assimilate this technology within tertiary education in the Sokoto State context. By doing so, it aims to bridge existing disparities, enhance inclusivity, and elevate the standard of education. Moreover, this research aspires to offer valuable perspectives on the extensive landscape of Nigeria's educational system, acting as a guiding light for policymakers and academic institutions to envisage a future where technology serves as an adjunct to, rather than a substitute for, the traditional art of teaching.

1.1 Statement of the problem

In the fast-evolving digital world, new technologies have become ubiquitous instruments with the potential to transform instructional practices. Mobile devices for instructional delivery are gaining traction in the educational sector, particularly among university institutions. Mobile devices provide numerous advantages for teaching and learning, including greater accessibility, affordability, and flexibility. Despite the ubiquity of mobile devices and widespread usage in society, a significant gap exists in understanding academic staff's behavioural intention and readiness to utilise these devices in their instructional activities. Moreover, there needs to be documentary evidence of this phenomenon in the literature in the context of tertiary institutions in Sokoto State. Therefore, understanding academic staff's willingness to adopt mobile devices in education is crucial, as their perceptions of the relevance, usefulness, and ease of use of these devices significantly influence their willingness to integrate them into their educational activities, given the contextual challenges of skills, sub-optimal internet connectivity, and electricity supply (Yunusa et al., 2019).

Integrating mobile devices into instructional activities presents a complex situation in Sokoto State tertiary institutions. These challenges include limited access to devices, reliable internet facilities and power supply, and concerns about data security and privacy (Uzoma et al., 2021). Resistance to change within established pedagogical paradigms is another area of concern (Vlachoudi et al., 2023). Academic staff often possess ingrained teaching methods and may resist adopting new approaches facilitated by mobile devices (Fullan, 2015). Overcoming this resistance requires understanding the factors contributing to their reluctance, such as fear of the unknown, lack of confidence, or concerns about disrupting established classroom dynamics. Addressing these psychological and pedagogical barriers is crucial for facilitating a smooth transition to mobile-assisted instruction.

1.2 Research questions

Thus, this study sought to answer the following research questions:

(1) What are academic staff's behavioural intentions towards using mobile devices for instructional delivery among tertiary institutions in Sokoto State, Nigeria?

(2) How ready are the academic staff regarding technology, skills, and support for integrating mobile devices in instructional delivery among tertiary institutions in Sokoto State?

(3) What challenges do academic staff envisage towards using mobile devices for instructional delivery among tertiary institutions in Sokoto State?

1.3 Conceptual framework

The conceptual framework explores critical concepts central to the study, including technology, mobile devices, behavioural intention, technological readiness, and the transformative impact of mobile technology in tertiary education. It also includes relevant theories to understand technology integration in tertiary education systems.

The dynamic nature of technology has brought about the existence of various definitions and concepts by different authors (Lampropoulos, 2023). According to Carroll (2017), technology is a system created by humans that uses knowledge and organisation to produce objects and techniques to achieve the desired goals. Carroll (2017) added that technology represents the combination of human understanding of natural laws and phenomena accumulated since the beginning to make things that fulfil human needs and desires. Ramey (2018) believes that technology is the application of science to find a solution to problems. However, it is essential to know that technology and science are different subjects that work together to accomplish specific tasks or solve problems.

Mobile devices have been extensively studied in various professional fields and applications (Kumar & Pande, 2023). For this study, mobile devices are typically used to describe portable devices that are easy to move around and connected to the internet**.** Notably, these devices are characterised by their small size and portability. Silverio-Fernández et al. (2018) emphasise the unique features of mobile devices, such as their portability and communication capabilities, which allow for seamless access from a single device. Ansari et al. (2017) elaborate, stating that mobile devices refer to devices that are not only transportable but also provide instantaneous access to information. This category encompasses a range of gadgets, including iPhones, MP3 players, Personal Digital Assistants, USB drives, E-Book Readers, Smartphones, Ultra-Mobile PCs, and Laptop/Tablet PCs (Singh & Malik, 2018). In essence, mobile devices comprise handheld IT artefacts, encompassing hardware (devices), software (interface and applications), and communication (network services). This comprehensive definition encompasses the different facets of mobile devices in today's interconnected and dynamic world.

