

Impact of Mobile Phone Usage on Academic Performance among Secondary School Students in Taraba State, Nigeria

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Abstract

This study employed survey design. The sample for the study was 300 respondents selected from the total population of 6,482 respondents. Stratified sampling technique was employed to select the sample. The Mobile Phone Usage Questionnaire (MPUQ) was adapted from Twum (2011) and used for this study is sub-divided into two (2) sections namely: Appendix A consisting of demographic variables of respondents such as gender, age and socio economic status. While Appendix B consists of items statements relating to mobile phone usage with a five (5) point rating scale, namely; Never, Rarely, Occasionally, Often or Very Often from which the respondents were required to choose from and mathematics achievement test (MAT) as well as English language achievement test (ELAT). Data collected were analysed using mean, standard deviation and t-test to answer the research questions and hypotheses raised. The finding of this study, revealed that mobile phone usage significantly influence academic performance among senior secondary school students. ($t = 5.711, P = 0.02$). The finding of this study also revealed that, age different was not a significant factor in mobile phone usage on academic performance among senior secondary school students ($f = 6.431, P = 0.022$). In addition, the finding of this study revealed that, socio economic status was not a significant factor in mobile phone usage on academic performance among senior secondary school students ($f = 9.005, p = 0.031$). Furthermore, the findings of this study revealed that, gender was not significant factor in mobile phone usage on academic performance among senior secondary school students ($t = 8.131, p = 0.02$) and Finally, the finding of this study also revealed that, the frequency of mobile phone usage does not significantly influence academic performance among senior secondary school students ($t = 11.931, p = 0.015$). recommendation to include; School psychologists, teachers, school administrator and students should be sensitized on the influence of mobile phone usage on academic performance among secondary school student. among others are made

Background to the study

Globalization has changed our lives and one of the ways in which it is changing our lives, every day, is how we communicate; thanks to advancements in Information and Communication Technologies (ICT). One of the ICT's which is seeing rapid advancement is Mobile Phone. Mobile phone is popular since the late 1990s (Meek, 2006) and today, with 7 billion mobile connections worldwide and unique mobile subscriptions of over 3.5 billion (Twum, 2011), they are very popular with young people and are commonplace in our educational institutions. These phones are no more just voice communication tools. Functions like short message service (SMS) or texting have become global phenomenon. Not many of us keep wallet photos of loved ones. Now we save photos in our mobile phones, and view them on a touch of the screen.

Mobile phones have become an almost essential part of daily life since their rapid growth in popularity in the late 1990s, Ling (2004). A nationwide survey conducted in 2010 shows that mobile phones are the most necessary medium of communication for adolescents. It has virtually affected the society's accessibility, security, safety and coordination of business and social activities and has hence become a part of culture of the whole world. Ling (2004), states that traditional agents of socialization are families and schools. With the expansion of educational system as a result of the need for highly skilled workers lead to the school system taking increasing larger responsibilities in socialization. Surprisingly, research on the influence of mobile phone on our schools today has not been given much attention. There is the conflicting priority of young people, parents and teachers in relation to the mobile phone device, with teachers more concerned about issues such as discipline in the classroom and parents worried about means of contacting their children at every point in time.

Researchers have discovered that the use of mobile phone in schools is problematic. As Ling and Helmerson (2000) states, the mobile phone is "at cross purpose with the mission of the school". While in school students are supposed to take on their prescribed roles as students with full concentration on their studies and free from contact with the outside world. However, the mobile phone gives room to blending students' roles with other roles thus distracting and disrupting the students' academic work (Gergen, 2002; Halpen, 2003; & Franzini, 2002). In the past when fixed telephones were the norm in schools, there were minimum distractions and disruptions but presently with the invasion of mobile phone and the eagerness of parents to maintain contact with their wards, the device is becoming part of the classroom. Thus, the mobile phone has the power to undermine the schools' authority and weaken their control over students as well as affects their level of academic performances.

