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RESEARCH ARTICLE

# Mobile Phone Usage in Higher Education Among Pre-Service Teachers in Nigeria: A Qualitative Study

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**Abstract:** Technology integration has transformed education globally, making learning more accessible and seamless. Mobile education plays a crucial role in this transformation, relying heavily on mobile technology devices. Among these devices, mobile phones are particularly prevalent among students in higher education institutions worldwide. However, concerns have emerged regarding how students utilize these devices, prompting discussions among educational stakeholders. This study employed a qualitative research design, selecting 40 pre-service teachers through random sampling and conducting interviews to explore their experiences with mobile phone usage in natural contexts. Guided by the Uses and Gratifications Theory, the research addressed five key research questions. The findings indicate that students use mobile phones extensively, engaging actively on six social media platforms, with Facebook and WhatsApp being the most frequently used. Mobile phones are also widely utilized for academic purposes, with the majority of students using them for reading. Notably, the study identified gender differences in mobile phone usage patterns. Challenges associated with mobile phone usage were also highlighted, including a lack of teacher support and limited access to browsing data. The study concludes by offering recommendations to enhance the effective use of mobile phones for learning, including the implementation of policies to regulate and guide their use in educational settings.

**Keywords:** higher education, mobile phones, technology integration, social media, internet connectivity

## 1 Introduction

Technology integration has transformed education globally, making learning more accessible and seamless. A significant aspect of this transformation is mobile education, which relies on mobile technology devices – particularly mobile phones (Vaiopoulou et al., 2021). These devices are widely used by students in higher education institutions worldwide, including Nigeria, where nearly every university, polytechnic, and college student owns a mobile phone (Karakose et al., 2022).

Since their inception, mobile phones have significantly influenced Nigeria's educational landscape. Teachers and students use them to share information and facilitate learning. Gambari et al. (2021) noted that Nigerian colleges of education incorporate mobile phones as learning tools. Research indicates that students use mobile phones to collaborate with peers and access educational applications via the Internet (Calderón-Garrido et al., 2022). Aliyu and Yahaya (2020) observed that mobile phones in Nigeria have evolved from mere communication devices into essential learning tools. Similarly, Pagcaliwagan and Baja (2019) highlighted their multifunctionality, including business transactions and spelling corrections. Mobile phones played a crucial role in Nigeria's education system during the COVID-19 pandemic lockdown. According to Thomas et al. (2013), these devices enhance student engagement and motivation, extending teaching and learning beyond physical classrooms.

However, concerns regarding mobile phone misuse among Nigerian students have grown, overshadowing their benefits. Charles (2025) asserted that mobile phone use distracts students from learning. Ejie et al. (2019) found that secondary school students in Nigeria are often addicted to movies, music, and video games on their phones. Nakkudu and Dipeolu (2023) reported that phone addiction is prevalent among Nigerian university students, while Norazman and Mothar (2023) identified a correlation between phone addiction and lower academic

performance. Mobile phone addiction among university students in China is also becoming increasingly worrisome due to its impact on mental health (Zeb et al., 2024). Similarly, Garcia-Santillan and Espinosa-Ramos (2020) concluded that excessive phone use negatively affects academic achievement, as many students spend significant time on social media while neglecting their studies.

Research suggests that social media, when used appropriately, can enhance learning (Nannim et al., 2023; Aina & Olanipekun, 2018). However, studies show that students often engage with these platforms for non-academic purposes, such as gaming, films, and entertainment. Facebook, WhatsApp, and Instagram are the most frequently used social media platforms among Nigerian higher education students (Ijeh & Iburho, 2023; Egielewa et al., 2021).

Gender disparities in mobile phone usage have also been documented (Papadakis, 2020). Gada (2017) found that, in a survey conducted at Alabama University, USA, male students scored higher than female students in mobile phone use for emails, gaming, music, and picture sharing. Conversely, Lionel et al. (2024) reported that female students in Nigerian schools use mobile phones more frequently during lessons for chatting, gaming, and music. Bianchi and Phillips (2005) found that male students tend to use mobile phones more frequently than their female counterparts. Female pre-service teachers experience more difficulties uploading and downloading content using mobile phones than male students (Abdullahi, 2020). Taywade and Khubalkar (2019) asserted that female students engage more in internet-based personal communication and information gathering compared to their male peers. Women also tend to use mobile phones for a longer duration daily than men (Rogue-Hernandez, 2024). These differences may stem from social and cultural factors, as well as variations in technology adoption. Understanding these disparities is crucial in developing nations to address the unique needs and behaviors of all students (Papadakis et al., 2020).

