Screen addiction, the silent epidemic: Examining the effects of mobile phone use on undergraduate students' academic performance - Insights from Valley View University (VVU), Oyibi Campus, Accra, Ghana

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ABSTRACT

The main objective of the study was to examine the effects of mobile phone use on the academic performance of undergraduate students at VVU, Oyibi Campus, Accra, Ghana. The study was underpinned by Uses and Gratifications Theory (U&GT) and the Technology Acceptance Model (TAM). The study addresses four key questions on mobile phone usage among undergraduate students: (i) the extent of mobile phone addiction, (ii) the average time students spend using mobile phones, (iii) the reasons behind mobile phone usage, and (iv) the effects of mobile phone use on students' academic performance. The undergraduate students' population was 2,613, and the sample size was 384. The study employed a descriptive survey approach. A well-structured questionnaire was the only instrument used for data collection. Cochran's method was applied to determine the suitable sample size for the study. In this study, the researchers analysed the data using IBM SPSS, version 27 (Statistical Package for Social Sciences). The findings indicated that students spent 1 to 3 hours every day using their mobile phones. The findings revealed that mobile phone addiction among students adversely affects their academic performance. The study found again that students use their phones to visit various social media network sites for entertainment, leisure, sharing images, and communicating with their peers. The implication is that in the absence of adequate supervision and control measures, mobile phone usage may persist in detrimentally affecting students' educational achievements. The researchers recommended that the university's management prioritise mobile phone usage for educational purposes. In conclusion, the findings will contribute to the ongoing discussion about the impact of mobile technology on student performance.

Keywords: Academic Performance, Mobile Phone Usage, Students, Valley View University

I. INTRODUCTION

Technologies play a pivotal role in all aspects of human activities in today's rapidly evolving world. In the twenty-first century, technology has revolutionised the way people live and communicate (Hashemi et al., 2022). In recent decades, the various types of mobile phones have impacted people's lives globally (Arefin et al., 2017; Hashemi, 2021). This development of technology has given birth to the proliferation of various communication devices, including mobile phones. In this digital age, mobile phones have evolved from mere communication devices into multifunctional tools that play a significant role in student's academic and social lives. With their portability, internet access, and a wide range of educational applications, mobile phones have become almost indispensable among university students. While these devices offer considerable advantages in terms of information access, learning flexibility, and real-time communication, their widespread use has also raised concerns regarding their impact on academic performance. Mobile phone devices enable users to initiate and receive voice calls and transmit text messages. Users of some mobile phones use the internet and various social media platforms to access information. Some mobile phones have specialised applications designed for specific activities. Among the functions are searching for information, facilitating communication, providing entertainment, and conducting online transactions (Adams & Paul, 2017).

The growing adoption of these devices is associated with multiple factors, including their mobility, economic accessibility, and simplicity of use relative to other technological offerings. Mobile phones have become essential tools for academic and recreational pursuits. They offer access to educational resources via numerous applications, videos, and digital content. However, the escalating dependence on these devices has raised alarms about their possible repercussions on students' academic performance and overall educational outcomes. This phenomenon is particularly noticeable among students who use these devices for educational purposes and leisure activities, including gaming and social networking. Although mobile phones provide significant educational advantages, excessive use raises concerns regarding distractions, diminished concentration, and a decline in academic achievement.

Bouazza et al. (2023), Baert et al. (2020), O'Connor and Andrews (2018), and Wilmer et al. (2017) conducted studies on mobile phone usage elsewhere. When these devices are used appropriately, they can support learning through online research or use to search for academic information. The dual facets of mobile phone use underscore the importance of gaining a better understanding of how students interact with these devices and the level to which their academic performance is affected.

1.1 Statement of the Problem

Mobile phones have become integral components of daily life, serving a wide array of functions. For university students in Ghanaian higher education institutions, including VVU, these devices are indispensable for both academic endeavours and social interactions. They facilitate immediate access to information, educational resources, and communication tools. Nevertheless, the widespread and often unregulated use of these devices has generated apprehension regarding distractions, poor study habits, and a decline in academic performance. While mobile phones possess the capacity to enhance learning, excessive engagement with non-academic activities such as social media and entertainment can impede students' concentration, time management, and overall academic outcomes. Although there is an expanding body of research concerning mobile device utilisation among university students, there remains a lack of empirical studies examining the impact of phone use within the context of VVU.

Prior studies have indicated a higher prevalence of mobile phone dependency among university students (Ahmed et al., 2020; Bağcı & Pekşen, 2018; Alhassan et al., 2018; Luk et al., 2018); however, these studies did not cover VVU. Consequently, the insights derived from this research will be invaluable for various stakeholders, including parents, university administrators, policymakers, and the Ministry of Higher Education, in developing strategies to mitigate excessive mobile phone usage among students and foster their academic achievement.

In Ghana, Darko-Adjei (2019) and Quist and Quarshie (2016) conducted similar studies but did not extend their scope to VVU, a premier private university in Ghana. These studies left a gap in understanding the usage of mobile phones among students at private universities. The present study explores mobile phone addiction among undergraduates at Valley View University, Oyibi Campus, Accra. The study seeks to contribute to existing literature and serves as a reference point for future studies.

