

Gender analysis of Pre-service Teachers' Intention and Motivation towards Adopting Mobile Learning

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Abstract

The study is about pre-service teachers' intention and motivation towards mobile learning. The study was conducted using 200 (100 males and 100 females) pre-service teachers of the Lagos State University, Lagos, Nigeria. Using descriptive-field method, a researcher-made Likert scale questionnaire was developed to identify the participants' intentions and motivation for mobile learning. Ten questions each were created to measure each trait. Kuder Richardson k-R 21 formula was used to confirm that the instrument is good enough for the intended use. Consequently, reliability coefficient of 0.74 was obtained. The study reveals that participants have high intentions for mobile learning and that they are motivated for mobile learning. T-test was used to examine significance of the mean difference between the male and female participants' submissions. Although, male pre-service teachers have higher mean values than female pre-service teachers in all variables, the means difference of the submissions are not statistically significant. Going by the findings, it was recommended among other things that the government should continue to encourage, support and sponsor mobile teaching trainings. Moreover, the government should take advantage of this to expand access to education by creating substantial opportunities for mobile learning education so as to be able to take in all qualified candidates into the universities.

Keywords: Gender, Pre-service Teacher, Intention, Motivation, Mobile Learning.

Background to the Study

Mobile learning is a form of electronic learning sometimes called e-learning. It involves the use of electronic gadgets to learn without being in a conventional classroom. The utilization of mobile devices such as Smartphones, tablets and laptop for teaching and learning continues to grow especially at the higher institutions of learning. Mobile devices can be used to transmit text, voice, video and transmit animated images in the course of teaching and learning (Thornton & Houser, 2004). As a result of these, a contemporary mode of teaching and learning has emanated and it is termed as mobile learning or m-learning. Because of the opportunity of the mobile gadgets which allows a remote interaction between the learner and the teacher, mobile learning brings about flexibility of learning for students in terms of time, attendance and learning environment (Shuja et al., 2019). This should bring about wider accessibility to education and supports the concept of education for all. However, issue of attitude cannot be ignored here. In fact, as we have learners having negative or positive attitudes towards learning in the conventional classroom environment (Mazana et al., 2019), we are bound to have such reflected also in the m-learning scenarios.

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Literature Review

Education and Technology

Education is seen as the process by which society deliberately transmits its accumulated knowledge, values, and skills from one generation to another through institutions (Mathews & Savarimuthu, 2020). Education is of various forms; it includes formal learning, such as learning under the auspices of a school or university, as well as informal learning, such as watching television programmes or documentaries, or reading books without necessarily following any scheme or curriculum. In the present study, formal education is the focus. Education is important because it helps individuals to develop their potentials and become productive members of the society (Pallas, 2000). Goel (2006) in support of the need for education for national growth observed that the quality of human resource of a nation is easily judged by the number of literate population living in it which means that education is a must if a nation aspires to achieve growth and development and also sustain it. Writing about the power of education to fight inequality, Walker et al., (2019) submitted that Education is essential for creating a more just and equal world, as it helps to reduce inequalities and empower individuals to fight for their rights.

Modern technology has made it more possible to look beyond the classroom learning arrangement to update and expand learning possibilities (Kukulska-Hulme & Traxler, 2005). No country can claim to be educationally advanced except it embraces technology for its educational activities (Yusuf, 2005). According to Harasim (2009), the internet is particularly compatible with the way students now prefer to get information. In addition, online and mobile learning encourages continuity in academics programme. Continuity is essential in achieving educational goals. Amadi and Urho (2015) analysed the effects of discontinuity in education as a result of strike actions on educational development management of Universities with a survey design. The results obtained showed irregularity of academic programmes and examination malpractice among other things as the effects of strike actions.

