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Acceptance of Blended Learning in a Developing Country: The Role of Learning Styles

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Abstract

The study investigates factors that lead to the acceptance of blended learning in a developing country. Descriptive analysis, Principal component analysis and Regression analysis were adopted in this study. Data was obtained from 204 undergraduate students. Data analysis was carried out using frequency distributions and regression analysis. The findings revealed that a significant relationship exists between performance expectancy and facilitating conditions in the acceptance of blended learning in Nigeria .Also, students showed more interest in course related readings and course materials and less interest on discussion with lecturers and discussion with classmates. Performance expectancy is a major determinant in the acceptance of blended learning by students. Findings revealed a relationship between learning styles of students and the adoption o blended learning.

Introduction

Traditional Learning methods are no longer seen as an effective form of teaching (Emelo, 2014, Gütl *et al*, 2004). An analysis carried out in 2008 shows that students forgot 70% of their course content in a week and 87% in a month in a traditional teaching course (Emelo, 2014). Technology invariably has the power to close the learning gap, making education a ubiquitous service

Information technology stimulates an individualized learning process, fostering creative, analytical and critical thinking skills and motivating students through interactivity and collaboration (Noytim, 2010). Integrating technology with face-to-face instruction can reinforce both an interactive and communicative learning environment and provide meaningful learning outcomes (Rooney, 2003; Garrison & Kanuka, 2004). Rooney (2003) has declared blended learning as one of the top ten trends to emerge in the knowledge delivery industry.

Blended Learning in Africa is still constrained by infrastructural challenges, policy challenges amongst other limitations. Consequently, technology must be adapted to suit the peculiarity of the environment under study. Munezero M. et al. (2014)) in a study of the challenges in the implementation of blended learning in Kenya noted that these challenges can be solved by providing solutions to bridge the digital divide by the adoption of the mobile version of the module software and implementing the offline option of the software . In Kenya, tablets have been utilized in the implementation of blended learning in higher education. The studies showed that tablets have been highly accepted as a learning device due to its convenience.

However, in Nigeria, Blended Learning is still in its infancy and has not fully taken shape (Ololube, 2011). Ifinedo & Ololube (2007) identify barriers to ICT use in Nigerian universities to include inadequate funding, limited computer/internet access, poor infrastructure, power supply shortages, lack of trained faculty/personnel and poverty. Private universities however are

not faced with these limitations and it makes blended learning implementable in private universities in Nigeria (Ololube, 2011). According to Olasina (2012), who carried out a study on students experiences with e-learning tools discovered from his findings that students considered e-learning/m-learning resources' usage helpful in individualizing their academic work and ultimately as viable educational tools that has the potential to bring about improvements to their institution and classroom

BACKGROUND

Blended Learning is a learner centered approach where learners interact with teachers and content through a thoughtful integration of traditional learning with online learning based on technologies, pedagogies and context (Garrison& Vaughum,2008; Graham, 2006). According to a blended learning pilot program which was held in 2003 by Rochester Institute of Technology, a blended course is any course in which 25% to 50% of classroom lectures are replaced by lecturer guided online activities such as online quizzes, virtual team projects, synchronous and asynchronous discussions (RIT, 2004).

Sharpe et al. (2006) states that blended learning can be adopted in institutions in 3 ways and these include making learning materials available through the learning management system, digital technologies and new pedagogies introduced and the use of digital technologies by learners.

Students are the major stakeholders in the educational process and research on student attitude towards blended learning is important (Park, 2000) Lopez-Perez et al. (2011) points that tertiary students prefer learning when traditional modes of teaching are complemented by Information technology. Learning occurs in different ways which makes it imperative to combine different approaches to learning through the use of educational tools. Howard (2009) reported that more than half of the online students surveyed missed face to face interaction with other students.