1.2 Research Objectives

i. To find out the extent of mobile phone addiction among undergraduate students at VVU
ii. To determine daily duration of mobile phone use among students at VVU
iii. To examine the reasons for mobile phone usage among undergraduate students at VVU
iv. To find out the effects of mobile phone use on the academic performance of students at VVU

II. LITERATURE REVIEW

2.1 Theoretical Review

This study adopts two theoretical frameworks. They are Uses and Gratifications Theory (U&GT), propounded by Blumler and Katz (1974) and the Technology Acceptance Model (TAM) by Venkatesh and Davis (2000). According to the Uses and Gratifications Theory, individuals are active consumers who search for media that meet their needs. These needs can include cognitive desires for information and knowledge, as well as affective needs for pleasure, entertainment, and relaxation. However, when the search for gratification becomes too excessive, it can lead to addiction as well as negative consequences. On the other hand, the Technology Acceptance Model explains why people stick with their phones, focusing on how useful they find them, how user-friendly they are, and the effect of social influences. This model aims to enhance our understanding of user behaviour. It delves into how technology devices work and the issue of smartphone addiction. This addiction is generally considered a by-product of a society's historical narrative, shaped by socio-cultural influences. In the end, a comprehensive viewpoint suggests that smartphone addiction stems from a blend of personal, cultural, technological, environmental, and emotional factors. Together, these theories provide a framework for understanding mobile addiction and its consequences for students' academic performance.

2.2 Empirical Review

Several empirical studies have explored the factors that affect how tertiary students utilise mobile phone technologies in universities worldwide. While these studies provide important insights, the variations in their findings suggest that more research is needed. Therefore, this present study was to investigate the effects of mobile phone usage on the academic performance of undergraduate students.

2.2.1 Mobile Phone Addiction among Undergraduate Students

The prevalence of mobile phone addiction is a widespread behavioural canker among the young generation, most especially undergraduate students. The addiction is influenced by the affordability and accessibility of smartphones, including the rapid development of the internet. According to Ifeanyi and Chukwuere (2018), smartphone addiction can be a main source of distraction, ultimately impacting students' learning abilities. On the other hand, Ma et al. (2020) found that phone addiction impacts students' learning processes. They also revealed that mobile phones had a positive effect on undergraduate students' learning experiences. Joy and Mathew (2016) identified a high level of mobile phone addiction among college students. Mainga (2016) identified a high level of mobile phone addiction among Kashmiri male students, while it was moderate among Kashmiri female students. Nair (2019) researched smartphone addiction, revealing that 63% of participants were addicted to their mobile devices. Desai (2020) discovered a strong correlation between smartphone addiction and anxiety and depression, alongside sleep disturbances, social isolation, and fear of missing out. One of the most immediate effects of excessive mobile phone use is distraction. Students who frequently check social media, play games or engage in non- academic chats during lectures and study hours may struggle to concentrate in their learning. This divided attention reduces understanding, retention of information, and ultimately lowers academic performance. Multitasking between academic work and mobile phone use can also lead to cognitive overload, making it difficult for students to perform academic tasks effectively and efficiently.

Prolonged mobile phone use, especially at night, is associated with poor sleep. Studies have often categorised students into low, moderate, and high levels of addiction, indicating that moderate to high addiction levels are common among university populations. In Pakistan, Raza et al. (2020) found a connection between smartphone addiction and difficulties in managing time and maintaining focus. Throughout Asia, the prevalence of problematic smartphone use among undergraduates' ranges from 30% to 65%, often associated with academic pressure, poor sleep quality, and emotional instability (Demirci et al., 2015; Yang et al., 2019). Anjana et al. (2020), Meshak et al. (2020), and Prasad et al. (2022) conducted studies on the prevalence of problematic smartphone use and addiction among undergraduate students in the Global South. The findings indicate that the rates of moderate to severe addiction range between 45.8% and 77%. These results affirm how students use their time on these mobile technologies at the expense of their studies. Students frequently use their smartphones for academic purposes (Arumugam et al., 2019). Most students stay up late texting, watching videos, or browsing various social media platforms, contributing to sleep deprivation. Inadequate sleep negatively impacts memory, alertness, and academic output the following day.

This distraction subsequently extends to their learning performance beyond the classroom. The nature of university environment requires high level of concentration, and time management. Mobile phones, when misused, can interrupt this balance, leading to challenges such as sleep disruption, reduced classroom participation, and lessen academic motivation. The rise of mobile technology has made it easier for people to access information, stay connected, and enjoy various conveniences, all of which have contributed to the growing use of smartphones (Handa & Ahuja, 2020). Recent studies have highlighted a concerning trend of excessive smartphone use among students in South Africa, particularly in relation to social media and gaming (Olasina & Kheswa, 2021). Similar research in Nigeria showed that while smartphones can aid in academic tasks, overindulgence in non-academic activities can lead to addiction and hinder academic success (Ndubuaku et al., 2020).

Similarly, when used appropriately, mobile phones can support self- placed learning, provide immediate access to academic materials, and enhance communication between lecturers and students. As students become more dependent on mobile phones, they may experience symptoms of behavioural addiction. These may include compulsive checking of mobile phones and irritability when separated from mobile phones. This dependency can affect their ability to focus, self-regulated, and function independently in social and academic settings.