Theoretical Framework

The framework that is adopted for this work is the “community of inquiry” model for online learning environments developed by Garrison et al. (2000). This framework is based on the idea of three distinct “presences” namely cognitive presence, social presence, and teaching presence while also recognizing the associated overlaps among the three presences. When students are cognitively present and the teachers are available to impart knowledge, as long as a good learning environment is available, learning is bound to take place. Thus, this study proposed a framework (see Figure 1) that gives room for lecturers and students to participate in academic activities through the use of some open source computer and android applications in order to bring about new learning experiences. Summarily, the learning zone is the mobile platform and it serves as the meeting point or lecture room for the students and the lecturers alike.

Statement of the Problems

Access to education in Nigeria is an important issue that is affected by a range of factors. One of the main challenges is the lack of infrastructure or inadequate infrastructure at all levels of education. Every year, a good number of students who scored high enough in the university matriculation examination and also have good grades in their ordinary level subjects do not get admitted. The inability of Nigerian universities to accommodate qualified students into the university system due to inadequate physical facilities is militating against easy access to education and education for all.

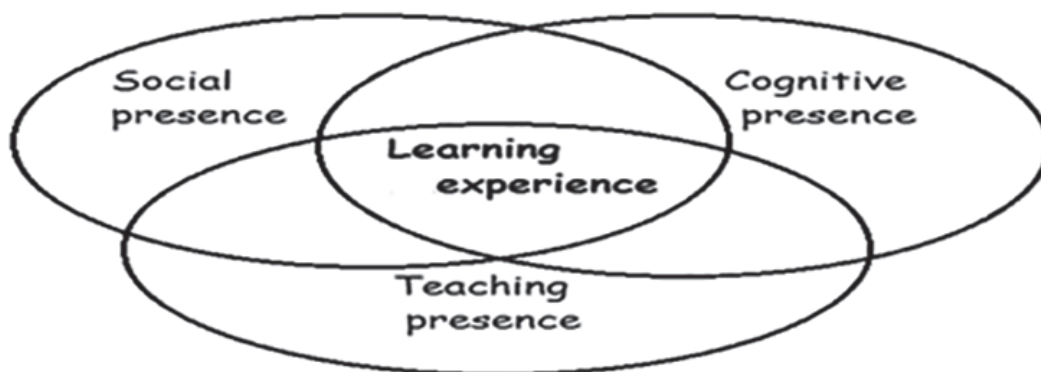


Figure 1: Community of Inquiry model (Garrison et al, 2000)

Rationale for the Study

In Nigeria, there is need to expand the learning space for higher education learning so as to accommodate the teeming population of qualified candidates who are turned down yearly due to lack of physical facilities (Jacob & Samuel, 2020). Absolutely, the mobile learning can play a role in increasing access to education as students would not necessarily need to be physically present in the university campus. Meanwhile, students' attitude (negative or positive) is a factor of learning (Mazana et al., 2019). So, the rationale behind the present study is the need to examine students' readiness to adopt mobile learning. Moreover, researches have it that there is gender disparity in students' handling of mobile phones and other technological tools (Enconomides et al., 2008; Al-Emran & Salloum, 2017; Burnett et al, 2010). It therefore becomes imperative to find out if pre-service teachers in Nigeria are ready to use mobile apps for learning purposes and to also find out the gender difference that may exist in doing so.

Objective of the Study

The objective of this study is to find out if the Nigerian pre-service teachers have the intention and motivation towards adopting mobile learning as an alternative to conventional classroom education.

Research Questions

The following research questions were raised in the course of investigating the readiness of pre-service teachers in adopting mobile learning.

1. Do pre-service teachers have the intention for mobile learning?
2. Do pre-service teachers have the motivation for mobile learning?

Research Hypothesis

Ho1: There will be no significant gender difference in Pre-service teachers' intention to adopt mobile learning?

Ho2: There will be no significant gender difference in Pre-service teachers' motivation towards adopting mobile learning.

Scope of the Study

This study focuses on post secondary institutions of learning in Lagos state of Nigeria.

Significance of the Study

The result of this study will shed light on the students' readiness to adopt mobile learning in view of using mobile learning technology to widen the academic space and consequently pave way for more access to education.

