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Availability and utilization of mobile learning devices among undergraduate students

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Abstract
This study explored the availability and utilization of mobile learning devices in the Department of Curriculum Studies and Educational Technology, Faculty of Education, University of Port Harcourt. The descriptive survey design was adopted. A sample of 100 undergraduate students took part in the study. The Availability and Utilization of Mobile Learning Device Questionnaire (AUMLDQ) was the instrument used for the data collection. The Cronbach alpha reliability test model was used to establish the reliability of AUMLDQ to obtain an index of 0.75. The study was guided by two research questions. The research questions were answered using mean, standard deviation and percentages. The findings established that majority of the students owns a mobile phone utilizes them most for voice calls and SMS. It was recommended among others that teachers should encourage the use of mobile learning devices among their students for their academic learning purposes by initiating online classes at intervals.

Keywords: availability, utilization, mobile, learning, devices

Introduction

It is generally acknowledged among scholars all over the world that the rapid development in Information and Communication Technologies (ICT) and evolving learners' behaviour requires learning institutions to continuously re-evaluate their approaches to pedagogy, both in the physical and the virtual classroom spaces. In recent years there has been a growing recognition of the disparity between the educational needs of the current generation of university students and that of the formal classroom education that used to take place at universities (Litchfield, Dyson, Lawrence and Zmijewska (2007) [9]. Similarly, there has been an increasing interest in Mobile Learning using varying devices in sizes from the large, such as notebooks, laptops, to small devices such as mobile phones and PDAs (Personal Digital Assistant). Although there are negative perceptions towards the use of mobile phones in education, the potential of mobile phones to support teaching and learning has been discussed frequently in academic literatures.

"It is any service that supplies learner with general electronic information and educational content.

Basically, Mobile Learning is the use of any mobile or wireless device for learning on the move. That can aid their acquisition of knowledge, regardless of location and time" Aderinoye, Ojokheta, and Olojede (2007) [1]. By implication, Mobile Learning systems should be capable of delivering instructional content to learners anywhere and anytime it is required. It also implies that students do not need to be of a specific group or located at the specific geographical area to participate in learning opportunities.

As Kennedy, Krause, Judd, Churchward& Gray (2006) [7] posited, ''Mobile devices, without doubt, are almost ubiquitous with a greater percentage of the university students born since 1980-the digital native (people born during or after the introduction of digital technologies) generation-having some sort of access to a mobile device.'' Indeed, many scholars/studies have tried to define the learning patterns of this generation. In that bid, Prensky (2005) [10] coined the term ''digital native,'' describing their learning as ''short burst, casual, multitasking.'' Moreover, as Kennedy *et al*, (2006) [7] inferred, that digital natives learning can be characterized by a preference for receiving information quickly, coupled with the ability to process it rapidly which is a bias towards multi-tasking and non-linear access to information thereby relying so much on ICT for information and communication which

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Obviously is preference for active involvement in learning over passive learning in lectures.

In addition, the availability of these mobile and wireless devices is to enable people to communicate in different ways, to the extent that mobile communications are no longer restricted to companies that can afford the large investment in hardware and specialized software. Presently, individuals have easy and inexpensive access to mobile telephones and the cost of mobile access to the internet is rapidly reducing. Mobile technologies have largely affected the way of communicating. This is typified by young people, for whom mobile communications are part of their normal daily interaction, who is 'always on' and connected to geographically-dispersed friendship groups in 'tribal' communities of interest. Peters (2007) [12].

The depth of penetration of mobile technologies globally is well captured in Killian (2011), that "half of Africa's one billion populations have mobile phones". He further said that mobile technologies have had a positive effect in increasing the digital inclusion statistics and provides a medium for those with low self-efficacy in ICT to access the internet. Bryant (2006) [3] sees mobile technologies as tools to "expand the discussion beyond the classroom and provide new ways for students to collaborate and communicate within their class or around the world."

Consequently, as Thomas (2005) [13] stated, ''through the application of mobile technologies within the learning design, students can be further empowered to undertake 'user-led education', creating their own content and collaborating with peers and communities within and beyond the classroom.'' Invariably, the application of mobile technologies to learning design increases the learner's motivation and engagement.

