

The Effects of Mobile Phone Usage on the Academic Performance of Ghanaian Students, a Case of Presbyterian University College Asante - Akyem Campus

Kojo Osei Frimpong

Department of ICT and Mathematics,
Presby University College, Agogo, Ghana

David Otoo-Arthur

Department of Mathematics/ICT,
Presbyterian Women's College of Education, Aburi-Ghana

Samuel Asare

Department of Maths/ICT,
St. Monica's College of Education, Mampong, Ghana

Abstract: Recent developments and advancement in mobile phone usage has resulted in a dramatic evolution of the mobile industry. The use of mobile phones has increased so significantly that it has become one of the most dominant influences on society in current times. The study seeks to determine how often students use their phones in the classroom, examine mobile phone technologies available for learning, and find the effects of mobile phone usage on the students' academic performance. A sample size of three hundred and six was chosen for this study. On the students' use of mobile phone in the classroom, 93.5% have ever used a mobile phone during classes' hours with 91.8% using mobile phones in class to enhance their understanding of topics understudy. Also, 80.5% being distracted by the phone during classes and this was in the form of visiting social media site (31.1%), text messages (27.6%) and receiving calls (25.6%)

Keywords: Personal Digital Assistant (PDA), Mobile Phone, Bluetooth

I. INTRODUCTION

In modern classrooms, instructors face many challenges as they compete for students' attention among a variety of communication stimuli. Rapid growth of mobile computing, including smart phones and tablets presents a double-edged problem, along with unimaginable access to information come with unforeseen distractions.

A major concern for many instructors is the potential distraction caused by students using their mobile devices to text, play games, check Facebook, tweet, or engage in other activities available to them in a rapidly evolving digital terrain. That concern has potential merit; recent statistics from the Pew Foundation show that the median number of daily texts for older teens rose from 60 in 2009 to 100 in 2011 (Lenhart, 2012). Moreover, 64% of teens who own cell phones

have texted during class, even in schools where cell phones are technically banned (Lenhart, Ling, Campbell, & Purcell, 2010).

Some critics argue that texting and other digital communication behavior potentially diminish key social skills like effective listening. As one commentator noted, "we think of phones as a communication tool, but the truth is they may be just the opposite" (Skenazy, 2009, np). Other views suggest that people are adapting to new communication norms in an increasingly digital world, learning to quickly attend to process and respond to multiple and sometimes simultaneous messages (Davidson, 2011).

STATEMENT OF THE PROBLEM

Despite the numerous positive contributions and conveniences associated with the use of mobile phones, it is

very likely that these may compromise other important facets of young adults' lives. Billieux, Van der Linden, D'Acremont, Ceschi & Zermatten (2006) argue that from a social point the status of mobile phone may change from one which supports social exchanges to that which clearly interferes with them. Little is known regarding the social effects of the use of mobile phone usage on students in Africa. This study therefore seeks to add to the body of knowledge the effects of mobile phone usage on students at Presbyterian university College Asante Akyem campus academics. In order to achieve this broad objective, the following specific objectives will be considered;

- ✓ to determine how often students use their phones in the classroom.
- ✓ to examine mobile Phone technologies available for learning.
- ✓ to determine how mobile phone usage affects their studies.
- ✓ to find out the implications of increase usage of phones among students.

RESEARCH QUESTIONS

The research is guided by the following questions:

- ✓ How often do students use their phones in the classroom?
- ✓ What are the mobile Phone technologies available for learning?
- ✓ How does mobile phones usage affects education?
- ✓ What are the implications of increase usage of phones among students?

SIGNIFICANCE OF THE STUDY

The result of the study will help researchers, lecturers, students to know the effects of these mobile phone usages on academic performance of students.

II. LITERATURE REVIEW

MOBILE PHONE

The mobile phone was originally made for adults for business use (Aoki, 2003). This is extremely similar to the fixed telephone in the early 20th century, where telephone engineers explained that the telephone was made for the business world and not for social conversation (Flinchy, 1997). The growth of mobile phone technology is demonstrated by the fact that in 2002 the number of mobile phone users worldwide, surpassed those of fixed-phone users (Srivastava, 2005). It was been predicted that, by the end of 2005, the number of mobile phone subscribers worldwide will reach 2 billion (Deloitte Research, 2005).

USES OF MOBILE PHONE

The usefulness of cell phones is numerous and this includes keeping contact with friends, members of the family, conducting business and others. Many people possess more than one mobile phone for different purposes, which could be

for business purpose or personal purpose. A number of people are also taking the advantage of multiple subscriber identity module (SIM) cards for benefit of different calling plans since a calling plan might provide cheaper local calls, long-distance calls, international calls, or roaming. The following are other benefits;

DISTRIBUTING CONTENT

In 1998, an example of distributing and selling media content through the mobile phone was the sale of ringtones by Radiolinja in Finland. Later, other media content emerged which includes news, video games, jokes, horoscopes, TV content and advertising (Srivastava, 2005). In 2006, the total value of mobile-phone-paid media content exceeded Internet-paid media content and was worth 31 billion dollars. The value of music on phones was worth 9.3 billion dollars in 2007 and gaming was worth over 5 billion dollars in 2007 (Microfinance.com, 2010).

The advantage of mobile phones is taken in many countries to provide mobile banking services, such as ability to transfer cash payments through safe SMS text message. This service also allows customers to hold cash balances recorded on the SIM cards, deposits or withdraws cash. Some countries also use mobile phone banking for loan disbursement and repayment (Microfinance.com, 2010). A couple of cell phone can operate mobile payments through direct mobile billing schemes (Feig, 2011). This requires the co-operation of manufacturers, network operators and retail merchants to enable contactless payments (Poulter, 2011).

MOBILE PHONE AND ITS EMERGENCE

A research has shown that the mobile phone is expression of personality and a topic of talk for 18-25 year-olds, and they must know outside the parameters of models (Heszler, 2004). Teenage users especially like to express their individuality by personalizing their mobile phone. They are choosing a particular brand, colour, size, or display logo and ring tone. They continuously carry their mobile phone within reach and regard it as status symbol and an important part of their daily lives. For adults the mobile phone has likewise grown to become a highly personal utensil.

