Students' perceptions and readiness towards mobile learning in colleges of education: a Nigerian perspective

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Access to quality education is becoming a huge challenge in Nigeria, in view of the exponential growth in its population, coupled with ethno-religious crises and other acts of terrorism. A large chunk of the country's population – about 26% have no access to education, as existing teaching and learning facilities have become inadequate. Some interventions such as e-learning and mobile learning (m-learning) have been explored in other levels of education, particularly universities. In order to explore the viability of m-learning to address the inadequacies of facilities and poor access to quality education, this study ascertains the perceptions of students towards m-learning. A quantitative research design, using a sample of 320 students from three colleges of education, is adopted. Descriptive and regression analysis was performed. Based on the unified theory of acceptance and use of technology (UTAUT) model, the results show that performance expectancy, effort expectancy, social influence, and mobile learning conditions are positively correlated with behavioural intention, and that performance expectancy, effort expectancy, and mobile learning conditions significantly predict students' intention towards m-learning. The study therefore concludes that students in colleges of education in Nigeria had positive perceptions towards mobile learning and are therefore ready to embrace it.

Keywords: colleges of education; mobile learning; students' perceptions

Introduction

Education, most especially mathematics, science and technology education, is seen as the bedrock of development and modernisation (Balogun, 2008). For this reason, most developed nations are doing everything possible to ensure that a substantial number of their citizens have access to education. In line with this, the guiding principle of the Nigerian education system, as spelled out in its education policy document – the National Policy on Education (Federal Republic of Nigeria, 2004) – is equipping citizens with knowledge, skills and values that will enable them to contribute to the development and welfare of the country. Based on Mayisela's (2013) findings, that mobile technology is likely to enhance accessibility and interaction in a blended learning course in South Africa, this study explored the use of mobile learning among student teachers in Nigeria.

In its effort towards promoting science, mathematics and technology education, the Nigerian Government has a policy which stipulates that enrolment of candidates into educational institutions should include 70% from science-based and 30% from non-science-based courses. However, as laudable as these intentions and policies are, the escalating population of the country – which is estimated at about 168 million (United States Embassy in Nigeria, 2012) – may be posing a challenge to their actualisation. In an exploratory study of the teaching and learning situation in Nigeria, particularly regarding colleges of education, Chaka and Govender (2014) found that: i) a large number (about 26%) of citizens, especially the youth, have no access to education (Yar'Adua Foundation, 2013); and ii) learning materials such as books and facilities such as classrooms and manpower are grossly inadequate (Adu, Eze, Salako & Nyangechi, 2013; Asiyai, 2013). Ilogho (2015) attributes the inadequacy of learning materials to their high cost. Of late, Nigeria is witnessing various ethno-religious crises in addition to acts of terrorism by the Boko Haram group, which may lead to an increase in the percentage of citizens without access to education.

Research has shown that technologies such as electronic learning (e-learning) and more recently mobile learning (m-learning) may have the potential to facilitate teaching and learning, thereby addressing the problem of poor access to education (Adedoja, Botha & Ogunleye, 2012; Adewole & Fakorede, 2013).

Mobile learning can be seen as the application of mobile or wireless devices to learn on the move (Park, 2011). Some studies (such as Keengwe & Maxfield, 2015; Traxler, 2009) have argued that m-learning is an extension of e-learning, but that it differs in the sense that it uses mobile devices rather than computers as a medium. Park (2011) attributes the increasing popularity of mobile learning to new innovations in application and social networking sites including wikis, blogs, twitter, Facebook and MySpace among others. According to Walker (2006), mobile learning also involves learning in different contexts in addition to the use of mobile devices to learn. Some benefits of m-learning over other forms of learning include "life-long learning, learning inadvertently, learning in the time of need, learning independent of time and location, and learning adjusted according to location and circumstances" (Korucu & Alkan, 2011:1926).

Traxler (2007) highlights some characteristics of m-learning to include personalised, situated, authentic and spontaneous learning among others.

