Mobile Phone Usage among Ghanaian Tertiary Students and Its Effects on Their Academic, Social and Economic Lives (A Case Study of Kumasi Polytechnic)

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Abstract— **The main objective of this study is to find out the rate at which tertiary students in Ghana use mobile phone and its effects on their lives. This research was carried out using questionnaires distributed to 550 students from Kumasi Polytechnic campus. Descriptive survey design was used in this study. The population for the study comprised of all the students of Kumasi Polytechnic for the 2015/2016 academic year, while the target population was the level one ,two and three hundred students of faculties of Applied Science, Built and Natural Environment ,Business and Management Studies and Engineering .Questionnaires was used to collected demographic information about the respondents, mobile phone ownership and on variables that measure social, economic and academic lives of respondents. The results showed that majority of the respondents are males. The results also revealed that cell phone usage by respondents has benefited them socially. Additionally it was revealed from the study that mobile phone usage has a negative effect on economic and academic lives of students on campuses. The study concluded that despite the challenges faced by students in using mobile phone they would not stop using the ICT tool (mobile phone).**

Index Terms— **Mobile Phones, Economic, Academic, Challenges, Information, Dissemination**

I. INTRODUCTION

  Mobile phone devices have become an essential part of daily life and a valuable means of information dissemination since its evolution in the late 1990s' in Ghana and in most developing countries. Several studies have found the use of mobile phone among youth particularly students to be very important. The emergence of mobile phones in Ghana with internet services has brought about a profound and diverse pool of knowledge.

According to Ling (2001) tertiary students are susceptible to trends, fashions and styles, which make them more willing to adopt new technology such as, cell phones .As new technologies emerge, the academic, social and economic

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habits of tertiary students also evolve .Mobile phones have changed the traditional college experience and to meet these challenges, tertiary institutions such as, the Kumasi Polytechnic must embrace the new technology for learning. Cell phone use has been increasing in all economic and age sectors and has expanded the boundaries of tertiary education. Ownership of a mobile phone has social, economic, psychological and educational consequences on students as it usually influences their attitude. Some of the constraints posed by ownership of mobile phones to effective learning include inattentiveness, disruption and distraction.

In a study by Adenya & Oyeyinka-Oyelaran (2002), they noted that educational institutions have witnessed an astronomical increase in the use of mobile phones by students in recent times. This scenario has been extended to primary and secondary institutions as well. Park (2005) listed inattentiveness, disruption and distraction as some constraints to effective learning. Closely associated to these, is the use of mobile phones which causes noise and distraction during lecture hours. A study carried out at Ball State's Hanley Institute for mobile media research on students' use of mobile phones, revealed that students not only use a mobile phone for voice calls, but they also use it to e-mail, send text, download and listen to music and access social media sites. The study also found that 49% of students use mobile phones to access websites for entertainment or concert information, 52% use it for movie viewing, 61% for news, 87% for weather reports while 57% of students reported using it for searching and 51% reported making one or more calls per day (Park, 2005).

According to Cheung (2008) students use their mobile phones for tagging location, status update, and broadcasting where they are and what they are doing to all of their friends. Students also use it to grab pictures of what is going on other than waiting for photos to download or develop as soon as they snap their classic pictures of their friends' antics on the squad. They also share photos with a picture message or face book post. Students also add filters to their pictures to give simple digital snapshots a more interesting look using their phones to keep afloat at school juggling between classes, work, friends and family. They also use it to stay in the loop and express themselves. Cheung (2008) revealed that boys tend to use mobile phones for recreational and communicative purposes such as playing games, listening to music, sending or receiving e-mails and accessing the internet whereas girls are more likely to use the device for maintaining social contacts by using features such as text-messaging or using the phone as a phonebook.

The attitudes of students towards the use of mobile phones and the perceived social pressure are likely consequence (Young 1998). The study revealed a high usage of mobile phones and found that some students see mobile phone usage

as pleasant, helpful and easy while others said they experience feelings of anxiety, distraction and that it sometimes takes too much of their attention that could have been allotted to other mainstream school programmes. Thus, there are challenges and implications that require to be addressed.