Blended learning in Nigeria is still in its infancy and has not fully taken shape in Nigeria (Ololube, 2011). Certain challenges are still pertinent with the educational sector in Nigeria such as lack of infrastructures to support learning, nevertheless Nsofor et al (2014) states that adopting blended learning in Nigeria's Higher education system requires the exploitation of success stories so as to identify challenges specific to them. Blended learning removes barriers in providing answers irrespective of environmental , social or cultural circumstances. (Ifinedo & Ololube, 2007) identified barriers to ICT use in Nigerian universities as including inadequate funding, limited computer/internet access, poor infrastructure, power supply shortages, lack of trained faculty/personnel, and poverty. Private universities however are not faced with these limitations and it makes blended learning implementable in private universities in Nigeria (Ololube, 2011).

Theoretical background and Hypothesis

Several models have been identified for the adoption of technologies and to predict its actual use but for the purpose of this study Unified Theory of Acceptance and Use of Technology (UTAUT) has been adopted because it is widely used and well validated among researchers

Venkatesh et. al. (2003) formulated the Unified Theory of Acceptance and Use of Technology (UTAUT) UTUAT is based upon the conceptual and empirical similarities across different technology acceptance models. The model consists of 4 constructs and states that these constructs explain user acceptance and use of technologies. They are Performance expectancy, effort expectancy, social influence and facilitating conditions

Hypothesis 1: Performance expectancy has a positive effect on blended learning adoption

Performance expectancy is the degree to which using a system will improve the performance of the student .This construct has been the strongest in predicting behavioural intention (Venkatesh et al.2003).

Hypothesis 2: Effort expectancy has a positive effect on blended Learning adoption

Effort expectancy is defined as the degree to which student believes adoption of blended learning will be easy

Hypothesis 3: Social Influence has a positive effect on blended Learning adoption

Social Influence is described as the degree a student thinks people he considers important should use the system.it has been shown that there is a positive effect between social influence and intention to use a technology

Hypothesis 4: Facilitating Conditions has a positive effect on Blended Learning adoption

Facilitating Condition is the degree a student believes the organizational policies and structures and technical infrastructure support blended learning

Moderating Variables

The moderating variable considered in this study is gender based on the UTAUT model

Venkatesh et al. (2003) reported, that gender plays a significant role in the adoption of technologies.

According to research on performance expectancy, gender is usually stronger in men (Venkatesh & Morris, 2000) , while Effort expectancy and Social influence are more significant in women (Cheng, Yu, Huang, Yu, & Yu, 2011; Venkatesh & Morris, 2000).

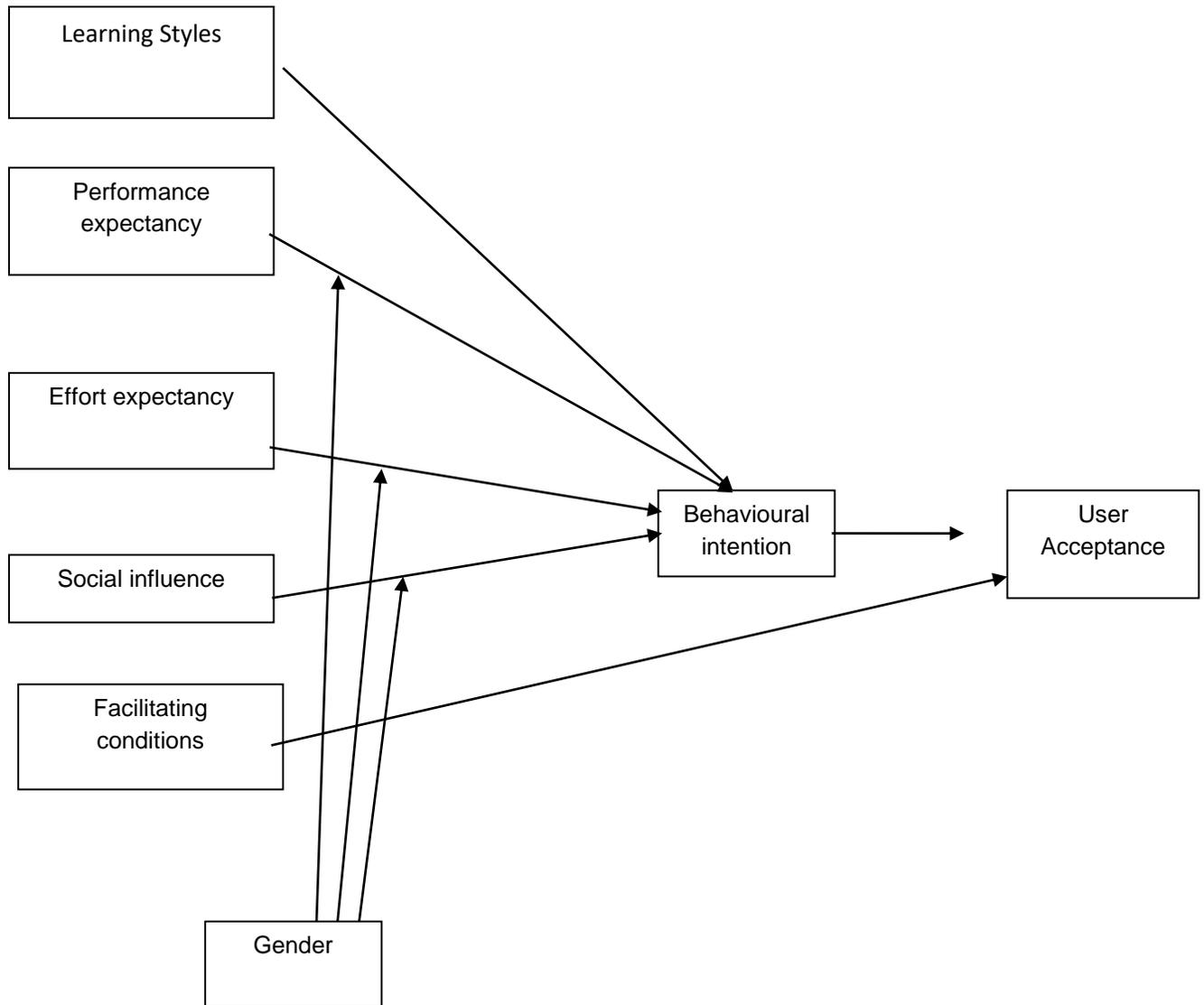H5: Gender influences intention to adopt blended learning

