IJIREEICE

ISSN (Online) 2321-2004
ISSN (Print) 2321-5526

International Journal of Innovative Research in
Electrical, Electronics, Instrumentation and Control Engineering

Vol. 6, Issue 10, October 2018

E-Learning Adoption Based on Technology Adoption Theory in Nigeria

Mohammed Sani Suleiman[1], Usman Musa Zakari Usman[2], Muhammad Yahaya[3]

Post Graduate Center, Limkokwing University of Creative Technology[1]

Faculty of Computing, University Technology Malaysia[2]

Faculty of Finance and Administrative Science Almadinah International University[3]

Abstract: Universities and other educational institutions around the world are increasingly using e-learning technology to more efficiently and effectively deliver the education to their students. Successful implementation of e-learning system is determined by the acceptance of such system by students. Therefore, this study was undertaken to explore the factors that influence the intention of students to adopt e-learning of two institutions namely the Federal University Dutsinma (FUDMA) and the Umaru Musa Yar'adua University (UMYU), and the investigation was carried out by using UTAUT model. It was found that performance expectancy, effect expectancy and facilitation conditions are the important factors, that are influencing students' intention to adopt e-learning, and the results are contributory for the development of a strategy for implementing e-learning system at these universities. It was also found that both, the universities and students are capable of adopting e-learning system.

Keywords: E-learning Systems, University, Literature Review, Adoption, Nigeria, UTAUT, FUDMA

I. INTRODUCTION

E-Learning (EL) which is considered as a distance learning is regarded as a future educational medium [1]. Currently, the use of E-learning is becoming an important medium used for distance learning all over the world [2]. The context of E-learning consists of web-based course, the medium used for enhancing multimedia delivery and other computer-aided communications. The system is becoming a potential way of making the learning process easy and active. [3] defined student's acceptance to E-learning as "the showing an interest within a user group to engage information technology in the tasks it is designed to support". Although the use of e-learning with the tertiary institutions and Universities in Nigeria is increasing, the question of to what extent it is accepted as a learning medium is not yet been well highlighted by researchers [5]. E-learning, which is an advanced education, is a means of education [4]. Currently, the use of educational education is an important factor around the world [6]; [7]. E-learning methods include Internet-based and medium-sized technology used to enhance multimedia news and other computer tools. This process is how it can be easier and easier. [7] agree with e-learning students that they "introduce in the user team technology into projects designed to support." Although the use of e-learning in universities and major universities in Nigeria has grown, the question has been raised as learning was not clear to researchers [8]. The current enormous concern among the organizations is online education system progress. As a result, the approval results evaluation is an increase in the speed of success in the development of the future application.

The organizations look is determine the success of the information system as it is widely implemented to help the ability of the user to come up with better and more creative, this is because they are derived from client's needs. Through coming up with the test to investigate the E-learning success, this study is aimed to target this important aim through the following issue. The identification of student expectation or their acceptance to the new learning environment can help the education administrators with an important response.

It can specifically improve the students learning experiences thereby protect their failure. The more the online learning courses offered by the institutions of higher learning, the more it becomes a progressively significant in the research examine the acceptance of students and their behavioural aims related to online learning. While some studies discuss advantages of learning in higher education, less experiential studies have been conducted on determining the factors towards the students' acceptance of online learning, which this study seeks to explore. Understanding learners' acceptance towards E-learning is a crucial issue to improve E-learning procedure and effects. This research aims to scrutinise e-learners' intention to continue E-learning programs. It is going to provide the better understanding of learners' acceptance towards E-learning and satisfaction level from E-learning programs. By applying Expectation Disconfirmation Theory (EDT), this thesis tends to develop a well-suited model to measure satisfaction level of

IJIREEICE

ISSN (Online) 2321-2004
ISSN (Print) 2321-5526

International Journal of Innovative Research in
Electrical, Electronics, Instrumentation and Control Engineering

Vol. 6, Issue 10, October 2018

learners at the Katsina University. Measuring satisfaction will give a better insight into learner's intention to continue learning programs, whether they continue these programs or quit this type of education.

