

Mobile Phone Adoption, Its Influence on Social Behavior, Schooling and Academic Work of Adolescent Students in Osun State, Nigeria

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Abstract

This study investigated the adoption of low cost mobile phone and its influence on the social behavior, schooling and academic work of young adolescent students in a selected university in Nigeria. It also examined whether there is any difference in the rate of adoption among the sample and the different ways mobile phone influenced the school. Its impact on student's projects, assignments and performance was also investigated. The study was conducted in Obafemi Awolowo University, Ile-Ife (OAU). Three hundred and eighteen students were selected from six faculties using stratified sampling technique based on level of study, faculty and gender. A 20 item questionnaire designed on five points Likert Scale was used to gather information from the sample. The results was analyzed using simple percentage, one way analysis of Variance (ANOVA) and Scheffe test. The results showed that: (i) there was a significant difference in the rate of adoption of mobile phone across the six faculties ($F=1.463, df=(6,310) p<0.019$). Mobile phone led to increase in negative social behavior among the young adolescents ($F=3.577, df=(2,314) p<0.029$). In addition mobile phone encouraged parental intrusion and remote mothering ($F=1.354, df=(2,315) p<0.02$). On the impact of mobile phone on school, it was revealed that inappropriate use of mobile phone caused a lot of problems for school administration ($F=2.678, df=(2,315) p<0.070$). Also examination fraud became more rampant ($F=2.090, df=(2,315) p<0.012$). In spite of all these negative impacts, mobile phone positively enhanced students academic performance ($F=4.037, df=(2,315) p<0.019$). Students also found it to be a cheaper, quicker, more reliable and useful source of information for their assignments, projects and research works ($F=1.224, df=(6,311) p<0.029$).

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Introduction

The adoption of mobile phone by school age students in Nigeria is seen as the most popular form of electronic communication. The term mobile phone means different things to different people. To the youth, mobile phone is considered to be a social tool rather than a technological tool. The adult on the other hand sees mobile phone as a tool for enhancing business activities while students see it as a tool for social activities (Aoki & Downes 2003; Abi-jagun et-al 2007).

The adoption of mobile phone made people to abandon fixed – land phone. According to Srivastava (2005) the number of mobile phone users worldwide surpassed those of the fixed land-phone users. Deloitte, (2005) predicts that by the end of 2005, the number of mobile phone users will be over 2 billion. In Australia, the statistics of mobile phone users was put at 19.2 million (Fisher, 2005). In Nigeria, the pivotal date for the introduction of mobile communication was August 2001 (mobile.africa.net2005). The first consumer outreach programme was in March 2001. This was made possible by the duo of MTN and Econet. However, history was made when Globacom Limited came to the scene by rolling out the pre-paid services in 2003. This completely changed the history of mobile communication in Nigeria. According to mobileafrica.net (2005) the sub-scribers grew from 1.2 million to 2.17 million, while there was also increase in the number of the base stations from 500-800. Also as Vmobile (2009) puts it over 7 million lines were rolled out in 2007. Based on this development, Nigeria no longer belongs to countries with lowest tele-density. Before the coming in of mobile-telephone, telephone was considered as status, social and fashion symbols. However, it changed to tool for learning, business transaction, security, education and entertainment. According to Vmobile News (2007),

“Transaction which takes a whole week to conclude now gets sorted out over the mobile phone within minutes. People no longer have to make avoidable trips from one part of the city to other. In fact with mobile phone, one can actively keep track of proceedings”.

Mobile africa.net (2008) also says over 3.4 million of subscribers are adults while by the middle of 2008, the population of youths who subscribed to mobile phones have risen to 22 million. The reasons for the growth in youth's adoption could be traced to the efforts of the various network service providers at reducing the price of phones and pre-paid services. Most of the Network providers like MTN, Glo mobile, Vmobile(Zain), Etisalat, Multi-links, Visafone etc undertake programmes that provide opportunity for youth to start small scale commercial mobile telephone business. In addition, the provision of internet facilities, charting, video conferencing and m-learning are added advantages. The reduction in the cost of hand sets, subscribing fees and the mobile nature of the sets with the addition of other flashy technological accessories actually contributed to its rapid adoption by the youths.