In a study by Ling (2004) he asserts that much has been made of how rapid advances in technology have changed the way we learn and communicate. In terms of personal interaction, social networking tools such as MySpace, Facebook, Twitter, Texting, and YouTube have become common methods of communication for young consumers and they are gaining interest and acceptance among consumers of all ages. We are also seeing technology changing the way formal learning takes place with laptops in the classroom, iPhone applications, and online course offerings. It can no longer be argued that these technologies do not exist or that they are not widely used. However, questions that remain unanswered are, do these technologies actually enhance learning and do students believe that they are appropriate forms of communication for use in a university setting?   Miners (2009), notes that while it is quite clear that these social networks are commonly used for social contacts, it is not very clear whether they are seen as appropriate methods.

In a study by Morgan (2012) cell phones are positive tools for keeping students in tertiary institutions connected to their family and friends back home. He classified the positive effects of mobile usage by students to include teaching tools and easy access.

According to Morgan, (2012) mobile phones as are used by many teachers as teaching tools. In the study it was revealed that some teachers actually text students, sending reminders and letting them ask questions. The study found that students appreciate the convenience and speed of this method. Online polls, where students text their responses and the results are projected at the front of the room, are another useful tool. Many English teachers also use text messages to teach literature, letting students write imaginary text message conversations between literary characters.

Easy Information Access is another positive effect Morgan (2012) found in his study. He is of the view that research is a key component of many tertiary classes. One advantage of mobile phones is that they allow students to find information on the go. They can use the phone to complete group activities in class by doing a quick search on a topic. Students can also access university library resources and databases virtually anywhere, getting a start on the research process without having to wait for access to a computer. Mobile phones, also help students never have to look for a pay phone or wonder about the location of a friend. These ubiquitous communication tools allow students to reach their peers and their parents instantly (Morgan, 2012).

Kukulska-Hulme and Traxler (2007) revealed how cell phones facilitate designs for authentic learning leading to personalized learning that largely targets real world problems and involves projects of relevance and interest to the learner. Cellphone use has also been found to support lifelong learning that occurs during everyday life, learning that occurs in spontaneity and impromptu settings and outside the formal environment (Brown 2005). Such personalised learning exerts a democratizing effect on the learning experiences of learners as they take greater responsibility for the learning process instead of being passively fed information by lecturers (Dela Pena Bndalaria 2007).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 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) noted in his study 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), Jeen -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. Excessive mobile phone usage gives rise to serious social, health and educational hazards as well. A strong correlation has been observed between excessive mobile phone usage and criminal activities such as fighting, theft, use of alcohol and narcotics (Ling, 2005).

Tindell & Bohlander (2011) enumerate some of the adverse effects of mobile phone usage amongst students as follows. According to Tindell & Bohlander (2011) in the lecture halls mobile phones can become a serious distraction that interferes with learning. In a study at the University of New Hampshire students check their phones between one and five times during lecture hours. In addition, reports show that mobile phone usage during lecture affects students' grades and distracts classmates from learning. Even the attentive student misses out when his classmates fiddle with their mobile phones.

Also Tindell & Bohlander (2011) are of the view that even though mobile phone offers numerous conveniences, including easy access to calculators, dictionaries and other tools. They do take a toll on students' cognitive thinking abilities. Attention spans have shortened so dramatically that many tertiary students struggle to read anything longer than a social network posting. In addition, becoming dependent on the phone as a quick fix for information can keep them from developing the ability to think on their feet in work situations Many mobile phone users have turned the devices to a cheat machines. Students no long bother exploring creatively, the Internet facilities they have but use it to devalue themselves by cheating. Many students nowadays see visiting the library, reading a text book, asking relevant and meaningful questions about a concept as a gross waste of time and energy. They never consider that even the very facility (GSM) they are exploring is a product of hard work and research. Contrary to this, many students use their phones to download documents from the Internet, paste it into a word-processing programme without making any input apart from replacing their names with that of the original author and submit same to their lecturers (Tindell & Bohlander, 2011).

Cyber Bullying is also another negative effect of mobile phone usage identify by Tindell & Bohlander (2011) in their study. They are of the view that mobile phones, particularly models that allow access to social-networking, email and

other applications, are sometimes used for cyber bullying. Mobile phones allow bullies to send unpleasant messages all day long, disrupting their educational progress as well as that of the recipients of such messages.