Also, it has not been clear as to what additional factors would affect e-learning system usage behaviour and intentions in university contexts. Studies investigating the determinants relating to E-learning systems use have not been empirically tested from the more comprehensive perspectives of course level such as the university context. The purpose of this study is to explore the factors affecting the student's acceptance of E-learning at Katsina University. The acceptance of web-based E-learning regarding the development of teaching methods has constantly been increasing over the years largely due to technology. However, one of the bigger doubts which many researchers have is, how good the quality usefulness and satisfaction level of students is. This is a major issue, and this is what this study has to answer is based on Expectation Disconfirmation Theory (EDT) model, EDT as is a comprehensive acceptance model of E-learning. Accordingly, this study proposed a decomposed EDT to examine factors that influence student's acceptance of Katsina Universities in the context of E-learning service. The proposed model extended EDT by decomposing the Perceived Usability. Usability Disconfirmation, Perceived Quality, Quality Disconfirmation, Value Disconfirmation, Perceived Value and Student Satisfaction.

II. LITERATURE REVIEW

According to [9], the rapid evolution of information technology has created new applications, such as e-banking, e-commerce, e-learning and e-health. E-learning is a common application that is widely used in the educational sector [10]. The main objective of ICT is to reduce the limitations on time and location, in the context of higher education. It allows access to desired information, with limitations [11]. The advantages can be observed in addressing special knowledge, special needs and abilities. The learners or pupils will believe that their particular needs are acknowledged and resolved and can consequently see the relevance in e-learning applications. Initially, e-learning was not intended to be considered a substitution for conventional learning. Also, it is used in assisting both students and teachers which conventionally does not do.

However, the system was lately recognized and become a potential and promising option to the standard classroom learning, which aids in moving the society forward to a longer life and on-demand learning vision [12]. E-learning has been transformed to one of the trends that are growing fast [14] and intends to come up with a way of delivering an efficient and economical education through incorporating the configurable infrastructure into learning resource and services. Numerous online classes are now offered. Besides, in addition to online educational conversations, the collaborative online learning can also be performed on the net. The internet is perhaps the most transformative technology in recent times. The World Wide Web (WWW) and advances in digital technologies are revolutionising the practices of teaching and learning, where students can access a plethora of teaching easily and conveniently. Tertiary institutions worldwide, are increasingly exploring the potential use of e-learning technologies to cater to the ever-growing demands of flexible teaching and learning needs. The fundamental importance of E-learning is the knowledge sharing and acquisition which is facilitated by electronic media [13]. The e-learning is defined by the [2] as the learning experience that is instructed and delivered by the electronic technology media. practically, e-learning integrates an extensive diversity of learning approaches and techniques. Looking at the rate at which awareness of the potentials of online technologies, most universities especially in the developed countries have moved to develop institutional strategies for the deployment of e-learning as a solution to the future educational environment. Currently, there is a worldwide increase in a number of experienced personnel in educational technology within the higher education arena. This has resulted in the increased integration of academic and technological resources, which was opportunities in the integration of pedagogical and technological resources, which has expanded the learning flexibility crosswise the process of learning. However, the system was also improved the student-lecturers communication gap as well as the bridging the gap of interaction among diverse educational resources.

Considering the emerged of e-learning in developing countries, Nigeria started implementing its Information and Communication Technology (ICT) policy in April 2001 with the formation of the National Information Technology Development Agency (NITDA). The vision of the policy according to [14] is, "to make Nigeria an IT skilled country in Africa and play a significant role in the Information Society by the year 2005, by adopting IT as the means for achieving a sustainable development and global competitiveness". NITDA was mandated to participate in strategic coalitions and joint ventures and to cooperate with the private sector in other to achieve its mission statement of using IT for education, the creation of wealth, poverty eradication, job creation and globally competitive.
The emergence of e-learning has the advent of e-learning technology has recently made the internet-based learning and training practicable. It is an essential way of education destination through the internet and its allied technologies, which encompasses the use of the web to convey the content of the course and support instruction. However, it

IJIREEICE

ISSN (Online) 2321-2004
ISSN (Print) 2321-5526

International Journal of Innovative Research in
Electrical, Electronics, Instrumentation and Control Engineering

Vol. 6, Issue 10, October 2018

represents a learning environment that provides an interaction between learners and e-learning nobles and teaching through progressive information technologies. The interest in e-learning based courses among the University students is increasing [16]. Factors that could determine the acceptance of e-learning need to explore and assess to help in developing an effective e-learning system. The educational, technological and individual factors are the brain behind the effective adoption of e-learning. However, studies were lacking on either conceptual or theoretical framework that deals with e-learning system effectiveness, which resulted in the inconsistent result and unanswered question of what established the factor determining the effective e-learning delivery.

