PERCEIVED USEFULNESS, EASE OF USE, ATTITUDE AND INTENTION TOWARDS MOBILE LEARNING AMONG COLLEGES OF EDUCATION LECTURERS IN THE NORTH-CENTRAL OF NIGERIA.

[1]Umar, G. K., [2]Gambari, A. I., [2]Nsofor, C. C. & [3]Ahmadu Hussaini
[1]Department of Curriculum & Educational Technology,
Niger State College of Education, Minna
[2]Department of Science Education,
School of Science & Technology Education
Federal University of Technology, Minna
[3]Department of Computer Science
Niger State College of Education, Minna

Abstract

This paper investigated the relationship among lecturers perceived usefulness ease of use, attitude and intention towards mobile learning. To guide the study, two research questions and their corresponding hypotheses were formulated and tested at 0.05 alpha level. The study adopted a survey design and used questionnaire as an instrument for data collection. The sample for the study consisted of 940 lecturers (600 males and 340 females) randomly selected from two federal and five states-owned Colleges of Education within the North-central geo-political zone Nigeria. A multi stage sampling technique was used to sample respondents based on gender and level of experience. Two senior lecturers from Federal University of Technology, Minna conducted face and content validation of the instrument. The result of the pilot study was used in calculating the reliability coefficient and Cronbach Alpha formula gave a value of 0.89. The instrument was administered on all the respondents and retrieved after two weeks. The data gathered were analyzed using the mean, standard deviation and ANOVA. The finding of the study revealed that there was no significant relationship in the mean opinion of male and female COE lecturers on perceived usefulness, ease of use, attitude and intention towards mobile learning. Also, there was no significant relationship between high and low experienced lecturers on perceived usefulness ease of use attitude and intention towards mobile learning. The study recommends that government and other stakeholders should provide financial support and logistics for integration and adoption of mobile learning in Colleges of Education in Nigeria.

Introduction

Education is a search for knowledge and an intellectual adventure into hidden secrets of life capable of influencing man's world for the betterment of humanity (Gana, 2014). It is seen as the result of enlightenment and information obtained through academic labour and enthusiasm culminating into socioeconomic and political development. Intellectualism is a conscious effort engineered by the willingness to know and identify with secrets of good living and peaceful co-existence (Makinde, 2012 & John, 2014).

Education is seen as an instrument for social change because it influence socialization process and reengineers society, reshape people attitude and perceptions of life and create awareness through which socio-economic activities strive (Obanya, 2004). There is growing consensus among education leaders, researchers and school administrators around the world that teaching must change to help students develop appropriate skills needed to succeed in the twenty-first century. While specific goals for change vary, common theme include developing solving and team working skills and using technology to support more powerful learning (Clara, 2009).

The sources of the gap between the realistic of change and realities of classroom range from lack of access to resources and training, to lack of clear expectations in system that are still organized and incented towards traditional measure of achievement. Most students especially at the tertiary level are still experiencing instruction that is largely lecture-based and extensive national

education investments in technology have not yet created desired opportunities (Yomi, 2009 & George, 2012).

The much awaited radical change in education cannot be successfully achieved without recourse to the use andintegration of information and communication technology (ICT) in teaching and learning in schools (Hussaini, 2011). It is imperative to note that the use of ICT will enhance the effectiveness of teaching methods and facilitates access to information resources needed for scientific researches. ICT have the capabilities of improving information accessibility, facilitating communication via electronics, enhancing synchronous learning and increase cooperation. In teaching and learning process, ICT facilities are known to be more cost-effective as they facilitate collaboration among lecturers and learners, thus enhancing pedagogical strategies through simulations, virtual experiences and graphical representations (Gana, 2014).

With the adoption of computers and mobile phones in the classroom, teachers would be able to demonstrate a new lesson, present new materials, illustrate how to use new programmes and display new websites, many students now know how to use the computer to send e-mails, locate educational materials and perform other activities. Effective use of ICT enables students to develop their independence as learners and improve their creativity, problem-solving and thinking skills (George, 2012).