Learning Styles

Performance expectancy

Effort expectancy

Social influence

Facilitating conditions

Behavioural intention

User Acceptance

Gender

Figure 1: Model of Unified Theory of Acceptance and Use of Technology (UTAUT)

3. RESEARCH METHODOLOGY

The study was made up of Landmark University undergraduate student. Landmark University is currently running a blended learning approach; this adoption is still in the early phase with uploading of lecture materials and course compact as the major aspects been implemented, few lecturers are engaged in discussions, quizzes and exercises

This study used a questionnaire-based survey which was adopted based on UTAUT model. The questionnaire consisted of close end questions. 300 Questionnaires were distributed, of which 205 were returned by students

Descriptive analysis, and regression analysis were used for analysis and principal component analysis and reliability analysis were used to test the reliability of the data.

1. **Data**

In Table 1 to 3 56.8% of the sampled population is male while 43.2%   are female. All undergraduate student levels were fully represented in the data with 38.3%. College of Science and Engineering represented the majority in the data accounting for 59.2%

Table 1: Demographic characteristics of respondents

Gender	Frequency	Percentage
Male	117	56.8
Female	89	43.2

Table 2: Level of Study of respondents

Level of Study	Frequency	Percentage
100	29	14.1
200	34	16.5
300	40	19.4
400	79	38.3
500	24	11.7

Table 3: College of Study

College	Frequency	Percentage
College of Agricultural Science	11	5.3
College of Business and Social Science	73	35.4
College of Science and Engineering	122	59.2

Percentage willingness to use Blended Learning

Figure 1 shows the undergraduate students percentage willingness to use blended learning, 61% of students were in support of course materials while 59.2% of students were in support of exercises, and 66.5% were in support of course-related readings. Discussion with students got the least acceptance with 47.69%