Furthermore, Samaha and Hawi (2016) contended that high levels of mobile phone usage can adversely affect academic performance. A study conducted in Egypt by Eldesokey et al. (2021) identified a notable prevalence of smartphone addiction among medical students, with a reported rate of 53.6%. Additionally, Mohamed and Moustafa (2021) reported a higher prevalence, with their findings indicating a rate of 74.7%. Naveenta et al. 2016), Rupani et al. (2016), and Bouazza et al. (2023) reported in their studies that mobile devices are prone to sleep deprivation and increased stress levels. They stressed further that mobile phones adversely affect cognitive functions and learning capabilities. The over-dependence on mobile phone usage may result in distractions during lectures. It may also divert focus and information retention. These practices ultimately affect students' academic performance in general. The excessive use of mobile phones may linked to increased stress, anxiety, and depression among students. Constant

notifications, the pressure to respond to messages, and exposure to unrealistic images on social media can contribute to feelings of inadequacy, low self-esteem, and emotional exhaustion. The fear of being without a mobile phone is also becoming more common among students these days. The figure shows a trend towards increased dependence on smartphones in daily life. Davey and Davey (2014) conducted a study employing a mixed-methods approach. The study discovered that the prevalence of smartphone use among Indian students was high, resulting in addiction due to its misuse. While mobile phones are invaluable tools for communication and learning, their excessive use poses a serious risk to students' academic success, mental health, social interactions, and physical well-being. Parents, policymakers, educators and students themselves need to foster healthy digital habits and establish boundaries that ensure mobile phones serve as learning tools rather than distractions from academic and personal health.

2.2.3 Daily duration of mobile phone use among students

The amount of time spent on mobile phones varies greatly. It influences academic obligations, social interactions, and personal routines. The time students spend on mobile phones has been a key factor in predicting addiction and academic challenges. Many undergraduate students are spending several hours each day on their mobile devices. These students can stay beyond the conventional hours browsing. Prolonged use can result in distractions, poor performance, and possible health issues, including eye strain and disruptions in sleep patterns. When learners prioritise mobile phone activities, it also leads to poor time management, ultimately affecting academic activities. Multitasking between educational activities and mobile phone use interferes with the ability to focus, leading to inadequate attention to learning activities.

A study in Ethiopia by Mengistu et al. (2023) revealed that students utilising phones for over four hours daily were more prone to academic deterioration, sleep difficulties, and emotional dysregulation. At the same time, mobile phones can be good educational tools. However, excessive and unregulated use tends to contribute to poor academic performance of students. Understanding mobile phone addiction in undergraduate students really hinges on examining their average usage time. Wilmer et al. (2017) discovered that students with smartphones typically engaged with their devices for about 4 to 10 hours each day. The average duration of mobile phone usage among students has become a crucial metric for understanding smartphone dependency and its effects on students' performance. Moderate mobile phone usage can facilitate learning by providing access to educational resources and the exchange of ideas; however, excessive use heightens the risk of distraction and undesirable behaviour. Most of them use the devices during classes. The average time students spend on their phones is not over-exaggeration but a reality of addictive behaviours, psychological effects, and academic disengagement in university environments. Studies have continuously indicated that students who allocate excessive time to their mobile phones are more prone to addictive behaviours, decreased academic concentration, and poor performance. Thus, average usage duration is a critical indicator for evaluating the impact of mobile phone usage on students' achievement and psychological well-being.

Quist and Quarshie (2016) examined the duration of mobile phone usage among students in various settings. Their findings revealed that 32.0% of students reported spending 7 hours or more on their mobile devices at home, 9.9% indicated similar usage at school, and only 3.5% reported spending 7 hours or more at their workplace. Ataş and Çelik (2019) report that university students typically dedicate an average of 5 hours each day to mobile phone usage, with 4 of those hours spent online. Dergisi (2017), a study conducted in Turkey, indicated that students spent an average of 3.15 hours a day on their smartphones. The main activities identified were listening to music, texting, participating in social networks, watching movies, and chatting. In contrast, only a minority of students employed their smartphones for academic activities such as taking notes, retrieving scientific information, shopping, and sending emails.

Research indicates that individuals who use cell phones for prolonged periods, generally exceeding four to five hours daily, are more likely to exhibit symptoms including compulsive checking, withdrawal, and diminished self-regulation (Pirwani et al., 2025; Mitchell & Hussain, 2018). The average time students spend on their phones is not over-exaggeration but a reality of addictive behaviours, psychological effects, and academic disengagement in university environments. Fook et al. (2021) conducted a research study examining smartphone usage patterns among university students. The findings indicated that a significant portion of participants reported daily smartphone usage ranging from 3 to 6 hours (45.5%, n=25), with a smaller group using their devices for 7 to 10 hours (27.3%, n=15). Notably, three individuals reported spending over 20 hours (5.5%, n=3) on their smartphones every day. Additionally, the data highlighted that the most common duration of smartphone use per session was between 30 to 44 minutes (20.0%, n=11), followed by 15 to 19 minutes (14.5%, n=8) and at least 10 to 14 minutes (12.7%, n=7). In terms of weekly usage, the majority of students reported exceeding 40 hours (20%, n=11), with other notable time brackets including 26 to 30 hours (14.5%, n=8), 16 to 20 hours (10.9%, n=6), 11 to 15 hours (10.9%, n=6), and the least reported category being 31 to 35 hours (10.9%, n=6). The study further revealed that most respondents used smartphones primarily for educational purposes (43.6%, n=24), while 16 participants (29.1%) indicated that they dedicated half of their smartphone time to searching for academic information. The average duration of cell phone usage among students significantly influences their academic experiences and behavioural results. Students should be motivated to use mobile devices intentionally

and with awareness to recognise the educational benefits of mobile phones and stay away from their potential detrimental impacts.