The recent technological advancements, the innovation of computer and other discoveries in the field of information technology bring about the introduction of the mobile phone and its multi functions ranging from voice calls, messaging, data use, multimedia, games (both online and offline) and other social media services (Jackson, Zhao, Kolenic, Fityerald, Herold, & Venoye, 2008). The mobile phone is used as means of interactions among people in which they create, share, and exchange information and ideas in virtual communities and networks (Blumstock & Eagle, 2010). It also uses a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0 that allows the creation and exchange of user-generated contents (Mayer & Mereno, 2003). Furthermore, the mobile phone is used for storing different contents on the micro SD cards or the phones' internal memory (Meek, 2006). Over the past decade, technology has become increasingly important in the lives of adolescents. As a group, adolescents are heavy users of newer electronic communication forms such as instant messaging, e-mail, browsing, uploading and downloading, games and text messaging, as well as communication-oriented Internet sites such as blogs, social networking, and other sites for sharing photos, videos and ideas, all of which is as a result of the mobile phone.

Internet access has exposed many adolescents to different kinds of contents. Just of recent, the availability of different kinds of affordable and inexpensive android mobile phones made it very easy for the adolescents to have access to different types of social media and pornographic sites where they access, download, exchange and watch pornographic films of different sexual orientations from all over the world. The situation is worsened by the ignorance and carefree attitudes of parents who are mostly oblivious of and careless about these adolescents' needs and challenges. Also, guidance and counseling services are either absent or inactive in most schools and the school teachers are not helping the situation (Taylor & Harper 2003). Most youths of today are highly influenced and so much affected by what they watch on these social media sites over the internet that one can easily see the consequences in their academic performance and life styles. The continuous downwards spiraling in academic performance, the rise in cases of drop-outs, the increase in most of the unacceptable, immoral, and antisocial behaviors perpetrated by students in secondary schools today, which include truancy, massive failures, exam malpractices, improper dress codes, indiscriminate sexual relationships with opposite as well as same sex and most violent behaviors, can mainly be attributed to the influence of the mobile phone. It was against this background that the researcher is conducting this study to investigate how the mobile phone usage influences their academic performance.

Furthermore, Abdul Karim and Oyefolahan (2009), investigates the appropriation of wireless phone technologies by building on the technology appropriation theories. To understand the patterns of wireless phone use through the concept of appropriation, their study looks into the choice of mobile phone use through various attractors, the purposes of MP use and the extent of use of various MP applications and features by the targeted users. Their study also explored the influences of age, gender and occupation type on MP appropriation. The result of their reveal that MP appropriation and explore the influence individual characteristics such as gender, age and occupation on different patterns of MP use through our conceptualization of appropriation (Wang, Wu, & Wang, 2009). They found that all of the individual characteristics investigated were significantly related with the MP appropriation and use. They conclude that these individual characteristic variables such as gender, age and occupation type are important moderating variables in understanding MP appropriation and use among the respondents.

Statement of the problem

Mobile phone has gained immeasurable ground in the lives of students all over the world. Mobile phone is a common sight today in our schools as you see students going to school/class with some of the most expensive and sophisticated mobile phones, tablets and ipads that has all the applications, facilities and software that can connect them to the internet and all forms of social media platforms, other web sites and so on, where they chat, access, stream, download, upload, exchange and play different kinds of media contents, which most often, are pornographic in nature (Olofuniyi, Fashiku, & Owombo 2012). The portability and memory capacity of some of these gadgets made it easier for them to keep materials for viewing whenever and where ever it seems conducive for them. The use of security PINs and Passwords on these mobile phones makes these contents secured from the scrutiny and prying eyes of parents and teachers. As a result of that, most of the mobile phones in the hands of these adolescents contain one form of pornographic content or the other (McGuigan, 2005).

