Impact of Mobile Phone Usage on Students' Academic Performance Among Public Secondary Schools in Oju Local Government Area of Benue State

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ABSTRACT

This study employed survey design in investigating the influence of mobile phone usage on academic performance among public secondary school students in Oju local government area, Benue State, Nigeria. The sample size consists of 100 respondents comprising of 25 teachers and 75 students randomly selected from five selected secondary schools in Oju Local Government Area of Benue State. Questionnaires were used to obtain information from the respondents. Simple percentage was used to analyze the research questions while chi-square was used to test the hypotheses. The study revealed that the use of mobile phone among secondary school students had the significant relationship with their academic performance in Oju local government area. The research recommends among others that teachers should encourage students to take a more active role in the learning process and take an interest in using mobile phone technologies to improve educational experiences.

INTRODUCTION

Globalization has changed our lives from the era of communicating with pen and paper which takes days before information could get to the destination and one of the ways in which it changed our lives, is how we communicate effectively through advancements in Information and Communication Technologies (ICT). According to Ling (2004), mobile phones have become an almost essential part of daily life since their rapid growth in popularity in the late 1990's. According to Haruna et al (2016), 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 a culture of the whole world. Ling (2004), states that traditional agents of socialization are families and schools. With the expansion of the 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 (Haruna et al, 2016).

A basic mobile phone is regarded as a pocket-sized device which has telecommunication capabilities that stores contact information, possesses text messaging features and keeps track of appointments as well as setting reminders. Mobile phones vary in design with basic models allowing students to have access to each other simply by phone or text on the go (Wood, 2006). More complicated mobile phones present a better variety of abilities such as video, camera, audio recording, multimedia messaging and internet access (Livingston, 2004). Additionally, these sophisticated mobile phones, also known as a smartphone, offer a greater range of capabilities, such as integrated PDA device that combines Bluetooth, built-in calculator for simple mathematics, mass storage, gaming features, text messaging, MP3 player and networking features into one compacted system (Wood, 2006). Mobile phones organize the purposes of the phone, camera, video, media player and wireless computers into a single gadget. These functions could supplement science teaching and learning which contains complicated content and scientific processes that are otherwise difficult to teach (Taber, 2005). Mobile phones can be

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used in making calls, texting, taking pictures, recording audio and video, storing information, providing music and movies as well as interacting with the internet. All of these capabilities enable us to become so connected to our daily lives that it seems almost impossible to hear that somebody does not have a mobile phone (Horizon Report, 2009).

So many investigations carried out realized that the use of mobile phone in schools is problematic. As backed by Ling and Helmerson (2000), 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). 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 words, the device is becoming part of the classroom (Haruna et al, 2016). 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.

There are various educational benefits of mobile phone technologies that are most often cited as; easily accessing content, integrating a broad range of educational activities, supporting independent study and student organization, encouraging student enthusiasm, supporting classroom-based collaboration and interaction as well as supporting inquiry- based instruction and learning (Roschelle, 2003). More sophisticated mobile phones, also known as smartphones, can be used to assist students in accessing information from the web, transforming it, transferring it, collaborating with students and also creating a more media-rich approach to instruction (Ferry, 2009). Recent advances in ICT have significantly increased the possibilities of mobile phones being used as instructional tools, because of their increasing processing power, memory and connectivity which have made these technologies drastically more interactive (Pea & Maldonado, 2006). Additionally, Vavolua (2005) suggests that these technologies can be used in science during field trips, where students gather scientific data for future analysis in the laboratory.

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It is known that in this generation, students own very powerful multimedia technologies which make it easier for file sharing and messaging to take place, these activities do not normally fit into the conventional classroom setting. Today's young adults are more at ease with the use of collaborative technologies and they have fully grown in an era of mobile phone technologies. There was a time in previous generations where a notebook and pen were the basic learning tools, but nowadays students attend their classes equipped with mobile phones (Economist Intelligence Unit, 2008).

Students are more likely to engage in rich technology interactions when they are outside the classroom (Haythornthwaite & Andrews, 2007) in order to supplement what has already been taught in class. According to Prensky (2005), mobile phone technologies are not only used in communicating with others but are actually computers that are small as well as portable and students carry this technology wherever they go, therefore these technologies can be used for learning purposes. Educators need to realize that today's students have these mobile phone technologies and it has become central to their lives, so the best thing is to integrate these devices into teaching and learning.