In Nigeria, although the potential of conventional e-learning has still not been fully tapped, its implementation may not have yielded the desired results in view of other challenges such as the high cost of computers, internet bandwidth and poor power supply, among others (Gani & Magoi, 2014; Ibinaiye, 2012; Madu

& Pam, 2011). Thus, m-learning is viewed as a better alternative for facilitating current teaching and learning practices in Nigeria in view of the fact that mobile phones are more accessible, less expensive and less dependent on power compared to computers (Adedoja et al., 2012).

Colleges of education play a vital role in the education scheme of Nigeria, by way of training teachers for different phases of school education. Like other higher education institutions in Nigeria, they face challenges of traditional teaching and learning practices (Torruam, 2012) in addition to the accessibility to education. In view of the ripple effect teacher education has on students and the nation of Nigeria, this study ascertains the perceptions and readiness of stakeholders in the colleges towards m-learning.

In order to clearly highlight the knowledge gap which this study seeks to fill, the next section reviews some relevant studies that have been carried out in Nigeria as well as in other parts of the world. Whilst other countries and/or older people may have expectations based on a history of learning with computers, younger people's expectations will be shaped by mobile devices as a universal social phenomenon, giving opportunities to create, share, discuss, transform, store and distribute ideas, images, information, identities and opinions, and thus perhaps challenging traditional ideas of learning shaped by schools and teachers. These ideas, experiences and definitions of learning with mobile devices were therefore imported, given the particular background and context to the national educational and economic situation in Nigeria.

The paper then explains the theoretical underpinnings of the research and looks at how the UTAUT model is adapted in this study. The subsequent section describes the methodology in detail, followed by the analysis and a discussion of the results. Finally, a conclusion is drawn with some indication for future studies.

Literature Review
A number of studies have been conducted across the globe which reveal that m-learning is potentially viable in addressing various challenges of teaching and learning. This section reviews some studies which utilise the unified theory of acceptance and use of technology (UTAUT) to explain factors that influence acceptance and use of m-learning in different contexts.

Jairak, Praneetpolgrang and Mekhabunchakij (2009) have assessed the intention of higher education students in Thailand towards accepting m-learning, introducing attitude as a mediating variable. They established that effort expectancy, social influence, facilitating conditions and attitude significantly influence behavioural intention, while performance expectancy, effort expectancy and social influence significantly influence attitude.

Their results further indicated that social influence is the greatest predictor of behavioural intention, while performance expectancy is the greatest predictor of attitude.

Introducing two new constructs, viz. personal innovativeness and service quality, in addition to three UTAUT constructs, viz. performance expectancy, effort expectancy and social influence, with mobile device experience serving as a moderating variable, Abu-Al-Aish and Love (2013) investigated factors affecting acceptance of technology by higher education students at Brunel University in the United Kingdom. Their model explains 52% of the variance in behavioural intention, with effort expectancy being the greatest predictor.

Alharbi and Drew (2014) integrated the UTAUT and Information Systems (IS) success models to explain factors affecting the intention of students at Griffith University, Australia, towards accepting m-learning. Consistent with the original UTAUT, they found that performance expectancy, effort expectancy, and social influence positively correlated with behavioural intention. Likewise, information quality and system quality correlated with students' satisfaction of m-learning, consistent with the IS success model.

In their review of m-learning in other developing countries, Thomas, Singh and Gaffar (2013) explain factors affecting the intention of students at the University of Guyana in South America, towards adopting m-learning. They found that the four constructs of UTAUT (performance expectancy, effort expectancy, social influence, and facilitating conditions) with the mediating variable, attitude, explain 59.3% of variance in behavioural intention. In a similar study on East African higher education students, Mtebe and Raisamo (2014) found the four UTAUT constructs predict only 27.7% of variance in behavioural intention, with performance expectancy being the greatest predictor.

Bere (2014) uses the UTAUT model and WhatsApp to explain the acceptance of m-learning by students at a university of technology in South Africa. He found that effort expectancy, social influence and student-centric learning predict behavioural intention, with performance expectancy being the greatest predictor for single students and social influence for married students.

In the Nigerian context, Isiaka, Adewole and Olayemi (2011) compared the use of mobile devices and computers by students in order to ascertain the readiness of higher education institutions (specifically universities) towards the use of m-learning. They found that mobile device usage (mean score 9.43) was higher than computer usage (mean score 5.30), an indication of the feasibility of m-learning. Other studies (Emeka, Charity, Philip & Onyesolu, 2012; Utulu & Alonge, 2012) reported

positive results for m-learning in some Nigerian universities.