Mobile learning, or m-learning, utilises mobile devices like smartphones and tablets to enable learning experiences anytime and anywhere (Al-Hunaiyyan et al., 2017; Ala & Najah, 2024). It extends beyond device usage to encompass interactions among educators, students, and learning environments, fostering knowledge construction through communication and collaboration (Lestari et al., 2019). This pedagogical strategy leverages the capabilities of mobile technologies to distribute educational resources, transcending temporal and spatial constraints (Oyelere et al., 2017). It enhances learner motivation and fosters engagement and interest in learning due to its interactive nature, contributing to a dynamic and positive learning environment (Alghazi et al., 2021; Yunusa et al., 2019).

1.4 Behavioural intentions for mobile device integration into instructional delivery

Behavioural Intentions play a crucial role in understanding the dynamics of technology adoption, especially in educational settings. From the social cognitive perspective, Astle et al. (2022) suggested that Behavioral intentions are shaped through observational learning. Academic staff are influenced by peers' successful adoption of mobile devices in instructional delivery (Chou & Chou, 2021). Intentions to use mobile devices vary, reflecting stages of awareness, interest, evaluation, trial, and adoption in the diffusion process. Ibrahim and Nat (2019) emphasise intrinsic motivation, stemming from autonomy, as a critical factor driving intentions. This underscores the personal nature of decision-making when incorporating mobile devices into teaching practices.

1.5 Dimensions of readiness in mobile technology adoption

Readiness for mobile technology adoption in education is a broad and complex concept encompassing several dimensions. Readiness refers to the ability of major educational stakeholders, including institutions, educators, and students, to effectively use mobile devices for learning. According to Ally and Samaka (2016), institutions play a critical role in successfully adopting mobile technologies by creating a suitable atmosphere that fosters the continual integration of mobile technologies into educational activities. Consequently, it entails ensuring the required

infrastructure is available, including technical support, policies, and resources required to sustain the mobile learning projects. Nikolopoulou et al. (2021) posited that teacher readiness goes beyond technological abilities and involves pedagogical awareness and willingness to modify instructional practices. Relatedly, Christensen and Knezek (2017) underline the significance of teacher readiness in successfully integrating technology, particularly mobile technologies, in the classroom. They argued that technological infrastructure readiness and institutional and teacher readiness are essential.

1.6 Transformative impact of mobile devices in tertiary education

The use of mobile devices in tertiary institutions has gained traction; research indicates that learners are coming to terms with the pedagogical implications of mobile device integration into higher education (Khan et al., 2019). The integration of mobile devices into tertiary education is a fast-evolving phenomenon, altering both teaching and learning as these devices are used to enhance learning experiences, promoting critical thinking and active involvement of the student in the form of personalised learning, as well as providing autonomy (Rodríguez et al., 2020). Educators employ mobile devices to provide captivating lectures that cross traditional boundaries, incorporating multimedia materials, instructional apps, collaborative platforms, and dynamic and engaging learning environments (Mazlan et al., 2021). Students gain autonomy by customising their educational experiences using educational apps, online resources, and interactive platforms (Chikuvadze & Munyaradzi, 2022). The flexibility of mobile devices allows students to extend their learning experience so that it can occur at any time and anywhere (Shuja et al., 2019). Consequently, Access to mobile technology allows students to design their learning contexts in terms of when, where, and how they feel they learn best, and learning becomes increasingly self-directed.

