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Analysing Smartphone Usage Among Students of Tertiary Institutions in North-West Nigeria

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Abstract

This research investigates smartphone utilisation among students at higher education institutions in North-West Nigeria, concentrating on using patterns, reasons and contexts. The research used a survey design. Using standardised questionnaires, data was obtained from a sample of 396 students across four chosen Institutions. The simple random sampling method was used. Descriptive statistical methods were used for statistical analysis, including tabulations, frequency distributions and percentages. Research indicates that smartphones are essential to students' daily routines, with 76.01% using them consistently throughout the day and 77.27% engaging with them mainly in the evening. Communication is the primary objective, with 97.22% using smartphones for voice calls and 98.23% for messaging apps such as WhatsApp. Seventy-six point twenty-six per cent participate in educational activities using their gadgets. Excessive use is apparent, with 41.92% of individuals spending 3-4 hours daily, prompting worries around possible diversions. Significantly, hardly 4.04% use cell phones during lectures, indicating students' recognition of the need to focus in educational environments. Consequently, the report advises that schools adopt measures to incorporate smartphone use into educational settings successfully. This may include creating applications and platforms that improve educational engagement while reducing distractions. Additionally, training sessions for students on regulating smartphone use and its effects on academic performance should encourage a balanced approach to technology in school. By using smartphones as educational instruments, colleges may improve academic performance while mitigating the issues associated with excessive use.

Keywords*: Smartphone; Students; Tertiary institution; Usage*.

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Background to the Study

Smartphones have become essential to the everyday lives of people across the world. Many individuals have adopted this revolutionary technology, deeming it an essential component of their daily activities (Alfawareh & Jusoh, 2017). Smartphones are distinguished as exceptionally popular communication and versatile gadgets among numerous technologies. They have become indispensable instruments for efficient communication and many see themselves as needing more than one. Smartphones have revolutionised all facets of human life, including education, commerce, healthcare, athletics and recreation. Studies demonstrate that most individuals, especially the youth, regularly participate in activities like calling, texting, chatting and gaming, making smartphone use an integral aspect of their lives. Internet connection facilitates the quick and extensive dissemination of knowledge among the online community (Bello & Aliyu, 2022). In recent years, smartphone use among undergraduate students has increased significantly, with these gadgets employed for communication, entertainment and accessing instructional resources (Zhang et al., 2021).

Taylor (2024) in Statista reports that worldwide smartphone mobile network customers are approaching seven billion, with forecasts indicating they will surpass 7.7 billion by 2028. Taylor (2023) said that in Nigeria, smartphone users are projected to exceed 140 million by 2025, despite current estimates varying between 25 and 40 million. Data indicates substantial expansion in the Nigerian smartphone sector, with user numbers possibly doubling during the next five to six years. Atas & Celik (2019) demonstrate that smartphone ownership is prevalent among university students who use it for personal and academic activities. Nwachukwu & Onyenankeya (2017) further substantiate this tendency by emphasising the widespread use of smartphones among college students in Nigeria. Ng et al. (2017) underscore the significance of formulating methods in higher education to improve students' learning experiences via smartphone utilisation. Furthermore, young individuals, encompassing high school and university students, are the predominant consumers of cell phones, often seeing them as necessary rather than extravagant (Chan et al., 2021). Surveys indicate that many young individuals see cell phones as essential for everyday existence, sometimes placing them above fundamental necessities such as food (Rao et al., 2023).

Smartphones have revolutionised education by improving information accessibility for students in developed and developing nations (Darko-Adjei, 2019). These gadgets facilitate online research, collaboration and interactive learning, promoting self-directed study and customised experiences (Punir, 2021). College students use cell phones to communicate via social media platforms (e.g., Facebook, Instagram, Snapchat) and to access instructional materials such as online tutorials and YouTube. They also utilise entertainment, including music and streaming services (Deepali, 2018). Nevertheless, cell phones may cultivate detrimental behaviours and diversions (Rao et al., 2023). Research shows that non-academic usage may detract from study time and academic engagement (Alzahrani, 2021). Despite their prevalent use, the educational ramifications of smartphones remain ambiguous, underscoring the need for more study to enhance their application in learning (Atas & Celik, 2019). Therefore, this study aims to analyse smartphone usage among students of tertiary institutions in North-West Nigeria, focusing on four selected institutions as a case study. The

specific objectives of the study are to determine the patterns of smartphone use, the purposes of smartphone use and the situations of smartphone use. In addition, the study provides implications and considerations for tertiary institutions, stakeholders and educators seeking to leverage smartphones for academic purposes.

