European Journal of Education Studies
ISSN: 2501 - 1111
ISSN-L: 2501 - 1111
Available on-line at: www.oapub.org/edu

doi: 10.5281/zenodo.836513 Volume 3 | Issue 7 | 2017

INVESTIGATION OF UNDERGRADUATE STUDENTS' ATTITUDE TO AND PERCEPTION OF MOBILE TECHNOLOGIES FOR LEARNING AT FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE, ONDO STATE, NIGERIA

Ibukun Smart Oladele[i],
Oyewusi Lawunmi Molara
Department of Educational Technology,
Obafemi Awolowo University,
Ile-Ife, Osun State, Nigeria

Abstract:
The study examined the attitude of undergraduate students towards the use of mobile technology for learning; it investigated the perception of undergraduate students on the use of mobile technology for learning and also determined the relationship that exists between the attitude of the undergraduate students and their use of mobile technology for learning. These were with the view to encouraging the utilization of mobile technologies in the classroom in tertiary institutions in Nigeria. Six hundred undergraduate students were selected from the six faculties using stratified random sampling based on the level of study and faculty. A 32 item questionnaire designed on five points Likert Scale was used to gather information from the sample. The results revealed that the students had a very good attitude towards the use of mobile technology for learning (X= 42.11, S.D= 4.73). The result showed that undergraduate students had the right perception of the use of mobile technologies (x= 27.2, S.D= 3.58). The results also revealed that attitude was a predictor of students use of mobile technologies (F= 87.48; p< 0.05). There was a significant relationship between the student's attitude and their use of mobile technologies for learning (r= 0.373; P < 0.05). Also, there is no significant difference between male and female undergraduate students attitude towards the use of mobile technologies for learning and based on the result obtained which is p=0.71 which means that p<0.05.

[i] Correspondence: email oscar2smart@yahoo.com

Keywords: attitude towards the use technology; perception; mobile technology; Federal University of technology; undergraduate students

1. Introduction

Mobile technologies have infiltrated every facet of life including the educational environment. Sofowora (2010) revealed that mobile phone is very useful in ensuring increase access to quality education especially in developing countries like Nigeria. He further concluded that mobile technologies are relatively cheaper and more reliable tool for education when we consider the topography, rural-urban dichotomy and the need to realize the MDGs as it relates to education. It is also a cheaper and supportive tool for the realization of educational goals in the face of the unaffordable high cost of relevant textbooks. This also includes mobile phones, portable digital assistants, and integrated wireless enterprise solutions such as the popular handheld Blackberry and advanced mobile phones which provide mobile Internet access via 3G networks.

Traxler (2009) observed that the use of portable, mobile, wireless, and handheld devices are gradually increasing and cutting across every axis of the educational sector, in developing and developed worlds. Mobile technologies, as the name implies is the type of technologies that are portable; which can be moved from one location to another to carry out a wide variety of activities. Vavoula (2004) opined that mobile technologies have the potential to transform learning from being highly intentional, structured and directed to an experience that is more able to value informal and open learner-centred activity. Mobile technologies, as the name implies is the type of technologies that are portable; and can be moved from one location to another to carry out a wide variety of activity. These devices are also capable of bridging the pedagogically designed learning contexts; facilitate learner's generated contexts and content while providing personalisation and ubiquitous social connectedness which makes it be different from the traditional learning environment (Cochrane and Bateman, 2009). Mobile technologies are technologies which include handheld computers, Personal Digital Assistants (PDA), smart phones, E-reader, MP3 players, iPods and many others, which have the features of portability, ubiquitous connectivity and immediacy of communication that acknowledge their potential to support teaching and learning. The prevalence of mobile technologies is in itself a motivator to exploit them for learning.

Mobile technologies refers to the introduction, use, and application of relevant contemporary wireless communication medium to help students have access to educational materials so as to enhance teaching and learning or transfer of related

knowledge. It can be observed here that the availability of the appropriate mobile technologies devices, the access to the wireless network and the need to acquire knowledge is what developed into the mobile learning experience. Mobile technologies are technologies which include handheld computers, Personal Digital Assistants (PDA), smart phones, E-reader, MP3 players, iPods and many others, which have the features of portability, ubiquitous connectivity and immediacy of communication that acknowledge their potential to support teaching and learning. The prevalence of mobile technologies is in itself a motivator to exploit them for learning.