The use of mobile technology in education is relatively new in Nigeria and is still in its elementary stage. Despite this shortcoming, some initiatives and research studies have been conducted in that area. The study of Eze et al. (2013) examines factors influencing ICT adoption in Nigerian government universities. Despite the perceived benefits and competitive pressures of ICT solutions, government-owned universities are yet to exploit their full potential in their operations. Their investigation also highlighted that institutions with higher competence and technology readiness are more disposed to adopt ICT. Their investigation aligns with this study, stressing the importance of assessing staff readiness for tech adoption in education. However, it differs by focusing broadly on technology rather than specifically on mobile device adoption. Another study examined the factors impacting mobile learning adoption in higher education by Handal et al. (2013). The study sought the views of lecturers on educational issues affecting innovation effectiveness. The study uncovered alternatives and misconceptions about mobile learning pedagogies. Staff expressed concerns about the potential for superficial learning, distractions, and reduced interaction quality between academics and students. The concerns expressed by Handal et al. regarding the risks of exposing students to superficial learning and distractions caused by mobile devices underscore the critical need for this investigation. Understanding academic staff's behavioural intentions is pivotal to addressing these concerns and ensuring the development of pedagogically sound instructional practices. This aligns with the broader goal of enhancing the quality of education delivery. The study of Acheampong and Dei (2020) examines challenges in delivering library services via mobile technology platforms, highlighting barriers like insufficient ICT infrastructure and bureaucratic processes. Their investigation confirms the growing use of mobile devices among academic library users, emphasising convenience and remote access. The investigation into academic staff readiness gains further importance, considering the expanding role of mobile devices in facilitating access to educational resources. Understanding how academic staff perceive and adapt to these evolving technological tools is crucial for effective instructional delivery. Another investigation explored the mediating effect of intention to use on the relationship between mobile learning applications and knowledge and skill usage by Noor et al. (2021). The finding revealed an effect of perceived ease of use and perceived usefulness on employee knowledge and skill usage. This study highlights the importance of behavioural intention in mediating the relationship between technology adoption and its actual usage. Understanding the mediating effect of intention to use is crucial in assessing the readiness of academic staff to adopt mobile learning technologies for instructional delivery.

2 Methodology

This study employs a descriptive survey research design suitable for its large population. It utilises questionnaires to gather participants' responses, enabling a quantitative understanding

of the research problem (Rahi, 2017).

2.1 Population and sample

The study population comprises all lecturers in public tertiary institutions in Sokoto State. They were totalling 2,565 academic staff. Three tertiary institutions were purposively selected for the study: Usmanu Danfodiyo University Sokoto (UDUS), Shehu Shagari College of Education Sokoto (SSCOE), and Ummaru Ali Shinkafi Polytechnic Sokoto (UASPS), comprising 1,820 academic staff. The demographic characteristics of the respondents show that 80% of the respondents were males, while 20% of the respondents were females. Regarding institutional distribution, 55% of the respondents were from UDUS, 25% from the USPS, and 20% from the SSCOE. Additionally, 55% of the respondents are affiliated with science-related courses, while 45% are in Arts and Humanities. All the respondents confirmed ownership of mobile devices.

A multistage sampling approach was used to select participants from the overall population. In the first stage, purposive sampling was employed to select three tertiary institutions: Usmanu Danfodiyo University Sokoto (UDUS), Shehu Shagari College of Education Sokoto (SSCOE), and Ummaru Ali Shinkafi Polytechnic Sokoto (UASPS). In the second stage, simple random sampling was used to select a sample of 4 faculties, two schools and two colleges in UDUS, SSCOE and UASPS, respectively. The sample size was determined using the research advisors' (2006) sampling table, which recommended a sample size of 217 respondents from a population of 499. However, for better sample representativeness, the researcher increased the sample size to 325 lecturers based on the recommendation by Ibrahim and Marcus (2017), who opined that the sample size should be big enough for the researcher to detect the smallest worthwhile effect or relationship between variables. In the third stage, the snowball sampling technique was used to select respondents based on the population of the faculties, schools, and colleges in the respective institutions using proportional sampling techniques.