They also individualize their mobile phone by saving contacts, messages and important dates (Bauer et al, 2005). Another research suggests that young people's relationship to the mobile phone is consistent with their general consumption styles. Moreover we can separate female and male styles. The female style was an "addictive" use of the phone, and it was related to "trendy" and "impulsive" consumption styles. The male style was characterized by technology enthusiasm and trend-consciousness, and it was linked to impulsive consumption and "hard" values (Wilska, 2003). In Hungary Nokia led awareness index, and Samsung has the second place, in particular the girls like it. Siemens was also significant at that time, which has since withdrawn from the Hungarian market.

Mobile has an important role in the life of young adults and among college students the mobile phone has full penetration, but two-thirds of 10-12 year-olds also have this

device (Szántó, 2005). The mobile phone became the most popular product category, beside sportswear, and it appears as a status symbol, an essential need and an icon of independence within the 11-12 age groups (Horvath, 2004). The mobile phone still remains a status symbol for the children, and the two most important attributes are the minutes on the card and the number of games in device.

A previous American study also suggests that college students use the mobile phones for a variety of purposes. Mobile phone helps them feel safe, use it for financial benefits or to manage time efficiently, and it helps to keep in touch with friends and family members (Aoki and Downes, 2003). Global consumer trends achieve a rapid breakthrough among the young urban consumers. It is very important for young adults to be accessible anywhere and anytime, because the home of them is the place, where they live. 96% of them have mobile phones and a minority of them also use advanced features, like listening to music (26%), or download ringtones (23%). A higher percent of them use instant messaging, radio or Internet via mobile phones (GfK-Hungary, 2008).

MOBILE PHONE USAGE AND FEATURES

Modern phones have a variety of features that simply were not possible years ago: Mobile phones are not just for voice communication anymore (Ishii, 2006). College students can access the Internet, send or receive text messages, check email, and even video chat with others quite literally from the palm of their hand. In addition, students can access a variety of social network sites (SNS) from their mobile phones. Scholars boyd and Ellison (2008) explained that SNS are online services that allow people to create a profile, create a list of other users who share a connection with the user, and view the lists of connections created by others within that system.

For the purposes of the current study, we use the technical term SNS in place of other terminology (e.g., social networking sites) because SNS better conveys the way in which users communicate with others via these systems. boyd and Ellison noted that other terms, like social networking sites, emphasize relationship initiation and users forming connections with others with whom they might not normally have come in contact. However, the term SNS better conveys the way in which users communicate with other people they have connected with. As boyd and Ellison (2008) put it, "They are primarily communicating with people who are already part of their extended social network". Thus far, survey data indicate that young adults are highly active users of SNS and other communication tools like text messaging.

Texting, the ability to send short messages to another person, is perhaps one of the more popular features of modern cell phones. Roughly 94% of 18-34 year-olds report that they send or receive text messages using their mobile phones, and 63% of this age group access the Internet using their mobile phone (Zickuhr, 2011). There is little question that students' communication habits regularly lead them to text while in class. Research conducted by the Pew Internet & American Life Project found that 14 to 17 year-olds who text typically send and or receive roughly 60 text messages a day.

Furthermore, 64% of teens with mobile phones have texted in class, and 23% access SNS via their phone (Lenhart, 2010).

Campbell (2006) reported that young people ages 18_23 are more tolerant of mobile phones in the classroom when compared to older age brackets. Essentially, "Young people tend to have very positive perceptions of mobile phones and regard the technology as an important tool for social connection" (Campbell, 2006, p. 290). Besides texting, accessing the Internet and SNS has become a prolific communication activity among college students. Research shows that roughly 75% of online adults (18_24 year olds) have profiles on an SNS, and 89% of online adults use those sites to keep in touch with friends (Lenhart, 2009). In regard to teens, 77% of teens report that they contact their friends daily via text messaging, and 33% do so via SNS (Lenhart, 2010).

Statistics from Facebook, which as of June 2011 had over 500 million active users, documents that over 50% of the users log in each day (Facebook, 2011). According to Facebook's own statistics, over 250 million active users access Facebook through a mobile device, and "People that use Facebook on their mobile devices are twice more active on Facebook than non-mobile users" (Facebook, 2011, p. 1). In short, one might reasonably conclude that students' use of Facebook during class would be similar to rates of texting.

However, posting to Facebook and sending a text message do serve different purposes. For example, a text message is typically sent to one recipient and is inherently interpersonal in nature. A Facebook post, or a status update, is generally viewable by a wider audience or even publicly available. Although texting and posting can serve different purposes, the physical act of both activities on a mobile device is fundamentally the same (i.e., users engaging in communication activities via their mobile device). Because texting and posting both require the user to actively interact with her/his mobile device, these potentially distinct communication activities would reasonably manifest in similar ways and with similar effects.

IMPORTANT FEATURES/ATTRIBUTES AND APPLICATIONS OF MOBILE PHONE INFLUENCING PURCHASE

The mobile phone has come quite a long way from its beginning in the early 1980s when it was the size of a small briefcase (lipscomb, 2005). However, the mobile phone today is sleek, fitting into the palm and offered in rainbow of colours and full of features. Mobile phone users now have a number of features to choose from: ring tones, browsers, wireless cameras, instant messaging, streaming video, mobile music, push-to-talk (walkie-talkie), television clip playing, college entrance exam preparation review, over-the air music downloads and full-length videos.

This is not the end, according to (Crockett, 2005), more is still to come, and mobile phones may in the very near future even be used as credit cards. Head (2010), defined attributes as: "(i) mobile phone applications, which focus on the actions that can be performed (such as sending/receiving text messages); and (ii) mobile phone tools, which focus on the applications that can be used (such as an alarm clock feature)". SMS (Short Message Services) is one of the early peripheral

features of the mobile phone to be introduced in early 1990s (MACRO, 2004). Subsequently, other features and functions were introduced into the mobile phone.

FACTORS AFFECTING THE REASONS FOR PURCHASING A MOBILE PHONE

Literature abounds on the subject of reasons on the use of mobile phones but are mostly in relation to its impact on society rather than on the individual (Tian,2009). (Tian, 2009) have put the reasons into simple (convenience, personal efficiency and security) and complex (information immediacy, contact-ability, social interaction and social control). The subject of reasons that influence why people acquire and use mobile phones has been blurred by its prevalence and impact on their everyday lives and becoming a necessity. The mobile phone is now viewed as an extension of people's personality, reflecting their personal preferences and identity. (Tian, 2009).