Youth and Mobile Phone

Statistical reports on the rate of adoption of mobile phone among youths vary across different countries and nations. In United Kingdom in 2001, 90% of the youth within the age range of 19 years own and use mobile phone. In Italy 56% between ages 9 and 10 use mobile phone. In Norway, a research conducted in 1999 revealed that 80% of the youth within the age range of 13 and 20 years own mobile phone. According to Netsafe (2005) and ACMA (2008) in Australia, 50,000 youths within the age range 10 to 12 years use mobile phone. The report also revealed that the adolescents are likely to have mobile phones more than their parents. Ross (1995) and Srivastava (2005) also support this claim that youth will not only have more mobile phones than adults but also prefer it to television and the internet.

Livingstone and Bober (2005) say that youths found mobile phone precious and useful than any other means of communication. Taylor and Harper (2003) explain that the advantage of text messages through mobile phone is partly responsible for youth's interest in mobile phone. Other reason advanced is the fact that mobile phone is a fashion and status symbol. This is reflected in the different kinds of sophisticated phone accessories the youths attached to their mobile phones.

Social Impact of Mobile Phone

The advantages of mobile telephone are numerous. These advantages include: better personal security, enhancement of better social relationship, conveniences and for ensuring equitable provision of education. Telecom 99 (2010) is of the opinion that mobile phone represents the best opportunity for enhancing communication to the economically deprived and isolated communities. Countries that have positively use mobile phone to impact social life of the people are: Cambodia, Brazil, Philippines, Tanzania and South Africa. According to a statistic posted by China, the annual subscription growths have been put at 87% for China, 82% for Brazil, and 67% for South Africa. Also the Telecom 99 (2010) puts the mobile phone penetration rate in the Nordic countries at 60% as at 1999. In Finland the penetration rate was 63%, Norway 58%, Iceland 56% and 53% for Sweden.

Mobile Phone and Etiquette

One of the greatest challenges facing mobile technology in the world today is the issue of poor mobile phone etiquette. It has constituted a social menace. In Nigeria for example, some of the undesirable side effect of mobile phone include “Extra cool” that is, the use of mobile phones in the night around 12.30pm because the tariff is free or very low. The indiscriminate use of phones in public places such as the highway, hospitals, churches and even classrooms are other examples of poor mobile phone etiquette. It is not only in Nigeria that these kinds of problems occur, it is world over. This is why most Network providers have taking the issue of phone etiquette seriously. Active steps have been made at inculcating socially acceptable mobile phone etiquette in the youths. There are posters politely asking users to turn off their phones at restricted areas. In Europe, one of the biggest mobile phone operators launched an enlightenment campaign at making the youths imbibe the desirable phone etiquette. In Nigeria, the situation becomes more worrisome and difficult because of the level of poverty. It is not surprising to note that 97% of the adolescents and youth prefer the extra cool call at mid-night because of its cheaper

tariff. Thus, solving the problems of social phone etiquette is a matter of concerns among families, religious organization and even the schools.

Mobile phone and Education

The introduction of mobile communication device no doubt had impacted education positively and negatively. The school as part of the agencies of socialization is not left out. Nigeria as a developing country welcomes mobile technology with enthusiasm. However the enthusiasm soon began to fade out as a result of myriad problems associated with the use of mobile phone by students in schools. Some of the problems are: concern for discipline, examination malpractices and mobile bullying. Srivastava (2005) commenting on the above, said that the introduction of mobile phone in schools have brought about concerns for discipline in classroom. Ling (2000) also opine that mobile phone usage in schools is a great problem and it is against the goal and the mission of the school. It was in the midst of the controversies generated by mobile phone usage in schools that the World Bank spear headed a survey across the developing countries on the impact of mobile phone on education. The study was conducted to show that in spite of all the criticisms and negative effects, mobile phone still have a lot of positive contribution to make to education.