Evidence has shown from West African Examination Council WAEC 2014 in Taraba State that most students fail English Language and Mathematics (WAEC Chief Examiner report, 2014). This may be partly attributed to high usage of Mobile Phone telecommunication gadgets. Instead of concentrating on their classroom work, they gave more emphasis to the use of the mobile phone in their classes, dormitory and even on the football field. This may be partly attributed to poor teaching methods, lack of teaching materials, lack of supervision by the parents and the teachers etc, and this may affect the students' performance or achievement in school. The mobile phone usage pattern of most of these students, during and after school hours, such as their

level of engagement in free night calls, chatting, instant messaging, social networking and exam malpractices etc. is greatly influencing their academic performance. It was against this background that this study sought to investigate the influence of the Mobile phones usage on academic performance among senior secondary schools students in Jalingo Taraba state, Nigeria.

Objectives of the study

The study intends to achieve the following objectives to:

1. Find out the influence of mobile phone usage on academic performance among senior secondary schools students.
2. Determine the influence of mobile phone usage on academic performance of senior secondary school students of different ages.
3. Find out the influence of mobile phone usage on academic performance among senior secondary school students of different socio economic status.
4. Find out the influence of mobile phone usage on academic performance among male and female senior secondary school students.
5. Determine the influence of the frequency of mobile phone usage on academic performance among senior secondary school students.

Research Questions

This study will be guided by the following questions:

1. What is the influence of mobile phone usage on academic performance among senior secondary school students?
2. What is the influence of mobile phone usage on academic performance among senior secondary school students of different ages?
3. What is the influence of mobile phone usage on academic performance among senior secondary school students from different socio economic status?
4. What is the influence of mobile phone usage on academic performance among male and female senior secondary school students?
5. What is the influence of the frequency of mobile phone usage on academic performance among senior secondary school students?

Research Hypotheses

The following hypotheses are formulated to be tested statistically at: 0.05, level of significance:

1. There is no significant influence of mobile phone usage on academic performance among senior secondary school students.
2. There is no significant influence of mobile phone usage on academic performance among senior secondary school students of different ages.
3. There is no significant influence of mobile phone usage on academic performance among senior secondary school students of different socio economic status.
4. There is no significant influence of mobile phone usage on academic performance among male and female senior secondary school students.
5. There is no significant influence of the frequency of mobile phone usage on academic performance among senior secondary school students.

METHODOLOGY

The study was conducted using survey design because the study intended to investigate the influence of mobile phone usage on academic performance of senior secondary school students. Descriptive studies are usually the best methods for collecting information that demonstrate relationships and describe the world as it exists. A survey comes in different flavors, be it interviewing people face to face or handing out questionnaires to fill out. The study took the quantitative approach because it was based on variables measured with numbers and analyzed with statistical procedures.

The student population of senior secondary schools in Jalingo for the 2014/2015 session was 6,482 students. Jalingo Local Government Area has 17 senior secondary schools with a total population of 6,482 students consisting of 4157 male students and 2325 female students (Appendix F). Table 3.1 shows the population distribution of senior secondary schools students in Jalingo educational zone while table 3.2 shows the number of senior secondary schools in Jalingo with their populatio

The sample for the study is 300 respondents selected from the total population of 6,482 respondents.

This is in line with Krejcie & Morgan (1970) table for determining sample size from a given population. Stratified sampling technique was employed to select the sample for the study. Firstly, multi stage sampling method was used for the selection of ten (10) senior secondary schools in Jalingo Local Government Area of Taraba State. Table 3.3 below shows the distribution of samples by schools.

Two instruments were used in this study for effective and adequate data collection. The first one is the adapted Mobile Phone Usage Questionnaire (MPUQ) and the second one is the English Language Achievement Test (ELAT) and Mathematics Achievement Test (MAT)

The Mobile Phone Usage Questionnaire (MPUQ) (Appendix A) adapted from Twum (2011) and used for this study is sub-divided into two (2) sections namely: Appendix A consisting of demographic variables of respondents such as gender, age and socio economic status. While Appendix B consists of items statements relating to mobile phone usage with a five (5) point rating scale, namely; Never, Rarely, Occasionally, Often or Very Often from which the respondents were required to choose from.