MOBILE PHONE TECHNOLOGIES AVAILABLE FOR MOBILE LEARNING

According to Eteokleous and Ktoridou (2009), the benefits of mobile phones integration into student learning on campus are useful with the mobile phone capabilities that are easily supporting learning. Which are: SMSs (text messaging): Short Message Services allow users to send/receive messages of up to 160 characters between mobile phones. MMSs: Multimedia Messaging Service serves the same purpose as SMSs, but it allows the inclusion of graphics. GPRS (General Packet Radio Service): This mobile data service is available to users of specific phone types; it can be used for WAP service, SMS, MMS, email, and access to the World-Wide Web. Wireless access points WAPs: There are two types of wireless standards: Wireless Fidelity: (Wi-Fi) and WAP (Wireless Application Protocol). They are primarily for internet access on mobile phones.

BLUETOOTH: A short-range wireless communication between PCs, PDAs, mobile phones, camera phones, printers and digital cameras, and lots more. Bluetooth uses Radio Frequency (RF) for communication between multiple devices within a 30-foot range. It uses a globally available frequency band (2.4GHz) for worldwide compatibility. 3G and 4G phones: 3G technologies enable network operators to offer users services: wireless voice telephony, video calls, broadband wireless data with data transmission capabilities enabling speeds up to 14.4 Mbit/s on the download and 5.8 Mbit/s on the upload. The 4G mobile phones provide up to 100 megabits per second transmission adequate for multimedia operations (Barker, 2006).

CLASSROOM ATTENTION AND MOBILE PHONE USAGE

Recent studies exploring the effects of texting/posting on student learning outcomes have relied on information processing theory (Mayer, 1996) as a basis for arguing that texting can cause distractions that hamper student learning. Briefly, information processing identifies attention, working memory, short-term memory, long-term memory, and

metacognition as key resources used by individuals when they learn new information. Because learning is a process, diminished capacity with any single resource can impact other resources. Thus, in the case of texting/posting, students' attention can be divided, which can distract attention from on-task behavior. In turn, information processed in working/short-term memory may be incomplete or inaccurate, which could lead to inaccurate or insufficient storage of information in long-term memory.

A variety of studies outside of the educational setting provide evidence that texting/posting can impede information processing. For instance, Just, Keller, and Cynkar (2008) found that simulated mobile telephone conversations disrupted driving performance by diverting attention away from the task of driving. Other researchers found that drivers talking on a mobile phone experienced visual distractions, such as failing to notice important visual cues like traffic lights or the environment surrounding road intersections (Trbovich & Harbluk, 2003). In general, these researchers concluded that "distracting cognitive tasks compete for drivers' attentional resources" (Harbluk, Noy, Trbovich, & Eizenman, 2007, p. 378).

Although texting is considerably more covert than actual telephone conversations, a growing body of literature suggests that it is equally problematic. Kraushaar and Novak (2010) explored connections between classroom laptop usage and course achievement. The authors recruited students who voluntarily installed activity-monitoring software onto their laptops. This software recorded what programs were running and the times that each program was in use. Kraushaar and Novak developed a rubric to classify programs as productive or distractive towards the student. Productive programs were those programs that were course related (e.g. Microsoft Office), while distractive programs included web surfing, entertainment, email, instant messaging, and computer operations. "Using a browser to view an active window containing a course-related PowerPoint slide would be considered productive, while viewing an active window for a Web site that was unrelated to the course would be considered distractive" (Kraushaar & Novak, 2010,p. 244). Their study found that 62% of the programs that students had open on their laptops were considered distracting. In addition, and of particular relevance to the current study, the researchers found that instant messaging was negatively correlated with quiz averages, project grades, and final exam grades.

In an experiment testing whether texting negatively impacts students' ability to learn information, Wood and colleagues (2012) observed a small but consistent negative effect on exam performance when students engaged in simulated texting, emailing, or Facebook posting. They reasoned that when students engage in multiple simultaneous tasks, like texting and listening to lectures, one or both behaviors suffer. Similarly, Wei et al. (2012) found support for a causal model identifying texting as a significant mediating variable in the relationship between students' self-regulation, a key aspect of metacognition, and cognitive learning. Specifically, when higher rates of texting behavior are present, students tend to be less able to self-regulate their behaviors in ways that allow them to succeed on performance assessments.

Although each of these studies concluded that texting can diminish learning because students' attention is divided, they did not identify specific mechanisms through which the diminished attention/diminished achievement link is made. By providing specific analysis of these mechanisms, teachers will have a greater ability to explain to students how their grades could be impacted when they text or post to Facebook during class. For example, when teachers want to explain the negative impact of texting in class, they can perhaps be more detailed by noting specific ways in which texting impacts student note taking and recall, and perhaps even work towards mitigating these negative effects participation in activities done during learning in class.

Lecture Listening and Note taking is one of the most commonly practiced student behaviors; it is also one of the most important. In a meta-analysis of 33 separate studies, Kobayashi (2006) observed a large average weighted effect size of .77 when comparing the exam scores of students who take and review notes with those who do not. Practically speaking, students can score nearly one and one-half letter grades higher on exams when they take notes (Titsworth & Kiewra, 2004). The types of notes students take are also important. Makany, Kemp, and Dror (2009) found that when students took time to construct visual non-linear notes, they recorded more complete notes and had a 20% jump in comprehension assessment performance. Stated plainly, the quantity and quality of students' notes has dramatic impact on their ability to retain and use information.