The importance of applying mobile learning comes from the advantages of its availability anytime anywhere for learning which is important for students who frequently change their location and need access to learning material as they move from one place to another. Mobile devices are relatively affordable, portable, and flexible, have no start-up time, and require virtually less maintenance. Also, mobile technology seems to be very attractive to students and usable in the learning process. It is no longer a new saying that mobile technologies have gained popularity among Nigerians; this is because of the relative affordability of text messaging. For example, it could be used for mass distribution of messages to learners and to facilitate communication among learners and between learners and their lecturers (Aderinoye**,** Ojokheta and Olojede 2007). Some of the major benefits of mobile technologies to learning include: ubiquity or god-like presence connectivity, individuality, accessibility and mobility, educate more and more people, equity of education, facilitate personalized learning, power anytime, anywhere learning, provide immediate feedback and assessment, ensure the productive use of time spent in classrooms, build new communities of student, support situated learning, enhance seamless learning, bridge formal and informal learning, improve communication and administration. However, mobile technologies have quite a number of unprecedented new features which have made it a good choice for educationist and other organization that is using it and those that intend to utilize it. Oyewusi and Adamu, (2014) concluded that virtually every university student has a mobile phone or a smartphone. Each individual has different things they do with the phone ranging from voice calls, short text messaging, listening to music and responding to Facebook messages, tweets, YouTube, and what apps. The pervasiveness of these devices prompted the researcher to investigate on how these mobile technologies can and should be used in reducing some of the challenges of education in Nigerian Universities; most especially at the Federal University of Technology, Akure, Ondo State.

2. Students' Perception and Attitude towards Learning with Mobile Technologies

Several studies have been carried out both at the national and international levels to determine students' perception of mobile technology innovation in learning. The issues regarding how to promote learner's adoption of learning with mobile technology seem to be largely unsolved; this has however been a challenge for service providers. According to Corbeil and Valdes-Corbeil (2007) as cited by Rossing, Miller, Cecil, and Stamper (2012) the availability of various mobile technologies for students does not guarantee their use for educational purpose. Several studies have revealed that students' perceptions of learning with mobile technology are positive (Garrett & Jackson 2006; Cavus & Uzunboylu, 2009; Uzunboylu, Cavus & Ercag, 2009 & Al-Fahad, 2009).

Accordingly, the study that was conducted by Shakeel and Ijaz (2012) found that ease of use; perceived usefulness and facilitating conditions significantly affect students' perception to adopt mobile technology for learning. The perceived playfulness is however found to have less or no influence on students' perception of using mobile technology for learning. Social influence was found to have a negative impact on the adoption of mobile technology for learning. Phuangthong and Malisawan (2005) in their research found that students' perception towards learning with mobile technology was influenced by perceived enjoyment.

Wang, Shen, Novak, and Pan (2009) in their study revealed that perceived usefulness, performance expectancy, learning at a self-managed pace, effort expectancy and social influence are student's perception of the adoption and intentions to the use of mobile technologies for learning. Similarly, the work of Ju, Sriprapaipong and Minh (2007) pointed out that perceived usefulness has a significant impact on users' perceptions, which further affects the users' intention to adopt mobile technology for learning. In another study, the result showed that perceived playfulness does not have significant impact on adoption behaviour (Huang, Lin & Chuang, 2007 & Wang, et al., 2009).

The use of mobile technology for learning has to do with self-management learning, which implies the extent to which individual learners perceive self-discipline that allows them to be engaged in autonomous learning (Smith, Murphy & Mahoney, 2003). McFarlane, Roche and Triggs (2007) listed some important factors which individual learners must consider such as ability to think critically, reflect on their own learning and the ability to locate and evaluate resources.

