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Awareness and utilization of mobile learning devices among undergraduate students

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Abstract
This study investigated the awareness and utilization of mobile learning devices in the Department of Curriculum Studies and Educational Technology, Faculty of Education, University of Port Harcourt. The study adopted the analytic descriptive survey design. A sample of 100 undergraduate students took part in the study. A 17-item questionnaire was the instrument used for data collection. The test re-test reliability test model was used to establish the reliability of the instrument to obtain an index of 0.78. The study was guided by two research questions. The mean and Standard Deviation (SD) were used for data analysis. The findings established that students' mean rating on the awareness of the available mobile learning device for academic purposes was 2.89, SD=0.94. The key mobile device awareness was that mobile phones can be used for learning (M=3.79, SD=0.50), and was followed by that fact that they used their mobile phone to learn (M=3.75, SD=0.52), while the least was that they have limited experience on mobile learning (M=2.70, SD=1.24). The mean rating of the students' overutilization of 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). It was recommended among others that students should make stringent effort to be more aware of the existence and functionality of these mobile learning devices and utilize at least one mobile device for academic learning purposes as this will enhance their academic studies.

Keywords: awareness, utilization, mobile, learning, devices

Introduction

The quest to create and implement educational change entails a great degree of intricacy and ambiguity. The mode of implementing and guiding educational change in schools has been an ongoing question. In recent decades past, scholars had indicated that the academic administrative heads played a major part in educational change. Basically, some of them focused on teacher improvement in terms of lesson delivery and students assimilation of lessons taught. Then, these were seen as the major factors beneficial to student learning. Still, another philosophical shift has gathered momentum with regard to the professional development of teachers until the recent paradigm shift in the way educational processes are attained especially with the recent emergence of ICTs/Mobile Learning technologies.

Lynch (2015), in conversation. com, said that the use of mobile learning devices as teaching tools are becoming a more and more common part of the educational experience in classrooms, from preschool through graduate school. That a recent Pew Research Center survey found that 58% of U.S teachers own smartphones.10% points higher than the national average for adults. Those teachers are building the mobile learning technology into their lesson plans, too, by embracing "bring-your-own-device" policies and leading the push for a mobile device for every student. The implication, here is that stakeholders of schools should effectively encourage both teachers and learners to own and utilize Mobile Learning technologies for effective educational practices.

Basically, Mobile Learning is the use of any mobile or wireless device for learning on the move. "It is any service that supplies learner with general electronic information and educational content 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 at the specific geographical area to participate in learning opportunities.

As Kennedy, Krause, Judd, Churchward & Gray (2006) [6] 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) [6] 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 obviously a preference for active involvement in learning over passive learning in lectures.

Peters, (2007), [9] opined that awareness and availability of mobile and wireless devices are to enable different ways of communicating. He stressed that 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 typical with 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

In the views of Killian, (2011), the depth of penetration of mobile technologies globally is well captured when he posited 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" (P.61).

As a result, through the application of mobile technologies within the educational practices, 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, P.5) [16].

Alzaza and Yaakub (2011) [2] studied students' awareness and requirements of mobile learning services among Malaysian students in the higher education environment. Data were collected using students' awareness of mobile learning services questionnaire (SAMLSQ) from 261 students drawn using non-proportional stratified random sampling technique from some universities in Malaysia. Descriptive analysis regarding students' awareness of mobile learning and mobile learning devices showed that 95% of the participants declared that they own a mobile device. In terms of mobile application experience, 51.7% have less than 5 years of using the mobile application experience; 42.5% have experience between 5 and 9 years; while only 5.7% have more than or equal 10 years. This indicates that the respondent's experience, in terms of mobile application is respectable.

While Alzaza *et al*. (2011) [2] used a non-proportional stratified random sampling technique to draw its respondents; the present study will use a simple random sampling technique to draw its respondents. While Alzaza *et al*. (2011) [2] study are foreign, the present study is indigenous and will also measure the extent students are aware of mobile phones as mobile learning devices. Similar analysis technique of descriptive statistics will also be employed to this present study to measure the extent students is aware of mobile phones as mobile learning devices.

In a related study, Wei (2013) [17] investigated college English learners' beliefs and awareness of mobile learning based on Smartphone's at Jilin University of Finance and Economics, Changchun, China. Data collected from 240 participants drawn using proportional stratified random sampling technique using a questionnaire adapted according to the questionnaire in Wang's dissertation (2011). Descriptive analysis of the questionnaire showed that only 26% of the participants are aware of using their mobile devices for learning purpose. While Wei (2013) [17] used a proportional stratified random sampling technique to draw its respondents, the present study will utilize the simple random sampling technique to draw its respondents. Also, while Wei (2013) [17] study is foreign, the present study is indigenous and the same descriptive statistics employed in Wei (2013) [17] study will also be employed in the present study to measure the extent students are aware of mobile phones as mobile learning devices. While Wei (2013) [17] study is based on Smartphone's, the present study will encompass all mobile learning devices.