Mobile phone technology is a necessity in a student's life and also an important technological device to them. They are basically used for making and receiving calls, text, and picture messaging and accessing the internet. Today's students are extremely competent in the use of mobile phones (Haythornthwaite & Andrews, 2007). Students consider these devices as a pleasant, individual possession in which no other device is observed.

Mobile phones are also seen as a trendy accessory that suits students' individual needs often expressed choice of mobile wallpaper, ringtones, phone covers and other fashion accessories (Attewell, 2005). University students use mobile phones far more often than desktop computers and even laptops. This implies that mobile phones can be an even more significant learning tool and a typically raised area in the near future (Kimura, 2011). Therefore, mobile phone technologies can support students in their learning by exploring their world through these technologies.

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Statement of the problem

The relevance of mobile phone to the entire world no doubt can never be overemphasized. In Nigeria, the mobile phone currently is the most accessible mobile technology that most students possess. The mobile phone is an effective technology that students already own, and their potential is continuously growing. When this tool is exploited, it can even be used during lectures (Bright Hub Education, 2012). Mobile learning, therefore, needs to become a significant part of education. The portability and memory capacity of mobile phone made it easier for students to keep materials for viewing whenever and where ever it seems conducive for them. Evidence has shown from West African Examination Council WAEC 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 (Haruna, et al, 2016). It was against this background that this study sought to investigate the impact of mobile phones usage on academic performance among secondary schools students in Oju local government area of Benue state.

Aim and objectives of the study

This work is aimed at investigating the impact of mobile phones usage on academic performance among secondary schools students in Oju local government area of Benue state and the specific objectives were to:

1. Investigate the influence of utilization of mobile phone technology on academic performance among secondary school students

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2. Find out the influence of mobile phone usage on academic performance among male and female secondary schools students.

3. Find out the influence of mobile phone usage on academic performance among secondary school students with the different parental background.

Research Questions

This study has the following research questions:

a. What influence does the utilization of mobile phone technology have on academic performance among secondary school students?

b. What is the influence of mobile phone usage on academic performance among male and female secondary school students?

c. What is the influence of mobile phone usage on academic performance among secondary school students with the different parental background?

Research Hypotheses

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

HO_1. There is no significant difference in the usage of mobile phone technologies and students' academic performance among secondary school students.

HO_2. There is no significant difference in the usage of mobile phone technologies and students' gender

HO_3. There is no significant difference on the influence of mobile phone usage on academic performance among secondary school students with the different parental background.

Significance of the study

It is hoped that the findings of this study will benefit various educational stakeholders. It would be useful to students in determining the many opportunities the mobile phone technology

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provides in their academic lives. Lecturers would be guided on how integrating mobile phone technology will create a richer environment for teaching and learning. The mobile phone companies would be more informed and therefore invest in providing mobile phone technologies to schools with internet connectivity and smartphones at a reduced price.

Curriculum planners and policy makers would be aware of the numerous possibilities of using mobile phone technologies in learning, so as to assist in implementing and designing activities to support the various learning styles. The findings of this study would also complement other studies and provide appropriate information for content developers and mobile learning developers in designing mobile phone applications for learning. This research would contribute to the body of educational research in that it explores students' academic performance with multiple indicators of learning, which is satisfaction, learning style, and performance. The research may provide literature so as to add more information on innovative uses of mobile phone technologies to enhance educational experiences of students.

Research Methodology

Research Design

Ada (1994) defines research as a plan, structure, and strategy of investigation in order to obtain answers to research question and control variances. The research design used for the purpose of this study is the survey method. This is because the researcher intends to find out the impact of mobile phone usage on academic performance among secondary school students in Oju Local Government Area of Benue State.

Area of Study

The study was carried out in Oju Local Government Area of Benue State. The secondary schools selected for this study are within Oju metropolis.

Population of the Study

The population of the study consists of the teachers and students in some selected schools in Oju Local Government Area of Benue State. This is so because there are a number of secondary schools in Oju Local Government but just a few were randomly selected.