A more recent study by Osang and Ngole (2014) investigated the readiness of Nigeria for m-learning, particularly the National Open University of Nigeria (NOUN). Focusing on availability of infrastructure, mobile phone capability and the readiness of stakeholders, they found about 97.5% of educators and 91.8% of students to be in possession of at least a mobile device, and that students engage more than educators in using their mobile devices for different activities. Furthermore, although over 50% of the respondents agreed on the benefits of m-learning, almost the same percentage expressed concern about challenges such as poor power supply, security issues, and a poor learning environment, among others.

A critical review of studies, from a global perspective to the Nigerian context in this section, reveals that most studies were carried out at university level. However, research has shown that different affordances – for example, physical infrastructure, such as electricity, internet connectivity, availability or shortage of computers, and other environmental or cultural factors – can make a difference in the adoption of m-learning (Thomas et al., 2013; Traxler, 2007; Venkatesh, Thong & Xu, 2012). In other words, the situation in universities cannot be generalised to other categories of higher education institutions in view of different affordances.

The wide use of mobile devices – specifically mobile phones – as indicated in the studies conducted in Nigeria, provides impetus for this study. This study, which is part of ongoing research, explores the viability of m-learning in Nigerian colleges of education, using a variation of the UTAUT model as the underpinning theory. The study determines the perceptions and readiness of students in colleges of education in Nigeria towards m-learning using the constructs from the UTAUT model. The study is guided by the research questions listed in the next section.

Research Questions

1. What are the perceptions of students towards m-learning with regard to the constructs performance expectancy, effort expectancy, social influence and facilitating conditions?
2. To what extent does performance expectancy influence students' intention to use m-learning in colleges of education?
3. To what extent does effort expectancy influence students' intention to use m-learning in colleges of education?
4. To what extent does social influence motivate students' intention to use m-learning?
5. How do facilitating conditions influence students' intention to use m-learning in colleges of education?

Theoretical Framework

This study is underpinned by a modified version of the UTAUT (Venkatesh, Morris, Davis & Davis, 2003) model. The theory holds that four constructs (independent variables) – performance expectancy, effort expectancy, social influence, and facilitating conditions – influence the behavioural intention and usage behaviour of individuals towards acceptance and use of technology in organisations. Additionally, gender, age, experience and voluntariness of use are included as moderating variables.

However, there have been many variant applications of the UTAUT model, based on the application context. As justified by Venkatesh et al. (2012), facilitating conditions in the original UTAUT focused on the organisational environment, rather than the individual environment. Therefore, since this study deals with m-learning, which is more about indivilised rather than organisational learning, the facilitating conditions in this case represent more of the m-learning conditions, which vary from individual to individual. Therefore, this study renames facilitation conditions in the UTAUT model as m-learning conditions. Similarly, based on the nature of the research questions, the moderating variables have been dropped, as shown in Figure 1.

Methodology

This study is part of a larger study which involved three groups of participants (students, lecturers and management). This paper, however, reports only on one group, namely students, their readiness towards mobile learning, possible factors that could affect the acceptance of mobile learning, and the viability of mobile learning in addressing some of the challenges of teaching and learning in colleges of education in Nigeria.

Approach

The study adopts a quantitative research approach. The quantitative approach was found to be most effective in gathering data from the students.

Study Site

The study was conducted in Nigeria, specifically in the North-central geopolitical zone of the country. This zone, which includes Abuja, the federal capital territory (FCT), was selected because of its cosmopolitan nature, representing the diverse people and cultures of Nigeria.