According to Rafiu, Kayode and Raphael (2011), "mobile learning could be a tool for enhancing the quality of education and complementing the traditional methods of education in what is known as blended learning. However, because of the complexity of mobile learning paradigm, its implementation in the developing world encounters a lot of hitches." These challenges range from technological, attitudinal, curriculum and pedagogy, instructional readiness, teacher/learners' competence, maintenance to sustainability. Though, the attitudinal reasons were consequential in the sense that some of the current operators of the education sector are Digital Immigrants (individuals born before the existence of digital technologies)' and 21st century illiterates, which according to Alvin (2012) [2], will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn. A good number of current operators in the education sectors are not comfortable with new technologies, some have computer phobia while others might be looking at the retirement age being closer hence learning a new skill is not worthwhile. So in order to be relevant while still in service, such group would try all they could to maintain the status quo. Other challenges to the implementation of mobile learning are technical, social and educational problems. The Technical challenges include among others, the problems of connectivity and battery life, screen size, meeting required bandwidth for non-stop/fast streaming, number of files format supported by a specific device, multiple operating systems, limited memory, and security. Furthermore, a few social and educational challenges may include, accessibility and the purchasing power of the end users with the resultant of creating the unfortunate problem of ''Digital divide,'' who has the purchasing power, how to access learning outside the classroom, how to support learning across many contexts, developing an appropriate theory of learning for the mobile age, design of technology to support a lifetime of learning, tracking of results and proper use of this information, including the ''risk of distraction'' in use Mobile Learning system device.

Baiyun and Aimee (2013) [5] explored mobile learning practices in higher education among students from 12 different colleges at the University of Central Florida. Using Proportional stratified random sampling technique, the researchers drew 1082 students who responded to a survey questionnaire that explores basic access and use of mobile devices. Descriptive analysis regarding student access showed that more than 91% of respondents owned a small mobile device (such as iPhone, Android, or iPod Touch). However, only 37% owned a mobile tablet (such as iPad, Android tablet or Kindle Fire) and 27% owned an E-book reader (such as Kindle or Nook). While Baiyun*et al.* (2013) [5] used a Proportional stratified random sampling technique to draw respondents, the present study will use the simple random sampling technique to draw its respondents. Similar analysis technique of descriptive statistics will also be used for the present study.

In a related study, (Co-Creation Hub Nigeria, 2015) [4] researchers investigated the usage of mobile phones among blue-collar workers over a period of 12 weeks in Lagos, Aba and Abuja. Using non-proportional stratified random sampling technique, the researchers drew 6285 blue collar workers who responded to an interview tagged 'How I use my Phone'. Descriptive analysis regarding the blue-collar workers interacting with their mobile phones showed that 41% of the sample owned a Nokia phone, 23% owned a Techno phone, and 12.1% owned a blackberry phone and 8.2% owned a Samsung phone. While (Co-Creation Hub Nigeria, 2015) [4] researchers used a non-proportional stratified random sampling technique to draw their respondents, the present study will use the simple random sampling technique to draw its respondents. In the same vein, while (Co-Creation hub Nigeria, 2015)[4] respondents consisted of blue-collar workers, the present study respondents will consist of students, also while (Co-creation Hub Nigeria, 2015)[4] research investigated the usage of mobile phones by blue-collar workers, the present study will determine the number of available mobile devices and their utilization among students. Similar analysis technique of descriptive statistics will also be used for the present study.

Problem specification

It is generally acknowledged that this is the era of computer or the jet age. Changes in learning behaviour of the current university students-the digital natives and even the immigrants who are constantly surrounded with the ever-evolving technology differ significantly from the traditional mode of classroom instruction delivery system obtainable in our higher institutions. These changes in learning behaviour of the students have created a gap to effective teaching and learning which the current mode of instruction delivery system has not adequately made provision for.

Moreover, higher institutions are confronted with considerable changes, driven by multiple internal or external factors, of which technology is a cardinal entity. Based on the changes influenced by these factors, it becomes pertinent for higher educational institutions to review their approaches to pedagogical principles, to that which will embrace the trend,

cater for the current generation of learners and maximize the technological advancements to its benefits which mobile learning is one of them. However, over time, a lot of studies have been carried out on issues related to basically computer-education but not much work has been done on mobile learning, which explains why this study is designed to evaluate availability and utilization of mobile learning devices in the Department of Curriculum Studies and Educational Technology, Faculty of Education, University of Port Harcourt.