2.2.4 Reasons for Mobile Phone Usage among Undergraduate Students

The role of mobile phone usage in students' lives has become increasingly significant. Mobile phones serve diverse functions that go beyond communication. Students leverage these devices for academic purposes, such as researching information, engaging in online educational platforms, and obtaining learning resources. The expansion of blended and fully online courses has made smartphones vital tools for communication between students and faculty.

The reliance on emails, forums, and Zoom meetings contributes to extended phone usage during and outside of class hours. Mobile phones serve as an all-in-one solution — including a calculator, camera, planner, alarm, dictionary, and more. Their portability renders them more appealing than other devices, such as laptops, for swift tasks.

Most students use mobile phones as learning tools. Students use these devices to access e-books, educational apps, lecture recordings, online classes, and online databases to support academic collaboration and independent learning. A study conducted by Ahmad (2020) found that students generally have a positive perception of using cell phones as a learning tool and incorporating them into educational activities. They appreciate how these devices enhance social connections and collaboration, allowing for more flexible and personalised learning experiences.

The mobile apps enable users to perform a broad array of tasks, including navigating and connecting on social media (Gritti et al., 2023) as well as shopping online (Srivastava & Thaichon, 2023). The convenience of accessing academic materials anytime and anywhere motivates frequent use. Maintaining connections with peers, family, and social networks serves as a significant influencer. University students frequently use social media platforms such as WhatsApp, Instagram, Snapchat, and Facebook to keep relationships, engage in academic group discussions, and participate in campus activities. The quest for social validation and the impact of peer influence can motivate the usage of mobile phones. Ataş and Çelik (2019) found that university students predominantly utilised smartphones for texting, making phone calls, browsing social media, and performing internet searches, with shopping being the least frequent activity. University students initially adopted smartphones mainly for their studies, but research suggests that they gradually begin to explore non-academic activities due to the versatility of these devices (Abdulmalik & Anka, 2024; Amez & Baert, 2020). Students often begin their academic tasks but can easily shift to social media, gaming, and entertainment apps that are all available on the same device (Gökçearslan et al., 2016).

Students use mobile phones for social media interactions. These include listening to music, receiving and sharing videos, conversation recording, video calling, internet access, and music sharing via Bluetooth (Edjah & Nkrumah, 2023). Siew et al. (2017) discovered that students used mobile phones for various academic purposes, including consulting reference materials, resolving mathematical problems, downloading lecture slides, and engaging with online quizzes and other activities that enhance their educational experience. Students use mobile phones for various non-academic pursuits, including social media participation, video streaming, and online shopping.

The rationale behind mobile phone usage is diverse among students. Generally, their usage is motivated by convenience, ease of access, and individual preferences. The fear of missing out on important news, events, or groups discussions compels students to be glued to their mobile phones. As time progresses, what initially starts as purposeful engagement can transform into a routine. Students often find themselves unlocking their phones without any particular intention, influenced by habitual actions or dependence on their devices, which can lead to compulsive usage.

Quist and Quarshie (2016) conducted research examining the utilisation of mobile phones by undergraduate students in Ghana. Their findings indicated that 20.0% of respondents consistently listened to music on their devices, while 7.9% engaged in gaming activities. Additionally, 2.0% reported watching movies, 46.5% used social networking platforms, and 12.9% conducted work-related research. Akaglo and Nimako-Kodua (2019) conducted a study examining the impact of mobile phone usage among second-cycle students in Ghana. Their findings indicated that smartphones significantly enhance educational activities. Mobile devices enable students to access current information, prepare for lessons, and access resources like books, music, social media, games, and different applications. Mobile phones facilitate independent research and preparation for upcoming lesson activities (Chan et al., 2021).

Punir (2021) asserts that smartphones have transformed the field of communication. As devices become cheaper and internet access improves, students are increasingly utilising phones for their educational requirements. They use them to access digital learning platforms, maintain communication with peers and instructors, and manage their course materials (Dampson et al., 2020; Dzontoh, 2024; Frimpong et al., 2016). Mobile technologies enhance immediate interactions with professors/lecturers and peers through various platforms such as email, messaging applications, and video conferencing. Mobile phones promote connectivity and enhance productive academic discussions and tailored learning experiences. The literature indicates that mobile phone usage among undergraduate students is motivated by both academic and non-academic factors. These are social media engagement, instant messaging, and entertainment, which constitute the bulk of usage time. Mainga (2016) determined that 42% of undergraduate students at Laikipia

University used their Facebook accounts every day, while about 34% accessed it at least twice a week. The outcome signifies that a substantial percentage of university students frequently engage with social media platforms.

2.2.5 Effects of Mobile Phone Use On Students' Academic Performance

The rising trend of mobile phone usage among students has created substantial debate about its influence on academic success. Mobile phones have numerous benefits, including access to educational materials and communication tools. Nonetheless, their excessive and uncontrolled usage can adversely affect students' academic results. The proliferation of mobile phones enables online learning, academic collaboration, and peer-teacher connections.