Population

The target population for this study at the time the data was collected was 13,427 students from three colleges of education (one Federal-owned, one State-owned and one privately-owned) in the north central zone of Nigeria.
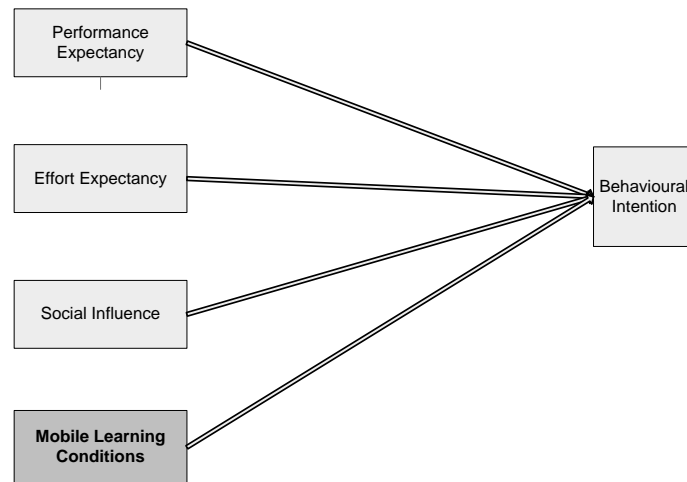
Figure 1 UTAUT model used in this study, modified from Venkatesh et al. (2003)

Sample Size

Based on the size of the target population, a sample of 323 respondents was drawn, which is considered representative of the population, according to Krejcie and Morgan's (1970) sample size table.

Sampling Method

A mixed and multistage sampling strategy was adopted in sampling the study population (Creswell, 2014). Since colleges of education in Nigeria exist in three clusters (federal, state and private) based on their ownership, one college was selected from each of the three clusters. This selection was based on the assumption that each of the selected colleges possessed similar characteristics with other colleges in the same cluster. Secondly, a stratified proportionate sampling technique was used to estimate the number of students to include from each of the selected colleges of education. This technique yielded 140, 98, and 85 students from the federal, State and private colleges, respectively.

Data Collection

As mentioned earlier, this paper only reports the quantitative strand of the student group, thus only the quantitative data collection strategy is described here. This aspect of the study used a questionnaire as the data collection instrument. The questionnaire was made up of two sections, demographic information, and perceptions of students of m-learning. The second part (perceptions) consisted of 18 items measured on a 5-point Likert scale, ranging from 1 = strongly disagree, to 5 = strongly agree. Considering that this was a maiden study in the context of colleges of education in Nigeria, and that this phase was preliminary, most of the items used were adapted from past studies (such as Ajzen, 1991; Venkatesh et al., 2003), which had been validated and were restructured and redesigned for the specific purpose of ascertaining the perception and readiness of stakeholders towards mobile learning. The questionnaire items used are shown in Appendix A. In view of the fact that the items in the questionnaire had been restructured and modified, content validity was ensured by surrendering the instrument to criticism by another colleague. The five constructs (variables) used were based on an existing and validated theory (UTAUT). Reliability of the instrument, specifically internal consistency, was measured using Cronbach's alpha for the constructs, which is presented in Table 1. Two of the constructs, effort expectancy and mobile learning conditions, had Cronbach alpha values below 0.7 as shown in Table 1.

Table 1 Reliability of scale used

Reliability Statistics		
Construct	Cronbach's Alpha	*N* of Items
Performance Expectancy	.728	5
Effort Expectancy	.505	2
Social Influence	.723	2
Mobile Learning Conditions	.634	4
Behavioural Intention	.791	5

However, research has shown that a Cronbach's alpha coefficient is sensitive to the number of items in a scale (Gliem & Gliem, 2003). Pallant (2011) states that a scale with fewer than ten items may result in Crobach's alpha coefficient to be as low as 0.5. Being that the number of items used in the various subscales were less than ten and that the Cronbach's alpha coefficients for effort expectancy and mobile learning conditions were below the acceptable value of 0.7, the mean inter-item corre-

lations for the two constructs were considered, rather than their Cronbach's alpha coefficients, as both were within the acceptable range of 0.2 to 0.4 as recommended by Briggs and Cheek (1986). These are shown in Tables 2 and 3.

Based on the estimated study sample, 323 copies of the research instrument were administered to respondents face-to-face. Since the researcher is a lecturer in one of the colleges of education, this method resulted in an excellent return rate of (320) about 99 percent. Tables 4 and 5 represent the demographic representation of the sample.