Despite the importance of taking notes, the classroom poses many obstacles to attaining a great set of notes. "During lecture learning, students must continuously and simultaneously listen, select important ideas, hold and manipulate lecture ideas, interpret the information, decide what to transcribe, and record notes" (Kiewra et al., 1991, p. 241). The challenge of these tasks can be compounded in situations with difficult subject matter, large enrollment classes that offer little opportunities for interaction, or student learning preferences for non-auditory presentation of materials (Boyle, 2012). In fact, numerous studies show that students are not very good note takers, generally recording less than 40% of the details contained in a lecture (Boyle, 2011; Kiewra, 1985; Titsworth & Kiewra, 2004)

TIME STUDENTS SPEND ON THEIR MOBILE PHONES

A study conducted by the International Center for Media & the Public Agenda (ICMPA) asked two hundred students at the University of Maryland, College Park to abstain from using all media for twenty-four hours. The students were then asked to blog on private class websites about their experiences to report their successes and admit to any failures. The students wrote over 110,000 words, an indication of the severe addiction to mobile phone usage. (ICMPA, 2011). A research conducted by Abuhassna (2006), concluded that the differences due to age and gender do not appear to be particularly significant; most significant differences appear to be due to the mobile devices used or technologies available. For example, the use or not of certain technologies like social networking among students is high compared to downloading

podcast or searching for answers during examinations; or the use of laptops/notebooks and iPads/tablets.

In their study titled "Smartphones: Fulfilling the Need for Immediacy in Everyday Life, but at What Cost?" Lundquist (2014) stressed that smartphones fulfill the demand for immediate access to social worlds. They conducted focus groups of college students to explore their perceptions and attitudes regarding uses and abuses of Smartphone technology. Overall, respondents believe more negatives than positives exist and the powerful positive of "being in the loop" keeps them "attached" to their devices.

According to Stollak (2011), students who have smart phones were more likely to both access social media tools and spend time engaging with others. From an educational standpoint, this means there may very well be a "digital divide" between those who are making connections with others, and those who might be left behind. Similarly, professors may have to be wary of assigning projects involving social media to students as some may have an advantage in completing the work than others.

As it is demonstrated by survey done by Grousopoulou (2008), gender differences exist, but they are not big. Females appear to make more phone calls than male. Moreover, they take more photos and record more sounds than their male peers. In addition, they listen more hours to the radio than men and they tend to send and receive more messages from friends. On the other hand, males tend to use more the computers and Internet, but they do not access the Internet via their mobile devices. Furthermore, both groups find reasons in order to reduce the usage of their mobiles, but men mention more reasons than women do. They believe that loss of time and addiction are reasons of decreasing the use of the devices (Selwyn, 2007). In her qualitative study (Jubien, 2013) concludes that graduate students combine their personal lives with their student lives influenced by the use of smartphones.

This finding can be understood as a statement that students can have a classroom at home or wherever making use of communication and educational applications offered by smartphones. In addition, Jubien (2013) mentions another finding about how smartphones are influencing and changing educational practices. For example, changes in the way to gather information, to receive instructions from teachers, to do homework, to collaborate with classmates, among others. In his study (Sykes, 2014), found that with a mixed method design that students using a smartphone application enjoyed and performed very well in a course, so they exceeded their performance of a comparison group (traditional course) with statistically significant differences. In addition to this Tosta (2012), concluded that, smartphones are a phenomenon that has changed daily life and learning styles of students, has forced changes in teaching strategies for teachers, and has changed the rules and policies of educational institutions.

In an observational study of smartphone usage on the Stanford campus, (Ames, 2013) showed that the availability of always-on connectivity meant that the students had to exhibit the techno-social practices of balancing their extended networks with the immediate surroundings and to limit the negative impacts of smartphone usage (e.g., social pressure, and multi-tasking). Also Oulasvita (2012) stressed that the use

of mobile devices may lead to the development of a checking habit that involves brief and frequent content consumption (e.g., checking emails and Facebook updates).

Nevertheless, one of the most important concerns associated with mobile phone use is that it may become uncontrolled or excessive, which has an impact upon daily living. Among the most common negative outcomes resulting from overuse of the mobile phone, one could cite financial problems (Billeux, 2008) or sleep disturbance (Thomee, 2011). Nowadays, excessive use of the mobile phone is often considered a behavioral addiction, along with other nonchemical addictions such as pathological gambling, compulsive shopping or video-game addictions (Choliz, 2010). This mainly results from pioneer studies (mostly conducted in Asia and Australia) that identified symptoms of addiction to the mobile phone in young adults and adolescents (e.g. cravings, mood regulation expectancies, lack of control) (Toda 2004). More recently, surveys conducted in Switzerland revealed that a significant proportion (about 30%) of the participants overtly perceived themselves as “addicted to the mobile phone” (Billieux, 2008).

III. IMPACT OF MOBILE PHONE ON EDUCATION

POSITIVE IMPACT

Mobile phones easily promote collaborative and different types of learning through their wireless connection to the internet. Their adoption in learning processes by the higher institution management as student - learning and communication device tools is useful. In the classroom mobile phones motivate students to be more engaged to the lesson promoting learner-centered participation. This indicates the dynamic support that the mobile phone has brought to students' learning practice. According to Barker, Krull, and Mallinson (2006), the impacts of mobile phone technologies on learning are portability, collaboration and motivation enhancing students, parents and teachers' education system.

The mobile phone portability enables student learning to be ubiquitous in obtaining or retrieving course information through their mobile phones as they are carried from class to class or wherever. Their portability can improve a wide variety of learning settings, namely a field trip, the classroom, or outside the campus (Krull 2006). Collaboration Social networks such as Facebook and Twitter accessed on students' mobile phones allow students to form groups to distribute and add together their knowledge, and share information with ease, and this could result in a more successful collaborative learning.

NEGATIVE IMPACT

Mcneal and Hooft (2006) point out that even though cell phones are popular their use in the learning environment has been met with some resistance from students and educators mainly based on the fact that they are “a source of irritation, delinquency and even crime” (Katz and James E: 2008). Proponents of cell phone use strongly feel that cell phones are inappropriate tools for learning as they are actually harmful.

Commonly cited negative effects of cell phone use in education include, chatting and texting when students should be studying. As Cumiskey (2005) notes, public use of cell phones transforms our roles from social participants to observer or user. In other words, it's not just the student using a cell phone who is affected but also the one who is studying closer to the user thereby constituting a disturbance to proximate others. Kawasaki (2006), Jeon -Hynn et al (2008) and Ling's (2005) reported how students who are preoccupied with their mobile phones tend to experience psychological disturbances, depression, lower self-esteem and interpersonal anxiety when they study without their cell phones.