Definition of Key Terms

Gender: The behavioral, cultural, or psychological traits typically associated with one sex (Brown, 2023)

Intention: What one plans to do or bring about (Merriam-Webster, 2023)

Mobile Learning: *Mobile learning*, also referred to as m-Learning, is a way of accessing learning content through mobile devices and without necessarily being in a physical classroom so as to accommodate distance learning (Matzavela & Alepis, 2021).

Motivation : Something that causes a person to act (Merriam-Webster, 2023)

Pre-service teacher: A Pre-service teacher is a college student who is pursuing a teacher certification (Allaire & Kamas, 2021)

Research Methodology

Method

Descriptive survey research method was adopted for the study and simple questionnaire was used to collect data with respect to Nigeria Pre-service Teachers' Attitude and Intention of Adopting Mobile Learning

Population of the study

The population of the study is composed of first year students of Lagos State University, Lagos Nigeria. They are about one thousand students.

Sample and sampling procedure

The sample size for the study is two hundred (200) respondents from the faculty of Education, Lagos State University, Lagos, Nigeria. Using stratified sampling method, 20 male pre-service teachers and 20 female pre-service teachers were randomly selected from 100 level of each of the 5 departments (educational management, Foundation and Counseling Psychology, Language, Arts and Social Science Education, Human Kinetics, Sports and Health Education, Science and Technology Education) to bring about the total respondents.

Instrument and Data Analysis

The instrument used in this study is a 20-item questionnaire designed by the researcher to collect information with respect to Nigeria Pre-service Teachers' Intention and motivation for Adopting Mobile Learning. The

questionnaire was divided into three sections. Section A was designed to collect information about the respondent's Demographic / Bio Data. Section B of the questionnaire elicits information on respondents' intention towards adopting mobile learning and section C measures motivation level of the respondents towards adopting mobile learning. Data Analysis was done using frequency counts and simple percentage. The T-test statistics was used to test the validity of research hypotheses.

Results

Respondents Demographic Distribution

Table 1 Respondents' Gender Distribution		
Gender	Frequency	Percentage
Male	100	50
Female	100	50
Total	200	100

Source: Author's Survey, 2023

Table 1 above shows the distribution of respondents by gender. Out of the 200 respondents, 100(50%) were male pre-service teachers and 100(50%) were female pre-service teachers.

Data Analyses

Research Question 1: Do pre-service teachers have the intention for mobile learning?

Table 2 Response of pre-service teachers' intention for mobile learning									
Intention for Mobile Learning		SA	A	D	SD	Total	Mean	Stand. Dev	Remark
		4	3	2	1				
1.	Mobile devices are helpful for learning	65 (32.5%)	71 (35.5%)	35 (17.5%)	29 (14.5%)	200	18	18.2	Agree
2.	I am willing to use mobile learning programs	62 (31%)	74 (37%)	36 (18%)	28 (19%)	200	18	18.7	Agree
3.	Mobile learning is a good way to learn.	66 (33%)	73 (36.5%)	36 (18%)	25 (12.5%)	200	19.5	20	Agree

(Continued)

4.	Mobile learning can supplement traditional learning methods	66 (33%)	70 (35%)	35 (17.5%)	29 (14.5%)	200	18	18.2	Agree
5.	I prefer using mobile devices to access course materials than using traditional methods	65 (32.5%)	72 (36%)	35 (17.5%)	28 (14%)	200	18.5	18.8	Agree
6.	I intend to continue to use mobile learning for academic goals achievement	63 (31.5%)	74 (37.0%)	34 (17.0%)	29 (14.5%)	200	18.5	19	Agree
7.	I intend to stay organized and keep track of all my assignments using mobile learning.	62 (31.0%)	74 (37.0%)	36 (18.0%)	28 (14.0%)	200	18	18.7	Agree
8.	I am confident about my ability to engage in mobile learning	65 (32.5%)	71 (35.5%)	35 (17.5%)	29 (14.5%)	200	18	18.2	Agree
9.	I am enthusiastic about using Mobile learning and its opportunities to achieve great academic results	66 (33.0%)	73 (36.5%)	36 (18.0%)	25	200	19.5	20	Agree
10.	Mobile learning can make one to gain knowledge more quickly than the conventional method.	66 (33.0%)	70 (35%)	35 (17.5%)	29 (14.5%)	200	18	18.2	Agree
		2584	2166	706	281	5737			
	Grand Total	4750 (82.8%)		987 (17.2%)		5737			