Data Analysis
Data was analysed using the Statistical Package for the Social Sciences (SPSS). First, perceptions of students were determined and second regression analysis was used to ascertain the extent to which all factors (the constructs of independent variables,

performance expectancy, effort expectancy, social influence and mobile learning conditions) contribute to readiness of participants towards m-learning (behavioural intention). A Wilcoxon signed rank test was used to ascertain the level of agreement or disagreement of respondents on each measure by comparing their means to a scalar of '3' (Conover, 1999). A mean value greater than the value of 3 signified agreement, while that below the value of 3 signified disagreement.

Results and Findings
Perceptions of Students
Student perceptions were measured by ascertaining the level of agreement or disagreement of respondents on the items that were used to measure each construct, namely performance expectancy, effort expectancy, social influence and mobile learning conditions.

Table 2 Mean inter-item correlations for effort expectancy

| | | | | | Maximum / | | |
	M	Minimum	Maximum	Range	Minimum	Variance	*N* of Items
Item Means	3.739	3.632	3.846	.214	1.059	.023	2
Inter-Item Correlations	.343	.343	.343	.000	1.000	.000	2

Summary Item Statistics

Table 3 Mean inter-item correlations for mobile learning conditions

| | | | | | Maximum / | | |
	M	Minimum	Maximum	Range	Minimum	Variance	*N* of Items
Item Means	3.963	3.858	4.090	.232	1.060	.012	4
Inter-Item Correlations	.309	.112	.497	.385	4.432	.020	4

Summary Item Statistics

Table 4 Sample of students across the three colleges of education

Group	*f*	%
State college	98	30.6
Private college	84	26.3
Federal college	138	43.1
Total	320	100.0

Table 5 Sample of students by gender

Group	*F*	%
Male	189	59.1
Female	131	40.9
Total	320	100.0

Performance Expectancy
The results of the Wilcoxon test show that there was significant agreement among students that mobile devices can: improve communication and exchange of vital information in the colleges ($z(N = 314) = -6.729$, $p < 0.0005$); assist in submitting assignments/homework/quizzes ($z(N = 314) = -5.862$, $p < 0.0005$); assist in uploading and downloading of learning materials ($z(N = 313) = -8.049$, $p < 0.0005$); support traditional teaching and learning practices ($z(N = 313) = -5.739$, $p < 0.0005$); and that blending traditional learning and m-learning will reduce the challenges of inadequate classrooms, manpower and learning materials in the

colleges ($z(N = 314) = -7.090$, $p < 0.005$). This result is indicated by values of $z > 3$ and $p < .0005$ on all items that measure this construct. The implication here is that students perceived that m-learning would be useful to them.

Effort Expectancy
The results of the Wilcoxon test show a significant agreement among students that the portability of mobile devices is a motivation for their use in teaching and learning ($z(N = 314) = -8.016$, $p < 0.0005$), and that their simplicity of operation can facilitate their use for teaching and learning ($z(N = 314) = -5.887$, $p < 0.0005$). Again, the result is

indicated by the value of $z > 3$ and $p < .0005$ on the item that measures this construct. The implication is that students perceived that m-learning would be easy to use.

Social Influence

The results of the Wilcoxon test show a significant agreement that students are influenced to use m-learning because: their friends use it ($z(N = 317) = -8.435$, $p < 0.0005$); their friends who use it find it beneficial ($z(N = 317) = -9.808$, $p < 0.0005$); and they see other people using it without hitches ($z(N = 316) = -3.962$, $p < 0.0005$). This implied that students perceived that friends and important others would have an influence on their attitude towards accepting m-learning, as indicated by the values of $z > 3$ and $p < .0005$.

Mobile Learning Conditions

The results of the Wilcoxon test on m-learning conditions show significant agreement among students on all items used to measure mobile learning conditions (MLC): availability and accessibility of mobile devices will facilitate their use for m-learning ($z(N = 317) = -9.216$, $p < 0.0005$), as will functionality/capability/type of the available mobile device ($z(N = 317) = -10.082$, $p < 0.0005$), the

quality of mobile networks ($z(N = 317) = -9.218$, $p < .005$), and availability of power ($z(N = 317) = -9.001$, $p < 0.0005$). In this case, students see positive mobile learning conditions as a pre-condition for acceptance of m-learning as indicated by values of $z > 3$ and $p < 0.0005$.