The quest for interactivity has become a necessary goal in the design and provision of qualitative education. Interaction is central to the expectations of teachers and learners in education, and to that extent, it is the primary objective of the educational process (Omoniyi, 2005). With ICT, studies have been made easy in a way that it can be carried out in group or clusters. One can study whenever he wants and irrespective of where one may be. With ICT people can connect online to do desired tasks and transactions in limited time interval.

Yusuf (2014) stated that ICT gadgets such as radio, television, mobile laptops, internet and closed circuit television are potentially important enabling tools to bring about global educational change and reform. He further stressed that when used appropriately, different ICT gadgets facilitate teaching and learning in education. The use of these portable devices in teaching and learning of fundamental concepts is known as mobile learning.

Mobile learning is defined as the application of mobile technology in the field of teaching and learning (Shehu, 2015). Mobile learning is a technique that uses handheld devices together with wireless and mobile phone networks to facilitate support, enhance and extend the reach of teaching and learning. It is expected to be delivery of e-learning materials on mobile computing devices and offer the advantages of learning anywhere and anytime with mobile devices (John, 2014).

One of the common themes of previous research is that students use mobile devices for personal reasons but rarely for educational or learning purposes. Despite the limitation to the use of social media in the academic world, research has supported Connectivism Theory and found benefits in using mobile devices by instructors for teaching. If mobile devices and equipment will be relevant within an education arena, the teacher (lecturers) perception of usefulness, ease of use, attitude and their intention towards it in teaching must be investigated. Anderson (2011) explained that the responsibility of a teacher is not only to define, generate or assign content but it is to help learners build learning paths and make connection between existing and new knowledge resources. In order to remain relevant in this information age, colleges of education must key in and support the integration of mobile learning platform to enhance teaching and research.

Musuliyu (2014) defined perception as the process by which organisms interpret and organize sensation to produce a meaningful experience of the world. The perception of lecturers in the integration of mobile learning and teaching will help in its adoption. Perceived usefulness is the degree to which a person believe that using a particular system, would enhance his/her job

performance while perceived ease of use is the degree to which a person believes that using a particular system should be free from effort.

Attitude is another important factor because it is the controller of actual behavior of an individual, consciously or unconsciously (Liman 2012). He further explained attitude as a disposition to act in a positive or negative way towardsa particular objects. Attitudes towards any object play an extremely important role in influencing subsequent behavior towards it. Positive attitude on the part of lecturers is very important because it guarantee effective integration of the school curriculum.

Only few researchers on mobile learning focuses on lecturers' perceived usefulness, competences, ease of use and attitude with inconsistent findings. While studies by John (2004) and Hussaini (2011) revealed significant positive attitudinal change towards mobile technology in favor of the male lecturers, study by Liman (2012) revealed result in contrary. Studies have shown differential opinion responses between high and low experienced polytechnic lecturers on the use of mobile learning for classroom instruction in favour of the low experienced lecturers. There is still a need to investigate COE lecturers' perceived usefulness ease of use, attitude and intention towards mobile learning in Nigeria particularly the North Central geopolitical zone.

Research Objectives
This paper was conceived on the following objectives:
1. Compare the opinion responses of the male and female COE lecturers on perceived usefulness, ease of use, attitude and intention towards mobile learning.
2. Find out the relationship in the opinion responses of the high and low experienced COE lecturers on perceived usefulness, ease of use, attitude and intention towards mobile learning.

Research Questions:
1. What is the difference in the mean opinion responses of male and female COE lecturers on perceived usefulness ease of use, attitude and intention towards mobile learning?
2. What is the difference in the mean responses of high and low experienced COE lecturers on perceived usefulness, ease of use, attitude and intention towards mobile learning.

Research Hypotheses
The following null hypotheses were formulated and tested at 0.05 level of significance.
HO$_1$: There is no significant relationship in the mean opinion responses of male and female COE lecturers on perceived usefulness, ease of use, attitude and intention towards mobile learning.
HO$_2$: There is no significant relationship in the mean responses of high and low COE lecturers on perceived usefulness, ease of use, attitude and intention towards mobile learning.

Research Methodology
This study investigated lecturers' perceived usefulness, ease of use, attitude and intention towards mobile learning in colleges of education in the North-Central geo-political zone of Nigeria. To guide the study, two research questions and their corresponding hypotheses were raised and tasted at 0.05 alpha levels. The study adopted a survey research design. The target population for the study was two thousand three hundred and forty (2,340) lecturers in colleges of education in the North Central Zone of Nigeria.