Helszer (2004) reports on how some Education administrators spend much time and energy developing policies and procedures to keep cell phones out of education at the expense of developing sound policies that integrate cell phone use as knowledge construction and data tools.

For example, Gilroy (2004) pointed out that 85% of professors' surveyed in Germany stated that they wanted cell phones banned from tertiary education mainly because of students cheating in tests, accessing unfiltered internet sites and secretly taking pictures without permission. Cell phone use has also been found to reduce students thinking abilities and shortening the attention span of students so dramatically that students struggle to read anything longer than a social network posting (Young:1996). Research has concluded that m-learning works best when used as part of a blend (Brown: 2005, McHugo and Hall 2006) that is, as a supplementary tool that is used in combination with traditional methods such as, lectures, paper based materials and other ICT tools.

IV. METHODOLOGY

Descriptive cross sectional design was used to find out the effects of Mobile phone usage on the students at Presbyterian University College, Asante Akyem Campus. Three hundred and six (306) respondents were chosen for the study to enable adequate representation of the entire population. The sample was obtained using the simple random sampling method. A questionnaire was designed to ensure that all issues will be presented. The questionnaire was structured with both close ended and open ended questions to collect data from the respondents. Research on personal issues like mobile phone usage raises specific ethical concerns. Out of the 306 questionnaires, 293 were returned for analysis. Data were analyzed using Statistical Package for the Social Sciences version 20 (SPSS).

ANALYSIS

The data collected for the study on factors that influence the effects of mobile phone usage on the students as well as any significant results that appeared within the study were analyzed using the statistical tool SPSS version 20.

BACKGROUND INFORMATION OF RESPONDENTS

Background information	Frequency (293)	Percent (%)
Age		
18-20	69	23.5
21-23	154	52.6
24-26	61	20.8
27-29	4	1.4
30-32	5	1.7
Total	293	100
Gender		
Male	110	37.5
Female	183	62.5
Total	293	100
Year		
First year	88	30.0
Second year	109	37.2
Third year	48	16.4
Final year	48	16.4
Total	293	100
programme		
Nursing	196	66.9
Physician	97	33.1
Assistant	293	100
Total		

Source: Field Survey, 2016

Table 1: Background information of the respondents

The youth have a “symbolic and affective investment” in mobile phones and some even prefer their mobile phone to television or the Internet hence this study targeted students within 18-32 years since mobile phone has been argued to be a status symbol for young people (Netsafe, 2005). Table 4.1 shows that 52.6% within 21-23 years followed by 23.5% who were within 23.5% with 62.1% being females. Another research suggests that young people’s relationship to the mobile phone is consistent with their general consumption styles where female styles can be separated from male styles. The female style is an “addictive” use of the phone, and it is related to “trendy” and “impulsive” consumption styles whilst the male style is characterized by technology enthusiasm and trend-consciousness, and it was linked to impulsive consumption and “hard” values (Wilska, 2003). On their programme of study, 66.9% are pursuing nursing whilst 37.2% and 30% are in the second and first years respectively. This corroborates Campbell (2006) report those young people ages 18-23 are more tolerant of mobile phones in the classroom when compared to older age brackets.

IMPLICATION OF INCREASE USAGE OF PHONES AMONG STUDENTS

Variable	Frequency (293)	Percent (%)
Usage of mobile phone distract me during lectures		
Strongly Agree	69	23.5

Agree	77	26.3
Neutral	43	14.7
Disagree	58	19.8
Strongly Disagree	43	14.7
Total	290	99
Mobile phone usage can lead to the drop of GPA		
Strongly Agree	69	23.5
Agree	66	22.5
Neutral	36	12.3
Disagree	56	19.1
Strongly Disagree	62	21.2
Total	289	98.6
Mobile phone usage can lead to increase of GPA		
Strongly Agree	57	19.5
Agree	105	35.8
Neutral	63	21.5
Disagree	35	11.9
Strongly Disagree	30	10.2
Total	290	98.9
Mobile phone Usage can lead to increase in information research skills		
Strongly Agree	159	54.3
Agree	93	31.7
Neutral	22	7.5
Disagree	7	2.4
Strongly Disagree	7	2.4
Total	288	98.3

Table 2: Effects of teenage pregnancy

Mobile phone usage can lead to increase in academic reading skills		
Strongly Agree	106	36.2
Agree	123	42.0
Neutral	39	13.3
Disagree	12	4.1
Strongly Disagree	9	3.1
Total	289	98.7
Mobile phone usage can lead to increase in academic writing skills		
Strongly Agree	70	23.9
Agree	105	35.8
Neutral	69	23.5
Disagree	29	9.9
Strongly Disagree	17	5.8

Total	290	98.9
Mobile phone usage can lead to increase in a social life of student		
Strongly Agree	122	41.6
Agree	100	34.1
Neutral	36	12.3
Disagree	15	5.1
Strongly Disagree	17	5.8
Total	290	98.9

Source: Field Survey, 2016

Table 3

Table 3 indicates that 49.8% agrees that mobile phones usage distract them during lectures hence 46% thinks mobile phone usage during lectures can lead to a decline in GPA.

The findings is similar with Burns and Lohentry (2010) where they found that both students and instructors identified mobile phone usage as a distraction in class, and Campbell (2006) also found that students and instructors perceived the ringing of cell phones in class as a problem. Although texting is considerably more covert than actual telephone conversations, a growing body of literature suggests that it is equally problematic. In this study, 55.3% disagree but rather thinks the usage of mobile phones causes an increase in GPA since it can lead to increase in information research skills (86%), increase in academic reading skills (78.2%), increase in academic writing skills (59.7%) as well as an increase in social life of students (75.7%).

The findings of the study support Eteokleous and Ktoridou (2009) assertion that the benefits of mobile phones integration into student learning on campus are useful with the mobile phone capabilities that easily supports learning.