Readiness towards M-learning

The process of ascertaining the extent to which the independent variables predicted the intention of students to use m-learning, the relationship between each independent variable and intention to use m-learning was first ascertained, the results of which are presented in Table 6.

From Table 6, it can be established that moderate positive relationships exists: between performance expectancy and students' intention to use m-learning ($r = 0.366$, $n = 312$, $p < 0.0001$); between effort expectancy and students' intention to use m-learning ($r = 0.402$, $n = 312$, $p < 0.0001$); and between social influence and behavioural intention ($r = 0.379$), $n = 317$, $p < 0.0001$). It is interesting to note that the table indicates that a strong positive relationship exists between mobile learning conditions and intention of students towards mobile learning ($r = 0.551$, $n = 317$, $p < 0.0001$).

Table 6 Correlation matrix of the independent variables and the dependent variable

	Correlations[a]	PE	EE	SI	MLC	BI
PE	Pearson correlation	1				
	Sig. (two-tailed)					
	N	314				
EE	Pearson correlation	0.394**	1			
	Sig. (two-tailed)	0.000				
	N	314	314			
SI	Pearson correlation	0.311**	0.234**	1		
	Sig. (two-tailed)	0.000	0.000			
	N	312	312	317		
MLC	Pearson correlation	0.364**	0.262**	0.491**	1	
	Sig. (two-tailed)	0.000	0.000	0.000		
	N	312	312	317	317	
BI	Pearson correlation	0.366**	0.402**	0.379**	0.551**	1
	Sig. (two-tailed)	0.000	0.000	0.000	0.000	
	N	312	312	317	317	317

Note. Sig. = significance.

From Table 6 it is apparent that all four independent variables have positive relationships with intention. This implies that the level of readiness of students in colleges of education in Nigeria towards m-learning increases moderately, the more they perceive that m-learning is useful to them. Similarly, their level of readiness towards accepting m-learning increase moderately the more they perceive that the technology is easy to use. The same situation plays out the more students perceive that their friends and significant others are in support of their use of m-learning. On the other hand, the level of readiness of students towards accepting m-learning increases very strongly the more students perceive that mobile learning conditions are

favourable for m-learning. By implication, the more favourable the mobile learning conditions are, the stronger the readiness of students.[i]

This means that the level of readiness of students increases more with an increase in mobile learning conditions, as compared to corresponding increases in performance expectancy, effort expectancy and social influence.[ii] This is in keeping with Mayisela's (2013) recommendation.

Table 7 shows the result of regression analysis which indicates the extent to which the four independent variables (performance expectancy, effort expectancy, social influence and mobile learning conditions) can always influence the readiness of students towards accepting m-learning.

Performance Expectancy

It can be inferred (Table 7) that performance expectancy significantly predicted students' readiness towards mobile learning (β = .105, *p* < .0005). This implies that for every unit increase in the usefulness of m-learning, students' readiness towards accepting m-learning will also increase by 10.5% of the value of the standard deviation of behavioural intention. In other words, an increase in performance expectancy will always cause a corresponding effect on behavioural intention.

Effort Expectancy

Also, from Table 7, it can be inferred that effort expectancy significantly predicted students' intention to use mobile learning (β = .242, *p* < .0005). This implies that for every unit increase in the ease of use of m-learning, students' readiness towards accepting m-learning will also increase by 24.2% of the value of the standard deviation of behavioural intention. In other words, an increase in effort expectancy will always cause a corresponding effect on behavioural intention.

Table 7 Regression Analysis

	Model	Unstandardised Coefficients		Standardised Coefficients	*t*	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.097	.174		12.069	.000		
	MLC	.500	.043	.554	11.707	.000	1.000	1.000
2	(Constant)	1.807	.172		10.514	.000		
	MLC	.434	.042	.481	10.350	.000	.931	1.074
	EE	.156	.026	.276	5.940	.000	.931	1.074
3	(Constant)	1.677	.182		9.210	.000		
	MLC	.408	.044	.452	9.338	.000	.851	1.175
	EE	.137	.028	.242	4.937	.000	.827	1.209
	PE	.085	.041	.105	2.068	.039	.771	1.298

M-learning Conditions

From Table 7 it can similarly be inferred that mobile learning conditions significantly predicted students' intention to use m-learning (β = .452, *p* < .0005). This implies that, for every unit increase, in the level of availability of mobile learning conditions, students' readiness towards accepting m-learning will also increase by 45.2% of the value of the standard deviation of behavioural intention. In other words, an increase in mobile learning conditions will always cause a corresponding effect on behavioural intention.