III. METHODOLOGY

In the present research, the conceptual framework has been validated by a previous empirical study based on a questionnaire. The instrument questionnaire for data collection was used. The questionnaire is designed and the sample was 400 participants who currently using the e-learning system from the universities and questionnaire distribution was selected randomly as well as returns were by hand. The participants were determined the level of their agreement with each item on a 5-point scale anchors from “Strongly agree” to “Strongly disagree”.

IV. RESULTS

The Findings revealed that there was a statistically significant and positive correlation between UTAUT variables (PE, EE, SI, and BI) and the use of e-learning; however, no significant correlation was found between BI and the use of e-learning. The authorized proposed conceptual path model of accepting e-learning is presented in figure 1. The figure 1 shows that PE and EE had a significantly positive effect on behavioural intention. In addition, the figure 1 depicted that SI significantly affects behavioural intention to use e-learning. This Figure 1 also shows that behavioural intention had a direct and significant effect on using e-learning. Furthermore, this figure 1 displays that the model explains about 56% of the variance (R2=0.56) for using e-learning while PE, EE and SI, together, explain about 52% of the variance for BI (R2=0.52). Table 3 summarizes the recommended goodness-of-fit measures. This table demonstrates that the relative X2 value is 2.3, which is acceptable. Other suggested indexes; i.e., Tucker-Lewis Index (TLI), comparative Fit Indices (CFI), Normal Fit Index (NFI) and Root Mean Squared Error of Approximation (RMSEA) were reported and appeared to be favourable.

Table 1. Items Measuring the Constructs in the Model

Construct	Item Number	Items
Performance Expectancy	1	I find e-learning useful in my work.
	2	Using e-learning facilities enables me to do my tasks more quickly.
	3	Using e-learning increases my work productivity.
	4	If I use e-learning, it will increase my chances of getting a promotion.
Effort Expectancy	5	My interaction with e-learning would be clear and understandable.
	6	It would be easy for me to become skilful at using e-learning.
	7	I would find e-learning stress-free to use.
	8	Learning to operate e-learning is easy for me.
Social Influences	9	People who influence my behaviour think that I should use e-learning.
	10	People who are important to me think that I should use e-learning
	11	The senior management of this business has been helpful in the use of e-learning.
	12	In general, the organization has supported the use of e-learning.
Facility Condition	13	I have the resources necessary to use e-learning.
	14	I have the information necessary to use e-learning.
	15	WBT is not compatible with other systems I use
	16	A specific person or team is available for support with e-learning difficulties.
Behaviour Intention	17	I intend to use e-learning in the future.
	18	I am sure I will use e-learning in the future.

IJIREEICE

ISSN (Online) 2321-2004
ISSN (Print) 2321-5526

International Journal of Innovative Research in
Electrical, Electronics, Instrumentation and Control Engineering

Vol. 6, Issue 10, October 2018

	19	I predict I would take e-learning courses in the future.
Usage	20	E-learning makes work more fascinating
	21	Using e-learning is a good idea.
	22	Working with LMS is a pleasure.
	23	I like working with e-learning.

The authorized proposed conceptual path model of accepting e-learning is presented in Figure 1. The figure 1 shows that PE and EE had a significantly positive effect on behavioural intention. In addition, the figure 1 displays that SI significantly affects behavioural intention to use e-learning. This Figure 1 also shows that behavioural intention had a direct and significant effect on using e-learning. Furthermore, this figure 1 displays that the model explains about 56% of the variance (R2=0.56) for using e-learning while PE, EE and SI, together, explain about 52% of the variance for BI (R2=0.52). Table 3 summarizes the recommended goodness-of-fit measures. This table demonstrates that the relative X2 value is 2.3, which is acceptable. Other suggested indexes; i.e., Tucker-Lewis Index (TLI), comparative Fit Indices (CFI), Normal Fit Index (NFI) and Root Mean Squared Error of Approximation (RMSEA) were reported and appeared to be favourable.