To maximize the positive impact of mobile phones in education, it is essential to address existing challenges. Edeh (2019) identified high mobile data costs, socio-cultural factors, and infrastructure limitations as major barriers for Nigerian students. Tossell et al. (2015) cautioned that using mobile phones for non-educational purposes can hinder learning experiences. Additionally, Ferrari (2013) highlighted digital literacy issues among students and educators, which can impede the effective use of mobile phones in classrooms. This challenge is particularly relevant in Nigeria, where educational resources and training opportunities remain limited.

Given this background, this study employs a qualitative method to investigate mobile phone use among higher education students in a college of education in Nigeria. The research focuses on mobile phone addiction, social media use, gender differences, and challenges related to mobile phone use for learning.

## 1.1 The Objectives of the Study

The five fundamental objectives are to investigate:
(1) The extent to which students use mobile phones every day;
(2) How students are using social media;
(3) How students use mobile phones for learning;
(4) How the use of mobile phones by students varies based on gender;
(5) The challenges hindering students from using mobile phones for learning.

## 1.2 Research Questions

(1) To what extent do students use mobile phones daily?
(2) Which social media platforms do students use on their mobile phones?
(3) How did students use mobile phones for learning?
(4) Are there gender differences in how students use mobile phones?
(5) What challenges do students face when using mobile phones for learning?

## 1.3 The Significance of the Study

Extensive research has been conducted on the utilisation of mobile phones among students in different educational institutions across both developing and developed nations globally. However, this is unique to preservice teachers. Therefore, the research is significant in many ways, as highlighted below:

(1) The study will inform parents about the role of mobile phones in student learning, which may help them guide their children more effectively.

(2) The study's findings could serve as a key reference for educators to properly integrate

mobile phones into classroom instruction in many developing African countries.

(3) The study has the potential to be advantageous for students globally, as it can aid in their comprehension of the influence of mobile phones on their educational progress.

(4) The study could assist governments in formulating effective policies for integrating mobile phones into the education sector.

(5) It could also aid curriculum planners in developing curricula for all subjects, incorporating mobile phones into classroom instruction.

(6) It could help students adapt to the emerging trend of mobile learning in many African countries.

### 1.4 Theoretical Framework

This study is underpinned by the Uses and Gratifications Theory (UGT), a theoretical framework that explores the behaviors individuals engage in when using media or technology, including both traditional and modern platforms such as mobile phones. The theory asserts that individuals are proactive consumers of media, making deliberate choices regarding its usage (Egede & Chuks-Nwosu, 2013). According to UGT, people use media – such as mobile phones – to fulfill specific demands and needs (Vinney, 2024). It portrays individuals as active and motivated in their media consumption choices.

Two key principles about media users are central to UGT. First, media users are active selectors of the media they consume, meaning they are not passive recipients but rather engaged and motivated by their choices. Second, users have a clear understanding of why they choose specific media platforms, allowing them to fulfill particular needs and preferences. Based on these principles, UGT provides a set of assumptions that are particularly relevant to this study.

Katz et al. (1974) proposed five principles of media usage, of which the following are most applicable to the current study:

(1) Media usage is driven by specific goals;

(2) Individuals select media based on their specific needs;

(3) Social and psychological factors influence the impact of media on behavior;

(4) People have control over their media consumption rather than being passively influenced by it.

Students use mobile phones based on personal choices, and previous studies indicate that most mobile phone users actively engage with these devices. Research suggests that students primarily use mobile phones for communication, whether for academic or social purposes. Their mobile phone usage is influenced by their individual perspectives and needs. Furthermore, mobile phones have impacted students' behavior, and the ability of some students to regulate their usage may explain why not all students develop an addiction to these devices. Given these considerations, the selection of UGT as the theoretical framework for this research is well-justified.