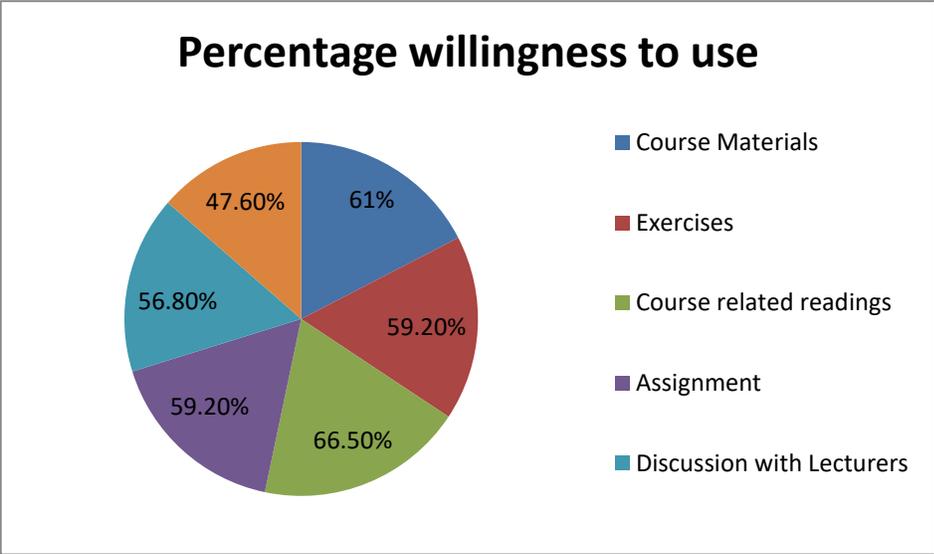Figure 1   Willingness to use blended learning features

Figure 2 shows the perceived benefits of blended learning features, 47.6% of the student population stated that the benefits of course materials available online is high, while 48.1% rated course-related readings with medium benefits and 36.4% rated discussion with lectures as low as shown in Table 4

Figure 2: Perceived benefits of Blended Learning Features
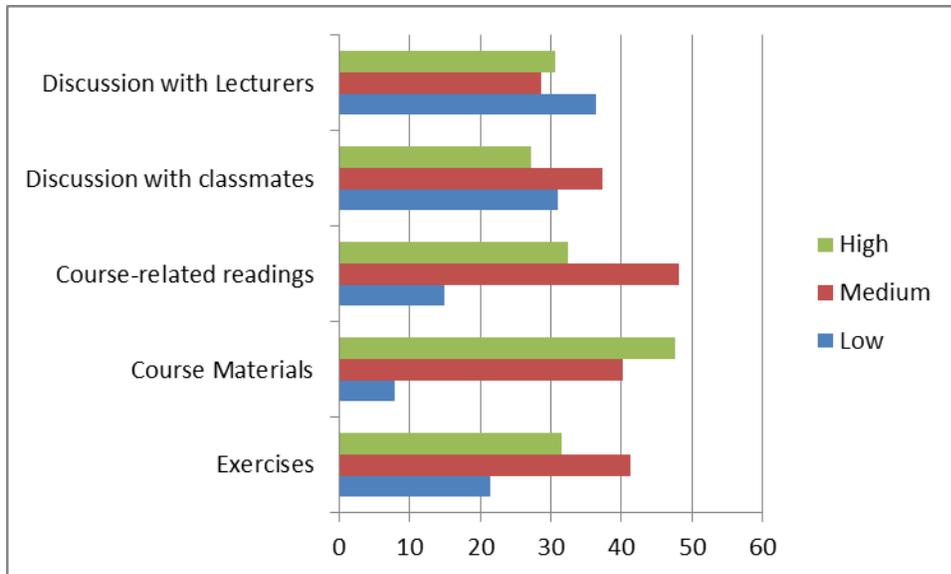
Learning Styles

Table 1 reveals majority of respondents stated that the learn best with the aid of pictures while only 28% stated that the learn with the aid of sound. This implies that blended learning features should include more images and educational games and simulations rather than just words or text

Table 2: Learning styles of students

Learning Styles	Percentage
Pictures	54.9
Sound	28.2
Words	34.0
Practice hands-on	35.9
Reasoning	29.6
Learn best in groups	35.9
Learn best working alone	41.3

Regression

Table 4: Descriptive Statistics for Model Constructs

Model Constructs	Mean	Standard Deviation	Number of Respondents
Behavioural Intention	6.6078	2.72972	204
Performance Expectancy	4.9951	1.82349	204
Effort Expectancy	8.0784	2.93169	204
Social Influence	9.5980	3.20025	204
Facilitating Conditions	9.2843	2.94741	204
Learning Styles	2.6912	1.81882	204