MOBILE PHONE USE BY STUDENTS IN THE CLASSROOM

Variable	Frequency (N=293)	Percent (%)
Have you used a mobile phone during class hours before		
Yes	274	93.5
No	19	6.5
Total	293	100.0
Have you ever been distracted by your mobile phone during classes		
Yes	236	80.5
No	57	19.5
Total	293	100.0

What form of distraction does the phone pose during

class hours		
Receiving calls	75	25.6
Test message	81	27.6
Visiting Social media site	91	31.1
Watching pictures and videos	18	6.1
Others	13	4.4
Total	278	94.0

Have you used mobile phone during class to enhance your understanding

about a topic		
Yes	269	91.8
No	24	8.2
Total	293	100

Source: Field Survey, 2016

Table 4: Mobile Phone Use by Respondents in the Classroom

Table 4 gives the presentation of students' use of mobile phone in the classroom. 93.5% have ever used a mobile phone during classes' hours with 91.8% using mobile phones in class to enhance their understanding of topics understudy as such 80.5% gets distracted by the phone during classes.

EFFECTS OF MOBILE PHONE USAGE ON STUDENTS

Variable	Frequency (N=293)	Percent (%)
Do you think mobile phones are useful to your studies		
Yes	276	94.2
No	11	3.8
Not sure	6	2.0
Total	293	100
what are some of the usefulness of mobile phone to students		
Research	162	55.3
Submitting assignments	38	13.0
E-Learning	42	14.3
Group discussions	39	13.3
Others	2	.7
Total	283	96.6
Do you think mobile phone usage has any positive effect on your studies		
Yes	268	91.5
No	18	6.1
Total	286	97.6

Source: Field Survey, 2016

Table 5: Effects of Mobile Phone Usage on Respondents

As indicated in Table 4.5, 94.2% of respondents said mobile phone usage is useful for their studies with 55.3% stating the usefulness to be research whilst 14.3% use it for E-learning and 13.3% for group discussions and hence 91.5% thinks mobile phone usage has a positive impact on their studies. The findings of the study is in line with Kukulska-Hulme and Traxler (2007) assertion that cell phones are a form of multiple literacy which provides a bridge between the real life texts of the community and formal learning thereby providing a multimodal literary approach to learning and that cell phones facilitate designs for authentic learning leading to personalised learning that largely targets real world problems and involves projects of relevance and interest to the learners.

V. DISCUSSION

The study revealed that, 99.3% of the respondents have been using phones, with 36.9% using it for 2-5 years whilst 37.9% have used it for 6-10 years and 24.6% for 10 years and over. Majority 92.5% uses smart phones with 80.2% of these phones being android mobile operating systems whilst 11.6% uses windows. With 75.1% using WhatsApp application on their phones whilst 6.8% have facebook. Also, 35.2% uses Samsung phones whilst 24.6% uses other products like blackberry phones and 18.4% uses Nokia.

On the implication of increase usage of phones among students, 49.8% agreed that mobile phones usage distract them during lectures hence 54% thinks mobile usage can lead to a decline in GPA. Whilst 46% disagreed but rather said the usage of mobile phones causes an increase in GPA since it can lead to increase in information research skills.

On the students' use of mobile phone in the classroom, 93.5% have ever used a mobile phone during classes' hours with 91.8% using mobile phones in class to enhance their understanding of topics understudy. Also, 80.5% being distracted by the phone during classes and this was in the form of visiting social media site (31.1%), text messages (27.6%) and receiving calls (25.6%).

On the effects of mobile phone usage on students, 94.2% of respondents said mobile phone usage is useful for their studies with 55.3% stating the usefulness to be research whilst 14.3% use it for E-learning and 13.3% for group discussions and 91.5% thinks mobile phone usage has a positive impact on their studies.

The findings of the study is in line with Kukulska-Hulme and Traxler (2007) assertion that cell phones are a form of multiple literacy which provides a bridge between the real life texts of the community and formal learning thereby providing a multimodal literary approach to learning and that cell phones facilitate designs for authentic learning leading to personalised learning that largely targets real world problems and involves projects of relevance and interest to the learners.

The findings of the study support Eteokleous and Ktoridou (2009) assertion that the benefits of mobile phones integration into student learning on campus are useful with the mobile phone capabilities that are easily supports learning.

VI. CONCLUSION AND RECOMMENDATION

The youth have a "symbolic and affective investment" in mobile phones and some even prefer their mobile phone and sees it to be a status symbol for young people. The study had majority of respondents being females who are very "addictive" to the use of the phones, and it is related to "trendy" and "impulsive" consumption styles. The respondents uses sleek, fitting into the palm phones; offered in rainbow of colours and full of features.

Therefore almost half of the respondents agreed that mobile phones usage distract them during lectures and hence can lead to a decline in GPA since these distractions were in the form of visiting social media site, text messages and receiving calls instead of concentrating on on-going lectures. Although most disagreed but rather said the use of mobile phones causes an increase in GPA since it can lead to increase in information research skills, increase in academic reading skills, increase in academic writing skills as well as an increase in social life of students. Following the findings of the study, the researchers recommend that school representative council should give massive education to students on the advantages and disadvantages of using mobile phones as well as how best to use it. Also the institution should lay down specific rules and regulations to limit the use of mobile phone during class's hours.

REFERENCES

- [1] Ames M.G (2013). "Managing mobile multitasking: the culture of iPhones on stanford campus," in Proceedings of the conference on Computer supported cooperative work, 2013, pp. 1487-1498.
- [2] Aoki, K., and Downes, E. J.(2003). An Analysis of Young People's Use of and Attitudes Toward Cell Phones. *Telematics and Informatics*, 2:349-364
- [3] Bauer, Hans; Reichardt, Tina; Barnes, Stuart; Neumann, Marcus (2005): Driving Consumer Acceptance of Mobile Marketing: The Theoretical Framework and Empirical Study, *Journal of Electronic Commerce Research*, Vol. 6, No.3, pp.181-191.
- [4] Barker, A. Krull, G. Mallinson, B. 2006. A Proposed Theoretical Model for M-Learning Adoption in Developing Countries. Department of Information Systems. Rhodes University, South Africa (online). <http://WWW.http://search.ebscohost.com>. Accessed 16 November, 2014
- [5] Billieux J, Van der Linden M, Rochat L. The role of impulsivity in actual and problematic use of the mobile phone. *Appl Cognit Psychol* 2008; 22(9): 1195-210.
- [6] Bianchi A, Phillips JG. Psychological predictors of problem mobilephone use. *Cyberpsychol Behav* 2005; 8(1): 39-51
- [7] Boyle, J. R. (2012). Note-taking and secondary students with learning disabilities: Challenges and solutions. *Learning Disabilities Research & Practice*, 27(2), 90_101. doi:10.1111/j.1540-5826.2012.00354.x
- [8] Boyd, d. m., & Ellison, N. B. (2008). Social network sites: Definition, history, and scholarship. *Journal of*