The sample of the study consisted of nine hundred and forty (940) lecturers randomly selected from the state owned and two federal colleges of education within the North-Central, Nigeria. A multi-stage sampling technique was used to selects samples based on geographical location, gender and teaching experience.

The instrument for data collection was a structured and standardized questionnaire designed by Le-Ching (2008). Which was adopted for the study The questionnaire was designed using Likert

four point scales, with options Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD). Seven COE lecturers were used as research assistants and they were briefed on the objective of the study and procedure for the administration of questionnaire to the respondents. Two weeks was given for the administration and retrieval of questionnaire from the respondents. Two senior lecturers from Federal University of Technology, Minna conducted face and content validation of the instrument. The advice of the validators has helped in the final selection of the items. A pilot study was conducted using FCE Zuba, the college was not used for the main study. The result of the pilot study was used in calculating the reliability coefficient and Cronbach Alpha formula gave a value of 0.89.

The retrieved questionnaire was used as data for analysis. Descriptive statistics using the mean and standard deviation was used to answer the research questions while regression analysis with ANOVA was used to test the stated hypotheses at 0.05 level of significant

Result and Discussion
The responses from the questionnaires were analyzed using the mean, standard deviation and regression analysis.

Research Question One: What is the difference in the mean opinion responses of male and female COE lecturers on perceived usefulness ease of use, attitude and intention towards mobile learning?

Table 1.
Mean and Standard Deviation of Male and Female Lecturers on Perceived Usefulness Ease of Use and Attitude .

GENDER	N	*PU*		*EU*		*AI*	
		$\overline{X_1}$	S.D	$\overline{X_2}$	S.D	$\overline{X_3}$	S.D
MALE	600	3.20	0.456	3.19	0.776	3.11	0.623
FEMALE	340	3.17	0.724	3.18	0.824	3.22	0.922

Table 1. revealed the mean and standard deviation of the male and female COE lecturers on Perceived Usefulness (PU), Ease of Use (EU), Attitude and Intention (AI) towards mobile learning. The results revealed that the mean and standard deviation of male and female COE lecturers in PU, EU and AI are 3.20 ± 0.456, 3.19 ± 0.776, 3.11 ±0.623 and 3.17 ± 0.724, 3.18 ± 0.824, 3.22 ± 0.922 respectively. This result shows that there is slight significant relationship in mean responses of male and female COE lecturers on PU, EU and AI.

Research Question Two: What is the difference in the mean responses of high and low experienced COE lecturers on perceived usefulness, ease of use, attitude and intention towards mobile learning.

Table 2.
Mean and Standard Deviation of high and low experience lecturers

EXPERIENCE	*PU*	*EU*	*AI*

X_1	N	$\overline{X}$	S.D X_2	S.D	$\overline{X_3}$ S.D		
HIGH	214	2.86	1.142	3.06	0.467	3.02	0.866
LOW	726	3.22	0.478	3.20	0.873	3.18	0.993

Table 2. Revealed the mean and standard deviation of high and low experienced COE lecturers on perceived usefulness, ease of use, attitude and intention towards mobile learning. The result revealed that, the mean and standard deviation of high and low experienced lecturers in PU, EU and AI are 2.86 ± 1.142, 3.06 ± 0.467, 3.02 ± 0.866 and 3.22 ± 0.478, 3.20 ± 0.873, 3.18±0.993 respectively. Clearly, this result indicates significant mean difference between high and low experienced lecturers on perceived usefulness of mobile learning. There is significant relationship in the mean opinion of the high and low experienced lecturers on ease of use, attitude towards mobile learning.

HO_1: There is no significant relationship in the mean opinion responses of male and female COE lecturers on perceived usefulness, ease of use, attitude and intention towards mobile learning.

Table 3.
Regression Analysis of male and female COE lecturers on perceived usefulness, ease of use and attitude.

