PERCEPTION OF SECONDARY SCHOOL STUDENTS' UTILIZATION OF MOBILE DEVICES FOR LEARNING

By

Agbarakwe, Harriet Akudo (Ph. D)
E-mail: haret.agbarakwe@uniport.edu.ng

&

Amadi, Anderson Choice
E-mail: andydista@gmail.com
Department of Curriculum Studies and Educational Technology
Faculty of Education, University of Port Harcourt, Nigeria

Abstract
The perception of learners is key to the integration and effective utilization of technology into the educational system hence it is of essence to determine students' willingness in the use of mobile devices for learning. The study therefore investigated the Perception of Secondary School Students' utilization of Mobile Devices for learning. It adopted the descriptive design with a sample size of 375 senior secondary school II students. Two research questions and one hypothesis guided the study. The instrument tilted Questionnaire for Students' Perception on Mobile Devices Utilization for Learning (QSPMDUL) was developed. The questionnaire was structured using 4-point Likert scale which was subjected to content and face validity using Cronbach's Alpha method of internal consistency and a reliability coefficient of 0.89 was obtained. The research questions were analyzed using standard deviation and mean statistics while the hypothesis was tested using independent t-test. A criterion mean of 2.5 was set as the cut off mean to make the decision. The findings revealed that students showed positive perception towards mobile devices for learning and strongly believed that owning a mobile device could pose no threat to their studies. The study also revealed that perception of students does not differ significantly based on gender. The researchers therefore recommend that educators and instructional developers should support m-learning through creating adaptable software applications to facilitate mobile learning with ease of use while school administrators are to encourage the use of mobile devices for learning among their learners.

Key words: Mobile devices, Perception and Students Utilization.

Introduction

Learning is among most essential activities in which human beings engage in throughout their lifetime. The importance of learning cannot be over emphasized as nobody is born with ability or capacity to function effectively as adult in any human society without it, thus this serves as the basis of educational activities and foundation for sustainable and meaningful development. Therefore, devising effective way to learn is extremely essential. For many years now philosophers, psychologists and other players in education have sought comprehension of how learning occurs, nature of learning and how individual influence another via teaching and other related endeavors. For example, research from cognitive psychology raised understanding on nature of performance and principles for knowledge organization which brings

developed capacity of people to resolve problems in various dimensions including Mathematics, Sciences, Literature, Social Studies and History. (National Research Council, 2013)

For years, conventional teaching techniques are used widely in schools. They are on the bases of established pattern which is successfully deployed with time. In every time in history, researchers are worried that conventional learning technique is good in selecting talent not in developing them. This learning technique which is centered on teacher and teaching is never learners 'oriented rather learning occurred in cases where learners learned from teacher primarily and from materials like books, journals, audio and video tapes. This learning technique never helps in development of skills required for 21st century workforce. The ISTE (2016) standard places emphasis on core skills and quality required for learners to engage and succeed in a connected digital environment. Based on this set standard, learners are required to have technology based skill and are taught to challenge them to become agents for constructing their personal learning. The fast improvement on mobile technology have ushered in expanded horizon for communication processes, present collaboration opportunities, and present access to needed information and enhanced teaching and learning business. These mobile devices are currently dominating development and present different new opportunities which guide and improve learning in ways that are never imagined few years back. The minuteness of electronics that bring about mobile technology ushered in possibility of carrying about what would once entail a super computer but presently in our pockets. In just couple of years Smartphone and its tablet brothers are now indispensable and they made it painless connecting to work, friends or family. Studies have indicated that over 90 per cent of people who use internet presently in Africa do so using mobile gadgets (International Telecommunication Union, 2016). These statistics completely and clearly show how well placed Nigerian nation is to this study. Since the 21st century learners are smart learners and require fast access to new knowledge, it is essential for learning activities to be integrated with mobile devices. Hence, conventional education system should be adjusted to provide support to demanding needs of modern learners but not without establishing their level of willingness and readiness to adapt and integrate it for learning purposes. Differences in our perception or willingness to accept things are focal in research, practice and education. Therefore, it is essential for education based practitioners to comprehend reasons for variation in perception for effective and efficient adaptability.