As known to many, it has been proven that talking on a mobile phone for as little as 500 to 1000 minutes per month can increase the probability of brain cancer. Not only that, it can also lead to difficulty in sleep, difficulty in concentration, fatigue, headache and infertility. There are also chances of Alzheimer's disease, leukemia, ear effects and blurring of vision among regular mobile phone users. Intense use of mobile phones may cause harm to the users' health including his/her other psychological wellbeing (Tindell & Bohlander, 2011)

II.   RESEARCH OBJECTIVES

The main objective of this study is to find out the rate at which tertiary students in Ghana use mobile phone and its effects on their lives. To achieve the main objective of the study, the following specific objectives will be pursued:

To investigate the effects of mobile phone usage on learning habits of students

To examine the social effects of mobile phone usage on students

To find out the economic effects of mobile phone usage on students

III.   METHODOLOGY

Descriptive survey design was used in this study. The population for this study comprised of all the students of Kumasi Polytechnic for the 2015/2016 academic year, while the target population was the level one ,two and three hundred students of faculties of Applied Science, Built and Natural Environment ,Business and Management Studies and Engineering .The faculty of Applied Science consist of Departments of Mathematics and Statistics , Computer Science and Hotel Catering and Institutional Management. The Built and Natural Environment Faculty is made up of Departments of Estate Management , Building Technology and Interior Architecture and Furniture Production. The Business and Management Studies Faculty consist of Departments of Accountancy , Marketing , Purchasing and Supply , Management Studies and Computerized Accounting. The Departments of Mechanical , Chemical , Electrical/Electronic Engineering and Civil Engineering made up the Faculty of Engineering .

Simple random sampling was used in the selection of the students. A total of 550 respondents were randomly selected out of a population of about 25,000 students with the aid of computer assisted sample size calculator, at 5% confidence.

IV.   ANALYSIS OF RESPONSES

The questionnaire used to collect data was divided into sections. Section A was made up of demographic characteristics, Section B consists of questions on ownership of mobile phones and the rest of the sections based questions on academic, social and economic lives of students or respondents.

Section A: Demographic Characteristics of Respondents
Table1 below is the cross tabulation of academic level of students and their Demographic Characteristics (Age and Sex).According to Malhotra (1996) Cross-tabulation is a statistical technique that describes two or more variables simultaneously and results in tables that reflect the joint distribution of two or more variables with a limited number of categories or distinct values. Cross-tabulations thus allow the researcher to make some interesting observations by analyzing two or more questions of the questionnaire simultaneously.

Table 1 : Academic level of students * Age of Students * Sex of Students Cross tabulation

	sex of students		Age of students				Total
			18-21yrs	22-25yrs	26-30yrs	30+yrs	
Male	Academic level of students	level 100	50	92	9	1	152
		level 200	29	43	29	3	104
		level 300	10	39	41	7	97
	Total		**89**	**174**	**79**	**11**	**353**
Female	Academic level of students	level 100	38	38	21	1	98
		level 200	23	24	10	0	57
		level 300	7	28	5	2	42
	Total		**68**	**90**	**36**	**3**	**197**

From the table 1 it can be observed that majority of the respondents are males. Out 550 respondents 353 were males while 197 are females .Additionally level 100 students are in the majority with level 300 students being in the minority.

Section B: Ownership of Mobile Phones
The pie chart below shows the distribution of ownership of mobile phones by respondents

	Frequency	Percent
Expensive	19	61
Don't Need It	10	32
Wastes Time	2	7
Total	31	100
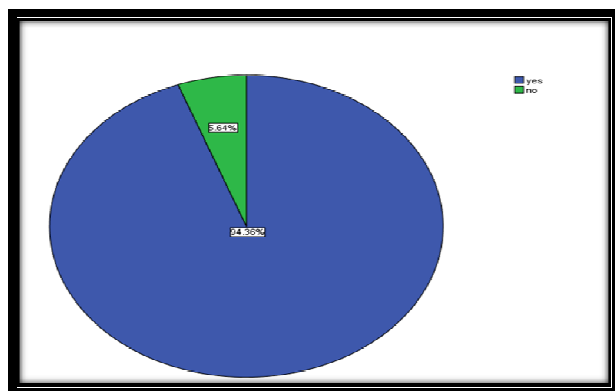
As can be seen from the figure above an overwhelming majority (94%) of the respondents owned mobile phones and only 6% does not have mobile phones on Kumasi Polytechnic campus. Various reasons have been assigned by those who do not have mobile phones. These reasons are indicated in the table below

Table :Distribution of reason for not owning mobile phones by respondents .