According to Tachie-Menson et al. (2025), university students who are more adept with technology and have advanced academic levels are at a greater risk of developing phone habits and addiction, as well as the related consequences. However, overuse raises concerns about potential effects on academic achievements, social interactions, and overall well-being. Ahmed et al. (2020) demonstrated that smartphones significantly influence students' academic performance. Mobile phones enhance communication and improve educational outcomes, but excessive use can lead to distractions and decreased focus, highlighting their importance in today's technology-driven society. The pervasive use and dependency on these devices can lead to detrimental physical, psychological, and social consequences for individuals (Naveenta et al., 2016; Okasha et al., 2021). While smartphones provide various advantages, including access to information and educational resources, their overuse has generated apprehensions regarding their effects on mental health (Achangwa et al., 2023), ergonomics (Ayhualem et al., 2021; Xie et al., 2017), and academic distraction (Ifeanyi & Chukwuere, 2018; Mendoza et al., 2018). Research conducted with undergraduate medical students showed that individuals with addiction issues were significantly more likely to encounter academic struggles. This finding emphasises how smartphone addiction can negatively affect academic success (Zeerak et al., 2024).

One of the most notable impacts of mobile phone usage is the distraction it generates during lectures, study periods, or group discussions. Students often receive notifications from social media, text messages, and phone calls, which disrupt their concentration. This ongoing interruption can result in diminished material retention and lower levels of engagement in the classroom. Another significant body of research has demonstrated a relationship between excessive mobile phone use and reduced academic success. Lengthy screen time often interferes with the time designated for studying, completing coursework, or reviewing for tests. As a result, this can cause missed deadlines, incomplete assignments, and inadequate performance in examinations. Lepp et al. (2014) discovered a correlation between high levels of smartphone usage and decreased GPA scores, underscoring the negative impact of such technology on students' academic performance. Oluwafemi et al. (2021) assert that overusing phones negatively impacts the cognitive skills and abilities crucial for students' success and educational attainment.

Chathurangaa and Jaysundarab (2021) examined the impact of smartphone usage on academic performance among undergraduates. Their findings indicated that students frequently use smartphones to communicate with peers and instructors. They further emphasised that the strategic use of smartphones has a beneficial effect on students' performances. The persistent engagement with mobile phones, especially for purposes unrelated to academics, can detract from students' focus. Sheng (2025) found that overuse of smartphones can lead to physical strain, like neck tilting and wrist pain, as well as cognitive issues such as poorer memory retention and concentration. It can also increase feelings of anxiety and stress. Similarly, a study from Pakistan showed that excessive smartphone use can disrupt sleep patterns, ultimately affecting academic performance and overall well-being (Raza et al., 2020).

Balancing academic tasks with phone interactions divides attention. Additionally, mobile phones have simplified the means for students to partake in dishonest academic practices, including cheating on examinations or copying work. Dependence on mobile phones may adversely affect interpersonal communication skills. Students may opt for virtual interactions over in-person academic discussions or peer study groups, which can constrain collaborative learning opportunities and hinder the advancement of critical thinking skills.

On a positive note, mobile phones can facilitate academic success when used with good intentions. The availability of educational applications, online tutorials, academic websites, and the ability to communicate with instructors and fellow students enriches the learning experience, particularly in blended or remote educational settings.

In a similar study, Abdulmalik and Anka (2024) revealed that of 396 respondents, 209 (52.78%) strongly agreed that smartphones help them to access materials to complement their lecture notes. Illustrations that smartphones are considered valuable tools for improving educational resources. Previous studies indicate that mobile phone usage can enhance academic performance, such as for accessing educational resources or engaging in scholarly conversations. The above suggests that the academic impact of mobile phone usage depends on patterns, intensity, and purpose of use. Knowledge of mobile phone usage behaviours may help educators and educational institutions encourage the responsible use of mobile devices. These practices could lead to more effective learning benefits for students. The influence of mobile phone use on students' academic outcomes is both complex and varied. While these devices can serve as effective educational devices, their improper use or overuse may obstruct academic progress. Thus, promoting awareness, defining usage parameters, and effectively integrating phones into the educational process can enable

students to harmonise productivity with connectivity. Studies have shown that implementing strategies to curb smartphone addiction and encourage healthier usage habits among university students can help reduce the rate of mobile phone use (Meshak et al., 2020; Prasad et al., 2022).

III. METHODOLOGY

3.1 Research Design

This part of the study presents methodology used in examining the effects of mobile phone use on students' academic performance. The study was carried out at Valley View University (VVU), Oyibi Campus, Accra. The researchers selected the University based on its diverse range of academic programmes and the fast-growing student population. The researchers employed a quantitative design, utilising a survey questionnaire to examine the effects of mobile phone use on students' academic performance at Valley View University (VVU), Oyibi Campus, Accra. The study also used descriptive statistics to determine the frequency, percentage, mean, and standard deviation of the data.

3.2 Target Population

The research encompassed the Faculty of Arts and Social Sciences, the Faculty of Science, the School of Business, the School of Education, and the School of Nursing & Midwifery. The study focused on only undergraduates. At the time of this research, the number of undergraduate students was 2,613. Table 1 below presents a distribution of students per faculty and school.