Discussion

The results obtained align with the objectives of the study. The first section of the results (answered the first research question), which determined the perceptions of students, revealing that there was significant agreement of all items that estimated the four constructs. The second part of the results (answered research questions Two to Four) which ascertained the readiness of students towards mobile learning, again corroborated the first as it revealed that all four independent variables were positively correlated with behavioural intention, providing an indication of students' readiness towards accepting m-learning. However, while performance expectancy, effort expectancy and social influence had moderate association with behavioural intention, the results indicate that mobile learning conditions had strong correlation with behavioural intention. This may not be unconnected with the increasing level of penetration of mobile phones in Nigeria, as pointed out in the report by Pyramid Research (2010). The third component of the results from regression analysis

(answered the last research question), further confirmed the correlation analysis. It indicates that performance expectancy, effort expectancy and mobile learning conditions (MLC) are the predictors of students' intention towards accepting m-learning, with MLC being the greatest predictor of intention. Additionally, the findings indicated that social influence did not significantly predict students' intention to accept m-learning. A possible explanation for this result may be attributed to the fact that m-learning was not yet in use in these colleges thus students may not experience the influence of others on them.

Furthermore, the three constructs, effort expectancy, performance expectancy and mobile learning conditions explained 38.6% of the variance in behavioural intention to use mobile learning. This is consistent with findings in the literature, specifically Alharbi and Drew's (2014) findings. However, the variance in the students' intention explained by the model is lower than that of the original UTAUT. As pointed out earlier, this may be due to the study context (Thomas et al., 2013) as m-learning is still a new concept in the context of colleges of education in Nigeria.

Conclusion

The study was designed to determine the perceptions of students towards m-learning, using the constructs based on the UTAUT model. Although m-learning has not yet been implemented in colleges of education in Nigeria, the results have shown that students are optimistic that it will be useful to them, and have therefore expressed their readiness to adopt it. The mobile learning conditions seem to be conducive to m-learning. For this reason, the

students are willing to adopt m-learning if introduced in the institutions. This study has gone some way towards showing that although mobile learning is not a panacea for the challenges facing learning in Nigeria, it is a way of easing some of the challenges of accessibility to learning. Additionally, the use of UTAUT aided in enhancing our understanding of the factors that affect the acceptance of m-learning. Despite being pre-liminary, this study offers some insight into the challenges facing student teachers in colleges of education in Nigeria. However, the study explained only 38.6% of the variance in behavioural intention meaning that there may be other factors that account for the missing variance, as observed earlier by Thomas et al. (2013). It is recommended that a broader investigation into the acceptance of m-learning in colleges of education in Nigeria be undertaken with a view to ascertaining other factors that could account for more variance.

Notes

i.   PE: Performance expectancy
     EE: Effort expectancy
     SI: Social influence
     MLC: Mobile learning conditions
ii. PE: Performance expectancy
     EE: Effort expectancy
     SI: Social influence
     MLC: Mobile learning conditions
     BI: Behavioural intention
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Appendix A

<div align="center">

Research Questionnaire (Students)
</div>

A. **Personal Information** (please tick (√) only one appropriate choice)

   1. My gender is:
      Male [   ]   Female [   ]

   2. My age is:
      Below 18 yrs [   ]   18–29 yrs [   ]   30–39 yrs [   ]   40–49 yrs [   ]   50 & above [   ]

   3. My marital status is:
      Single [   ]   Single parent [   ]   Married [   ]   divorced [   ]

B. **Perception of Stakeholders on Mobile learning**
    Performance expectancy
   1. I can use my mobile device as a means of communication/exchange of vital information between me and my lecturers, and even management of my College.
      Strongly disagree [   ]   Disagree [   ]   Neutral [   ]   Agree [   ]   Strongly agree [   ]