Majority(61%) of respondents who do not owned phone are of the view that phones are expensive,32% said they don't need mobile phones and only 7% view mobile as time wasting tool.

Section C: Social Impact of Mobile Phone Usage
The result on the social impact of mobile phone usage is presented in Table 3.Social impact was measured using variables as indicated in the table below.

Table 3: Social Impact of Mobile Phone Usage

Variables	Responses (**n=273**)		
	Agree (%)	Neutral (%)	Disagree (%)
To easily contact lecturer	69	23	8
To easily contact classmate	75	19	6
Mobile phone help in improving the level of education	73	21	7
To easily contact parents	77	18	6
To listen to music	64	27	9
For shearing useful information	64	25	7
Mobile phone help improve academic performance of students	46	32	22
Mobile phone wastes the time of students	53	27	21
Mobile phone is used for sharing learning materials	72	23	5

In the table the respondents were asked to indicate their agreement or disagreement on certain variables that measure social impact of mobile phone usage on their lives on campus. From the responses as indicated in the table it can be found out that 68% of the respondents agreed that they use mobile phone to contact their lecturers. Only 8% disagree with the statement. Mobile phones are of tremendous help to students in contacting their lecturers when they have something to discuss with a particular lecturer.

As using mobile phone to easily contact classmate, 78% agreed,19% were neutral in their responses only 6% disagreed. Another variable that was used to measure social impact of mobile phone usage is "Mobile phone help in improving the level of education". With this variable 78% of the respondent agreed that Mobile phone help in improving the level of education, 21% were neutral in their responses and only 7% disagreed. To easily contact parents was another variable used to measure social impact of mobile phones on

students.77% of the respondents agreed that they used mobile phone to easily contact their parents 18%were neutral while only 6% disagreed.

It can also be seen from the table that 64% of respondents used mobile phones to listen to music, 27% were neutral and 9% disagreed with the variable. Sharing useful information was another variable that was measured.64% of the respondents agreed that they used mobile phones to share useful information, 25% were neutral in their responses and 7% disagreed.

46% of the respondents indicated as can be seen from the table that "Mobile phone help improved academic performance of students".Furthermore, the result indicated

that most of respondents (53%) agreed that Mobile phone wastes the time of students 27% were neutral and 22% disagreed.Further analysis also shows that 72% agreed that "Mobile phone is used for sharing learning materials"

Section D: Economic and Academic Impact of Mobile Phone Usage On Students
Do you own a Mobile Phone was Cross tabulated against variables that measured economic and academic impact of mobile phone usage on respondents. The responses of respondents are indicated in the table below.

Table 2: Economic and Academic impact of Mobile Phone Usage on Respondents

	How Many Handsets Do You Have			
	1 handset	2 handsets	3 handsets	more than 3 handsets
	262(51%)	183(35%)	47(9%)	26(5%)
	On average, how much does it cost you to own a mobile handset			
	<GHC20	<GHC20	<GHC20	<GHC20
	108(27%)	117(29%)	121(30%)	54(14%)
	How many network have you subscribe to			
	1 network	2 networks	3 networks	more than three networks
	124(24%)	232(45%)	121(23%)	42(8%)
Do you own a Mobile Phone (YES)	**How often do you buy card to recharge your phone**			
	Daily	Weekly	Monthly	don't know
	194(38%)	234(45%)	32(6%)	59(11%)
	How much does it cost you to recharge your mobile phone per week			
	Ghc 1-5	Ghc 6-10	Ghc 11-15	Ghc16-20
	226(44%)	198(38%)	63(12%)	32(6%)
	How often do you received money from your parents/guardians			
	Weekly	every two weeks	Monthly	once in a semester
	100(19%)	182(35%)	154(30%)	83(16%)
	Does owning a mobile phone affect you economically			
	YES		**NO**	
	329(65%)		181(35%)	
	Are you considering stopping using mobile phone because it is too expensive			
	YES		NO	
	137(26%)		382(74%)	

Out 519 students who responded yes to owning mobile phone 51% of them owned only one handset, 35% two handsets, 9% three handsets and only 5% owned more than three handsets. On how many networks they have subscribed to 24% are hooked onto only one network, 45% are on two networks 23% three networks and only 8% of the students are on more than networks.