Table 1

Student Population Breakdown by Faculty & School

Faculty & School	Population
Faculty of Arts & Social Sciences	327
Faculty of Science	448
School of Business	382
School of Education	645
School of Nursing & Midwifery	811
Grand Total	**2,613**

Source: Office of the Registrar, 2024/2025 VVU

3.3 Sampling and Sample Size

The study adopted Cochran's (1977) proportionate sample size to determine the sample size for the study. Thus;

$$n = \frac{Z^2 \times P \times (1- p)}{E^2}$$

Where:

Z = 1.96 (Z- value for 95% confidence level)

P = 0.5 (estimated population proportion)

E = 0.05 (margin of error)

The total population N= **2,613**

Step 1;

$$n = \frac{(1.96)^2 \times 0.5 \times (1- 0.5)}{(0.05)^2}$$

n = 3.8416 × 0.25/ 0.0025

n = 0.9604/ 0.0025=384.16

Thus, the total sample size is 384

Sample Size for each faculty and school:

$$= \frac{(\text{faculty or school population}) \times \text{Total Sample Size}}{\text{Total Population}}$$

Hence;

Total Population (N) = 2,613

Total Sample Size (n) = 384

For each of the faculty and school;

1. Faculty of Arts & Social Sciences 327 = (327/ 2613) = 0.1251 ×384 = 48

2. Faculty of Science 448 = (448/2613) = 0.1715 ×384 = 66
3. School of Business 382 (382/2613) = 0.1462 × 384 = 56
4. School of Education 645 (645/2613) = 0.2469 ×384 = 95
5. School of Nursing & Midwifery 811(811/2613) = 0.3104×384 = 119

Step 2: for proportionate sample size, the researcher divided the population of each faculty or school by the total population and later multiplied the results by the sample size of 384 to arrive at a sample size for each faculty or school.

Table 2
Population of Students from Each Department, Faculty and School

Faculty & School	Population	Proportion (N)	Sample Size
Faculty of Arts & Social Sciences	327	327/ 2613 = 0.1251	0.1251 ×384 = 48
Faculty of Science	448	448/2613 = 0.1715	0.1715 ×384 = 66
School of Business	382	382/2613 = 0.1462	0.1462 × 384 = 56
School of Education	645	(645/2613) = 0.2469	0.2469 ×384 = 95
School of Nursing & Midwifery	811	811(811/2613) = 0.3104	0.3104×384 = 119
Grand Total	**2,613**		**384**

Source: Field data, 2025
Table 2 of this study presents the population of students belonging to each department, faculty, and school.

Table 3
Sample Size for Each Faculty

Faculty & School	Sample Size
Faculty of Arts & Social Sciences	48
Faculty of Science	66
School of Business	56
School of Education	95
School of Nursing & Midwifery	119
Total	**384**

Source: Field data, 2025

From Table 3 above, the sub-section shows the total sample size used by the researchers in this study.

3.4 Data Collection Method

The process of data collection commenced with the acquisition of requisite permissions from appropriate authorities. Approval was requested from the university registrar. After receiving this authorisation, the researchers obtained informed consent from the students to abide by ethical standards before the copies of the questionnaire were administered for data gathering. The copies of the questionnaire were administered to 384 undergraduates using Google Forms. The data collection phase took place from December 2024 to March 2025.

3.5 Data Analysis

In this section, the researchers applied the quantitative technique to analyse the data. This provides a comprehensive understanding of the subject matter. Descriptive statistics, such as frequency tables, percentages, means, and standard deviations, were employed to interpret the data using IBM SPSS version 25.

IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 Response Rate

The study examined the impact effects of mobile phone usage on the academic performance of private university students at Valley View University, Oyibi Campus, Accra, Ghana. Of 384 copies of the questionnaire administered to the respondents, 357 were retrieved and valid for the analysis, representing a 98% response rate.

4.1.2 Students' Demographic Information

This survey sought students' background information, including gender, age, and year of study. Table 4 presents the demographic data of students.

Table 4
Gender Distribution

Gender	Frequency (n)	Percentage (%)
Male	185	52
Female	172	48
Total	**357**	**100**

Source: Field data, 2025

Table 4 revealed that out of 357 respondents, 185 (52%) were male students, while 172 (48%) were female students. The results suggest that male students were more represented in the study than their female counterparts. The higher proportion of male respondents also reflects their interest in the survey. The results of this current study is not in tandem with Ikenwe et al. (2021), whose findings indicated that female respondents were more than the male respondents

Table 5
Age Distribution

Age Group	Frequency (n)	Percentage (%)
15-17	66	18.5
18-20	135	37.8
21-23	97	27.2
24-26	35	9.8
27 and above	24	6.7
Total	**357**	**100**

Source: Field data, 2025

The data in Table 5 showed that the largest age group fell between the ages of 18–20 years, with 135 respondents (37.8%), followed by 97 respondents (27.2%) between the age bracket of 21–23 years, while 66 respondents (18.5%) fell between 15–17 years; 35 respondents (9.8%) were in the age bracket of 24–26 years; and the last group fell between 27 years and above, with 24 respondents (6.7%). Most students are between 18 and 20 years old. The age distribution reflects the typical composition of university students. Younger individuals tend to exhibit higher levels of mobile phone addiction at the expense of their studies. This practice has negative consequences on their academic performance.

Table 6
Level of Study Distribution

Level of study	Frequency (n)	Percentage (%)
Level 100	70	19.6
Level 200	97	27.2
Level 300	101	28.3
Level 400	89	24.9
Total	**357**	**100**

Source: Field data, 2025

The findings in Table 6 found that the majority of the respondents, 101 (28.3%), are in level 300, followed by 97 (27.2%) who are in level 200, while 89 respondents (24.9%) are in level 400. The results implied that students in levels 200 and 300 participated in the study more than those in levels 100 and 400. The distribution of students across multiple levels in this study illustrates the diverse representation in the sample. The distribution sheds light on how academic levels might affect mobile phone usage among students.