The academic performance tests are a twenty (20) minutes test each on English Language and Mathematics. The questions are set by the researcher, with the help of qualified subject teachers, based on the current senior secondary school syllabus. The tests in English Language (Appendix C) and Mathematics (Appendix D) consist of twenty (20) objective items each. These items are made up of a stem and four options A-D from which the respondents select the correct response. Each of the test items carry equal marks and are scored out of one hundred (100).

Scoring: For both the English language achievement test and Mathematics achievement test, each question item carries equal mark (5 marks) and is scored over one hundred (100). The scale for the English Language achievement test (ELAT) and Mathematics achievement Test (MAT) were divided into two. That is (0-39) = F and (40-100) = P

In order to establish both the face, content and construct validity of the research instruments, the drafted instruments were given to the team of supervisors and other experts in the Department of Educational Psychology and Counseling Faculty of Education, Ahmadu Bello University, Zaria for their assessment, corrections, comments and suggestions. The corrected instruments were used for pilot testing to ascertain the reliability of the instruments for this study.

To establish the reliability of the data collection instruments, the data collected from the pilot testing were analyzed using Guthman Split-Half Coefficient of unequal length to measure the internal consistency. The score shows reliability score of 0.988 for mobile phone usage assessment questionnaire and 0.832 for the achievement tests in English language and Mathematics. This shows that the instruments were reliable.

The data collected from this study were subjected to statistical analysis. The demographic variables of age, gender, parents' occupation and educational level were analyzed using frequency and simple percentage. Descriptive statistics of mean and standard deviation were used to answer the research questions. The hypotheses were tested using t-test. The confidence

Result

The research question(s) use answer with the corresponding hypotheses;

Hypothesis One: There is no significant influence of mobile phone usage on academic performance among senior secondary school students.

Table 1: One sample t - test of hypothesis One

	N	Mean	Standard deviation	Df	T-calculated	P-value
Influence of mobile phone usage on academic performance among senior secondary school students	297	22.1221	6.52411	296	5.711	0.02

Source: SPSS Result and Author's Field Survey, 2015.

From the above result analysis presented, it shows that the probability value is less than 0.05 at 5% level of significance. The t-calculated value is 5.711 and the t-critical is 1.972 at degree of freedom 296 using two tailed significant level. That is the null hypothesis which states that there is no significant influence of mobile phone usage on academic performance among senior secondary school students is hereby rejected. Therefore, there is significant influence of mobile phone usage on academic performance among senior secondary school students.

Hypothesis Two: There is no significant influence of mobile phone usage on academic performance among senior secondary school students of different ages.

Table 2: Results of One Way Analysis of Variance

Variable	Sum of Squares	Df	Mean Square	F	P-value
Between Groups	19.691	2	9.846	6.431	0.022
Within Group	451.661	295	1.531		
Total	471.352	297			

Source: SPSS Result and Author's Field Survey, 2015.

Table 2 above shows that the hypothesis was analyzed using one way Analysis of Variance (ANOVA) test statistics at $P \leq 0.05$. The test is significant because P value 0.022 observed is less than P value of 0.05. The observed F-value of 6.431 is greater than the critical value of 3.00 at degree of freedom 2, 295. This means that the null hypothesis was rejected that there is no significant influence of mobile phone usage on academic performance among senior secondary school students of different ages. Therefore, there is significant influence of mobile phone usage on academic performance among senior secondary school students of different ages.

Hypothesis Three: There is no significant influence of mobile phone usage on academic performance among senior secondary school students of different socio economic status.

Table 3: Results of One Way Analysis of Variance

Variable	Sum of Squares	Df	Mean Square	F	P
Between Groups	11.138	2	5.569	9.005	0.031
Within Group	182.429	295	0.6184		
Total	193.567	297			

Source: SPSS Result and Author's Field Survey, 2015.

Table 3 above shows that the hypothesis was analyzed using one way Analysis of Variance (ANOVA) test statistics at $P \leq 0.05$. The test is significant because P value 0.031 observed is less than P value of 0.05. The observed F-value (9.005) is greater than the critical value of 3.00 at degree of freedom 2, 295. This means that the null hypothesis was rejected that there is no significant influence of mobile phone usage on academic performance among senior secondary school students of different socio economic status. Therefore, there is significant influence of mobile phone usage on academic performance among senior secondary school students of different socio economic status.