In the area of students attitude towards the use of mobile technology for learning, Clarke, Faeder, Langmead, Harris, Jha, and Legay (2008) use mobile phone to put students' attitude and engagement to test and discovered that students developed positive attitude towards mobile phone usage; that is, 84% of the students used for the study found the concept of using SMS worthwhile, meanwhile 83% of them enjoyed it. While most of the students see this as the best medium as a result of its portability, convenience; minimal message and most preferred method over other methods such as daily podcast, email and Moodle.

Hsu, Wang and Comac (2008) worked on mobile phone and telephone, they found that students had a positive attitude toward mobile phone and telephone and they believed that they could study and learn from these devices. Although, they seem to prefer larger screens, which imply that they had positive attitude toward using mobile technology for learning. Cavus and Uzunboylu (2009) who carried out experiment using mobile phone to test students' attitude toward the usefulness of learning with mobile technology discovered that students developed positive attitude towards it hence improved at the end of the experiment. Al-Fahad (2009) worked on utilization of mobile phone among students found them to develop positive attitude towards using mobile technology for learning due to its portability and effectiveness.

Uzunboylu, Cavus and Ercag (2009) found out that majority of students liked using mobile technology or devices for learning since they realize the benefits of mobile technologies for learning in any subject and the perceived importance of using discussion tools with mobile technology. Wang, et al., (2009) carried out attitude and achievement experiment with mobile phone using text messages realised that students develop positive attitude and showed strong interest in learning with mobile technology. They provided candid feedback to the instructor in a class forum and students were satisfied with activities conducted in class.

Cavus and Ibrahim (2009) opined that mobile technology usage among students brought greater flexibility to their learning; arouse their interest to learn and has also assisted them in learning new words. Venkatesh, Nargundkar, Sayed and Shahaida (2006) revealed in their study on the use of mobile phones and personal digital assistant among students found that majority of the students already have the devices, are very much excited about it and they developed positive attitude towards its utilization.

Williams and Bearman (2008) worked on Mp3 players and iPods, found out that those students who used the podcasts saw them as beneficial, those who did not use them because it was not required. Rogers, Connelly, Hazlewood and Tedesco (2010) carried out experiment using Lilly-Pad application on personal digital assistant and

found students to exhibit positive attitude and engagement as this reflects in their behaviour as they show excitement and interest in the activity.

3. Justification of the Study

The introduction of mobile technologies in Nigerian university education would create awareness among students, and emphasize the need to use, and encourage students of all categories to use, mobiles technologies device for learning. It will also bridge the gap between lecturers and students as much as it will improve their skills on the use of mobile technologies for learning and teaching. The outcome of this study would be useful to government at various levels of governance in the aspects of curriculum planning, initiation, application and development. This is in view of the fact that the study would provide useful data for the various tiers of government in the planning, designing, and implementation of mobile-based learning for the growth and development of education at all levels in Nigeria.

This study is therefore intended to provide information on the efficiency and effectiveness of mobile technologies in teaching and the usefulness of educational application in learning. It is hope that outcome of this study would educate tertiary institutions and support them on the *modus operandi* surrounding the use of mobile technologies for teaching and learning. Also non-governmental organizations will then know the areas where they could help students and institutions in the acquisition of mobile technologies.

4. Research Questions

1. What is the attitude of undergraduate students towards the use of mobile technologies for learning at Federal University of Technology Akure?
2. What is the undergraduate students perception to the use of mobile technologies for learning; and?
3. Is there any relationship between students' attitude and use of mobile technology for learning?

4.1 Research Objectives

The following specific objectives are stated:

1. examine the attitude of undergraduate students towards the use of mobile technologies for learning at Federal University of Technology Akure;
2. investigate the perception of undergraduate students to the use of mobile technology for learning; and
3. determine the relationship that exists between the attitude of the student and their use of mobile technologies for learning

4.2 Research Hypotheses

Specifically, this research investigated the following research hypotheses.

H_{O1}. There is no significant relationship between undergraduate's attitude and their use of mobile technology for learning.

H_{O2}. There is no significant difference in the male and female undergraduates' attitude towards the use of mobile technology for learning at Federal University of technology Akure, Ondo state.