Mc Gregor (1993) presented real life example as when fourteen-year-olds learners were asked to write assay on how to trace shortest distance between two towns as test. White children got answers to the question right while black children were wrong. The reason is perception of the black and white learners. To black learners, Crossroad Township means dangerous road and traveling through a longer route while to white learners' crossroad means nothing, so they took the straight stroke. Research on perception of human is highly complex because their theories and definitions are usually inconclusive and interdisciplinary. But what is known from literatures is the fact that it is partly part of Philosophy and partly part of Psychology because these two fields are responsible for its theories and definitions. From this observation, general definition for this term "perception" is generated. Perception is

seen as understanding of universe constructed using information obtained through means of senses

Perception is simply a way that something is understood, regarded or interpreted by different people. It is a process of interpreting, organizing selecting and acquiring sense based information (Spector, 2006). Advanced learners' dictionary defined it as a way one notices things, mostly with one's senses. It is equally seen as idea, belief or image that one creates based on how one sees or understood things. Perception is everything so identifying perception of students on use of mobile devices for learning is a key to understanding their willingness to use them. Negative perception might result to decrease in use of inferior image of these mobile devices. The operation of perception can be achieved through certain conditions and fundamental elements. The foundation to perception is that there is someone who is experiencing something or a perceiver; that something is perceived which could be object, relationship, situation or person. There is an existing situation in which such person, objects, relationship or events are perceived and there is natural process starting from point of initial experience of multiple stimuli which result in formation of perception.

Although mobile devices are used for teaching/learning in developed nations and they consider it as effective education based tool, but it is not yet adopted in Nigerian secondary education, and there are insufficient studies on investigation of perception of learners on use of mobile learning specifically in Rivers State, Nigeria. However, study carried out to investigate student's perceptions on use of mobile learning at college of basic education, Kuwait showed that 80.3% of students are happy to use mobile devices in their learning environment and believe that m-learning improves their knowledge in learning English language (Rena, Salah and Ahmed, 2017). Similarly, this article queries students' perception in learning using mobile devices, hence this study seeks to investigate into senior secondary school II students in Nigeria education.

Statement of the Problem

The extensive use of mobile devices among youth for communication, connectivity and collaboration raises an insight into identifying their thoughts for its use to enhance learning. Mobile devices have gained immense stand in lives of students and youths globally today and it is a common sight in the environment as some students even go to school with sophisticated mobile gadgets which have capacity to connect them to internet, different social media platforms and other websites where they socialize, stream, download, upload, exchange and play different kinds of media content. Premised on the foregoing, this study is designed to provide answer to this question that says; what are the perceptions of secondary school students in the use of these mobile devices for learning and how does gender have effect on the use of these devices?

Aims and Objectives of the study

The aim of the study is to determine the perception of senior secondary school II students' utilization of mobile devices for learning. Specifically, the study is designed to:

1) investigate secondary school students' perception on mobile devices usage (Smartphone, tablet, iPad, and laptop) for learning;
2) investigate extent to which gender influences perception of secondary school students in mobile devices usage for learning

Research Questions

The following research questions where posed by the researcher to guide the study

1) How do students perceive the use of mobile devices (Smartphone, tablet, iPad, and laptop) for learning?
2) To what extent do students' perceptions on mobile devices usage for learning differ based on gender?

Hypothesis

Ho_1: Students' perception on the use of mobile devices for learning does not significantly differ based on gender.

Methodology

The study used descriptive survey design since it involves investigating a sample of specified population and generalizing of result. The population consisted of 5500 SS2 Computer Studies Private Secondary Schools in Obio-Akpor LGA, Rivers State. A sample of 375 students were drawn from the population. The 6 schools randomly selected were represented with the following alphabets A; B; C; D; E; F; and G, schools using simple random sampling technique which was done via balloting. Table 1 below shows the sample distribution

Table 1 Table of Sample Distribution

S/N	Schools	No. of SSII Computer Studies students	Males	Females
1	A	65	28	37
2	B	59	30	29
3	C	65	30	35
4	D	51	22	29
5	E	60	27	33
6	F	40	21	19
7	G	35	18	17
	Total	**375**	**175**	**200**

The instrument tilted Questionnaire for Students' Perception on Mobile Devices Utilization for Learning (QSPMDUL) was developed. The questionnaire was divided into 2, which sections consisted of demographic data and questions drawn from the research objectives. The questionnaire was structured using 4-point likert scale assigned value 4, 3, 2 and 1 respectively. Section I gathered students' demographic data while Section II measuredperception of students on mobile devices usage for learning. Researcher subjected the questionnaire to content and face validity while Cronbach's Alpha was used to obtain a reliability coefficient of 0.89

The data gathered were analyzed using the research questions while the hypotheses were tested using independent t-test. A criterion mean of 2.50 was set as the cut off mean to make the decision. When the outcome of the mean value is less than 2.50, it is adjudged as: Positive but when the outcome of the mean value is greater than 2.50, it is Negative.

Results and Discussion

Research Question 1: How do students perceive mobile devices usage (Smartphone, tablet, iPad, Laptop) for learning?