Hypothesis Four: There is no significant influence of mobile phone usage on academic performance among male and female senior secondary school students.

Table 4: One Sample t - test of hypothesis Four

	N	Mean	Standard deviation	Df	t-calculated	P-value
Male	297	23.121	6.68411	296	8.131	0.02
Female		23.031	5.93723			

Source: SPSS Result and Author's Field Survey, 2015.

From the above result analysis presented, it shows that the probability value is less than 0.05 at 5% level of significance. The t-calculated value is 8.131 and the t-critical is 1.972 at degree of freedom 296 using two tailed significant level. That is the null hypothesis which states that there is no significant influence of mobile phone usage on academic performance among male and female senior secondary school students is hereby rejected. Therefore, there is significant influence of mobile phone usage on academic performance among male and female senior secondary school students.

Hypothesis Five: There is no significant influence of the frequency of mobile phone usage on academic performance among senior secondary school students.

Table 5: One sample t - test of hypothesis Five

	N	Mean	Standard deviation	Df	t-calculated	P-value
Frequency of mobile phone usage on academic performance among senior secondary school students	297	22.1221	6.52411	296	11.931	0.015

Source: SPSS Result and Author's Field Survey, 2015.

From the above result analysis presented, it shows that the probability value is less than 0.05 at 5% level of significance. The t-calculated value is 11.931 and the t-critical is 1.972 at degree of freedom 296 using two tailed significant level. That is the null hypothesis which states that there is no significant influence of the frequency of mobile phone usage on academic performance among senior secondary school students is hereby

rejected. Therefore, there is significant influence of the frequency of mobile phone usage on academic performance among senior secondary school students.

Discussion

The finding of this study, revealed that mobile phone usage significantly influence academic performance among senior secondary school students. This finding is in line with the early findings of Wang, Wu and Wang (2009), examined the relationship between facebook practice and academic performance of students. Their result was analyzed in terms of descriptive statistics followed by inferential statistics. The results indicated that there is no significant relation between usage time and frequency of login facebook with student GPA. Even if there is no significant relation between their personal Laptop, Office Computers and Library Computers used to visit facebook and academic performance of students, there is negative, moderate and significant relation between using mobile phone to visit facebook and students academic performance.

Jackson et al (2014) opined that mobile phones' usage is negatively impacting students' academic performance. This means that the students who are using mobile phone more are having low GPA. On how much time they spend on using their mobile phone and in how many classes they use mobile phone, they found that there is negative relationship of these two questions with students GPA. That is the students who are using mobile phone almost 7-10 hours and those who use mobile phone during their most of the classes are having low GPA. He also found that one of the most useful features of mobile phone is text messaging used by 67% students (female 37% and male 30%). Almost 81% students (female 46%, male 35%) are using standard text messages as compared to multimedia messages or other. 43% students (31% female and 13% male) say that they put their mobile phone on silent mode while attending class. 35% students (20% female and 15% male) say that they occasionally receive or send text messages while the class was in session. 55% students (35% female and 20% male) agree on policy that mobile should be kept by students but they should set it in vibration mode. 61% students (40% female, 21% male) say that they do not use night packages on their mobile phone. 42% students (23% female, 19% male) say that they use day packages on their mobile phone. 67% students (39% female, 27% male) say that they spent 10% of their pocket money on mobile phones. 56% students (32% female, 24% male) say that they sometimes use their mobile phone while doing their assignments.