2.2 Instrumentation and data analysis

A questionnaire named Lecturers' Mobile Learning Adoption (LMLA) was used to gather data from the respondents and answer the research questions. LMLA is a self-constructed questionnaire consisting of four sections. Sections A gather personal data, while sections B to C collect opinions to address the research questions. The Likert and five-rating scales were employed to measure behavioural intention, technological readiness, and perceived challenges. The Likert Scale in sections B and C, which measures behavioural intention and technological readiness, ranges from: "Strongly Disagree" (SD) 1 points, "Disagree" (D) 2 points, "Neutral" (N) 3 points, "Agree" (A) 4 points, and "Strongly Agree" (SA) 5 points. The five-rating scale in second D, which measures perceived challenges and barriers, ranges from "Not Challenging" (NC), "Slightly Challenging" (SC), "Moderately Challenging" (MC), "Very Challenging" (VC), "Extremely Challenging" (EC). Accordingly, the respondents were guided to respond to the questionnaire items.

The LMLA instrument was subjected to validation in line with the research conventions by three measurement and content experts from the Faculty of Education and Extension Services, as well as other departments at Usmanu Danfodiyo University, Sokoto, who examined the instrument to ensure that all contents are measured, and the items in the instrument reflect the problem under study before implementation. Fifty-five items of the instrument were vetted. The remaining items irrelevant to the study or repeated questions were dropped. After all the adjustments were made, the instruments were judged to have met content validity.

To ascertain the reliability of the LMLA instrument, a pilot study was conducted at Sokoto State University (SSU), involving the random selection of 30 lecturers who were subsequently administered the instrument. The data collected underwent the Cronbach Alpha reliability test, yielding a reliability index of 0.913, indicating a high level of reliability for the instrument. As Koo and Li (2016) posited, an instrument is deemed reliable when its calculated reliability coefficient approaches one and less reliable when the coefficient nears 0.

Data was analysed using the Statistical Package for Social Sciences (SPSS). The study utilised frequency counts and percentages to elucidate the demographic characteristics of the respondents. At the same time, descriptive statistics, specifically mean scores, were employed to address research questions on behavioural intentions regarding using mobile devices for instructional delivery. The analytical process followed a systematic approach to extract meaningful insights from the collected data. Descriptive statistics, encompassing means and standard deviations, were computed for each statement relevant to the research inquiries, offering a quantitative depiction of central tendencies and variability in the data. Weighted averages were subsequently

calculated to derive an overall score for each research question, with weights assigned based on perceived significance, facilitating a nuanced interpretation of the findings. The mean score of each statement was independently analysed to identify discernible trends or areas warranting attention. Statements with higher mean scores signified more substantial agreement, whereas lower scores signalled potential challenges or areas necessitating intervention. Comparisons of weighted averages across research questions were conducted to ascertain overarching trends in academic staff attitudes, intentions, readiness, challenges, and perceptions, thereby fostering a comprehensive understanding of the research landscape.

3 Results

3.1 Descriptive analysis

The descriptive analysis was done by way of answering research questions as follows:

Research Question One: What are academic staff's behavioural intentions regarding using mobile devices for instructional delivery among tertiary institutions in Sokoto State? Table 1 presents the analysis of responses to Research Question 1.