## 2 Literature Review

The rapid advancement of technology has led to the widespread adoption of mobile devices, making mobile phones particularly common among students (Kalogiannakis & Papadakis, 2020; Wang et al., 2018). According to Abdumalik and Anka (2024), concerns have emerged regarding the negative impact of mobile phones on students' academic performance as their usage continues to rise. Urien and Courage (2024) argue that students' attachment to mobile phones affects classroom learning. While smartphone usage is essential for students, habitual use has been linked to distractions and negative behaviors in Nigerian schools (Lionel et al., 2024). Although mobile phone usage is prevalent among university students in Nigeria, it is also associated with behavioral concerns (Nakkudu & Dipeolu, 2023). Mobile devices serve multiple functions, including SMS, phone or video communication, social networking, and educational applications (Alakurt & Yilmaz, 2021). Charles (2025) contends that the integration of mobile phones into Nigeria's education system has facilitated mobile learning, particularly in rural and remote areas.

Schools worldwide have increasingly integrated mobile phones into the learning process. Due to their accessibility and mobility, many students actively use mobile phones (Ahad & Anshari, 2017). Hossain (2019) notes that mobile phones positively influence students' learning and enhance academic achievement. Mobile phones have become a critical component of today's digital information environment, shaping behavior and transforming the global economy (Ifejika et al., 2017). However, while mobile phone usage is a global phenomenon, research has

shown its potential negative impact on students' academic performance (Norazman et al., 2023). The rapid advancements in social media and internet technology have made mobile devices indispensable in daily life (Odabas & Kahramanoglu, 2023).

Research on mobile phone usage is a global issue with diverse contextual findings (Papadakis, 2020). García-Santillán and Espinosa-Ramos (2020) reported that in Tokyo, mobile phones were primarily used for email communication. A meta-analysis conducted by Sunday et al. (2021) in the United States highlights the educational benefits of mobile phones, including bridging the digital divide, assisting students with homework, and facilitating peer collaboration. Calderón-Garrido et al. (2022), in a systematic review of Spanish universities, found that mobile phones could enhance students' academic performance under specific conditions. Conversely, Kaysi et al. (2021) conducted research among university students in Turkey and found that excessive mobile phone usage distracted students from their studies. In Nigeria, Subair et al. (2019) reported that university students primarily use mobile phones for social media platforms such as WhatsApp, Facebook, and YouTube. Similarly, a study by Chen et al. (2017) in China found that male students exhibited higher levels of mobile phone addiction than their female counterparts.

Ifeanyi and Chukwuere (2018) examined the significant impact of smartphones on undergraduate students' academic performance. As educators seek to incorporate mobile learning into the classroom, it is essential to assess the role of mobile phones in education (Keengwe et al., 2014). Harris and Cooper (2019) identified two primary challenges students face when using mobile phones for learning: the high cost of devices and expensive mobile data charges. Nwachukwu and Onyenankeya (2017) asserted that a large proportion of students primarily use mobile phones for social purposes rather than academic activities. Smartphone usage directly affects the time students allocate to academic tasks and their overall productivity. Additionally, it can indirectly impact students' educational outcomes by influencing their health (Amez & Baert, 2020). Wang et al. (2023) advocate for the integration of mobile phones into classroom instruction. Onyema (2019) identified several challenges associated with mobile learning, including disparities in access to digital technology, socio-cultural factors, instances of misuse, financial barriers, and network limitations. Harris and Cooper (2018) further noted that mobile phones have had a positive impact on individuals in the United States, South Africa, and India.

Gender disparities in mobile phone usage have been widely studied. Porter et al. (2020) found that girls in Ghana and Malawi had lower mobile phone ownership rates compared to boys. However, in South Africa, females aged 19–25 exhibited higher rates of phone ownership than their male counterparts. Prior research on gender differences in mobile phone usage has yielded inconclusive findings. Gada (2017) highlighted significant gender differences in both the opportunities and challenges associated with mobile phone use in education. Abdullahi (2020) found that male pre-service teachers in a Nigerian College of Education used smartphones more frequently for class assignments, whereas female students were more likely to read and download e-books. Taywade and Khubalkar (2019) reported that female students used mobile phones more often than male students and identified significant gender variations in usage patterns. Rogue-Hernandez (2024) found that women spend more time on mobile phones for messaging and social networking.

Theoretical perspectives are essential to educational research (Giannoukos, 2024). According to Katz et al. (1974), the Uses and Gratifications Theory (UGT) identifies several key principles of media consumption. First, media usage is intentional and goal-driven. Second, individuals select media based on specific needs. Third, social and psychological factors shape the effects of media on behavior. Fourth, media platforms compete for an individual's attention alongside other forms of communication. Lastly, users actively engage with media rather than passively consuming content. In real-life contexts, students interact with mobile phones to meet specific needs and desires, which can be analyzed through the lens of the Uses and Gratifications Theory (Baheel, 2024).