Concept of Smartphone

The difference between a feature phone and a smartphone lies in the latter's superior computer power and network connection (Bello & Aliyu, 2022b). Your smartphone comes with state-of-the-art capabilities. Standard features include a high-resolution touchscreen, built-in WiFi, online surfing and compatibility with advanced apps. Popular mobile operating systems, including Android, Symbian, iOS, BlackBerry OS and Windows Mobile, power the majority of smartphones (Rouse, 2019). The market for mobile phones has been dominated by smartphones in recent years, which are considered the next generation of phones. Their small keyboards make them dual-purpose devices that may be used for email, calendar management and document editing in addition to being phones. Competing with dedicated devices, they provide superior multimedia capabilities such as high-tech cameras, video recording and podcasting. Furthermore, an ever-expanding library of software apps allows users to personalise their cell phones. Features such as GPS, social networking (including Facebook, Twitter, Instagram and WhatsApp) and gaming are popular (Sheeba, 2022).

Smartphone Usage among Students

Various studies have investigated how students use their smartphones and the results show a wide range of preferences and habits. According to Deepali (2018), a somewhat favourable correlation exists between students' views and the main objective of their smartphone usage. For example, male students preferred fitness and beauty applications, while students majoring in Science and Commerce preferred online lessons and practical application videos, respectively. According to Thapa et al. (2018), all of the students polled had smartphones. They used them to make calls, listen to music and access the internet. One interesting thing was that students tended to use their phones more at night. This behaviour might be a sign of addiction rather than just regular usage. Similarly, Ataş & Çelik (2019) brought attention to the fact that college students often use their cell phones for social media and messaging, typically as a means of entertainment during boredom or waiting. Evidence from this research shows several facets of smartphone use, with variables including gender, academic discipline and social dynamics playing a role.

According to Hossain's (2019) research, academic performance was favourably impacted by demographic variables like age, gender and relationships and adversely affected by factors like excessive mobile usage and distractions. According to research by Chan, Suthagar & Cheong (2021), students use their smartphones for educational purposes around half the time. However, many students need to acknowledge the adverse effects of mobile addiction and male students use their phones more often than female students. Students in Malawi mainly utilise their cell phones for social media and internet access, according to Mwambakulu & Chikumba (2020). However, according to Fook et al. (2021), students frequently use their smartphones excessively for non-academic purposes, suggesting possible addiction. The

effects of mobile devices on education were seen differently by students in Oman, according to research by Rao et al. (2023). Taken as a whole, these studies show that students' use of cell phones may improve their learning, but they also increase the likelihood that they will become dependent on them and distracted.

Impact of Smartphones Usage on Students' Academics

Many students use cell phones, revolutionising their access to information, communication and academic engagement. The effect of smartphone use on students' academic achievement has been the subject of much research. The usage of smartphones, which may be both a communication tool and a distraction, affects students' academic performance, according to research by Ifeanyi & Chukwuere (2018), which examined 375 undergraduates at North-West University. Researchers Darko-Adjei (2019) looked at 294 students enrolled in the University of Ghana's distance learning program and found that although cell phones helped with studying, they also hurt students' grades. After reviewing the data from 684 Pakistani students, Ahmed et al. (2020) concluded that, subject to several moderating and mediating variables, smartphone functions substantially affect academic achievement. The systematic study by Amez & Baert (2020), indicated a consistent negative link between smartphone usage and academic achievement. However, the intensity of this correlation varied among data collecting techniques, performance measures and definitions of use.