Table 1 Behavioral intentions of academic staff regarding the use of mobile devices for instructional delivery (n = 325)

S/N	STATEMENTS	N	Mean	SD	Remark
1	I am willing to integrate mobile devices into my instructional delivery.	325	4.30	0.835	High
2	Using mobile devices in teaching activities benefits both educators and students.	325	4.26	0.895	High
3	My colleagues' opinions influence my intentions to use mobile devices for instructional delivery.	325	3.54	1.203	Low
4	Integrating mobile devices into my teaching methods aligns with my educational objectives.	325	4.05	1.025	High
5	I anticipate that incorporating mobile devices will enhance student engagement in my class.	325	4.16	0.883	High
6	Mobile devices are valuable tools for fostering interactive and collaborative learning environments.	325	4.18	0.909	High
7	Adequate training on using mobile devices positively impacts my behavioural intentions.	325	3.92	0.978	Low
8	Mobile device integration can improve the overall learning experience of students.	325	4.13	0.899	High
9	My colleagues in the academic community encourage the use of mobile devices for instructional delivery.	325	3.58	1.130	Low
10	I am adequately supported with the necessary resources to integrate mobile devices into instructional activities.	325	3.34	1.655	Low
	Weighted Average		3.95		

Source: Field Survey, 2023.

The results of Table 1 indicate positive behavioural intentions among academic staff in Sokoto State regarding using mobile devices for instructional delivery. The high mean scores (ranging from 3.54 to 4.30) suggest a willingness to integrate mobile devices into teaching methods. The weighted average of 3.95 confirms a generally favourable disposition toward mobile device utilisation. However, the slightly lower mean scores for statements related to colleague influence (3.54) and feeling supported with necessary resources (3.34) suggest potential areas for institutional support and collaboration improvement.

Research Question Two: How ready are the academic staff in terms of technology, skills, and support for integrating mobile devices in instructional delivery among tertiary institutions in Sokoto State? Table 2 presents the analysis of responses to Research Question 2.

The analysis in Table 2 shows a moderate technological readiness level among academic staff in Sokoto State. While there is confidence in adapting to new technological advancements and seeking opportunities for skill expansion (means ranging from 3.63 to 4.00), the weighted average of 3.54 suggests further enhancement. Areas such as access to necessary technological infrastructure (mean of 2.72) and institution-provided professional development opportunities (mean of 2.92) emerge as specific areas requiring attention.

Research Question Three: What challenges do academic staff envisage towards using mobile devices for instructional delivery among tertiary institutions in Sokoto State? Table 3 presents the analysis of responses to Research Question 3.

As illustrated in Table 3, Academic staff face challenges adapting instructional content to suit the mobile device format, maintaining student engagement, and ensuring compatibility with existing technologies. The challenges of dealing with technical glitches (mean of 2.87) and aligning practices with institutional policies (mean of 2.47) indicate areas for targeted support. However, the weighted average of 2.81 suggests that, on average, the challenges are perceived

as manageable, highlighting the need for strategic interventions.

Table 2 Technological readiness of academic staff in terms of technology, skills, and support for the integration of mobile devices in instructional activities (n = 325)

S/N	STATEMENTS	N	Mean	SD	Remark
1	I have access to the necessary technological infrastructure (e.g., reliable internet, compatible devices) for utilising mobile devices in instructional delivery.	325	2.72	1.309	Low
2	The institution offers professional development opportunities to enhance my skills in integrating mobile devices into instructional delivery.	325	2.92	1.286	Low
3	I adapt quickly to new technological advancements, including integrating emerging features in mobile devices.	325	3.63	1.244	High
4	I actively seek out opportunities to expand my technological skills, especially in the context of mobile device integration.	325	4.00	0.940	High
5	Regular training sessions on the use of mobile devices have significantly improved my technological competence.	325	3.86	0.970	High
6	I have the technical skills to utilise mobile devices in my teaching activities effectively.	325	3.73	1.170	High
7	My technological competence positively impacts my ability to enhance students' learning experiences through mobile devices.	325	3.86	1.054	High
8	The available educational resources are compatible and easily accessible for mobile devices.	325	3.45	1.301	Low
9	I receive timely feedback and assistance when facing technical challenges while using mobile devices for instructional purposes.	325	3.24	1.231	Low
10	I am confident in my ability to address technical challenges that may arise while integrating mobile devices in my instructional activities.	325	3.94	0.952	High
	Weighted Average		3.54		

Source: Field Survey, 2023.