Qualitative research is a valuable approach for gaining deeper insights into complex phenomena (Adeniran & Tayo-Ladega, 2024). Its significance in educational research has grown due to its ability to explore intricate challenges in depth (Mantula et al., 2024). Dehalwar and Sharma (2023) highlight that qualitative studies typically involve smaller sample sizes, allowing for a comprehensive examination of individual experiences. This research method employs various data collection techniques, including interviews, focus groups, observations, and content analysis (Pregoner, 2024). In this study, data was collected through interviews (Devender, 2024). Among different interview formats, semi-structured interviews are particularly effective in qualitative research, as they facilitate the collection of in-depth information relevant to the

study's objectives (Ruslin et al., 2022). Naz et al. (2022) further emphasize that semi-structured interviews are instrumental in understanding participants' experiences and perceptions within the study's core themes.

# 3 Methodology

This study employs a qualitative research design, with data collected through interviews. Qualitative research is an effective approach for capturing participants' perspectives and uncovering their lived experiences (Elhami et al., 2022). This method was chosen to gain an in-depth understanding of how pre-service teachers use mobile phones in their natural environments (Ugwu & Eze, 2023). The study follows international ethical guidelines (Petousi & Sifaki, 2020).

## 3.1 Participants

Forty students from a college of education in Nigeria were randomly sampled for this study during the second semester of the 2023/2024 academic session in June 2024. The selected institution is a teacher training college responsible for preparing educators for basic and junior secondary schools. This college was chosen due to the pivotal role that teachers play in any education system. The participants, primarily young adults aged 18 to 30 years, represent the two major religions in Nigeria.

## 3.2 Research Instrument

The research instrument used in this study is an interview protocol, consisting of semi-structured interviews designed to explore mobile phone usage among students. The protocol includes five core questions, with additional follow-up questions introduced based on participants' responses to gain deeper insights. To ensure validity, the interview protocol was reviewed by three researchers before its administration.

## 3.3 Data Analysis

The data collected from the interviews were analyzed using thematic coding, enabling an in-depth exploration of participants' experiences and perspectives. This process led to the identification of four key themes from the interview transcriptions:

(1) Theme 1: Daily Hours of Mobile Phone Use – This theme explores the frequency and duration of mobile phone usage among pre-service teachers, highlighting differences in screen time related to academic and personal activities.

(2) Theme 2: Use of Mobile Phones and Social Media Platforms – This theme examines pre-service teachers' engagement with social media, including their preferred platforms and the impact of social networking on their academic and social lives.

(3) Theme 3: Browsing Data on Mobile Phones – This theme analyzes the types of content accessed through mobile browsing, covering educational resources, entertainment, and general internet usage trends.

(4) Theme 4: Teacher Permission to Use Mobile Phones in the Classroom – This theme investigates institutional policies and educators' perspectives on mobile phone usage during lessons, emphasizing the impact of these regulations on student participation and learning experiences.

## 3.4 Results

Given the large number of participants, transcribing all interviews in full would be impractical. Instead, excerpts from the interviews are presented, supplemented by tables and charts to report participants' responses comprehensively.

Excerpts from the interviews (Theme 1)
Researcher: On average, how many hours do you spend using your mobile phone daily?
Annotel: I spend an average of five hours each day.
Kontika: I spend no less than ten hours daily.
Denbu: On average, I use my phone for approximately fifteen hours per day.

Table 1 presents the daily hours spent using mobile phones. The data indicate that 18 participants use their mobile phones for 1–5 hours per day, 12 participants for 6–10 hours per day, 7 participants for 11–15 hours per day, and only 3 participants for 16–24 hours per day. The table further suggests that 3 participants (7.5%) and 7 participants (17.5%) out of the total 40

may be classified as addicted to mobile phones, while the remaining participants are considered moderate users.

**Table 1** Daily Mobile Phone Usage Hours

| s/n | Hour range | No of Male participants | No of female participants | Total |
|---|---|---|---|---|
| 1 | 1-5 | 10 | 8 | 18 |
| 2 | 6-10 | 6 | 6 | 12 |
| 3 | 11-15 | 1 | 6 | 7 |
| 4 | 16-24 | 2 | 1 | 3 |

Excerpt from the Interviews (Theme 2)

Researcher: Can you describe some of the tasks you perform using your mobile phone?