Table 7
Students' Levels of Mobile Phone Addiction

Response	Frequency (n)	Percentage (%)
Highly addicted	131	36.7
Moderately addicted	122	34.2
Mildly addicted	80	22.4
Not addicted	24	6.7
Total	**357**	**100**

Source: Field data, 2025

The findings on mobile phone addiction showed that out of 357 respondents, 131 (36.7%) indicated that they were highly addicted to their phones, followed by 122 (34.2%) who were moderately addicted, and 80 (22.4%) showed mildly addicted; only 24 (6.7%) indicated that they were not addicted. The findings reinforce the results of Joy and Mathew (2016), who identified a high level of mobile phone addiction among college students. Again, the results of the current study agree with Davey and Davey (2014), who reported that the use of smartphones among Indian students was high, resulting in addiction due to their misuse.

Table 8
Daily Duration of Mobile Phone Use among Students

Response	Frequency (n)	Percentage (%)
Less than 1hour	65	18.2
1-3 hours	134	37.5
4-6 hours	87	24.4
More than 6 hours	71	19.9
Total	**357**	**100**

Source: Field data, 2025

The data in Table 8 shows that the majority of respondents, 134 (37.5%), spent 1–3 hours daily on their mobile phones, followed by 87 (24.4%) who spent 4–6 hours on their phones while 71 (19.9%) spent more than 6 hours daily, 65 (18.2%) of the students use their phones for less than 1 hour daily. This discovery contradicts the results of Mengistu et al. (2023), which found that students used phones for over 4 hours daily, whereas Wilmer et al. (2017) indicated that students used phones for 4 to 10 hours each day. Again, the current finding is not in tandem with the earlier study by Fook et al. (2021), which revealed that 45.5% of the respondents used their mobile devices for 3 to 6 hours daily, while 27.3% used them for 7 to 10 hours. Additionally, 5.5% reported over 20 hours of daily smartphone usage. The extent of time spent on mobile devices is vital for students' health and education.

4.1.3 Reasons for Mobile Phone Usage among Undergraduate Students

The Relative Importance Index (RII) was used to rank factors based on their perceived importance. The RII was calculated using the following formula:

$$RII = \frac{\sum W}{A \times N}$$

$$RII = \text{Sum of weights} = \frac{(W1 + W2 + W3 + W4 + W5)}{A \times N}$$

Where: W = weight assigned to each factor by respondents (ranking values)
A = highest weight (in this case, 5)
N = total number of respondents (357)

This part of the study used the Relative Importance Index to determine the factors influencing the reason for mobile phone usage based on a Likert scale of 5-point levels of agreement. Thus, the degree of contribution was categorised on a five-point Likert scale, as follows: 1 = very low, 2 = low, 3 = moderate, 4 = high, and 5 = very high. The Relative Importance Index (RII) was calculated based on the following equation:

$$\text{Relative Importance Index: } \Sigma w = \frac{W1 + W2 + W3 + W4 + W5}{AN} \qquad \frac{}{5 \times N}$$

$$\text{Social networking} = \frac{(58\times1) + (75\times2) + (48\times3) + (89\times4) + (87\times5)}{5\times357}$$

$$= 58+150+144+356+435/1785 = \mathbf{0.640}$$

Table 9
Reasons for Mobile Phone Usage among Undergraduate Students

Response	1	2	3	4	5	RII	Rank
Social networking	58	150	144	356	435	0.640	1st
Academic purposes	77	132	240	232	380	0.594	2nd
Research & assignments	87	158	171	240	370	0.574	3rd
Seeking news & information	99	112	267	252	250	0.549	4th
For sharing images	110	130	138	324	275	0.547	5th
Watching videos	98	110	288	244	235	0.546	6th
Communication with friends & family	101	168	213	140	330	0.533	7th
For entertainment	130	122	270	164	175	0.482	8th

Source: Field data, 2025

The analysis using the Relative Importance Index (RII) found that social networking ranked 1st (RII = 0.640), followed by academic purposes 2nd (RII = 0.594), while research and assignments ranked 3rd (RII = 0.574) for sharing images and others ranked 4th (RII = 0.546) and 5th (RII = 0.533), respectively. The findings are consistent with the results of Gritti et al. (2023) and Ahmad (2020), which indicate that students use mobile phones as learning tools to access social media networks for educational materials. Mainga (2016) found that 42% of Laikipia University undergraduate students use Facebook daily, while 34% access it at least twice a week, indicating significant engagement with social media among university students. This ranking offers significant insights into how students prioritise their mobile phone activities, highlighting a notable trend towards social networking

Table 10
Effects of Mobile Phone Use on Academic Performance

Statements	Mean	SD
Excessive mobile phone usage negatively affects my study habits.	2.652661	1.110383
Mobile phone usage during lectures distracts students' lessons.	2.610644	1.105247
Mobile phone use often delays me in completing academic tasks.	2.582633	1.105162
I struggle to focus on academic work due to mobile phone distractions	2.560224	1.096413
Non-academic phone use affects my performance.	2.557423	1.114351
Mobile phone use helps me manage my academic tasks effectively	2.554622	1.131997
I feel anxious or restless when I am not using my mobile phone.	2.535014	1.112761
Using my mobile phone enhances my academic performance	2.467787	1.105247
I prefer studying with my mobile phone for research, and e-books.	2.456583	1.125018
Late-night mobile phone usage affects my ability to concentrate in class	2.411765	1.112330

Source: Field data, 2025

Table 10 showed a negative effect of excessive mobile phone usage on students' learning habits (M = 2.652661; SD = 1.110383), followed by mobile phone usage interrupting students' educational pursuits. (M = 2.610644; SD =1.105247). The data revealed again that students often delay their academic tasks due to mobile phone use (M = 2.582633; SD = 1.105162). Furthermore, some respondents, with scores of (M = 2.560224; SD = 1.096413), indicated that they struggle to focus on academic work due to mobile phone distractions. On the other hand, respondents (M = 2.557423; SD = 1.114351) agreed that non-academic phone use affects their performance. These findings contradict those of Sheng (2025) and Raza et al. (2020), which linked excessive phone use to physical strain, cognitive, and psychological challenges, as well as disrupted and reduced academic performance.