Source: Author's survey, 2023

In Table 2, the summary is that 82.8% of the participants' responses indicated that they have positive intentions for mobile learning while 17.2% responses reflected lack of intention for mobile learning. In line with this observation, we can say that the pre-service teachers have intentions to adopt mobile learning.

Research Question 2: Do pre-service teachers have the required motivation for mobile learning?

Table 3 Teachers' response to motivation for mobile learning based on gender

Motivation for Mobile Learning		SA	A	D	SD	Total	Mean Dev	Stand. Dev	Remark
		4	3	2	1				
21	I can text my lecturers/ facilitators if I have difficulties with mobile lesson.	68 (34.0%)	71 (35.5%)	33 (17.0%)	28 (14.0%)	200	9.75	10.6	Agree
22	I can engage in online lessons either through my personal computer or phones	62 (31.0%)	72 (36.0%)	38 (19.0%)	28 (14.0%)	200	8.5	9.56	Agree
23	I easily access mobile lesson anywhere	67 (33.5%)	75 (37.5%)	33 (17.0%)	25 (12.5%)	200	10.5	11.4	Agree
24	I enjoy learning using a mobile device because I can study mathematics anytime and anywhere without limited space and time	64 (32.0%)	73 (36.5%)	36 (18.0%)	27 (13.5%)	200	9.25	10.2	Agree
25	With mobile learning, new knowledge is bound to be discovered besides what one can get from the textbook and classroom learning	61 (30.5%)	72 (36.0%)	39 (20.0%)	28 (14.0%)	200	8.25	9.64	Agree
26	I like to participate actively in online discussions in virtual classes	70 (35.0%)	69 (34.5%)	34 (17.0%)	27 (13.5%)	200	9.75	10.6	Agree
27	Mobile learning gives room for autonomous learning which removes distraction	68 (34.0%)	69 (34.5%)	34 (17.0%)	29	200	9.25	10.2	Agree
28	Mobile learning is bound to bring out the best in any serious-minded student.	65 (32.5%)	70 (35.0%)	37 (19.0%)	28 (14.0%)	200	8.75	9.65	Agree

(Continued)

29	Mobile learning is an interesting mode of learning	78 (39.0%)	68 (34.0%)	31 (16.0%)	23 (11.5%)	200	11.5	12.6	Agree
30	Mobile learning applications should be developed and adopted by all institution of learning	72 (36.0%)	68 (34.0%)	35 (18.0%)	25 (12.5%)	200	10	10.9	Agree
	Total	675	707	350	268				
	Grand total	1382 (69.1%)		618 (30.9%)					

In table 3 above, looking at pre-service teachers' responses to the questionnaire on motivation for mobile learning. Precisely, 69.1% of the participants' responses indicated that they are motivated towards mobile learning while 30.9% responses reflected lack of motivation in one way or the other for mobile learning. Going by this finding, with high positive response against the low negative response, we can again say that the pre-service teachers have the necessary motivation required for mobile learning.

Research Hypotheses

Ho1: There will be no significant gender difference in Pre-service teachers' intention for mobile learning

Table 4 T-test table of teachers' response to intention for mobile learning based on gender								
Group	N	Mean	S.d	P	Df	T-test calc.	T-test crit.	Decision
Male	100	29.00	3,52	0.05	198	1.13	1.96	Null hypothesis not rejected
Female	100	28.37	2.45					

Source: Author's Computation, 2023

In table 4 above the male pre-service teachers had slightly higher positive submissions (mean =29.00) than female Pre-service teachers (mean = 28.37). However, at significant level 0.05 and degree of freedom 198, the calculated T-test value (1.13) is less than the critical value (1.96). This implies that the difference between the mean score of male and female students is not statistically significant. So, the null hypothesis 1, which states that there will be no significant difference in Pre-service teachers' intention for mobile learning based on gender, is upheld.