Kolikoli: I use my mobile phone for many activities, such as browsing Facebook, WhatsApp, and TikTok.

Sheb: I primarily use my phone for chatting on Telegram and WhatsApp, and sometimes for watching YouTube videos.

Cus: I watch films, play games, listen to music, and also use my mobile phone to sell airtime and data.

Table 2 presents the social media platforms used by participants based on their interview responses. The data indicate that Facebook is the most frequently used platform, with 12 participants reporting regular engagement. WhatsApp follows closely, with 10 participants actively using it. In contrast, Instagram and YouTube are the least utilized platforms, with only 1 and 2 participants engaging with them, respectively. (see in Figure 1)

**Table 2** Social Media Usage

| S/N | Platform | Male | Female | Total |
|---|---|---|---|---|
| 1 | Facebook | 6 | 6 | 12 |
| 2 | Instagram | 1 | 0 | 1 |
| 3 | Telegram | 4 | 4 | 8 |
| 4 | Tik Tok | 2 | 4 | 6 |
| 5 | WhatsApp | 4 | 6 | 10 |
| 6 | YouTube | 2 | 0 | 2 |

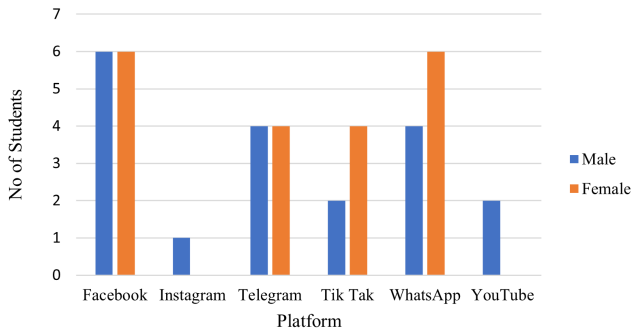


**Figure 1** Social Media Usage

Excerpts from the Interviews (Theme 2)

Researcher: What academic activities can you perform on your mobile phone without an internet connection?

Ajek: I use my mobile phone for calculations, sending SMS, as a dictionary, for reading, and occasionally for class assignments.

Abdaf: Without an internet connection, I primarily use my mobile phone for calculations and reading.

Oluawo: When there is no internet connection, I use my mobile phone for reading and as a dictionary.

Table 3 presents the various activities students engage in using their mobile phones. Reading emerges as the most common activity, with 14 students utilizing their mobile phones for this purpose. Following this, 12 students use their mobile phones for calculations. Additionally, 10 students reported using their devices to watch films, while 9 students each engage in chatting and

playing games. Five students use their mobile phones for dictionary purposes, listening to music, and sending short messages (SMS). Moreover, three students use their mobile phones for taking pictures and conducting business. These findings suggest that a considerable number of students engage in academic activities on their mobile phones, such as reading, calculations, dictionary use, and completing assignments. This is an encouraging trend among the 40 participants, highlighting the educational potential of mobile phone usage.

**Table 3** Mobile Phone Usage

| s/n | Activities | Male | Female | Total |
|---|---|---|---|---|
| 1 | Assignment | 2 | 2 | 4 |
| 2 | Business | 2 | 1 | 3 |
| 3 | Calculation | 4 | 8 | 12 |
| 4 | Chat | 2 | 7 | 9 |
| 5 | Dictionary | 2 | 3 | 5 |
| 6 | Film | 4 | 6 | 10 |
| 7 | Game | 4 | 5 | 9 |
| 8 | Music | 2 | 3 | 5 |
| 9 | Picture | 1 | 2 | 3 |
| 10 | Reading | 9 | 5 | 14 |
| 11 | S.M.S | 2 | 3 | 5 |

Figure 2 illustrates gender differences in mobile phone usage among students. The data indicate that male students use mobile phones more frequently for reading and business-related activities. In contrast, female students engage more in activities such as calculations, chatting, dictionary use, watching films, playing games, listening to music, and viewing pictures.

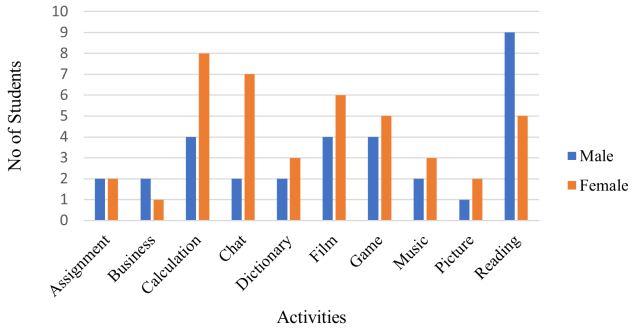


**Figure 2** Mobile phone usage

Excerpts from the Interviews (Themes 3 and 5)

Researcher: Do you have browsing data on your mobile phone every day? If so, for how many hours?