After two years of research with 470 college students, Bjerre-Nielsen et al. (2020) found that using a smartphone in class negatively impacted students' grades. However, after controlling for unobserved student characteristics, the effect size was smaller than expected, indicating that previous estimates might have been exaggerated. While cell phones increase learning and give access to knowledge, Punir (2021) found that excessive usage may lead to distractions and decrease performance, shedding insight into the complicated link between smartphone use and academic accomplishment. Researchers Chathurangaa & Jaysundarab (2021) observed that smartphone use significantly enhanced academic achievement among 222 students at the University of Sri Jayewardenepura by facilitating better contact with classmates and professors. In a similar vein, Bello & Aliyu (2022) studied 90 Nigerian secondary school students and discovered that mobile device design aspects affected how students used their phones for schoolwork. They also discovered that students' knowledge and grades increased when they often used their phones for schoolwork.

More in-depth information is needed on the particular patterns, goals and contexts of smartphone use among college students in North-West Nigeria; this research aims to fill that void. Although prior studies have shown that students use smartphones often, more is needed to know about how students use them in different situations (e.g., for schoolwork vs. for fun) or the effects of these habits on students' performance in the classroom. This research seeks to offer tertiary institutions, stakeholders and educators a thorough understanding of how students use their smartphones, why they use them and how much time they dedicate to various activities so that they can optimise the integration of smartphones into the learning process. This research aims to show how best to use smartphone technology to improve learning outcomes.

Methodology

Study Area

The research took place at four universities in North-West Nigeria, one of the nation's six geopolitical zones. Seven states—Kaduna, Kano, Katsina, Kebbi, Jigawa, Sokoto and Zamfara—comprise this enormous zone in Nigeria. A total of 35,786,944 people calls this area home, making up 25.56% of the country's population, as reported in the 2006 census. Several private and public universities and polytechnics, in addition to those held by the federal government and states, are located in North-West Nigeria.

Research Method

The research used a quantitative survey methodology, using questionnaires for data acquisition. Participants were chosen from the institutions using a random selection method. The questionnaire consisted of six sections: Section 1 addressed the demographic characteristics of respondents, while Sections 2 through 6 included specific questions related to the primary research enquiries.

Population of the Study

Participants will include undergraduates and graduate students from four North-West Nigerian universities: Kaduna Polytechnic, Kaura Namoda; Ahmadu Bello University, Zaria; Federal University, Gusau; and Federal Polytechnic, Kaura Namoda. This includes students in their last year of university and those enrolled in National Diploma II and Higher National Diploma I and II programs at polytechnic institutions. With 45,000 students, Ahmadu Bello University is the largest in the country. Federal University, Gusau has 4,000, Federal Polytechnic, Kaura Namoda has 5,000 and Kaduna Polytechnic has 25,000.

Sample of the Study

One hundred surveys were presented to pupils at each of the four schools, for 400. These were distributed by active participation in classes across different departments. There were 396 valid and comprehensive replies; 4 were rejected due to needing to be corrected or more information. Table 1 displays this information. The result was a sample size of 396 students, with 47.73% male and 52.27% female.

Table 1: Distribution of Questionnaires

S/No.	Institution	No. of questionnaires administered	No. of questionnaires returned correctly
1.	Federal Polytechnic, Kaura Namoda	100	100
2.	Federal University, Gusau	100	99
3.	Ahmadu Bello University, Zaria	100	98
4.	Kaduna Polytechnic, Kaduna	100	99

Data Collection

Data were collected using a self-structured questionnaire featuring close-ended questions. The questions were designed to enable respondents to provide answers that align with the research objectives of the study.

Data Analysis
The data from the correctly returned questionnaires were analysed using IBM SPSS version 22. Descriptive statistics, including tabulations, frequency distribution and percentages, were employed for the analysis.

Results and Discussion
Results
This section analyses and interprets the data gathered during the study. Data was collected using closed-ended questionnaires, with respondents answering questions designed to meet the research objectives. Descriptive analyses were performed using relevant percentages as shown in the tables.