Alzaza and Yaakub (2011) [2] studied students' awareness and requirements of mobile learning services among Malaysian students in the higher education environment. Data were collected using students' awareness of mobile learning services questionnaire (SAMLSQ) from 261 students drawn using non-proportional stratified random sampling technique from some universities in Malaysia. Descriptive analysis regarding the potential for mobile technologies for learning services showed that the most beneficial aspects of using mobile technologies for learning services were to give students an immediate access to information (51.3% A, 29.1% SA) and give them current information (58.8% A, 27.6% SA), moreover they were highly favoured to keep in touch with their classmates and their lecturers as well. Participants were also asked about the mobile applications that they like to use in mobile technologies. The uses for the normal mobile phone (calling, SMS, MMS) were the high rank (33.3% A, 59.4% SA), followed by internet access (35.3% A, 49.8% SA). Furthermore, the usages of intranet access (local network), word processing, and calendar and database access were high usages.

While Alzaza *et al*. (2011) [2] used a non-proportional stratified random sampling technique to draw its respondents; the present study will use the simple random sampling technique. While Alzaza *et al*. (2011) [2] study are foreign; the present study is indigenous and will also measure the extent students utilize the available mobile learning device for academic purposes. Similar analysis technique of descriptive statistics will also be employed for the present study to measure the extent students utilize the available mobile learning device for academic purposes.

In another related study, Surendra (2013) [15] investigated students' awareness about mobile learning in the higher education environment in the University of Delhi, Indira Gandhi National Open University and Guru Govind Singh Indraprastha University India. Using non-proportional stratified random sampling technique, the researcher drew 300 students that responded to a survey questionnaire. Results showed that 89% of the respondents used their mobile phones to access exam result, while 81% used it to access calendar and timetable, 75% used it to access their email, 70% used it to search for learning materials, 62% used their mobile phones

to download learning materials while 42% use it for e-learning. While Surendra (2013) [15] used a non-proportional stratified random sampling technique to draw its respondents, the present study will utilize the simple random sampling technique. Though Surendra (2013) [15] study is foreign, the present study is indigenous and similar analysis technique will be used to arrive at the extent students utilize the available mobile learning device for academic purposes.

As far back as 2010, reports were surfacing that mobile apps are not only engaging but educational, for children as young as preschool. PBS Kids, in partnership with the US Department of Education, found that the vocabulary of kids ages three to seven who played its Martha Speaks mobile app improved up to 31%. Abilene Christian University conducted research around the same time that found math students who used the iOS app "Statistics 1" saw improvement in their final grades. They were also more motivated to finish lessons on mobile devices than through traditional textbooks and workbooks. (Mathew, 2015).

More recently, two studies by Mathew, (2015) that separately followed fifth and eighth graders who used tablets for learning in class and at home found that learning experiences improved across the board. 35% of the 8th graders said that they were more interested in their teachers' lessons or activities when they used their tablet, and the students exceeded teachers' academic expectations when using the devices. When self-reporting, 54% of students say they get more involved in classes that use technology and 55% say they wish instructors used more educational games or simulations to teach lessons. Therefore, the need to conduct a study which is aimed at investigating the level of awareness and utilization of Mobile Learning Devices in the Department of Curriculum Studies and Educational Technology, Faculty of Education, University of Port Harcourt is timely.

Problem statement

With a focus on student learning and student success as well as the quest for technological advancement in a developing world like ours, it is widely acknowledged that in this era of computer or the jet age. There is a need for changes in the learning behaviour of the current university students – the digital natives as well as the immigrants who are constantly surrounded with the ever-evolving technology which 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 approach of instruction delivery system has not adequately addressed.

Furthermore, higher institutions are faced with considerable changes, driven by multiple internal or external factors, of which technology is a basic thing. Based on the changes informed by these factors, it becomes pertinent for higher educational institutions to review their approaches to pedagogical principles, to that which will embrace the drift, cater for the current generation of learners and maximize the technological advancements to its benefits which mobile learning is one of them. However, in recent past, a lot of studies have been carried out on issues relating to basic computer appreciation but not much work has been done on mobile learning, which explains why this study is designed to evaluate the level of awareness and utilization mobile learning in the Department of Curriculum Studies and Educational Technology, Faculty of Education, University of Port Harcourt.

Purpose of the Study

The main purpose of this study is to investigate the awareness 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 determine the extent students are aware of mobile phones as mobile learning devices.
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. To what extent are students aware of mobile phones as mobile learning devices?
2. To what extent do students utilize the available mobile learning devices for academic purposes?

Materials and Methods

Design

The study adopted the descriptive survey design. Data for the study was collected from randomly sampled students in order to answer questions relating to the extent of awareness and utilization of mobile learning devices 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.

Sample and Sampling Techniques

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. 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 respondents. The reliability of the instrument was determined through the test-retest method. A copy of the questionnaire was given to 20 students who were not part of the sample to fill. The same questionnaire was given to them again after 2 weeks interval. The scores of the two

questionnaires were correlated to obtain a reliability coefficient of 0.78.