Gulu: I have browsing data on my mobile phone only one day per week.

Kenti: Yes, I always have browsing data on my mobile phone every day.

Gele: I cannot afford browsing data on my mobile phone.

Table 4 presents data on students' access to browsing data. The findings indicate that only five students have daily internet access, while 28 students have occasional access, and 12 students do not have access to browsing data at all. These results highlight a significant concern, as only a small proportion of the 40 students surveyed have consistent access to mobile data for internet browsing. This limitation poses challenges for higher education in an era where technology integration is essential for academic success.

**Table 4** No of Students with Access to Browsing Data

| s/n | Day per week | No of students |
|---|---|---|
| 1 | 1 | 4 |
| 2 | 2 | 3 |
| 3 | 3 | 7 |
| 4 | 4 | 3 |
| 5 | 5 | 3 |
| 6 | 6 | 3 |
| 7 | 7 | 5 |

Figure 3 indicates that 30% of students do not consistently have internet access on their mobile phones, highlighting a significant digital divide among participants.

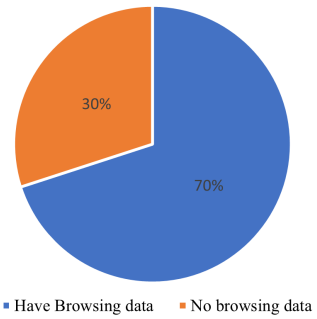


**Figure 3** Browsing data access

Excerpts from the Interviews (Theme 4)
Researcher: Do your lecturers permit the use of mobile phones in the classroom?
Adeofi: No, lecturers do not permit the use of mobile phones in the classroom.
Aja: I do not allow students to use mobile phones during lecture time.
Eran: Sometimes, lecturers allow mobile phones in the classroom.

# 4 Discussion

The results presented above provide insights into the research questions guiding this study. The findings suggest that participants actively use mobile phones, aligning with the principles of the Uses and Gratifications Theory (Gao, 2023). The study indicates that students spend significant time on their mobile devices daily (Theme 1), with 55% of participants using their phones for six to twenty-four hours each day. This result is consistent with Kaysi et al. (2021), who reported that university students frequently use smartphones. Similarly, Chen et al. (2017) found that mobile phones are indispensable tools for Chinese university students. Harris and Cooper (2018) noted that some individuals prioritize mobile phone usage over essential needs such as eating. According to Smith (2015), 46% of surveyed Americans stated they could not live without their mobile phones. Hossain (2019) asserted that mobile phones have become an integral part of university students' daily lives, while Alakurt and Yilmaz (2021) confirmed that mobile phones are the most widely used mobile devices globally. However, this extensive usage may have serious academic implications, as highlighted by Norazman et al. (2023). Ifeanyi and Chukuwuere (2018) argued that excessive mobile phone use distracts students from learning. Thus, this study confirms that mobile phone usage is prevalent among students in higher education, addressing research question one.

Findings related to the social media platforms students use on their mobile phones indicate that participants engage with six different platforms (Theme 2). Research suggests that social media has significantly enriched human interactions (Tham & Wong, 2023), and its role in education cannot be overlooked. Subair et al. (2019) emphasized that social media facilitates collaboration among instructors, students, and academic communities. Nannim et al. (2023) agreed that students' use of social media contributes positively to their academic performance. Similarly, Egielewa et al. (2021) found that social media usage correlates with improved student grades.

Moreover, participants in this study reported using Facebook, WhatsApp, Telegram, and TikTok more frequently than other platforms, aligning with previous research findings. TikTok has been recognized as a valuable educational tool, as Lemana et al. (2024) argued that it helps teachers manage workload stress. Haq and Chand (2012) found that Facebook remains a popular platform among university students, while Subair et al. (2019) observed that students frequently use WhatsApp and Facebook. Adeosun and Akinwalere (2022) reported that students prefer Facebook over other platforms, whereas Egielewa et al. (2021) found that students favored WhatsApp more than Facebook. Ijeh and Ibruho (2023) identified WhatsApp, Facebook, and YouTube as the most frequently used social media platforms among students. These findings sufficiently address research question two.