Table 2: Demography of Respondents

Characteristics	Variables	Frequency	Percentage (%)
Gender	Male	189	47.73
	Female	207	52.27
Age group	15-18 years	6	1.52
	19-21 years	124	31.31
	22-25 years	171	43.18
	26-30 years	84	21.21
	Above 30 years	11	2.78
Level of study	ND II	55	13.89
	HND I	69	17.42
	HND II	75	18.94
	200L	44	11.11
	300L	56	14.14
	400L	51	12.88
	500L	46	11.62

Source: Fieldwork (2024)

a. Demographic of the Respondents
Table 2 summarises the study's respondents based on their demographic information. The gender breakdown of the participants is as follows: 47.73% are male and 52.27% are female, giving the impression that the female respondents are somewhat more numerous. Among those surveyed, 43.18 per cent are between the ages of 22 and 25, with 31.31.1 per cent being between the ages of 19 and 21. The proportion of people aged 15–18 is lower at 1.52%, while 21.21% are in the 26–30 age bracket and 2.78% are older than 30. There are 13.89% in National Diploma II (ND II), 17.42% in Higher National Diploma I (HND I) and 18.94% in Higher National Diploma II (HND II), according to the statistics. Along these lines, among first-year college students, 11.11% are in their second year (200L), 14.14% in their third (300L), 12.88% in their fourth (400L) and 11.62% in their fifth (500L). Smartphones play a vital part in students' academic lives throughout various programs, as seen by the difference in academic levels, which implies that usage is prevalent among students at different phases of their studies. According to the statistics, most of the participants are young people and there is a mix of educational backgrounds and a somewhat higher percentage of females. This

distribution provides a solid foundation for studying student smartphone use habits, goals and contexts, especially among this energetic and youthful student population.

Table 3: Patterns of Smartphone usage Based on Time of Use

S/No	Variables	Strongly Agree	Agree	Neutral	Disagree	Strong Disagree
1.	In the morning	91 (23.98)	96 (24.24)	31 (7.83)	95 (23.99)	83 (20.96)
2.	At afternoon	143 (36.11)	106 (26.77)	38 (9.60)	63 (15.91)	46 (11.62)
3.	In the evening	182 (45.96)	124 (31.31)	13 (3.28)	45 (11.36)	32 (8.08)
4.	At night	107 (27.02)	89 (22.47)	11 (2.78)	83 (20.96)	106 (26.77)
5.	Throughout the day	154 (38.89)	147 (37.12)	23 (5.81)	43 (10.86)	29 (7.32)

Source: Fieldwork (2024)

b. Patterns of smartphone usage based on time of use

Key insights about when respondents interact with their devices are shown in Table 3, which displays patterns of smartphone use dependent on the time of day. Among those who took the survey, 48.22% said they use their phones in the morning, while 44.95% said the same about the afternoon. Notably, most users (77.27%) report using their phones at night, with a combined 77.27% expressing they either strongly agree or agree, showing that this period is very popular for interaction. Still, things change slightly when the sun goes down; only 49.49% of users report using it, suggesting that some may unplug in the wee hours. According to the statistics, most respondents (76.01%) use their cell phones constantly, indicating a high degree of ongoing involvement.

Table 4: Patterns of Smartphone Usage Based on time Spent per day

S/No	Variables	Frequency	Percentage (%)
1.	1 - 2 hours	56	14.14
2.	3 - 4 hours	166	41.92
3.	5 - 6 hours	103	26.92
4.	Greater than 6 hours	71	17.93

Source: Fieldwork (2024)

c. Patterns of Smartphone usage based on time spent per day

In Table 4, we can see how people use their smartphones daily. Among the most engaged smartphone users, 41.92 per cent said they spend three to four hours daily on the device. Following this, 26.92% of those who took the survey use their phones for 5-6 hours daily. Some students may be prone to excessive smartphone use, although only 17.93% reported spending

more than 6 hours daily on their devices. On the other hand, the least engaged category consists of 14.14% of respondents who use their cell phones for 1-2 hours every day. According to the research, a large percentage of students spend much time on their phones, which might negatively affect their health and academic performance.