Kaufman (2009) said that in spite of the negative effects, mobile phone was very effective in education. Today, the North Caroline based clear TXT incorporation is a clear example. They established what is called Mobile Educational Community. According to the Chief Executive, the project was designed to encourage individual and schools to take advantage of mobile phone technology to connect. Another project is the Bridgett (Mfula 2008). It involves the use of mobile phone in Tanzania and Philadelphia to increase access to quality education among grade 5 and 6 students. This project uses the innovative mobile phone. According to the Vice-President of International Youth Foundation (IYF), the project is aimed at providing teachers with access to a variety of digital video content in Mathematics, Science, English and life skills for use in their respective classrooms.

According to the programme objectives, it was designed to improve the performance of teachers in the Bridgett classrooms. This is to be done by changing teacher – pupil interaction. It is also to increase the knowledge and learning gain among upper primary students particularly girls. Report has it that over 536 schools and 116,000 students in the 5th and 6th Grades have benefited from this service. It was in the midst of this, that the World Bank spearheaded a world survey on “The use of Mobile Phones in Education in Developing Countries”. This study generated so many arguments. There were many who shared the opinion that mobile phone can never be used for education, while others also argued in favor of the effectiveness of mobile phone in education. It is as a result of these different views on the use of mobile phone in education, that the present study was conceived. It is to explore the impact of the new technology on the social life and education of the young students in a selected Nigerian university. This is with the ultimate view of providing empirical information on the extent of utilization and its impact on their education and social lives on the campus.

The controversies that accompanied the survey conducted by the World Bank were reflected on the blog hosted in India. Olufemi (2009) in a reply to Kasi said that one cannot deny the potentials of mobile phone technology and culture to enhance global knowledge and understanding. Shaikh (2009) says mobile phone offers greatest potential if rightly used and harnessed for education. According to Shaikh, there is an interesting document on the potential use of SMS through mobile phone in Pakistan. Also according to Miyazawa (UNESCO Islamabad) mobile phone is being used for literacy program. This is done by sending many interesting SMS in national language to learners (adolescent girls) everyday and night. According to this report, learner finds it a very interesting and useful tool for learning.

Ryneck (2009) shows the importance of ipod -enabled learning. It has been used for on-line bar study. Also Neil (2009) describes a portal that allows one to create and deploy content via different web applications (recording forms, interactive maps, mobile decision tree and learning objects). Also expressing his opinion on the usefulness of mobile phone in Education, Yomamoto (2009) said, I think there is a huge potential for these kind of improvement and the dare need for structural change in education. The change will occur with mobile learning (m-learning) that will help to re-conceptualize the school curriculum.

Justification for this Study

The integration of mobile phone in schools over the years has generated so many controversies. In different countries, attempts have been made either to restrict its usage in schools, or to completely ban it. In India, the Central Board of Secondary Education recently announced mobile phone ban in all schools. Similarly Sri Lanka, South Korea, U.K, France and Philippines did the same. The argument advanced was the problematic nature of mobile phone in schools. It was in the midst of this controversy that World Bank commenced a sponsored survey on the potentials of mobile phones in Education in the developing countries. People and scholars took this with mixed feelings. In spite of mounting disapproval, there is still wide spread usage of mobile phones, for education purposes both inside and outside the classrooms in the developing countries. In Nigeria, for example, the introduction of mobile phone has impacted people's life socially. There is research report on the use of mobile phone in reducing unemployment in Nigeria (Sofowora 2009; 2010). However, there is little empirical study on the impact of this new technology on social life and education of the youths who constitute the majority of the users in Nigeria.

This study is therefore intended to provide information on the impact of mobile phone on social behavior of the youths and the potentials of this low cost mobile communication device on the academic works of young adolescents in a depressed economy. It is hoped that this study will serve as foundation for more analytical studies in the area of mobile technology application to education. It is also hoped that it will create awareness among decision makers, education practitioners, public, private and the industrial sectors about the importance of mobile learning, the need for m-learning philosophy, theory and practice, the current reality and the need to sponsor research in m-learning in the country.