The study also reveals that students use mobile phones for various academic activities (Theme 3), with reading being the most common use. Additionally, students utilize mobile phones as calculators and dictionaries, complete class assignments, and send short messages (SMS). This

finding is consistent with Pagcaliwagan and Baja (2019), who noted that students use mobile phones as thesauruses and dictionaries. Mohammadi et al. (2020) reported that consulting dictionaries and thesauri on mobile phones is a common academic activity among students. Similarly, Ataş and Çelik (2019) found that students frequently use mobile phones for texting, either among themselves or with their teachers. However, this finding differs from Nwachukwu and Onyenankeya (2017), who found that only a small proportion of students use mobile phones for academic purposes. These results address research question three.

The study also highlights gender differences in mobile phone usage among pre-service teachers. The findings indicate that female students use WhatsApp and TikTok more frequently than male students, while there is no significant gender difference in the use of Facebook and Telegram. However, male students use Instagram and YouTube more frequently than females. In terms of academic activities, female students lead in calculations, dictionary usage, chatting, and SMS, while male students engage more in reading. These findings contrast with Hilao and Wichadee (2017), who found no significant gender differences in mobile phone usage, but they align with Bianchi and Phillips (2005), who reported that male students use mobile phones more than females. The varying patterns of mobile phone usage support the Uses and Gratifications Theory, which posits that individuals select media based on their specific needs. These findings effectively address research question four.

Finally, the results indicate that most students do not have regular access to browsing data on their mobile phones (Theme 4). Only five students reported having daily internet access. This finding supports Bon (2007), who argued that the digital divide between developed nations and Africa is primarily due to inadequate internet connectivity. This issue is particularly concerning in the digital age, where internet access is crucial for academic success (Karakose et al., 2022; Amponsah et al., 2022). Furthermore, the study reveals that teachers generally do not permit mobile phone use in the classroom, contradicting findings by Wali and Omaid (2020) and Thomas et al. (2013), who reported that some educators support mobile phone usage for instructional purposes. These challenges highlight barriers to using mobile phones for academic purposes in higher education, effectively addressing research question five.

Based on the research findings, the author can conclude that:

(1) Pre-service teachers extensively use mobile phones;

(2) Students engage with six social media platforms, with Facebook and WhatsApp being the most widely used;

(3) Students utilize mobile phones for various academic purposes, with reading being the most common activity;

(4) Gender differences exist in mobile phone usage patterns among students;

(5) The primary challenges students face in using mobile phones for learning include limited internet access and restricted teacher approval of mobile phone usage in classrooms.

# 5 Conclusion

This study examines mobile phone usage among pre-service teachers in schools, employing a qualitative research design. This approach was chosen for its ability to provide an in-depth understanding of participants' experiences with mobile phone use in their natural environment. Grounded in the Uses and Gratifications Theory, the study seeks to answer five research questions. To achieve this objective, randomly selected students were interviewed during the second semester of the 2023/2024 academic session. A semi-structured interview approach was deemed the most appropriate method for obtaining relevant data to address the research questions formulated at the study's inception. The collected data were rigorously analyzed to generate insights into various aspects of mobile phone usage among pre-service teachers. Means, percentages, and thematic coding were utilized to analyze the data and answer the research questions.

The findings indicate that participants extensively use mobile phones, engaging with six different social media platforms. Additionally, students utilize mobile phones for various academic activities, including reading, completing class assignments, and using their devices as calculators and dictionaries. Based on these findings, the study provides several recommendations to enhance the effective use of mobile phones in educational settings.

Some suggestions based on the study findings are as follows:

(1) A policy should be implemented to regulate mobile phone usage in schools, preventing excessive use that may negatively impact students' academic performance.

(2) Students should receive proper orientation on utilizing social media for educational

purposes, enabling them to engage with academic content rather than using these platforms solely for entertainment.

(3) Schools should ensure reliable internet connectivity through institutional Wi-Fi, allowing students uninterrupted access to academic resources on their mobile devices.

(4) Teachers should be encouraged to integrate mobile phones into classroom learning while ensuring appropriate monitoring and supervision.

(5) Further research is needed to explore gender disparities in mobile phone usage within higher education.

## Conflicts of Interest

The author declares no possible conflicts of interest.

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