Aims and objectives of the Study
The main purpose of this study is to evaluate the availability and utilization of mobile learning devices in the Department of Curriculum Studies and Educational Technology, Faculty of Education, University of Port Harcourt.
In specific terms, the study intends:
1. To identify the number of available mobile learning devices among students for mobile learning.
2. To determine the extent students, utilize the available mobile learning device for academic purposes.

Research questions
The following research questions will be answered to obtain the findings or results of the study:
1. What is the number of available mobile learning devices among students?
2. To what extent do students utilize the available mobile learning devices for academic purposes?

Materials and Methods
Design
The design for the study was the descriptive survey because data were collected from a sample of students in order to answer questions concerning the number of mobile learning devices they own and the extent the students utilize the available mobile learning device for academic purposes.

Population, sample and sampling technique
The population of the study consists of all undergraduate students in the Department of Curriculum Studies and Educational Technology, Faculty of Education, University of Port Harcourt with an estimated figure of 480 undergraduate students. A sample of 100 undergraduate students in the Department of Curriculum Studies and Educational Technology, Faculty of Education, University of Port Harcourt was used for the study. The sample was drawn using the simple random sampling technique. The 100 undergraduate students constitute the respondents for the study.

Instrumentation
The instrument for data collection of this research work was through the use of a carefully designed questionnaire titled

Availability and Utilization of Mobile Learning Device Questionnaire (AUMLDQ). The questionnaire was constructed in such a way that would be relevant to the research questions stated earlier in this work. The questionnaire was divided into section A and B. Section a contained personal information about the respondent, while section B was on general data intended to elicit information from the respondent. The instrument was validated by the researcher. The reliability of the instrument was determined through the Cronbach alpha reliability test model using 20 students who were not part of the sample. The data obtained from the 20 respondents were analysed using SPSS software package to get a reliability coefficient of 0.75.

Method of data collection
Copies of the instrument were administered to the respondents by the researcher. Instructions guiding the filling of the questionnaire were explained to the respondents. The researcher supervised the filling of the questionnaires and retrieves filled copies on the spot.

Data analysis: The mean and Standard Deviation (SD) and percentages were used for data analysis.

Results
Research question 1: What is the number of available mobile learning devices among students?

Table 1: Student responses on the mobile devices they personally own

S/N	List Of Devices	N	%
1	Mobile Phone	100	100
2	iPad	3	3
3	Tablet Pc	5	5
4	iPod	2	2
5	Personal Digital Assistant (PDA)	-	-
6	MP3 Player	15	15
7	MP4 Player	12	12
8	E-book Reader	65	65

Total number of students (N)=100.

Table 1 shows students' responses on the mobile devices they personally own. This invariably gives a clear picture of the number of available mobile devices among students in the department of curriculum studies and educational technology, Faculty of Education, University of Port Harcourt. All the students (100%) own a Mobile phone (item 1) while 65% of the students own an E-book reader (item 8). Students tend to own MP3 player (item 6) and MP4 player (item 7) apart from their Mobile phones and E-book reader.

Research question 2: To what extent do students utilize the available mobile learning devices for academic purposes?

Table 2: Mean rating and standard deviation on the extent students utilize the available mobile learning device for academic purposes

SN	Item	SA	A	D	SD	Mean	SD	Decision
1	Sending and receiving text messages	82	16	1	1	3.79	0.49	+
2	Use of online dictionary	53	40	4	3	3.43	0.71	+
3	Online interaction between lecturers and students	23	30	12	35	2.41	1.18	*
4	Reading scholarly articles	45	48	5	2	3.36	0.67	+
5	Sending and receiving e-mails	60	35	4	1	3.54	0.62	+
6	Making and receiving calls	93	7	-	-	3.93	0.25	+
7	Online bullying	-	-	33	67	1.33	0.47	*

8	Playing educational games	40	25	20	15	2.90	1.09	+
9	Source for educational resources on the internet	56	44	-	-	3.56	0.49	+
	Grand mean					3.14	0.82	+

Key: +Accepted, *Rejected

Table 2 shows that the mean and standard deviation on the extent students utilize the available mobile learning device for academic purposes was 3.14, SD=0.82. The key utilized mobile device was Making and receiving calls (M=3.93, SD=0.25) and was followed by sending and receiving text messages (M=3.79, SD=0.49) while the least was playing educational games (M=2.90, SD=1.09).