Ho2: There will be no significant gender difference in Pre-service teachers' motivation towards mobile learning.

Table 5 T-test table of teachers' response to motivation for mobile learning based on gender								
Group	N	Mean	S.d	P	Df	T-test calc.	T-test crit.	Decision
Male	100	28.94	4.67	0.05	198	0.42	1.96	Null hypothesis not rejected
Female	100	28.66	4.73					

Source: Author's Computation, 2023

In table 5, male pre-service teachers shows slightly higher motivation prowess (mean =28.94) than female pre-service teachers (mean = 28.66). However, at significant level 0.05 and degree of freedom 198, the calculated T-test value (0.42) is less than the critical value (1.96). The implication of this is that the difference between the mean response of male and female students is not statistically significant. So, the null hypothesis 2, which states that there will be no significant difference in Pre-service teachers' motivation for mobile learning based on gender, is not rejected.

Discussion of Findings

This study found that participants have the necessary foundational skills and gadgets for engagement in mobile learning. Assessing the participants' intention for mobile learning according to gender, both male pre-service teachers and female pre-service teachers show higher positive response than negative response. So, pre-service teachers have intention for mobile learning. Nevertheless, the male pre-service teachers showed higher mean value of intention for mobile learning than the female pre-service teachers while the difference between the observed mean values is not statistically significant. This result is consistent with the result of the study done by Lin et.al. (2020); Students in Taiwan and Vietnam generally showed intention and confidence in their ability to accept and perform a specific task using Mobile learning. Furthermore, using structural equation modeling technique and the Linear Structural Relationship (LISREL) program, Park et.al (2012) carried out investigation on university students' behavioral intention for mobile learning. It was concluded that students in Taiwan have high level of acceptance of m-learning. A study by Tan et al. (2012) on empirical analysis of the determinant of mobile learning adoption also found that gender factor did not show significant effect on intention for mobile learning. Another concept assessed in the course of the study is participants' motivation towards mobile learning. The study found that pre-service-teachers show more responses indicating that they are motivated to engage in mobile learning than otherwise. Also, the male pre-service teachers submitted responses supporting higher motivation towards mobile learning than the female pre-service teachers but the difference between the mean responses is also not statistically significant. This is in agreement with the study "mobile game-based learning with a mobile app, motivational effects and learning performance" carried out by Huang et al. (2017).

Conclusion

Mobile devices have many features that make them exciting platforms for learning: their computing power, their affordability, the ability to carry and use them everywhere and the affection they inspire in young people. Based on the results of the analysis of the present study, it is concluded that pre-service teachers

have the skills and experiences necessary for mobile learning and both male pre-service teachers and female pre-service teachers have the intention and motivation required for engaging in mobile learning. The result of this study is in agreement with the study by Odede (2021) which showed that the students have positive perceptions towards m-learning and possess the confidence needed in using m-learning solutions. It is also in accord with the study done by Abu-Al-Aish et al (2012) which found that students have a positive perspective of using Mobile-learning and they look at it as a support system for traditional class-based learning. So, mobile learning can be used to increase access to education in Nigeria.

Recommendation

Based on the findings of this study, the following recommendations are made

- 1) The university lecturers should make efforts to acquire enough skills needed for the use of mobile teaching and learning.
- 2) The university managements in Nigeria should fully integrate mobile-learning solutions to academic programmes.
- 3) The provision of technical assistance must be considered in the university implementation readiness of the institutions towards integrating mobile-learning into educational and academic programmes.
- 4) The government agencies concerned with the responsibility of managing the development of education in the country should see the students' readiness for adopting mobile learning as an opportunity to expand the education leaning space to accommodate prospective qualified candidates.

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