5. Research Design

The study adopted the descriptive survey research design. The population comprised 11,200 undergraduate students of the six faculties in the Federal University of Technology Akure, Ondo State. The sample consisted of 600 participants that were selected through stratified random sampling technique based on faculties. A total of 100 students each were selected from the six faculties using convenience sampling technique. A questionnaire titled Students' Attitude and Perceived Usefulness of Mobile Technology for Learning (SAPUMTL) was used to elicit information on undergraduate students' attitude and perceived usefulness of mobile Technology for learning. Section A of the instrument contained items on respondents' demographic data while section B elicited information on attitude. Section C gathered information on perceived usefulness and section D provided information on use of the technology. Data collected were analysed using appropriate descriptive and inferential statistics.

Research Question 1: What is the attitude of undergraduates towards the use of mobile technology for learning at Federal University of Technology Akure?

Item 1 – 14 of the questionnaire elicited information on the attitude of undergraduate students towards the use of mobile technology for learning as shown in table 4.3 produced minimum score of 20.00 and the maximum score was 54.00. The mean was 42.11 and standard deviation was 4.73. The cumulative average was 3.01.

This value 3.01 corresponds to Agree on the scale. The attitude of the undergraduate students to mobile learning express as a percentage equals 75.2%.

This value according to Aladejana(2006) attitude scale corresponds to very good attitude. It can thus be concluded that the undergraduates had very good attitude towards the use of mobile technology for learning at Federal University of technology, Akure, Ondo state.

Research Question 2: What is the perception of the undergraduate students to the use of mobile technology for learning?

Item 1 – 8 of the questionnaire elicited information on the perception of undergraduate students to the use of mobile technology for learning as shown in Table 4.4. Minimum score of 14 and the maximum score of 32 were obtained. The mean and standard deviation were 27.21 and 3.58 respectively. The cumulative average was 3.4. This value corresponds to Agree on the scale. It can thus be concluded that undergraduate students of Federal University of Technology, Akure, Ondo State had positive and right perception of the use of mobile technology for teaching and learning.

Research Question 3: Is there any relationship between student's attitude and use of mobile technology for learning.

Table 4.5: ANOVA analysis of the relationship between undergraduate student's attitudes on the use of mobile technologies for learning

	Sum of Squares	df	Mean Square	F	Sig.
	1363.816	1	1363.816	87.481	.000[a]
	8449.711	542	15.590		
Total	9813.528	543			

a. Predictors: (Constant), Attitude of undergraduates towards mobile technology

b. Dependent Variable: Use of mobile technology by students

Table 4.5 as shown is regression analysis of attitude as a predictor of mobile technology use of the respondents. F=87.48 and the $p<0.05$. This shows that attitude is a predictor of undergraduate students' use of mobile technology for learning across the study area. It can thus be concluded that the rating of the students' attitude will determine their usage of mobile technology.

Table 4.6: Pearson Product – Moment Correlation Coefficient of the relationship between attitude and undergraduate students' use of mobile technology

Correlations

		Attitude of undergraduates towards mobile technology	Use of mobile technology by students
Attitude of undergraduates towards mobile technology	Pearson Correlation	1	.373**
	Sig. (2-tailed)		.000
	N	544	544

**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis (Ho_1): There is no significant relationship between undergraduate students' attitude and their use of mobile technology for learning.

As shown in the Table 6; the Pearson product moment correlation coefficient r= 0.373 and $p < 0.05$. This shows a positive and significant relationship in the attitude of the undergraduate student and their use of mobile technology for learning. Therefore the hypothesis which states that there will be no significant relationship between the undergraduate student attitude and their use of mobile technology for learning is rejected.

Hypothesis 2 (Ho_2): There is no significant difference in the male and female undergraduates' attitude towards the use of mobile technology for learning at Federal University of technology Akure, Ondo state.

This hypothesis was evaluated by using t-test, to determine any significant difference between the male and female undergraduates attitude towards the use of mobile technology.