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 supervises the filling of the questionnaires and retrieves filled copies on the spot.

Data analysis

The mean and Standard Deviation were for data analysis

Results

Research question 1: To what extent are students aware of mobile phones as mobile learning devices?

Table 1: Mean rating and standard deviation on the extent students are aware of the available mobile learning device for academic purposes

S/N	Awareness of mobile learning devices	SA	A	D	SD	Mean	SD	Decision
1	I have heard about mobile learning before now	71	19	8	2	3.59	0.72	+
2	I have limited experience on mobile learning	40	17	16	27	2.70	1.24	+
3	Sending and receiving SMS is mobile learning	15	25	17	43	2.12	1.13	*
4	Reading articles online is mobile learning	70	24	5	1	3.63	0.63	+
5	I have wide experience in mobile learning	29	14	14	43	2.29	1.28	*
6	mobile phones can be used for learning	82	16	1	1	3.79	0.50	+
7	I use my mobile phone to learn	78	20	1	1	3.75	0.52	+
8	I am not willing to learn with my phone	3	4	10	83	1.27	0.68	*
	Grand mean					2.89	0.94	+
Key: +Accepted, *Rejected								

Table 1 shows that the mean and standard deviation on the extent students are aware of the available mobile learning device for academic purposes was 2.89, SD=0.94. The key mobile device awareness was that mobile phones can be used for learning (M=3.79, SD=0.50), and was followed by that fact that they used their mobile phone to learn (M=3.75, SD=0.52), while the least was that they have limited experience on mobile learning (M=2.70, SD=1.24).

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	Utilization of mobile learning devices	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

Discussion of findings established from this study was done under the following sub-headings:

The extent students are aware of the available mobile learning device for academic purposes.

Findings from Table 1 shows that the mean and standard deviation on the extent students are aware of the available mobile learning device for academic purposes was 2.89, SD=0.94. The key mobile device awareness was that mobile phones can be used for learning (M=3.79, SD=0.50), and was followed by that fact that they used their mobile phone to learn (M=3.75, SD=0.52), while the least was that they have limited experience on mobile learning (M=2.70, SD=1.24). This implied that majority of the respondents were of the view that mobile phones can be used for learning and that they used their mobile phone to learn. This finding is consistent with that of Alzaza and Yaakub (2011) [2], who studied students' awareness and requirements of mobile learning services among Malaysian students in the higher education environment. Data were collected using students' awareness of mobile learning services questionnaire (SAMLSQ) from 261 students drawn using non-proportional stratified random sampling technique from some universities in Malaysia. Descriptive analysis regarding students' awareness of mobile learning and mobile learning devices showed that 95% of the participants declared that they own a mobile device. In terms of mobile application experience, 51.7% have less than 5

years of using the mobile application experience; 42.5% have experience between 5 and 9 years; while only 5.7% have more than or equal 10 years. This indicates that the respondent's experience, in terms of mobile application is respectable. In another related study, Surendra (2013) [15] investigated students' awareness about mobile learning in the higher education environment in the University of Delhi, Indira Gandhi National Open University and Guru Govind Singh Indraprastha University India. Using non-proportional stratified random sampling technique, the researcher drew 300 students that responded to a survey questionnaire. Results showed that 89% of the respondents used their mobile phones to access exam result, while 81% used it to access calendar and timetable, 75% used it to access their email, 70% used it to search for learning materials, 62% used their mobile phones to download learning materials while 42% use it for e-learning. Wei (2013) [17] investigated college English learners' beliefs and awareness of mobile learning based on Smartphone's at Jilin University of Finance and Economics, Changchun, China. Data collected from 240 participants drawn using proportional stratified random sampling technique using a questionnaire adapted according to the questionnaire in Wang's dissertation (2011). Descriptive analysis of the questionnaire showed that only 26% of the participants are aware of using their mobile devices for learning purpose.

The extent students utilize the available mobile learning device 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 utilizes 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) 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 of people should try their best to maintain the status quo in order to be relevant to the 21st century demands which involves mobile as one moves-Mobile Learning.

Conclusion

The utilization of mobile learning devices for academic learning purposes could be greatly enhanced by improved awareness of the existence and functionality of such learning devices among the students and their teachers. If encouraged, so many barriers to effective learning brought about by proximity to learning centres might be greatly reduced, thus improving the academic performance of the students, A great number of the students posses some of these devices but are not actually aware of most of the things they could actually do with such devices in terms of enhancing learning through the use of these mobile devices.

Recommendations

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

1. Students should make stringent effort to be more aware of the existence and functionality of these mobile learning devices and utilize at least one mobile device for academic learning purposes as this will enhance their academic studies.
2. Teachers should also improve their awareness levels, thus encourage the use of mobile learning devices among their students for their academic learning purposes by initiating online classes at intervals.
3. Authorities of various institutions of higher learning should assist in proving some mobile learning facilities so as to encourage mobile learning among students and teachers.

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