Discussion of Findings
The discussion of the findings of this present study was done under the following sub-headings:

The availability of mobile learning device for learning purposes among students
Findings from this study show in Table 1 shows students responses on the mobile devices they personally own. This invariably gives a clear picture of the number of available mobile devices among students in the department of curriculum studies and educational technology, Faculty of Education, University of Port Harcourt. All the students (100%) own a Mobile phone (item 1) while 65% of the students own an E-book reader (item 8). Students tend to own MP3 player (item 6) and MP4 player (item 7) apart from their Mobile phones and E-book reader. This implied that majority of the respondents have mobile phones devices. This finding is consistent with the views of Killian (2011) who captured the depth of penetration of mobile technologies globally by opining that "half of Africa's one billion populations have mobile phones". He further said that mobile technologies have had positive effect increasing the digital inclusion statistics and provide a medium for those with low self-efficacy in ICT to access the internet. Bryant (2006) [3] sees mobile technologies as tools to "expand the discussion beyond the classroom and provide new ways for students to collaborate and communicate within their class or around the world.'' The availability of mobile and wireless devices is to enable different ways of communicating. Mobile communications are no longer restricted to companies that can afford the large investment in hardware or specialized software. Individuals now have easy and inexpensive access to mobile telephony, and the cost of mobile access to the internet is steadily reducing. Mobile technologies have enabled a new way of communicating. This is typified by young people, for whom mobile communications are part of the normal daily interaction, who is 'always on' and connected to geographically-dispersed friendship groups in 'tribal' communities of interest (Peters, 2007) [12]. Consequently, through the application of mobile technologies within the learning design, students can be further empowered to undertake 'user-led education', creating their own content and collaborating with peers and communities within and beyond the classroom. Moreover, in offering flexibility, the ubiquity of access to information, and motivating increased engagement, mobile technologies and infrastructure facilitate this revolution of 'always-on learning, accessible to the masses, but tailored to the individual 'Thomas (2005) [13].

The extent students utilize the available mobile learning devices for academic purposes.
According to findings as shown in Table 2 shows that the mean and standard deviation on the extent students utilize the available mobile learning device for academic purposes was 3.14, SD=0.82. The key utilized mobile device was Making and receiving calls (M=3.93, SD=0.25) and was followed by sending and receiving text messages (M=3.79, SD=0.49) while the least was playing educational games (M=2.90, SD=1.09). This finding depicts that a greater number of respondents utilized their mobile devices in making and receiving calls as well as sending and receiving text messages, but not too many of them make use of their mobile devices in playing educational games. This finding is in line with those of Rafiu, Kayode and Raphael (2011) who stated that although, mobile learning could be a tool for enhancing the quality of education and complementing the traditional methods of education in what is known as blended learning. However, because of the complexity of mobile learning paradigm, its implementation in the developing world encounters a lot of hitches. These challenges range from technological, attitudinal, curriculum and pedagogy, instructional readiness, teacher/learners' competence, maintenance to sustainability. Though, the attitudinal reasons were consequential in the sense that some of the current operators of the education sector are Digital Immigrants (individuals born before the existence of digital technologies)' and 21st century illiterates, which according to (Alvin, 2012) [2] will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn. A good number of current operators in the education sectors are not comfortable with new technologies, some have computer phobia while others might be looking at the retirement age being closer hence learning a new skill is not worthwhile. Therefore, in order to be relevant while still in service, such group would try all they could to maintain the status quo, thus impeding on the growth and advancement of mobile learning within the academic community.

Conclusion
Mobile learning through the use of mobile devices has the potential of bridging the gap created by proximity to distant learning venues and the time required for learning to place between a group of students and teachers. There is a great number of students who possess these mobile learning devices like the mobile phones and others but sadly enough, the majority of the students are restricted to just sending and receiving SMS and making voice calls. However, if the potentials of these mobile devices are well harnessed, it is capable of improving upon learning among students. Again, it is only when these mobile is available for learning purposes that they can be adequately utilized for academic purposes.

Recommendations
The following recommendations were made based on the findings of the present study:

1. Students should own and utilize at least one mobile device for academic learning purposes as this will enhance their academic studies at all times and from distant places.
2. Teachers should encourage the use of mobile learning devices among their students for their academic learning purposes by initiating online classes at intervals.
3. The school authorities should assist in proving some mobile learning facilities so as to encourage mobile learning among students and teachers.

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