   2. Mobile devices can assist me to receive assignments/home works/quizzes from my lecturers and can also assist me to submit same to them.
      Strongly disagree [   ]   Disagree [   ]   Neutral [   ]   Agree [   ]   Strongly agree [   ]

   3. Mobile devices can assist my lecturers to upload learning materials to the internet for me and can also assist me to download same from the internet.
      Strongly disagree [   ]   Disagree [   ]   Neutral [   ]   Agree [   ]   Strongly agree [   ]

   4. Supporting the traditional learning with my mobile device will make teaching/learning more effective since I can have access to learning materials and I can also receive and submit assignments to my lecturers from any location at any time.
      Strongly disagree [   ]   Disagree [   ]   Neutral [   ]   Agree [   ]   Strongly agree [   ]

   5. Blending the traditional learning with mobile learning will reduce the challenges of inadequate classrooms, learning materials and inadequate manpower and congestions in my College by reducing the over dependence on face-to-face activities.
      Strongly disagree [   ]   Disagree [   ]   Neutral [   ]   Agree [   ]   Strongly agree [   ]

    Effort expectancy
   6. I will be encouraged to use my mobile phone to communicate with my lecturers, submit assignments/quizzes and access course materials from them if the general operations of the phone are simple, easy to manipulate and use.
      Strongly disagree [   ]   Disagree [   ]   Neutral [   ]   Agree [   ]   Strongly agree [   ]

   7. I will be encouraged to use my mobile phone to communicate with my lecturers, submit assignments/quizzes and access course materials from them if the general operations of the phone are simple, easy to manipulate and use.
      Strongly disagree [   ]   Disagree [   ]   Neutral [   ]   Agree [   ]   Strongly agree [   ]

    Social influence
   8. My friends and colleagues use a mobile technology for learning; therefore I think that I will use it too.
      Strongly disagree [   ]   Disagree [   ]   Neutral [   ]   Agree [   ]   Strongly agree [   ]

   9. My colleagues who use a mobile learning technology find it beneficial; this will encourage me to use it too.
      Strongly disagree [   ]   Disagree [   ]   Neutral [   ]   Agree [   ]   Strongly agree [   ]

Facilitating conditions

10. The availability and accessibility of mobile devices and their associated applications to me will facilitate my decision to accept to use mobile learning.
    Strongly disagree [   ]   Disagree [   ]   Neutral [   ]   Agree [   ]   Strongly agree [   ]

11. My acceptance to use mobile learning will depend on the functionality/capability/type of mobile device that is available to me.
    Strongly disagree [   ]   Disagree [   ]   Neutral [   ]   Agree [   ]   Strongly agree [   ]

12. I will accept to use mobile learning only if the quality of service that is provided by the mobile service providers is good.
    Strongly disagree [   ]   Disagree [   ]   Neutral [   ]   Agree [   ]   Strongly agree [   ]

13. I will accept to use mobile learning if the power situation in Nigeria is good.
    Strongly disagree [   ]   Disagree [   ]   Neutral [   ]   Agree [   ]   Strongly agree [   ]

Usage intention

14. I will be willing to use my mobile device to facilitate my learning.
    Strongly disagree [   ]   Disagree [   ]   Neutral [   ]   Agree [   ]   Strongly agree [   ]

15. I will be willing to accept policies in support of mobile learning in my College.
    Strongly disagree [   ]   Disagree [   ]   Neutral [   ]   Agree [   ]   Strongly agree [   ]

16. I will be willing to install additional software/hardware that will facilitate learning using my mobile device.
    Strongly disagree [   ]   Disagree [   ]   Neutral [   ]   Agree [   ]   Strongly agree [   ]

17. I will be willing to receive assignments from my lecturers and do other activities that will facilitate access to my lessons through the use of mobile devices.
    Strongly disagree [   ]   Disagree [   ]   Neutral [   ]   Agree [   ]   Strongly agree [   ]

18. My most preferred mobile learning activities will include the ability to access assignments, quizzes, lesson notes from my lecturers and also give feedback to them.
    Strongly disagree [   ]   Disagree [   ]   Neutral [   ]   Agree [   ]   Strongly agree [   ]