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Sample and Sampling

For this study, the sample size consists of 100 respondents comprising of 25 teachers and 75 students which were purposively sampled from five randomly selected secondary schools in Oju Local Government Area of Benue State. Among all the schools in Oju Local Government Area, five (5) were randomly selected and are listed below:

1. Government secondary school, Ikachi

2. Government secondary school, Oju

3. Methodist high school Ainu

4. Chriso model college Okoyongo

5. Government secondary school, Obusa-Ainu

Method of Data Collection

The method used for the gathering of data for this study is the survey research method. It involves the use of questionnaires to obtain information from the large sample of respondents selected from a certain pollution; teachers and students of selected Secondary School in Oju Local Government Area of Benue State.

Method of Data Analysis

The main analysis technique employed is the chi-square, it is used to test the hypotheses while the simple percentage is used for the research questions.

Result and discussions

Research question 1: What influence does the utilization of mobile phone technology have on academic performance among secondary school students?

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Table 1. Performance response of influence of the utilization of mobile phone technology on academic performance among secondary school student

Item	teacher's	response %	student response	%	total
SA	10	40	2	3	12
A	9	36	40	53	49
D	4	16	30	40	34
SD	2	8	3	4	5
Total	25	100	75	100	100

Results of Table 1 showed that 40% teachers and 3% of students strongly agree that mobile phone usage has significant influence on the academic performance of students, 36% and 53% also agree, 16% and 45% disagree, while 8% and 4% strongly disagree. From the result the high percentage of both teachers and students indicate positive responses, hence mobile phone usage has significant influence on academic performance among secondary school students in Oju local government area Benue state.

Research question 2: What is the influence of mobile phone usage on academic performance among male and female secondary school students?

Table 2. Response of influence of the utilization of mobile phone technology on academic performance among male and female secondary school students

Item	teacher's response	%	student response	%	total
SA	9	36	1	2	12
A	10	40	41	54	49
D	4	16	30	40	34
SD	2	8	3	4	5
Total	25	100	75	100	100

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Results of Table 2 showed that 36% teachers and 1% of students strongly agree that mobile phone usage has significant influence on academic performance among male and female secondary school students, 40% and 54% also agree, 16% and 45% disagree, while 8% and 4% strongly disagree. From the result the high percentage of both teachers and students indicate positive responses, hence mobile phone usage has significant influence on academic performance among male and female secondary school students in Oju local government area Benue state.

Research question 3: What is the influence of mobile phone usage on academic performance among secondary school students with a different parental background?

Table 3. Response to the influence of the utilization of mobile phone technology on academic performance among secondary school students with different parental background

Item	teacher's response	%	student response	%	total
SA	20	80	55	73	75
A	5	20	15	20	20
D	0	0	4	5	4
SD	0	0	1	1	1
Total	25	100	75	100	100

From Table 3: the result shows that 80% of teachers and 73% of students agree that the mobile e phone utilization has significantly influence among secondary school students with a different parental background, 20% and 20% respectively agree, also 0% and 5% disagree while 0% and 1% strongly disagree. It is therefore concluded that mobile phone technology has the significant influence on academic performance among secondary school students with the different parental background in Oju local government area Benue state.

Testing of Hypotheses

Hypothesis 1: There is no significant difference in the usage of mobile phone technologies and students' academic performance among secondary school students.

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Table 4. Chi-square test of the relationship between the use of mobile phone technology and secondary school student's academic performance.

Cal X^2	critical Value	df	level of sig	decision
11.1	7.82	3	0.05	rejected

The result from table 4 reveals that the calculated chi-square of 11.1 is greater than the critical value of 7.82 with 3 degrees of freedom at 0.05 level of significance. Hence the null hypothesis which states that there is no significant difference in the usage of mobile phone technologies and students' academic performance among secondary school students is rejected. Meaning that the use of mobile phone has the significant influence on the academic performance of secondary school students in Oju local government area.

Hypothesis: 2. there is no significant difference in the usage of mobile phone technologies and students' gender.

Table 5. Chi-square test of relationship between mobile phone usage and students' gender

Cal X^2	critical Value	df	level of sig	decision
6.1	7.82	3	0.05	Accepted

The result from Table 5 shows that the calculated chi-square of 6.1 is less than the critical values of 7.82 with 3 degrees of freedom at 0.05 level of significant. Hence the null hypothesis which states that there is no significant difference in the usage of mobile phone technologies and students' gender is accepted. Meaning that there is no significant difference in the usage of mobile phone and students' gender.

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Hypothesis: 3. there is no significant difference on the influence of mobile phone usage on academic performance among secondary school students with a different parental background.