Mode Error	R	Rsquare	Adjusted Rsquare	Standard
1	0.059	0.003	0,000	0.481

Table 4. Analysis of variance on perceived usefulness ease of use and altitude

Model	Sumof squares			Mean square	
Regression		3			1.080
Residual	0.748	936		0.249	
Total	216.27	939		0.231	
	3				
	217.021				

Tables 3 and 4 revealed regression analysis and corresponding analysis of variance on lecturers perceived usefulness, ease of use and altitude towards mobile learning. The result reveals R-value of 0.059 and standard error of 0.481 which indicated slight differences in the mean responses of male and female lecturers but not significant. Similarly, the ANOVA result showed F = 1.080, P = 0.357 which is not significant at 0.05 alpha level. This means that the hypothesis one is rejected.

HO₂: There is no significant relationship in the mean responses of high and low COE lecturers on perceived usefulness, ease of use, attitude and intention towards mobile learning.

Table 5.
Regression analysis if high and low experienced COE lecturers on perceived usefulness, ease of use and altitude.

Mode	R	Rsquare	Adjusted Rsquare	Standard Error
1	0.029	0.001	0,002	0.420

Table 6.
Analysis of variance of high and low COE lecturers on PU, EU and AI

Model	Sum of squares	df	Mean square	F	Sign
Regression	0.142	3	0.047	0.268	0.848
Residual	165.139	936	0.176		
Total	165.281	939			

Tables 5 and 6 revealed regression analysis and its corresponding ANOVA results on high and low COEs lecturers' perceived usefulness, ease of use and altitude towards mobile learning. The result revealed R value of 0.029 and standard error of 0.420 which indicated significant differences in the mean of opinion responses. The ANOVA result reveals F = 0.268, P = 0.848 which is significant at 0.05 alpha level in favour of the high experienced COE lecturers. By implication, the hypothesis two which state that there is no significant relationship between high and low experienced lecturers is accepted.

Discussion
Hypothesis one revealed that there was one significant relationship in the mean opinion responses of male and female COE lecturers on perceive usefulness, ease of use of attitude and intention towards mobile learning. This finding is supported by the result of empirical studies conducted by Makinde (2012) and John (2014) on the competence level of male and female science teachers in Kogi state. The absence of gender related difference in this study might be due to equal exposure and acceptance of mobile learning devices by the male and female lecturers. Also, the willingness and constant ICT training conducted by the NCCE for lecturers irrespective of gender justified the comparable companion of the perceived ease of use, attitude and intention towards the integration of mobile learning.

Hypothesis two revealed that there was no significant relationship in the mean opinion response between high and low experience COE lecturers on perceived usefulness, ease of use, attitude and intention towards mobile learning. This finding is in agreement with Yusuf (2014) longitudinal study on the availability and utilization of ICT facilities in polytechnics lecturers in north -eastern states. However the finding of this study is contrary to the research result conducted by George (2012) and Gana (2014) on the effect of teachers qualification and teaching experience on the use of ICT.One possible explanation for differential opinion of COE lecturers on the use of mobile devices in learning might be differences in there ICT application and experience. Another reason might be the regular browsing the academic materials from the internet by the high experienced lecturers accorded for the greater zeal and willingness over the low experienced COE lecturers.

Conclusion
This research explored the relationship among lecturers perceived usefulness, ease of use, attitude and intention towards mobile learning in colleges of education within the North-Central zone of Nigeria. From the data analysis, it was observed that the male and female COE lecturers

had comparable mean opinion responses on perceived usefulness, ease of use, attitude and intention towards mobile learning. Also, it was observed that the high experienced COE lecturers had higher positive altitude to the use of mobile devices in teaching than the low experienced lecturers. However, all COE lecturers had greater courage, enthusiasm and resilience at the integration and adoption of mobile learning.

Recommendations
Based on the finding of this study, it is recommended that:
1   Government, curriculum planners, school administrators should embrace student-centered learning approach in the teaching and learning process so that mobile learning will be officially integrated and adopted for classroom instruction.
2   Colleges of education lecturers should help themselves by being more committed and exhibit high positive altitudes and competencies in the utilization of mobile technology.
3   Government should formulate workable ICT policy that will be both teachers and students friendly in addition to organizing integrated capacity training workshops, conferences and seminars.
4   Researcher and educators should endeavor to further develop keen interest in the areas of ICT professional development, web-based learning, website design and management with a means of conducting studies on strategies for their improvement and application.

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