As to how often they buy recharge cards to charge their phones 38% buy the card daily 45% weekly 6% and 11%

monthly and don't know respectively. On how much money is spend on their phones for recharging per week 44% spend between GhC1-5 daily ,whiles 38% spend between GhC6-10weekly , 12% between GhC11-15 and only 6% spend above GhC 16.00.How often money is remitted or sent to them by their parent was another question responded were asked.19% said they received remittances weekly from their parents, 30% monthly ,16% once in a semester. When respondents were asked whether mobile phone usage affects

them economically majority(65%) responded yes while only 35% says no. When respondents were asked whether they are considering stopping using mobile phone because it was too expensive an overwhelming majority responded in the negative that is 74% said No whiles only 26%said Yes.

CONCLUSION

Mobile phone usage has been hugely accepted by Ghana tertiary schools especially among students. Born in the technological era, students were found to adapt well to the mobile phone. Also, mobile phone facilitates learning among students in tertiary institution in Ghana. Data obtained from the present study provided baseline information regarding the social, academic, economic and other impact of mobile phone usage among students in tertiary institutions.

Although, the overall students in the study portrayed a good mobile phone computing behavior, factors that may contribute to or trigger the intensity of their mobile phone usage is worth noting.

The study is not without its limitation. The findings are very specific and could only be

generalized to population with the same characteristics. Furthermore, the questionnaires were self-administered and therefore the reliability and validity of the information obtained depended solely on the honesty of the respondents in responding to the questionnaire. Despite the limitations, study could provide the impetus for new investigations to refine the understanding of mobile phone use amongst tertiary students. Further research could investigate other underlying factors that exist within the ecosystems of the students that could shape their mobile phone behaviors. In addition, the consequences of intense mobile phone use could be further explored in terms of degree of perceptions and experienced by users of the mobile telephone.

REFERENCE

[1] Adenya, N.C. & Oyeyinka-Oyelaran, B. (2002). Internet Access in Africa: An Empirical Exploration.

[2] Brown T. (2005).Towards a model for M-learning in Africa. International Journal on E- learning.4.3.33-34.

[3] Cheung, S.L. (2008). Using Mobile Phone Messaging as a Response Medium in Classroom Experiments. Journal of Economic Education, 9(1),Winter, 51-67.

[4] Cumiskey K. (2005).Surprisingly, nobody tried to caution her! Internationality and the role of social responsibility in the public use of Mobile phones.

[5] Katz E and James E. (2008).Handbook of Mobile Communication Studies .Cambridge .MA.MIT Press.

[6] Kukulska-Hulme A. (2007).Mobile Usability in educational contexts, what have we learnt? International Review of Research in Open and Distance Learning.8.2.1-16.

[7] Ling R. (2001).Adolescent Girls and Young adult men. Two sub-cultures of the mobile telephone,Kjeller and Telenor Research and Development,R and D Report24/2001,http://www.telenor.no/fou/program/noma dishe/article/rich/2001/Adolescent.pdf

[8] Ling, R.S. (2004). Mobile Connection: The Cell Phone's Impact on Society. San Francisco: Morgan Kaufmann.

[9] McNeal T and Hooft Van Mark. (2006).Anywhere, Anytime: Using Mobile Phones for Learning. Journal of the research Centre for Educational Teaching.2.2.24-31.

[10] Miners, Z. (2009). Twitter Takes a Trip to College. U.S. News & World Report. 146(8): 56-57. Morgan, K.

(2012). The Pros & Cons of Cell Phone Usage in College. Retrieved from: http://education.seattlepi.com/pros-cons-cell-phone-usag e- college-1578.htm

[11] Park, W.K. (2005). Phone Addiction. Mobile Communication: Re-negotiation of the Social Sphere. L. Rich & P.E. Pedersen (eds.). London: Springer.

[12] Tindell, D. & Bohlander, R. (2011). The use and abuse of cell phones and text messaging in the classroom: A survey of college students. College Teaching. (60): 1-9.

[13] Young, K.S. (1998). Caught in the net: How to recognize the signs of the Internal Addition. New York: John Wiley and Sons Inc