Table 6. Chi-square test of relationship between mobile phone usage and parental background

Cal X^2	critical Value	df	level of sig	decision
13.4	7.82	3	0.05	Rejected

The result from Table 6 shows that the calculated chi-square of 13.4 is greater than the critical values of 7.82 with 3 degrees of freedom at 0.05 level of significant. Hence the null hypothesis which states that there is no significant difference on the influence of mobile phone usage on academic performance among secondary school students with a different parental background is rejected.

DISCUSSION OF FINDINGS

Based on the data presented, analyzed and interpreted, the researcher is able to come out with the followings findings. The first analysis reveals that mobile phone usage has the significant influence on academic performance among secondary school students in Oju local government. This was evident because all the answers from the items indicate a positive response hence the highest percentage agreed that mobile phone usage affects students' academic performance. In testing the hypothesis, the chi-square calculated was greater than the chi-square critical, the null hypothesis was rejected and alternative accepted. The second finding shows that mobile phone usage has the significant influence on academic performance among male and female secondary school students. The analysis from the research questions agrees with this response. The chi-square calculated was less than the critical chi-square at 0.05 level of significance and the null hypothesis was accepted. The third finding reveals that mobile phone technology has the significant influence on academic performance among secondary school students with the different parental background in Oju local government area. This is so because the analysis from

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the research question indicates the positive response. The chi-square calculated is also greater than the critical value, hence the null hypothesis was rejected.

CONCLUSION

It is generally agreed that mobile phone usage has profound influence on student academic performance and achievement. The research however set to find out the impact of mobile phone usage among on academic performance among public secondary schools in Oju local government area of Benue state. From the result of the analysis, it is therefore concluded that the use of mobile phone among secondary school students in Oju local government area had the significant relationship on their academic achievement. It is in this regard that the researcher draws the attention of the teachers, proprietors, principals as well as government to take priority in the provision of instructional materials since they boost student performances.

Recommendations

Based on the finding of the study, the following recommendations have been made;

i. Students should take a more active role in the learning process and take an interest in using mobile phone technologies to improve educational experiences. Science students should be encouraged by their teachers to make more use of chat rooms, such as Viber and WhatsApp for group discussions, share images through Bluetooth for explaining scientific concepts and processes, use video conferencing for face-to-face group discussions, read eBooks and download scientific materials from the internet.

ii. Science teachers should encourage students in the use of mobile phone technologies in their learning. These technologies can provoke the interest of the students and make science learning more interactive. As a result, science teachers should explore different ways in which mobile phone technologies can be used in teaching and learning. For example, mobile phone learning through tutoring, games, quizzes, podcasts (audio/video) and e-books. This will make students more aware of the possibilities of these technologies and therefore will try to exploit their full potential.

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iii. To engage students effectively and meaningfully, science teachers should provide course content and other learning materials online, so that students will get the opportunity to download this information onto their phones in order to access it at anytime or anyplace instantaneously. This will allow students to be fully prepared for lessons as well as supplementing and reinforcing information that has already been taught in class. Teachers can also formulate automatic alerts to their students on important information, such as quiz dates, additional required readings as well as links to helpful websites. These mobile phone technologies will go a long way in supporting students' learning, therefore increasing their academic performance.

iv. Curriculum planners and policy makers should consider students' learning styles in the use of mobile phone in science learning. Instruction should be designed in such a way so as to connect with multiple learning styles that are appropriate for mobile phones. Teachers have a role in identifying their students' learning styles hence should encourage matching mobile phone technologies and resources to these styles. This includes integrating sound, visuals, music and games into the learning environment.

v. Content developers and programmers should come together to design and develop educational mobile phone applications that can be used in learning various topics in science in order to provide tools for authoring, manipulation, and communication. These applications should be simple for easy navigation for both students and teachers. A rubric for selecting applications should be developed and distributed to teachers so as to provide specific criteria for effective learning. An online database should be established to provide relevant educational applications for teachers and students.

vi. An opportunity should be given to teachers to discuss each mobile application so that suggestions can be made on how to effectively use the application in science learning. This is especially supportive in science classes where there are several complicated concepts. The interactive elements of the applications on the mobile phones will permit students to develop a better understanding of these complex concepts. The ICT coordinators in each of these schools should coordinate all these activities for better monitoring and implementation. This will assist in improving students' academic performance.

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