Table 7: Showed the difference between male and female undergraduates attitude towards the use of mobile technology

Group	N	$\overline{X}$	S.D	Df	T	Sig
Male	306	42.03	4.77	536	0.375	>0.05
Female	232	42.18	4.72			

From Table 4.7, the male group had a mean score of 42.03 in the engagement with mobile technology for learning with a standard deviation of 4.77 while the female counterpart had a mean value of 42.18 and a standard deviation of 4.72 in their engagement with mobile technology for learning. When the mean and the standard deviation were subjected to a t-test of significance, a t-test value of 0.375 was obtained at

p=0.71 (>0.05), which is not significant at 0.05 level. This implies that there is no significant difference between both gender (male and female) in using mobile technology for learning, hence the null hypothesis is accepted.

6. Conclusions

Much has been written about attitude and perception of student towards the use of mobile technologies for learning and several studies have indicated that student's enjoy using it (e.g, the portability, convenience; minimal message and most preferred method over other methods such as daily podcast, email and Moodle). it is now apparent that students have developed positive attitude and right perception towards mobile technologies (PDAs, mobile phones, mp3 players) and they are putting them to use for entertainments as well as access to information, based on the advantages offered by mobile technology, it could also be harnessed, and used for educational purpose in places where they are yet to be used. Attitude and perception are important in using mobile technology for learning because positive experiences will elicit participation and acceptance of using mobile technology for learning by the concerned students. The study therefore concluded that mobile technologies can serves as creative, viable and innovative learning tools only if it is utilized and when both teachers and students have good attitude and right perception.

7. Recommendations

In other to encourage the use of mobile technologies in Nigerian Universities Seminars, workshops, conferences and symposia should be organized for students to enable them acquire necessary skills and also update their knowledge about the development and proper use of mobile technology. Government should formulate favorable policy on the adoption of mobile technologies in education. These could also help the various bodies to prevent the challenges or factors militating against the use of mobile technologies in the Nigeria educational system.

References

1. Aderinoye, R. A., Ojokheta, K. O. and Olojede A. A. (2007). Integrating Mobile Learning into Nomadic Education Programmes in Nigeria: Issues and

perspectives. The international *review of research in open and distance learning, pp. 8 (2).*

2. Al-Fahad, F. N. (2009) Students' Attitudes and Perceptions towards the Effectiveness of Mobile Learning in King Saud University, Saudi Arabia. *Online Submission*
3. Cavus, N. and Uzunboylu, H. (2009). Improving critical thinking skills in mobile learning. *Procedia Social and Behavioural Sciences, 1 (1), 434-438.*
4. Cavus, N. and Ibrahim, D. (2009) "Mobile Learning: An experiment in using SMS to support learning new English language words." *British Journal of Educational Technology 40(1): 78-91.*
5. Clarke E. M., Faeder J. R., Langmead C. J., Harris L. A., Jha S. K., Legay, A (2008). Statistical model checking in *BioLab*: applications to the automated analysis of T-cell receptor signalling pathway. *Lect Notes Computer Science, 53 (07), 231–250.*
6. Cochrane, T. and Bateman, R. (2009). Smart-phones give you wings: Pedagogical affordances of mobile Web2.0 Retrieved from http://www.ascilite.org.au/conferences/auckland09/procs/cochrane.php Accessed January 26 2016
7. Corbeil, J. R. and Valdes-Corbeil, M. E. (2007). Are you ready for mobile learning? *Educause Quarterly, 30, (2), 51-58.*
8. Fishbein, M. and Ajzen, I. (1981). Attitudes and voting behavior: An application of the theory of reasoned action. In G. M. Stephenson & J. M. Davis (Eds.), *Progress in Applied Social Psychology,* I, 253.3 13. London: Wiley.
9. Guenther, S., Winkler, T., Ilgner, K. and Herczeg, M. (2008). Mobile Learning with Moles: A Case Study for Enriching Cognitive Learning by Collaborative Learning in Real World Contexts. In Proceedings of World Conference on Educational Multimedia, Hyper media and Telecommunications, 374-380, Chesapeake, VA: AACE.
10. Hsu, H., Wang, S. and Comac, L. (2008). Using audio-blogs to assist English-language learning: an investigation into student perception. C*omputer Assisted Language Learning, 21 (2), 181-198.*
11. Huang, J. H., Lin, Y. R. and Chuang, S. T. (2007). Elucidating user behaviour of mobile learning: A perspective of the extended technology acceptance model. *The Electronic Library,* 25 *(5), 586-99.* IntelFreePress (2013) http://newsroom.intel.com/community/intel_newsroom
12. Jarvenpaa, S. and Lang, K. (2005). Managing the paradoxes of mobile technology. *Information Systems Management*, *22* (4), 7-23.