Table 3 Challenges faced by academic staff when integrating mobile devices into instructional activities (n = 325)

S/N	STATEMENTS	N	Mean	SD	Remark
1	Adapting instructional content to suit the mobile device format.	325	2.27	1.097	Low
2	Maintaining student engagement when using mobile devices for instruction.	325	2.24	1.108	Low
3	Ensuring that mobile devices are compatible with existing instructional technologies.	325	2.28	1.086	Low
4	Dealing with unexpected technical glitches and malfunctions during instructional activities.	325	2.87	1.245	High
5	Availability of training opportunities for instructors on mobile device integration.	325	3.18	1.225	High
6	Accessing timely technical support when facing challenges during instructional activities.	325	3.14	1.215	High
7	Aligning instructional practices with institutional policies on mobile device use.	325	2.47	1.132	Low
8	Dealing with resistance to change among colleagues or students regarding mobile device use.	325	2.63	1.165	Low
9	Adequacy of institutional infrastructure to support widespread mobile device integration.	325	3.40	1.243	High
10	Addressing budget constraints related to acquiring and maintaining mobile devices.	325	3.66	1.258	High
	Weighted Average		2.81		

Source: Field Survey, 2023.

4 Discussion

This study examined academic staff's behavioural intention and readiness regarding integrating mobile devices into instructional delivery within tertiary institutions in Sokoto State, Nigeria. The analysis of data collected from respondents yielded the following outcomes:

(1) In terms of the Behavioral Intentions of Academic Staff, The findings indicate a predominantly positive disposition among academic staff towards integrating mobile devices for instructional purposes in Sokoto State's tertiary institutions. High mean scores across various indicators, including willingness, belief in benefits, alignment with educational objectives, and anticipation of improved student engagement, underscore a strong inclination toward incorporating mobile technology into teaching practices. These results echo previous research by Eze et al. (2013), underscoring the significance of evaluating academic staff readiness for technology adoption. However, the study also highlights areas necessitating attention, notably the influence of colleagues and perceptions of institutional support. The observed trends may be attributed to the considerable growth in internet connectivity and penetration and the narrowing

digital divides in Sub-Saharan Africa, particularly Nigeria, as suggested by Mtebe and Raisamo (2014). These advancements have permeated the education landscape, catalysing rapid changes in technological and pedagogical approaches to education.

(2) Additionally, the experience of the COVID-19 pandemic and its disruptive impact on education may serve as another influential factor shaping academic staff's intentions to adopt mobile devices. In addition, the overall attitude towards mobile device integration is positive; the lower mean scores for statements related to the influence of colleagues and perceived institutional support highlight areas necessitating improvement. The impact of peer influence on technology adoption and the availability of institutional support are pivotal determinants influencing the successful implementation of mobile device integration initiatives (Afrizal & Wallang, 2021).

(3) Regarding the Technological Readiness of Academic Staff, the results reveal a moderate technological readiness level among academic staff in the study context. Even Though there is confidence in adapting to new technological advancements and seeking opportunities for skill enhancement, other aspects require significant attention. Specifically, lower scores in access to necessary infrastructure and professional development highlight crucial areas needing intervention. These findings align with the study by Handal et al. (2013), who reported concerns among lecturers regarding distractions and reduced interaction quality in mobile learning environments despite the positives in technological readiness. Similarly, Camilleri and Camilleri (2017) reported that educators are aware that they ought to adapt their teaching methods to today's realities but need more confidence in integrating such technologies. Thus, they require continuous professional development and training to achieve that goal. In the context of this study, more research is needed to understand the depth of readiness for technology integration among academic staff in tertiary institutions. Nonetheless, as Camilleri and Camilleri (2017) advocate, investment in infrastructure and training will enhance educators' and infrastructural readiness for technology integration.