- Computer-Mediated Communication, 13, 210_230. doi:10.1111/j.1083-6101.2007.00393.x
- [9] Campbell, M. (2005). The impact of the mobile phone on young people's social life. Paper presented to the Social Change in the 21st Century Conference Centre for Social Change Research, 28 October 2005, Queensland University of Technology, Queensland: Australia. [Online] Available: <http://eprints.qut.edu.au/3492/1/3492.pdf> (April 24, 2013).
- [10] Chóliz M (2010). Mobile phone addiction: a point of issue. *Addiction*; 105(2): 373-4.
- [11] Crockett, R.O., Will that be cash, credit, or cell?. *Business Week*, 2005. 42.
- [12] Cui.Y. and Roto .V. (2008), "How people use the web on mobile devices," in Proceedings of the 17th international conference on World Wide Web, 2008, pp. 905-914.
- [13] Cumiskey K. (2005). Surprisingly, nobody tried to caution her! Internationality and the role of social responsibility in the public use of Mobile phones. In Ling P and Pedersen P.(eds).
- [14] Davidson, K. N. (2011). Now you see it: How the brain science of attention will transform the way we live, work, and learn. New York, NY: Viking.
- [15] Economides. A. A and Grousopoulou A (2008), "Use of mobile phones by male and female Greek students," *International Journal of Mobile Communications*, vol. 6, pp. 729-749.
- [16] Ehrenberg A, Juckes S, White KM, Walsh SP (2008). Personality and self-esteem as predictors of young people's technology use. *Cyberpsychol Behav* ; 11(6): 739-41
- [17] Enpocket (2005). Mobile media monitor survey. [Online] Available: <http://www.cellular-news.com/story/13286.php> (May 13, 2013).
- [18] Etoekleous, N. and Ktoridou, D. (2009). Investigating Mobile Devices Integration in Higher Education in Cyprus: Faculty Perspective. *Cyprus*. 3(1): 38-40.
- [19] Facebook, Inc. (2011). Facebook statistics. Retrieved from <http://www.facebook.com>
- [19] Feig, N. (2011). Mobile Payments: Look to Korea. <http://banktech.com>. Accessed 20 December, 2014
- [20] Flinchy, P. (1997). Perspectives for Sociology of the Telephone. *The French Journal of Communication*, 5(2):149-160.
- [21] Fisher, V. (2005). Australians Embrace Mobile Phones. <http://www.itnews.com.au/newsstory.aspx?CIaNID=18976> Accessed 12 November, 2014
- [22] Funston A, MacNeill K (1999). Mobile matters: young people and mobile phone. Sydney: Communication Law Center
- [23] Griffiths.M (1995), "Technological addictions," in *Clinical Psychology Forum*, pp. 14-14
- [24] Harbluk, J. L., Noy, Y. I., Trbovich, P. L., & Eizenman, M. (2007). An on-road assessment of cognitive distraction: Impacts on drivers' visual behavior and braking performance. *Accident Analysis and Prevention*, 39, 372_379. doi:10.1016/j.aap.2006.08.013
- [26] Ishii, K. (2006). Implications of mobility: The uses of personal communication media in everyday life. *Journal of Communication*, 56, 346_365. doi:10.1111/j.1460-2466.2006.00023.x
- [27] Jubien.P(2013), "Shape Shifting Smart Phones: Riding the Waves in Education," *Canadian Journal of Learning and Technology*, vol. 39, p. n2.
- [28] Katz E and James E. (2008). *Handbook of Mobile Communication Studies*. Cambridge .MA.MIT Press.
- [29] Keller, T. A., & Cynkar, J. (2008). A decrease in brain activation associated with driving when listening to someone speak. *Brain Research*, 1205, 70_80. doi:10.1016/j.brainres.2007.12.075
- [31] Kiewra, K., DuBois, N., Christian, D., McShane, A., Meyerhoffer, M., & Roskelley, D. (1991). Note taking functions and techniques. *Journal of Educational Psychology*, 83, 240_245. doi:10.1037/0022-0663.83.2.240
- [32] Kollár Csaba (2007), A budapesti ifjúság fogyasztói csoportkultúrája az infokommunikációs társadalomban, és ennek marketingkommunikációs aspektusai(The consumer group culture of the young citizens of Budapest in the infocommunication society, and it's marketing communication aspects), *Marketing & menedzsment*, Vol. 41. No. 1, pp. 26-31.
- [33] Kraushaar, J. M., & Novak, D. C. (2010). Examining the affects of student multitasking with laptops during the lecture. *Journal of Information Systems Education*, 21, 241_251
- [34] Kawasaki J. (2006). Who is watching who? Monitoring and accountability in mobile relations. In Brown .B, Green N and N.Harper R (eds). *Wireless world, Social and International aspects of the mobile age*. London.Springer.
- [35] Lenhart, A. (2009). Adults and social network websites. Retrieved from <http://www.pewinternet.org>
- [36] Lenhart, A. (2010). Teens, cell phones and texting. Retrieved from <http://pewresearch.org>
- [37] Lenhart, A. (2012). Teens, smartphones & texting. Retrieved from <http://pewresearch.org>
- [38] Lenhart, A., Ling, R., Campbell, S., & Purcell, K. (2010, April 20). Teens and mobile phones.
- [39] Retrieved from <http://www.pewinternet.org>
- [40] Livingstone, S., & Bober, M. (2005). UK children go online: Final report of key project findings. London: LSE Report. [Online] Available: www.children-go-online.net (May 13, 2013)
- [41] Lipscomb, T.J., et al., Cellular phone etiquette among college students. *International Journal of Consumer Studies*, 2005: p. 46-56.
- [42] Ling .R. S., The adoption of mobile telephony among Norwegian teens, May 2000: Telenor R & D, 2000.
- [43] Lundquist A.R, Lefebvre E. J., and Garramone S. J (2014). "Smartphones: Fulfilling the Need for Immediacy in Everyday Life, but at What Cost?," *International Journal of Humanities and Social Science*, vol. 4, pp. 80-89.
- [44] Makany, T., Kemp, J., & Dror, I. E. (2009). Optimising the use of note-taking as an external cognitive aid for increasing learning. *British Journal of Educational Technology*, 40, 619_635. doi:10.1111/j.1467-8535.2008.00906.x