13. Ju, T. L., Sriprapaipong, W. and Minh, D. N. (2007). *On the success factors of mobile learning*. A paper presented at 5th International Conference on ICT and Higher Education, Bangkok. Retrieved from http://www.mendeley.com/research/success-factors-mobile-learning/ Accessed February 16 2015.
14. McFarlane, A., Roche, N. and Triggs, P. (2007). "Mobile learning: research findings: report to Becta". Retrieved from *http://partners.becta.org.uk/upload-dir/downloads/page_documents/research/mobile_learning_july07.pdf. Accessed 24 January 2016.*
15. Olasedidun O. K. (2014) Relationship among Lecturers' Perceived Usefulness, Ease of use, Attitude and Intention towards Social Media. Doctoral dissertation, University of Ilorin, Nigeria.
16. Oyewusi L. M. and Adamu, B. J. (2014). The Chemistry of Mobile Phones: A Research Report on the Extent of Usage of the Compact Technology among Students on Nigerian Campuses: *World Journal of Education Vol. 4, No. 4; 2014*
17. Peter, J. P. & Olson, J. C. (2002) *Consumer behaviour and marketing strategy,* 6th edition, McGraw-Hill Irwin, New York.
18. Rogers, Y., Connelly, K., Hazlewood, W. and Tedesco, L., (2010). Enhancing learning: a study of how mobile devices can facilitate sense making. *Personal & Ubiquitous Computing, 14* (2), 111-124.
19. Shakeel .I. and Ijaz A. Q. (2012). M-Learning Adoption: A Perspective from a Developing Country. *The international review of research in open and distance learning, 13 pp (3).*
20. Smith, P. J., Murphy, K .L. and Mahoney, S. E. (2003). "Towards identifying factors underlying readiness for online learning: an exploratory study". *Distance Education, 24 (1), 57-67*
21. Sofowora, O. A. (2010). Empirical survey of the Adoption of Mobile Phones its Influence on social Behaviour, School and Academic Works of Young Adolescent Student in Osun State. *Malaysian Journal of Educational Technology, Number 1, March 201, pp. 35 – 43*
22. Traxler, .J. (2009) *Current state of mobile learning* in M. Ally, (Ed.), *Mobile learning: Transforming the delivery of education and training,* 9-24. Edmonton: Athabasca University Press.
23. Uzunboylu, H., Cavus, N. and Ercag, E. (2009). Using mobile learning to increase environmental awareness. *Computers & Education, 52 (2), 381-389.*

24. Vavoula, G. (2004). KLeOS, A knowledge and learning organisation system in support of learning. Unpublished PhD Thesis, University of Birmingham, UK.
25. Venkatesh, B., Nargundkar, R., Sayed, F. K. and Shahaida, P. (2006). Assessing Indian Students' perceptions towards m-learning some initial conclusions. *International Journal of Mobile Marketing, 1 pp (2), 75-7.*
26. Wang, M., Shen, R., Novak, D. & Pan, X. (2009). The impact of mobile learning on students' learning behaviours and performance: Report from a large blended classroom. *British Journal of Educational Technology, 40 (4), 673-695.*
27. Williams, B., and Bearman, M. (2008). Podcasting lectures: the next silver bullet? *Journal of Emergency Primary Health Care, 6 (3), 1-14*
28. Wyatt, T. H., Krauskopf, P. B., Gaylord, N. M., Ward, A., Huffstutler-Hawkins, S. and Goodwin, L. (2010). Cooperative m-learning with nurse practitioner students. *Nursing Education Perspectives, 31* (2), 109-112.
29. Zhuang, L. and Xiaoyan, C. D (2009). Mobile learning applied research based on 3G technology. *A P*aper presented at Seventh ACIS International Conference on Software Engineering Research, Management and Applications.