The finding of this study also revealed that, age different was not a significant factor in mobile phone usage on academic performance among senior secondary school students. This finding agree with the early findings of Jackson, Zhao, Kolenic, Fitzgerald, Harold, and Voneye (2008), examined race and gender differences in the intensity and nature of IT use and whether IT use predicted academic performance. A sample of 515 children (172 African Americans and 343 Caucasian Americans), average age 12 years old, completed the surveys as part of their participation in the Children and Technology Project. Their findings indicated race and gender differences in the intensity of IT use; African American males were the least intense users of computers and the Internet, and African American females were the most intense users of the Internet. Males, regardless of race, were the most intense videogame players, and females, regardless of race, were the most intense cell phone users. IT use predicted children's academic performance. Length of time using computers and the Internet was a positive predictor of academic performance; whereas amount of time spent playing videogames was a negative predictor.

In addition, the finding of this study revealed that, socio economic status was not a significant factor in mobile phone usage on academic performance among senior secondary school students. This collaborates with early findings of Blumenstock and Eagle (2010), they combined data from a field survey with transaction log data from a mobile phone operator to provide new insight into daily patterns of mobile phone use in Rwanda. The analysis was divided into three parts. First, they presented a statistical comparison of the general Rwandan population to the population of mobile phone owners in Rwanda. They found that phone owners are considerably wealthier, better educated, and more predominantly male than the general population. Second, they analyzed patterns of phone use and access, based on self-reported survey data. They noted statistically significant differences by gender; for instance, women are more likely to use shared phones than men. Third, they performed a quantitative analysis of calling patterns and social network structure using mobile operator billing logs. By these measures, the differences between men and women are more modest, but they observed vast differences in utilization between the relatively rich and the relatively poor. Taken together, the evidence in their paper suggested that phones are disproportionately owned and used by the privileged strata of Rwandan society.

Furthermore, the findings of this study revealed that, gender was not significant factor in mobile phone usage on academic performance among senior secondary school students. This finding was supported by early findings of Jackson, Zhao, Kolenic, Fitzgerald, Harold, and Voneye (2008), examined race and gender differences in the intensity and nature of IT use and whether IT use predicted academic performance. A sample of 515 children (172 African Americans and 343 Caucasian Americans), average age 12 years old, completed the surveys as part of their participation in the Children and Technology Project. Their findings indicated race and

gender differences in the intensity of IT use; African American males were the least intense users of computers and the Internet, and African American females were the most intense users of the Internet. Males, regardless of race, were the most intense videogame players, and females, regardless of race, were the most intense cell phone users. IT use predicted children's academic performance. Length of time using computers and the Internet was a positive predictor of academic performance; whereas amount of time spent playing videogames was a negative predictor. Implications of the findings for bringing IT to African American males and bringing African American males to IT are discussed.

Finally, the finding of this study also revealed that, the frequency of mobile phone usage does not significantly influence academic performance among senior secondary school students. This is in line with the findings of Lin (2004), Ling and Ytti(2002) they discovered that today's college students are less prepared for college-level work than their predecessors. Once they get to college, they tend to spend fewer hours studying while spending more hours working, some even full time (Smart, Kelley& Conant, 1999). In their study, they examined the effect of both time spent studying and time spent working on academic performance. Franzini(200), and McGuigan(2005) They further evaluated the interaction of motivation and ability with study time and its effect on academic performance. The results suggested that non-ability variables like motivation and study time significantly interact with ability to influence academic performance.

Conclusion

The finding of this study, it was concluded that, mobile phone usage significantly influence academic performance among senior secondary school students,age different was not a significant factor in mobile phone usage on academic performance among senior secondary school students, gender was also not significant factor in mobile phone usage on academic performance among senior secondary school students,socio economic status was not a significant factor in mobile phone usage on academic performance among senior secondary school students and that, the frequency of mobile phone usage does not significantly influence academic performance among senior secondary school students.

Recommendation

Based on the finding of this study, the following recommendations were made:-

School psychologists, teachers, school administrator and students should be sensitized on the influence of mobile phone usage on academic performance among secondary school student.

Seminar, Conferences, Workshops should be held on the influence mobile phone usage on academic performance among secondary school students in respective of their age difference, gender and socio-economic status.

Students should be sensitized and advised by the teachers, school psychologists, parents on the frequency or number of hours or time spent in mobile phone usage and its influence on academic performance.

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