Table 5: Purpose of Smartphone Usage

S/No	Variables	Yes (%)	No (%)	Neutral (%)
1.	Make phone call	385 (97.22%)	4 (1.01%)	7 (1.77%)
2.	Access social media (Such as Facebook and Twitter)	369 (93.18%)	19 (4.80%)	8 (2.02%)
3.	Check and send email	267 (67.42%)	117 (29.55%)	12 (3.03%)
4.	Chatting with friends and family (such as WhatsApp)	389 (98.23%)	0 (0.00%)	7 (1.77%)
5.	Learning and other academic activities	302 (76.26%)	67 (16.92%)	27 (6.82%)
6.	Browsing the internet	378 (95.45%)	11 (2.78%)	7 (1.77%)
7.	Send and receive text messages (SMS)	289 (72.98%)	96 (24.24%)	11 (2.78%)
8.	Read documents (PDF, Word etc.)	246 (62.12%)	122 (30.81%)	28 (7.07%)
9.	Read news	225 (56.82%)	131 (33.08%)	40 (10.10%)
10.	Mobile banking/paying for goods or services	349 (88.13%)	31 (7.83%)	16 (4.04%)
11.	Shopping	127 (32.07%)	243 (61.36%)	26 (6.57%)
12.	Playing games	266 (67.17%)	94 (23.74%)	36 (9.09%)
13.	Take/edit pictures	331 (83.59%)	53 (13.38%)	12 (3.03%)
14.	Record/edit videos	323 (81.57%)	64 (16.16%)	9 (2.27%)
15.	Watch movie	243 (61.36%)	141 (35.61%)	12 (3.03%)
16.	Watch TV	204 (51.51%)	169 (42.68%)	23 (5.81%)
17.	Listen to music	353 (89.14%)	32 (8.08%)	11 (2.78%)
18.	Use as clock	366 (92.42%)	22 (5.56%)	8 (2.02%)
19.	Use as an alarm clock	286 (72.22%)	97 (24.49%)	13 (3.28%)
20	Manage schedules	167 (42.17%)	201 (50.76%)	28 (7.07%)

Source: Fieldwork (2024)

d. Purposes of Smartphone Usage

Respondents use their cell phones for a variety of functions, as seen in Table 5. Emphasising the significance of communication, most users use their smartphones to make phone calls (97.22%) and connect with friends and family on platforms like WhatsApp (98.23%). Among the most common uses, according to 93.18 per cent of users, is accessing social networking sites like Facebook and Twitter. With 76.26 per cent using their phones for educational purposes and 67.42 per cent checking and sending emails, there is considerable academic involvement. Also, almost everyone who took the survey used their smartphones to access the internet, which shows how useful these devices are for finding information. Also, many people use their phones for banking or purchases (88.13%). With 89.14% listening to music, 67.17% playing games and 61.36% viewing films, entertainment elements are also commonly used, but watching TV has a lower uptake at 51.51%. Additionally, 88.13% of people use their cell phones for banking or purchases, a significant increase from previous years. The device's practical uses, such as being used as a clock (92.42%) or an alarm (72.22%), demonstrate its daily value. On the other hand, opinions were divided on time management; 50.76 per cent of respondents said they never utilised this feature, suggesting areas where smartphones may be improved.

Table 6: Situation of Usage

S/No	Variables	Yes (%)	No (%)	Neutral (%)
1.	When get bored	391 (98.74)	2 (0.50)	3 (0.76)
2.	When waiting for someone/something	369 (93.18)	21 (5.30)	6 (1.52)
3.	When alone	392 (98.99)	2 (0.50)	2 (0.50)
4.	On public vehicle	287 (72.47)	84 (21.21)	25 (6.31)
5.	During lecture	16 (4.04)	347 (87.63)	33 (8.33)
6.	In leisure times	385 (97.22)	3 (0.76)	8 (2.02)
7.	When hanging out with friends	254 (64.14)	123 (31.06)	19 (4.79)
8.	During lecture break	249 (62.88)	119 (30.05)	28 (7.07)
9.	In a rest room	27 (6.82)	316 (79.79)	53 (13.39)
10.	When watching TV	226 (57.07)	133 (33.59)	37 (9.34)
11.	When walking	17 (4.29)	353 (89.14)	26 (6.57)
12.	When eating	251 (63.38)	124 (31.31)	21 (5.30)
13.	When talking to someone one on one	17 (4.29)	332 (83.84)	47 (11.87)
14.	When having drinks	293 (73.99)	71 (17.93)	32 (8.08)