Research Questions

- i. What is the rate of adoption of mobile phone among the sample?
- ii. Does the use vary across the faculties?
- iii. How has mobile phone influence student's social behavior?
- iv. Does mobile phone influence positively students' academic/class works?
- v. What impact does mobile phone have on the school?

Research Objectives

The following specific objectives are stated:

- i. investigate whether there is any difference in the rate of adoption of mobile phone among the selected sample;
- ii. find out the influence of mobile phone on young adolescent students social behavior;
- iii. examine the different ways mobile phone have influence the school;
- iv. investigate the impact of mobile phone on students class work, assignment and performance.

Research hypotheses

Specifically, this research investigated the following research hypotheses.

Hypothesis i: Gender is not necessary a factor in mobile phone utilization

Hypothesis ii: There is no significant difference in the rate of mobile phone utilization across the six faculties sampled.

Hypothesis iii: Mobile phone does not encourage negative social behavior among the young adolescent students.

Hypothesis iv: Mobile phone usage does not have any positive impact on the academic performance of the young adolescent students.

Research Design

Sample for the Study.

The sample for the study was drawn from the Obafemi Awolowo University Community in Ile-Ife. They were drawn from six faculties. Three hundred students were selected from the 6 faculties based on gender, subject combination and level of students. A questionnaire using five point Likert scale was used to collect information from the sample. It was divided into two sections. The first Section contained information on the demography of the sample. While the second section contained information on impact of mobile phone on the social behaviors, schools and young adolescent's academic work. In all, 20 items

were generated. The questionnaire was generated from relevant literature based on the research objectives.

Ethical Consideration

The researcher sought the permission of the sample used. Their identities were not declared. Also the questionnaire does not ask for their names and identities.

Data Analysis

The data collected was analyzed using simple percentage, mean and Analysis of Variance (ANOVA).

Results and Discussion

Table 1 Adoption of mobile phone across the six Faculties

Faculty	Frequency	Percentage	Valid %
Education	60	18.9	18.9
Administration	49	15.5	15.3
Science	56	17.6	17.6
Environmental Studies	49	15.5	15.5
Medicine	51	16.0	16.1
Pharmacy	51	16.0	16.1
No response	1	0.3	100.0
Total	318	100.0	

Table 1 reflected the percentage of samples across the different faculties that have mobile phone. 18.9% from Education, 15.5 % from Administration, 17.6% from Science and 16.0 respectively from Faculties of Pharmacy and Medicine With respect to sex find the data collected in table2

Table2 Gender and Mobile phone Adoption

Gender	Frequency	Percentage
Male	158	49.7
Female	154	48.4
No response	6	1.9
Total	318	100.0

Table 2 showed that 158 males (49.7) have mobile phone while 48.4% of the female use mobile phone. In order to examine whether gender is a factor in mobile phone usage across the different faculties, a post – HOC using Scheffe test was conducted.

Table3 Scheffe Test across faculty and gender

Sex	Mean Difference (-J)	Std. Error	Sig.	As % confidence interval	
Male	.171410	.71733	.971	-1.5902	1.9384
Female	-.34848	.71759	.889	-2.1134	1.4164

The result of the data analyzed showed that sex is not a factor in the utilization of mobile phone. Therefore hypothesis 1 that says gender is not a factor in mobile phone usage was accepted (see Table3). With respect to hypothesis 2, the result of the data analyzed showed that there was a remarkable difference in the rate of utilization of mobile phone across the different faculties (see table 4.)

Table 4 One way Analysis of Variance on mobile phone utilization across the six faculties

Faculty	Group	Sum of squares	df	F	Sig
	Between Groups	26.299	6	1.463*	0.0193
	Within Groups	928.736	310		
	Total	955.035	316		

*significant at 0.05

A one-way analysis of variance was conducted, the F calculated value of 1.463 was obtained ($F = 1.463$ df. = (6,310) $P < 0.019$) The Fcalculated was 1.643 with degree of difference as 6 and 310 respectively. Since the F value was higher than 0.019 at 0.05 probability level, it implied that there was a significance difference in the rate of utilization of mobile phone across the six Faculties sampled. Hence hypothesis 2 which states that there is no significant difference in the rate of utilization across the faculties was rejected.