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	0.577	0.333	0.316	2.25784

Predictors Constant, Learning Styles, Facilitating Conditions, Performance Expectancy, Effort Expectancy, Social Influence. Dependent Variable; Behavioural Intention

Table 6: ANOVA

Model	Sum of Squares	df	Mean Square	F	Significance
Regression	503.253	5	100.651	19.744	0.000
Residual	1009.374	198	5.098		
Total	1512.627	203			

Table 7: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficient		Significance	Collinearity Statistics	
	B	Std Error	Beta	t		Tolerance	VIF
Constant	0.544	0.704		0.773	0.441		
Performance Expectancy	0.669	0.097	0.447	6.900	**0.000**	0.804	1.244
Effort Expectancy	0.011	0.066	0.012	0.175	**0.862**	0.679	1.472
Social Influence	0.032	0.062	0.038	0.527	**0.599**	0.647	1.546
Facilitating Conditions	0.194	0.062	0.021	3.135	**0.002**	0.751	1.331
Learning Styles	0.191	0.088	0.127	2.177	**0.031**	0.987	1.013

Table 8: Collinearity Diagnostics

Dimension	Eigenvalue	Condition Index	Constant	Performance Expectancy	Effort Expectancy	Social Influence	Facilitating Conditions	Learning Style
1	5.453	1.000	0.00	0.00	0.00	0.00	0.00	0.01
2	0.314	4.170	0.00	0.01	0.01	0.01	0.00	0.83
3	0.079	8.292	0.00	0.87	0.07	0.07	0.09	0.00
4	0.065	9.161	0.05	0.00	0.70	0.00	0.37	0.03

5	0.049	10.534	0.00	0.00	0.21	0.87	0.29	0.01
6	0.040	11.630	0.95	0.11	0.00	0.05	0.25	0.12

Dependent Variable: Behavioural Intention

Hypothesis Testing

Results for this study were presented in four formulated hypothesis as listed below

Ho: Performance Expectancy has no significant effect on undergraduate's intention to adopt blended learning

The results for the analysis reveal that there is a positive and significant relationship between performance expectancy and intention to adopt blended learning. The null hypothesis is rejected. This implies that the perceived benefits of blended learning are a major determinant for its adoption.

Ho: Effort Expectancy has no significant effect on undergraduate's intention to adopt blended learning.

Results showed that there is no significant relationship between effort expectancy and intention to adopt blended learning. The null hypothesis is accepted.

Ho: Social Influence has no significant effect on undergraduate students' intention to adopt blended learning

Results show that there is no significant relationship between social influence and intention to adopt blended learning. The null hypothesis is accepted.

Ho: Facilitating Conditions has no significant effect on undergraduate students intention to adopt blended learning.

Results show that there is a positive and significant relationship between undergraduate students intention to adopt blended learning and facilitating conditions.

Ho: Learning Styles has no significant relationship on undergraduates students intention to adopt blended learning

Results show that there is a positive and significant relationship between undergraduate students intention to adopt blended learning and the learning style of the student.

Conclusion

The acceptance of blended learning by undergraduate students was the objective of the study, since blended learning is still in its infancy in Landmark University, the study set out to find those factors that influence the adoption of the technology.

The study found out that majority of students are more interested in course-related reading and course materials features of blended learning .Also, students perceive course materials to provide high benefits on performance. Interesting students are not interested in collaborating with colleges and discussing with lecturers on blended learning platforms. The study further showed that performance expectancy and facilitating conditions influenced adoption of blended learning in Landmark University, while perceived ease of use and social influence did not have any influence on adoption. Gender did not play any moderating effect on ad on adoption of blended learning, as male and female undergraduate students' intention to adopt blended learning had no variation. This study also found out that there is no relationship between learning styles and blended learning adoption.

This study has implications in providing insights on the acceptance of blended learning in universities. Undergraduate students consider blended learning useful in their academic pursuits and with supporting features being available will invariably lead to the acceptance of the technology,.

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