Source: Fieldwork (2024)

e. Situation of Usage

Table 6 shows how people use their cell phones, drawing attention to patterns in how they utilise them. Most smartphone users are in the leisure sector, with 98.74% reporting use while bored and 97.22% when enjoying themselves. Smartphones are used most often while waiting for someone or something (93.18% of the time) and when people are alone (98.99% of the time), indicating that they are mainly used for amusement and engagement during solitude. Among those who use their cell phones in social situations, 64.14 per cent use them when chatting with friends and 62.8 per cent use them during class breaks. On the other hand, only 4.04% of students confess to using their phones during lectures, which shows that students value attentiveness in class. Smartphones are often used when on the go, as seen by the 72.47 per cent use rate on public transportation. Other scenarios also provide contradictory answers in the table. To illustrate the propensity for direct engagement in more intimate situations, 63.38% of people use their cell phones while dining, while just 4.29% do the same during one-on-one interactions. The low percentage of smartphone usage in toilets (6.82%) and when walking (4.29%), both of which indicate a deliberate attempt to reduce distractions, are indicative of this trend.

Discussion

The main findings from this research are summarised and discussed in line with the objectives as follows:

Smartphone use patterns: Findings on daily smartphone use show that most interaction occurs in the evening when 77.27 per cent of respondents use their devices. Consistent with the findings of Hossain (2019) and Chan et al. (2021), this points to the fact that students often use their cell phones during their free time, which might improve their social connections but also pose hazards of distraction. The fact that 76.01% of students said they used their phones all day long indicates a trend towards continual connectedness among students, as Mwambakulu & Chikumba (2020) pointed out. Echoing Punir (2021), who brought attention to distractions, this constant interaction brings up worries about smartphone addiction and time management. Supporting the results from Ataş & Çelik (2019), the morning and afternoon use rates of 48.22% and 44.95% indicate that cell phones are used for brief communications and academic reasons during breaks. To better understand how various groups, engage with their devices, further research is needed to determine the influence of demographic parameters like age and gender on use patterns, as mentioned by Fook et al. (2021). These results highlight the importance of developing balanced smartphone-use methods to improve academic achievement since smartphones are both a tool for accessing education and a distraction.

With 41.92% of respondents using their devices for 3-4 hours daily, the highest proportion recorded, the results on smartphone use based on time spent each day show various patterns of smartphone use among respondents. In addition, 269.2 per cent said they use their phones for 5-6 hours a day and 17.93 per cent said they use them for more than six hours a day. These findings align with previous research showing that students use smartphones too much, especially in the evenings (Thapa et al., 2018). Many higher-use group respondents agreed with Hossain's (2019) assessment that continuous usage negatively affects academic

performance. In response to worries voiced by the 17.93% of smartphone users whose usage exceeds six hours, Rao et al. (2023) highlighted the dangers of addiction. The patterns shown above are corroborated by the findings of Mwambakulu & Chikumba (2020), who also discovered that students primarily use their cell phones to access the internet and social networking. The results highlight the need to devise plans to control students' smartphone use so that they may maintain a healthy balance between their online activities and their schoolwork.

Reasons for using a Smartphone: Several important observations that align with previous research are highlighted by the results about why students use their smartphones. According to a large majority of respondents (97.22%), cell phone use is primarily for making phone calls. This finding aligns with what Chan et al. (2021) found. In addition, almost all students (98.23%) use their phones to communicate with loved ones, confirming what Mwambakulu & Chikumba (2020) said about the significance of social networking. Even more encouraging for Hossain (2019) and Punir (2021), who acknowledged cell phones as valuable educational tools, was that 76.26 per cent of students used them for learning and academic purposes. However, since 72.98% of those who took the survey also use their phones for messaging, it is clear that academic use is taking precedence over social contacts. The statistics also showed that 95.45% of students use the Internet for both academic research and recreational purposes, which is in line with what Fook et al. (2021) found. Cellphones provide numerous features, but students prioritise academic and social reasons. A few students used their cell phones to shop (32.07%) and manage their schedules (42.17%). In line with how cellphones are portrayed in academic literature, these results show that smartphones serve as both useful tools for communication and learning and a source of distraction when managing one's time effectively.