Table 5 Analysis of Variance of mobile phone and social behavior

	Groups	Sum of squares	df	Mean square	F	Sig.
The introduction and adoption of mobile phone brought about high incident of negative social behavior	Between	21.273	2	10.637	*	0.029
	Within	933.762	314	2.974	3.577	
	Total	955.035	316			
The use of mobile phone has become a social menace in public places	Between	4.187	2	2.069	1.407*	0.024
	Within	463.010	315	1.470		
	Total	469.148	317			
Mobile phone encourages intrusion into private life of the youths and remote mothering	Between	2.847	2	1.424	1.354*	0.029
	Within	331.206	315	10.51		
	Total	334.053	317			
With the introduction of mobile phone there was increase in the rate of social crime (419) among the adolescent	Between	4.208	2	2.104	1.240*	0.029
	Within	534.676	315	1.697		
	Total	538.884	317			

* significant at 0.05

The data collected in respect of these revealed that the introduction of mobile phone and its adoption by the Nigerian youths led to increase in social crime ($F = 1.240$, $df=(2,315)$, $P < 0.029$). The data also revealed that mobile phones positively encourage parental intrusion and remote mothering ($F=1.354$, $df = (2,315)$ $P > 0.02$). Based on the findings, one can deduce that mobile phone affects youth's behavior negatively. Hence hypothesis 3 that states that mobile phone does not encourage negative social behavior among the youths was rejected.

Impact of mobile phone on school

With respect to the impact of mobile phone on school the following areas were investigated:

- i. School discipline
- ii. Impact on communication and English Language
- iii. Impact on examination
- iv. Administration and management

The findings of the data was analyzed in Table 6.

The following results were obtained with respect of the impact of mobile phone usage among students in school. Inappropriate use of mobile phone by students is causing major problem for school administrators ($F=2.678$, $df = (2,315)$ $P < 0.03$), there is increase in mobile phone theft and it is adding to indiscipline in schools ($F = 2.123$, $df = (2,315)$, $P < 0.01$). In addition, indiscriminate use of mobile phone in schools, is

forcing school management to enforce mobile phone laws and sanctions ($F = 1.071$ $df = (2,315)$ $P < 0.034$). Examination malpractices become more pronounce with the introduction of mobile phone among students and it is a major area of concern for school administrators and managers ($F = 2.090$ $df = (2,315)$ $p < 0.012$).

Table 6 ANOVA Table on Impact of Mobile Phone on Schools

	Groups	Sum of squares	df	Mean square	F	Sig.
The inappropriate use of mobile phone in schools is causing a lot of problems for school administration	Between	7.748	2	3.874	2.678*	0.030
	Within	455.674	315	1.447		
	Total	463.421	317			
Mobile thefts are rampant in schools and is causing strain on school administration	Between	5.999	2	3.000	2.2123*	0.01
	Within	444.998	315	1.413		
	Total	450.997	317			
The use of mobile phone to disrupt lectures in the classroom is forcing the enactment of school rules regarding the use of mobile phone	Between	2.750	2	1.357	1.071*	0.034
	Within	404.209	315	1.283		
	Total	406.959	317			
Examination fraud becomes more rampant with the use of mobile phone by students	Between	6.366	2	3.183	2.090*	0.012
	Within	479.847	315	1.523		
	Total	486.214	317			

* significant at 0.05

In spite of the negative impact, mobile phone has made considerable impact on student's academic performance. The area specifically affected is the sourcing of information on the web and mobile learning. In Nigeria because of high cost of books and poor economy, it is possible for larger percentage of students to access information via the internet on their mobile phones. There are other facilities on the mobile phone like digital camera, video recorders which have been of immense benefit academically to the students. This was attested to in the data collected with respect to the impact of mobile phone on student's academic works. It was observed that mobile phone significantly enhanced the academic performance of the sample across the six different faculties ($F = 4.037$ $df = (2,315)$ $p < 0.019$). Other results gathered in this respect also showed that mobile phone was a quicker, good and cheaper source of information which students used to augment assignment, research work and project ($F = 1.224$, $df = (6,311)$ $p < 0.029$). In addition to the above was the fact that mobile phone ensured supportive activities like sharing interesting texts, documents, video clips and information among many without any significant cost ($F = 1.462$ $df = (6,310)$ $p < 0.019$). Hence hypothesis 4 that states that mobile phone does not have any positive impact on students academic performance, assignments and project was rejected because students found it less expensive, quicker and more reliable ways to gather information. Its usage was very useful in their research works and to augment their lecture notes (Table 7).