Table 2 explained the Perception of students towards the use of mobile devices (Smartphone, tablet, iPad, Laptop) for learning Computer Studies in which 8 research items were analyzed suing mean and standard deviation.

Table 2: Mean and Standard Deviation of how do students perceive mobile devices usage for learning

S/N	Items	Mean	SD	Remark
1	Learning using mobile devices increases my motivation	3.66	0.64	Positive
2	It is important to use mobile device (s) to learn, read, do my assignments or carry out other learning activities.	3.71	0.62	Positive
3	It is better to use mobile device(s) more often in class.	2.97	0.90	Positive
4	Digital textbook is preferred to traditional print textbooks because of convenience to carry about.	3.21	0.86	Positive
5	Owning or using any of these devices will distract me from my academics	2.20	0.88	Negative
6	Having material like slides, lecture notes available on my mobile device will help my study because of easy access	3.60	0.65	Positive
7	Using a mobile device would improve my learning experiences of computer studies and other subjects	3.75	0.54	Positive
8	There is a better comfort learning in the face-to-face classroom alone than learning using mobile devices	3.00	1.10	Positive
	Grand Mean	3.26		Positive

Table 2 showed how students perceive mobile devices usage for learning. Items with serial number 1,2,3,4,6,7,8 have their various mean values greater than criterion mean value of 2.5 and were significant as students indicated positive perception in using mobile devices for learning. While item 5 has mean value less than criterion mean and is therefore not significant (negative) by students as they disagree that owning or using any of these devices will not distract them from their academics. Hence, since 3.26 is above criterion mean, students positively perceive mobile devices usage for learning.

Research Question 2: To what extent do perceptions of student on mobile devices usage for learning differ based on gender?

Table 3 explained how students' perception on the use of mobile devices (Smartphone, tablet, iPad, Laptop) for learning Computer Studies differs based on gender in which 8 research questions were analyzed using mean and standard deviation.

Table 3: Mean and Standard Deviation of students' perception on mobile devices usage for learning based on gender.

S/N	Items	Male		Female		
		Mean	SD	Mean	SD	Remark
1	Learning through mobile devices increases my motivation	3.66	0.54	3.66	0.72	Positive
2	It is important to use mobile device (s) to learn, read, do my assignments or carry out other learning activities.	3.70	0.69	3.73	0.53	Positive
3	It is better to use mobile device(s) more often in class.	2.98	0.94	2.95	0.86	Positive
4	Digital textbook is preferred to traditional print textbooks because of convenience to carry about.	2.98	0.99	3.43	0.64	Positive
5	Owning or using any of these devices will distract me from my academics	2.03	0.94	2.37	0.77	Negative
6	Having material like slides, lecture notes available on my mobile device will help my study because of easy access	3.51	0.62	3.69	0.68	Positive
7	Using a mobile device would improve my learning experiences of computer studies and other subjects	3.67	0.60	3.84	0.46	Positive
8	There is a better comfort learning in the face-to-face classroom alone than learning using mobile devices	2.39	0.93	3.61	0.91	Positive
	Grand Mean	**3.48**		**2.89**		**Significant**

Table 3 showed how students perceive mobile devices usage for learning based on gender. Items with serial number 1,2,3,4,6,7,8 have their various mean values greater than criterion mean value of 2.5 among male and female students and were significant as both sex indicated positive perception in using mobile devices for learning. While item 5 has mean value less than criterion mean among male and female students and is therefore not significant (negative) by both sex disagreed that owning or using any of these devices will distract them from their academics. The table had grand mean of male students to be 3.48 and grand mean of female students as 2.89. This indicated that male students have higher positive perception in mobile devices usage for learning compared to female students.

Hypothesis: Perception of students on mobile devices usage for learning does not significantly differ based on gender.

Table 4: T-test analysis of the difference in the Students' perception of the use of mobile devices for learning based on gender.

Gender	**N**	$\overline{X}$	**SD**	**Df**	**P-vale**	**t-cal**	**t-cri**	**Remark**
Male	175	3.48	0.77					Ho Rejected
				373	0.001	3.864	1.96	
Female	200	2.89						

P<0.05

Table 4 showed difference in students perception on mobile devices usage for learning based on gender. With the degree of freedom 373 at 0.05 at level of significant, the z-calculated value at 3.864 is greater than z-critical value 1.96. Therefore, null hypothesis is rejected. This indicated that students perception on mobile devices usage for learning does significantly differ based on gender.