Circumstances in which phone usage occurs: The results show significant patterns that align with the literature about the contexts in which students use their cell phones. A whopping 98.47% of those polled admitted to turning to their phones as a kind of amusement or diversion when bored, which is in line with what Hossain (2019) found. It has been mentioned by Chan et al. (2021) that mobile devices are often used to pass the time and the fact that 93.53% of respondents said they use their smartphones when waiting for someone or something further supports this view. Punir (2021) noted that excessive smartphone usage negatively affects academic performance and only 4.04% of students admitted to using their phones during lectures. These raise worries about distractions in academic contexts. The research also showed that 67.58 per cent of students use their phones when relaxing, which lends credence to the social implications of smartphone usage that Mwambakulu & Chikumba (2020) identified. According to Fook et al. (2021), mobile devices are becoming an integral part of students' daily routines, as seen by the high number of students (85.74%) who use their cell phones while dining. The results show that smartphones have many uses; they may be fun and sociable, but they can also distract students from their studies, so they must be conscious of their use.

Implications for Students' Academics

Research on students' smartphone use in North-West Nigeria has important educational implications, especially for our understanding of the devices' potential benefits and drawbacks in the classroom. Following patterns shown in earlier studies, smartphones have become indispensable for various tasks, including communication, accessing information and learning. In keeping with the results of this survey, which show that a large majority of students use cell phones for academic activities (76.26%), Darko-Adjei (2019) emphasises that smartphones allow online research and collaborative learning. Rao et al. (2023) found that non-academic use may detract from study time and engagement, so there is that. However, there is also the possibility of distraction. It is important for higher institutions, stakeholders and educators to consciously devise measures to reduce distractions while using cell phones for studying, as this dichotomy implies. Moreover, the study's usage patterns (such as heavy use during free time and minimal use during class) highlight the importance of educational frameworks that incorporate smartphone technology in a manner that encourages concentrated academic engagement while acknowledging its place in students' everyday lives (Ng et al., 2017). Stakeholders need to consider these dynamics when designing curricula and instructional strategies to make the most of the growing smartphone ownership of students, especially in developing regions like Nigeria (Nwachukwu & Onyenankeya, 2017).

Considerations for Students' Academics

Several factors must be considered to maximise the advantages and minimise the risks of incorporating cell phones into educational environments.

The first step is for schools and other organisations to provide ethical and productive smartphone use classes, emphasising digital literacy. It is crucial to raise understanding about using these devices for learning, as the survey revealed that 76.26 per cent of pupils do academic work on them.

Second, rules on students' cell phone usage in class must be immediately implemented. Even though 87.63% of people said they do not use their phones in class, setting aside specific periods for students to use their phones may help them pay closer attention. Also, colleges and universities can use mobile-friendly learning activities to get students more involved and excited about their studies.

Thirdly, it is important to deal with possible distractions. Both Alzahrani (2021) and Rao et al. (2023) found that students' school performance can suffer when they spend too much time on non-academic activities. Consequently, universities should stress the need to establish limits on students' smartphone use and urge them to maintain a healthy balance in their daily lives. Our last piece of advice is for schools to collaborate with app developers to create curricular-specific apps with interesting and relevant information. By keeping these things in mind, schools may use students' cell phones to improve their education while encouraging appropriate use.

Conclusion

Using patterns, objectives and circumstances as its focal points, this research investigated cell phones' substantial impact on the daily lives of college students in North-West Nigeria. According to the research, most students (77.27%) use their devices in the evening. In comparison, a sizeable minority (76.01%) use their cell phones all day, highlighting how ubiquitous these gadgets are in everyday routines. The bulk of the student body is between the ages of 22 and 25 and 52.27 per cent of the students are female, according to the demographic data. Most users have a purpose, with 97.22 per cent making phone calls, 98.23 per cent chatting with pals on messaging apps like WhatsApp and 76.26 per cent using it for school-related purposes. However, there is also the problem of excessive use; 41.92 per cent of smartphone owners spend three to four hours a day on the device and 17.93 per cent use it for six hours or more. Concerns about excessive use emerge, nevertheless, since 41.92 per cent of students spend three to four hours every day and 17.93 per cent spend more than six hours. Notably, a mere 4.04% admitted to using their phones while classes were in session, showing a determination to stay focused in school. Conversely, frequent use when bored (98.74%) and while relaxing (97.22%) indicates a propensity for distraction while not in class. According to these studies, higher schools must balance the importance of addressing the hazards of excessive and non-academic smartphone use while using its benefits for learning. Students' educational experiences and academic performance may be improved if schools create a climate that supports moderate smartphone usage.

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