(4) Concerning the challenges faced by academic staff in integrating mobile devices into instructional practices, The results highlight significant areas of concern that warrant careful consideration and strategic interventions. The lower mean scores associated with challenges related to instructional content and student engagement suggest relatively manageable issues, the emergence of technical glitches, alignment with institutional policies, and budget constraints as higher challenges underscore the complexity of effectively integrating mobile devices in education. These findings resonate with existing literature, such as the study by Mtebe and Raisamo (2014) and Yunusa et al. (2019) emphasised challenges associated with global south contexts, particularly the issue of sub-optimal internet connectivity, poor electricity and competing budgetary constraints. Researchers such as Handal et al. (2013) and Eze et al. (2013) also highlighted similar obstacles, including technical difficulties, policy alignment issues, and concerns about pedagogical restructuring. Consequently, strategies such as providing technical support to address technical glitches, revising institutional policies to ensure alignment with innovative practices, and allocating adequate resources to mitigate budget constraints are essential to overcome these challenges.

5 Limitations of the study

Like all research endeavours, this study is subject to inherent limitations (Filho et al., 2023). Consequently, its generalizability may be constrained, primarily due to the reliance on self-reported data through the research instrument and the narrow scope of respondents limited solely to academic staff within tertiary institutions in the state. This exclusion overlooks other crucial stakeholders such as students, institutional managers/administrators, policymakers at the federal and state levels of education, and support personnel within these institutions. Methodologically, the study is further delimited by its utilisation of snowballing techniques for respondent selection rather than employing random sampling methods. This deviation was necessitated by challenges related to accessibility to academic staff and other logistical constraints. Nonetheless, despite these limitations, the study provides a foundational basis upon which future research endeavours may be built.

6 Conclusion

In conclusion, the findings of this study provide insights into the current landscape of academic staff's behavioural intention to integrate mobile devices into their instructional delivery among tertiary institutions in Sokoto State. While there is a positive inclination towards mobile

devices, specific challenges and areas for improvement have been identified. Addressing these challenges and implementing targeted interventions will contribute to a more effective and seamless integration of mobile devices for instructional delivery, ultimately enhancing the overall quality of education in Sokoto State. The findings reveal a positive disposition among academic staff towards using mobile devices for instructional delivery. The willingness to integrate indicates a solid inclination to embrace technology for pedagogical enhancement. However, some areas for improvement were identified. While academic staff demonstrate confidence in adapting to technological advancements and seeking skill enhancement opportunities, there exists a need for improvement in access to necessary technological infrastructure and institution-provided professional development. Strategic interventions in these areas are crucial for reinforcing overall technological readiness. The challenges academic staff faced in ensuring compatibility with existing technologies were identified. While technical glitches and budget constraints emerged as higher challenges, the weighted average suggests these challenges are manageable. Targeted interventions can alleviate specific pain points and enhance the integration process. Strong agreement on increased engagement, collaborative learning, critical thinking, and academic performance underscores the belief in the efficacy of mobile devices for instructional purposes.

7 Recommendations

Based on the findings of this study, the following recommendations were made viz:

(1) Providing platforms for knowledge-sharing and mutual support regarding mobile device integration is necessary to foster a culture of collaboration and knowledge-sharing among academic staff. Establishing institutional support systems to address challenges faced by academic staff would also be beneficial, thus emphasising a collective approach to problem-solving.

(2) Political and institutional leaders across the strata should invest in technological infrastructure and support systems by ensuring reliable internet access and power to enhance overall technological readiness among academic staff. They should prioritise funding and resource allocation to address budget constraints regarding acquiring and maintaining mobile device adoption.

(3)There is also the need to develop and implement targeted training programs to address specific technological challenges academic staff face. Regular training sessions on emerging features and applications of mobile technological devices should be provided to keep academic staff abreast of advances/trends in the field.

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Conflicts of interest

The authors declare that they have no conflict of interest.

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