Discussion of Result

The findings showed that students' perception of mobile devices usage for learning was positive since grand mean is above criterion mean (table 4), and most of the students have standard Smartphone, laptops and preferred mobile devices mostly everywhere and at home since it provides students with opportunity to acquire additional knowledge, skills and attributes outside school settings (Asikhai,2010). It can be deduced that using mobile device would improve students' learning experiences of computer thereby creating opportunity for students to access internet and increased productivity. These findings are in conformity with Muabaad Alrasheedi, Luize Fernando, Carpretz and ArifRaza (2015) who reported that mobile learning makes learning interesting, increases productivity and create opportunity for internet access. Gupta and Manjrekar (2012) reported level of access students have on internet to access information via mobile devices is among m-learning success factor. The technical competence of students is the main determinant in success of m-learning. It is seen as skill and technical knowledge of students in using these devices.

Students' perception on mobile devices usage for learning based on gender

The result of the analysis failed to support the hypothesis which states that Students' perception on mobile devices usage for learning based on gender is significant leading to rejection of null hypotheses. It indicates that gender significantly affects Students' perception on mobile devices usage for learning and that male and female do differ in their perception on mobile learning for learning. The basis which may underlie these differences in males and females could be due to gender identity and sex role competency. This is because, by cooperation male and female tend to identify themselves with set of expected ideals or knowledge which bring them together and to share thereby making teaching and learning motivating and interesting. Mobile device can generate sex differences in social behavior through collaboration. Mobile learning guides a learner to correct learning context and integrate field objects to related details in handheld device which then triggers knowledge acquisition process. The finding is consistent with previous studies of Ionut, Konad, Mark, Boris, Christian and Alexander (2016) who reported a significant gender differences in students perception in mobile devices usage. Hence, gender appears to play a role in how people perceive and use these mobile devices.

Conclusions

1. From this research finding, it can be said that students show positive perception towards mobile devices usage for learning and appreciably disagree that owning a mobile device could negatively affect their studies.
2. Findings have revealed also that most students have standard Smartphone, laptops and preferred mobile mostly everywhere and at home.
3. Perception of students does differ significantly based on gender.

Recommendations

1. Educators and instructional designers can support m-learning through identification of ways through which mobile devices would support classroom and distance learning

2. Administrators should consider the need for infrastructure based support at school to assist mobile learning. For instance, school administration may decide to provide internet and IT service within school environment where students can have guided access to academic resource.

References

Amadi, A. C. & Agbarakwe, H. A. (2019).Awareness of Secondary School Students Usage of Mobile Devices for Learning. International Journal of Educational Technology and Learning. 6 (1) 17-21.http://doi.org/https://doi.org/10.2448/2003.61.17

Alrasheedi, M., Capretz, L. F. & Raza, A. (2015). A Systematic Review of the Critical Factors for Success of Mobile Learning in Higher Education (University Students' Perspective). *Journal of Educational Computing Research,52(2)57–276.*

Asikhai, D. A. (2010) Students and Teachers Perceptions of the Causes of Poor Academic Performance in Ogun State Secondary Schools (Nigeria): Implications for Counseling, for National Development. Retrieved from <http://www.eurojournal/.com/ejsson August 28>, 2010.

Definition of perception by business dictionary. Retrieved from www.businessdictionary.com

Definition of perception by Cambridge English Dictionary.Retrieved from https://dictionary.Cambridge.org.

Gupta, M. & Manjrekar, P. (2012) 'Using MOBILE learning to enhance quality in higher education', *SIES Journal of Management, 8(1) 23–30.*

International Telecommunication Union (ITU, 2016). ICT Facts and Figures (2016). Retrieved from https://www.itu.int/en/ITU-D/statistics/documents(facts)ictfactsgigures2016.pdf.

Ionut, A. Konrad B. Mark, E., Boris T., Christian M. & Alexander M. (2016). Methal: A framework for mobile data collection and analysis. inUbi camp/ISWC Adjunt.ACM.

Jordaan, W. & Jordaan, J. (1996). Man in context. Second edition. Isando: Lexicon.

McGregor, K. (1993). *Clash of classroom cultures*. Weekend Argus, 2/3 (17), 90-101

National Research Council (2013). How people learn: Brain, Mind, Experience, and School: Expanded Edition. Washington, Dc: The national Academies Press. http://doi.or/10.17226/9853 *and Paedagogical Sciences.*Vol 11, No: 2.

Rana, A., Salah, A., Ahmed, A. (2017). Students' perception of mobile learning: Case study of Kuwait. World academy of science, engineering and technology.*International Journal of Education*

Spector, G. E. (2006). Repetition and the brain: Neural models of stimulus-specific effects. trends in cognitive science. 10 (1)