- [45] Mayer, R. E. (1996). Learners as information processors: Legacies and limitations of educational psychology's second metaphor. *Educational psychologist*, 31, 151-161. doi:10.1207/s15326985ep3103&4_1
- [46] McDONOUGH, K. and Berge Z. L. (2006), "PDAs: Revolutionizing the Way We Learn and Teach," *Online Submission*, vol. 7, pp. 153-159, 2006.
- [47] Microfinance.com (2010). Zidisha Set to "Expand" in Peer-to-Peer Microfinance Focus.
- [48] Netsafe. (2005). The text generation: Mobile phones and New Zealand youth: A report of result from the internet Safety Group's survey of teenage mobile phone use. [Online] Available: http://www.netsafe.org.nz/Doc_Library/publications/text_generation_v2.pdf (May 13, 2013).
- [49] Nickerson RC, Isaac H, Mak B (2008). A multi-national study of attitudes about mobile phone use in social settings. *Inter J Mobile Communications* 2008; 6(5): 541-63.
- [50] Oulasvirta. A., Rattenbury T, Ma, L., and E. Raita (2012), "Habits make smartphone use more pervasive," *Personal and Ubiquitous Computing*, vol. 16, pp. 105-114,
- [51] Poulter, S. 2011. End of the Credit Card? With one Swipe of an iPhone you'll be able to Pay for your Shopping. London. <http://dailymail.co.uk>. Accessed 7 October, 2014
- [52] Ransford, M. (2009, March 25). Survey finds smart phones transforming mobile lifestyles of college students. Retrieved from <http://www.bsu.edu>
- [53] Rickards, J. P. (1979). Notetaking: Theory and research. *Improving Human Performance*, 8, 152-161
- [54] Selwyn, N. (2007). "E-learning or she-learning? Exploring students' gendered perceptions of education technology," *British Journal of Educational Technology*, vol. 38, pp. 744-746, 2007.
- [55] Stollak, M., A. Vandenberg, A. Burklund, A. and Weiss (2011), "Getting social: The impact of social networking usage on grades among college students," in *Proceedings from ASBBS annual conference*, pp. 859-865.
- [56] Srivastava L. 2005. Mobile Phones And Evolution of Social Behavior. *Behavior and Information Technology* 24: 111-129 *American College Health*. 50. 1. 21-26.
- [57] Schuck, S., & Aubusson, P. (2010). Educational scenarios for digital futures. *Learning. Media & Technology*, 35, 293-305. doi:10.1080/17439884.2010.509351
- [58] Skenazy, L. (2009, February 9). Smartphone apps great for marketing, bad for social skills. *Advertising Age*. Retrieved from <http://adage.com>
- [59] Szántó Szilvia (2005), "Mondd marketing, van még esélyed?" avagy betekintés fiatalok fogyasztói magatartásába ("Tell marketing, have you any chance?" Insight of young's consumer behaviour), in: *Szakmai Füzetek*, Budapest, BGFKKFKF, pp. 102-111.
- [60] Szerepi Hella (2008), *Mobilmania a suliban* (Mobil mania in school), downloaded: 2008.12.11, from: http://oktatas.origo.hu/20081211/mobilomania_a_suliban
- [61] Sykes E.R., "New Methods of Mobile Computing: From Smartphones to Smart Education," *TechTrends*, vol. 58, pp. 26-37, 2014.
- [62] Thomée S, Harenstam A, Hagberg M. Mobile phone use and stress, sleep disturbances, and symptoms of depression among young adults: a prospective cohort study. *BMC Public Health* 2011; 11(1): 66.
- [63] Tian, L., Shi, J., and Yang, Z. (2009). Why Does Half the World's Population Have a Mobile Phone? An Examination of Consumers' Attitudes toward Mobile Phones. *CYBERPSYCHOLOGY & BEHAVIOR*, 2009. 12(5): p. 513-516.
- [64] Titsworth, B. S., & Kiewra, K. A. (2004). Spoken organizational lecture cues and student note taking as facilitators of student learning. *Contemporary Educational Psychology*, 29, 447-461. doi:10.1016/j.cedpsych.2003.12.001
- [65] Toda M, Monden K, Kubo K, Morimoto K (2004). Cellular phone dependence tendency of female university students. *Jpn J Hyg*; 59(4): 383-6.
- [66] Tofel, Kevin C. (2010). VISA Testing NFC Memory Cards for Wireless Payments. <http://gigaom.com>. Accessed 7 October, 2014
- [67] Ready, S. (2009). NFC Mobile Phone Set to Explode. <http://Connectedplanetonline.com>. Accessed 7 October, 2014
- [68] Trbovich, P., & Harbluk, J. L. (2003). Cell phone communication and driver visual behavior: The impact of cognitive distraction. Retrieved from <http://www.acm.org>
- [69] Wei, F.-Y. F., Wang, Y. K., & Klausner, M. (2012). Rethinking college students' self-regulation and sustained attention: Does text messaging during class influence cognitive learning?. *Communication Education*, 61, 185-204. doi:10.1080/03634523.2012.672755
- [70] Wilska, Terhi-Anna (2003): Mobile Phone Use as Part of Young People's Consumption Styles, *Journal of Consumer Policy*, Vol. 26, pp. 441-463
- [71] Williams, S. & Williams, L. (2005). Space invaders: The negotiation of teenage boundaries through the mobile phone. *The Sociological review*, 53, 314-331.
- [72] Wood, E., Zivcakova, L., Gentile, P., Archer, K., De Pasquale, D., & Nosko, A. (2012). Examining the impact of off-task multi-tasking with technology on real-time classroom learning. *Computers & Education*, 58, 365-374. doi:10.1016/j.compedu.2011.08.029
- [73] Zickuhr, K. (2011, February 3). Generations and gadgets. Retrieved from <http://pewresearch.org>