Implications of the findings to Education

Nigeria being part of the developing countries, effort should be directed at building on the positive advantages of mobile phone technologies in education. Although mobile phone is yet to be fully integrated into education, it is hoped that further research efforts be carried out into the pedagogy of mobile learning in the country. Since mobile phone is common and found in almost every town including the remote part of the county, it may be a panacea to resolving some of the challenges of lack of access to qualitative education, overcrowded classrooms, adult literacy, aquatic and nomadic education. Literature abounds about countries even in Africa that have successfully used mobile technologies to solve educational problems. Nigeria is in better position even with the recent development in our Telecommunication Industries and the launching of "NICOM SAT" and the availability of cheaper mobile internet facilities. Rather than emphasizing the negative effects of mobile phone, I think we in Nigeria should remember history i.e. how we have successfully used the same medium to solve the problem of youth unemployment. If we have the political will, mobile technology will be a useful tool in education.

There is no new technology without its own disadvantages or limitations, with proper guidance and reduction of poverty level, the negative aspect of mobile technology will be minimized.

Table 7 Mobile Phone and students' academic works/performance

	Groups	Sum of squares	df	Mean square	F	Sig.
Mobile technology has positively influenced my academic performance	Between	10.746	2	5.373	4.037*	0.019
	Within	419.232	315	1.331		
	Total	429.978	317			
It is a cheaper quicker and good source of information that students found useful for research work and project	Between	10.414	6	1.738	1.224*	0.029
	Within	441.007	311	1.418		
	Total	451.421	317			
Mobile phone usage in Education ensures supportive activities like sharing interesting information, documents, text and interactions among learners without any significant cost.	Between	26.299	6	4.383	1.462*	0.019
	Within	928.736	310	2.996		
	Total	955.035	316			

*significant at 0.05

Conclusion

The following conclusions are made based on the findings. In spite of the negative effect of mobile phone on social life of the youths and on schools, mobile phone is still very useful in ensuring increase access to quality education especially in developing countries like Nigeria. It is a relatively cheaper and more reliable tool for education when we consider the topography, rural-urban dichotomy and the need to realize the MDGs as it relates to education. It is also a cheaper and supportive tool for the realization of educational goals in the face of unaffordable high cost of relevant textbooks. Also in spite of the fact that it is creating problems of indiscipline in schools, students said it has enhanced their academic performance. One other added advantage of mobile phone is the issue of security of life, parental monitoring and intrusion. Ever before the introduction of this technology, it is difficult to monitor ones ward, especially in Nigeria where you have to travel the dangerous and insecure Nigerian roads but with mobile technology, it is possible to keep constant watch and even to send money through e-banking or mobile banking to your ward in schools.

Recommendations

In other to encourage the use of mobile phone/technology in education, there should be further research studies on technology and design of mobile learning in Nigeria. Collaboration should be made with the Telecommunication Net work Providers to fund such research projects. By proper guidance and using appropriate legislations, schools can play down discourage the negative effect of mobile phones among school students. Using re-branding method and reduction of poverty level, the negative effects of mobile technology may be minimized. Federal Government political will and commitments in terms of finance and policy direction is very important if mobile learning is to be a reality and we are actually interested in reducing illiteracy and achieve equitable access to basic and qualitative education. Mobile learning may be the best option in today's Nigeria, where majority of qualified youths are on the streets due to lack of space in the tertiary institutions. This may be achieved through Open-Distance Education, Life Long Learning, and Workplace Learning using mobile learning or multi-site learning.

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