4.2 Discussion

4.2.1 Students' Levels of Mobile Phone Addiction

The trend of mobile phone use by students has reached unparalleled heights. The majority of students depend on their mobile devices for communication, entertainment, and educational purposes. The results on the extent of mobile phone addiction indicated that the majority of the students were highly addicted to their mobile devices. The findings are consistent with those of Eldesokey et al. (2021) and Samaha and Hawi (2016), who also indicated high levels of mobile phone use. Again, the results of the current study corroborate those of Davey and Davey (2014), who discovered a high prevalence of smartphone usage among Indian students. Students' behaviour indicates possible disruptions in their educational activities and difficulties paying attention to their academic work.

4.2.2 Daily duration of mobile phone use among students

A large number of students dedicate a substantial part of their day to engaging with mobile phones. Some individuals often exceed the usual hours in a day, which negatively impacts their educational activities. The data obtained on the duration of mobile phone usage showed that most respondents spent 1 to 3 hours daily on their mobile phone devices. This result disagrees with Ataş and Çelik's (2019) observation, which found that university students typically dedicate an average of 5 hours each day to mobile phone usage. Furthermore, the results are inconsistent with Quist and Quarshie's (2016) study, which found that students spent 7 hours or more on their mobile devices. Mobile phones offer convenience and access to information, but excessive time spent on these devices may affect students' academic performance either positively or negatively.

4.2.3 Reasons for Mobile Phone Usage among Undergraduate Students

The extensive use of mobile phones by undergraduate students is due to the flexibility and multi-functionality these devices offer. Students engage with mobile phones for communication, social networking, and academic tasks, which makes them vital instruments in their lives. The results indicated that students use their mobile phones to access social networking platforms. This result confirms Al-Fawareth and Jusoh (2014) that the majority of students predominantly use their smartphones to connect with online social networks rather than for educational purposes. This study's findings corroborate those of Lee et al. (2021), that students use mobile phones for over three hours daily on weekends, with social media being the most commonly accessed platform. This result is also in consonance with the findings of Edjah and Nkrumah (2023), who found that students use mobile phones for social media interactions, such as listening to music, sharing videos, recording conversations, making video calls, accessing the internet, and sharing music through Bluetooth.

4.2.4 Effects of Mobile Phone Use on Academic Performance

The prevalence of mobile phone usage among students has risen in recent times due to technological advancement, presenting numerous benefits to users. The results revealed that excessive mobile phone use has led to a negative impact on students' academic performance. These findings are inconsistent with Chathurangaa and Jaysundarab (2021), whose study found that students use smartphones to exchange information with peers and lecturers.

According to their results, this has contributed to an enhancement in their academic achievements. Abdulmalik and Anka (2024) posited that smartphones provide students with access to learning resources. Their findings deviate from the current studies. All the aforementioned studies indicate that mobile phones have established new opportunities for students' learning despite their challenges. It is vital for students, educators, and guardians to be aware of these threats and to advocate for a balanced and thoughtful use of mobile phones.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

The study was to examine the effects of mobile phone use on the academic performance of undergraduate students at VVU. The findings indicated that mobile phone addiction is widespread among the majority of students. Students frequently and persistently use mobile devices beyond the usual hours. The constant use of these technologies leads to negative consequences in the academic achievement of students. The habit of regular phone use also disrupts students' focus, time management, and academic performance. Mobile phones are essential instruments for communication and education; their unregulated and excessive use presents considerable obstacles to students' achievement. Addressing this phenomenon requires a culture of collaboration from students, instructors, parents, and institutional authorities to encourage responsible and meaningful mobile phone usage within the university setting.

5. 2 Recommendations

Based on the findings of the study, the following are the recommendations: The study recommended that students should be encouraged to use mobile phones for their academic purposes. Students should desist from the excessive use of mobile devices to avoid poor academic performance. The university should formulate and enforce policies to regulate the use of mobile phones on campus, most especially in the learning rooms, lecture halls, and libraries. These policies should focus on promoting the responsible use of mobile technologies for academic work, rather than a total ban. The study recommended mobile phone etiquette to help reduce distractions during class time. The study suggested that parents/ guardians should be actively involved in the battle against the menace of excessive mobile use both at home and in school. The university management should consider offering a semester course on the risks associated with excessive mobile phone use as part of extracurricular activities. The alumni (old students') association and policymakers should collaborate with the university management to implement strategies that encourage responsible use of mobile phones. These measures should focus on educating students on the constructive use of mobile phones.

The study recommends awareness activities to sensitise students about the impact of cell phone usage on academic performance. The university should organise periodic orientations/ user education, workshops, and seminars on the detrimental effects of mobile phone use.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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