Table 2. The Correlation between the Variables of the Proposed Conceptual Path Model1, 2, 3

Constructs	PE	EE	SI	FC	BI	Usage
PE	1					
EE	0.411**	1				
SI	0.268**	0.273**	1			
FC	0.193*	0.503**	0.327**	1		
BI	0.649**	0.336**	0.301**	0.104	1	
Usage	0.364**	0. 310**	0.307**	0.069	0.604**	1

1) ** P-value is significant at 0.01 levels.
2) * P-value is significant at 0.05 levels.
3) PE: Performance Expectancy; EE: Effort Expectancy; SI: Social influences; FC: Facilitation condition; BI: Behavioral intention; Usage: Use of e-learning

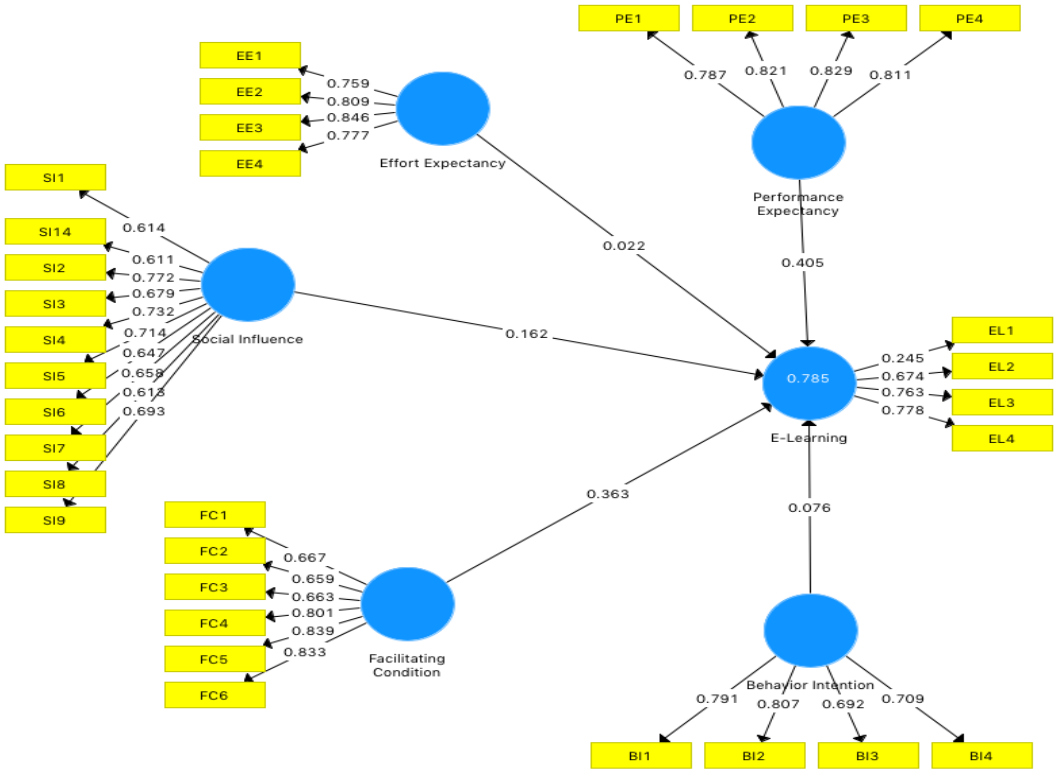

Figure 1: E-learning Model

IJIREEICE

ISSN (Online) 2321-2004
ISSN (Print) 2321-5526

International Journal of Innovative Research in
Electrical, Electronics, Instrumentation and Control Engineering

Vol. 6, Issue 10, October 2018

Table 3. Recommended Goodness-of-Fit Measure

Fit Index Category	Suggested Index	Suggested Value	Obtained Value
Absolute fit	Relative X2	Relative X2 < 3.0	2.3
Incremental fit	Tucker-Lewis Index (TLI)	.90 or above acceptable fit	0.93
Incremental fit	Comparative fit index (CFI)	.90 or above	0.96
Incremental fit	Normal fit index (NFI)	.90 or above	0.92
Parsimonious fit	Root Mean Squared Error of Approximation (RMSEA)	≤ 0.1	0.03

V. DISCUSSION

The findings of this study revealed that comprehensive adoption and implementation of e-learning considerably depend on the users' acceptance. User resistance, technophobia and unfamiliarity with e-learning and LMS appear to be the main obstacles when e-learning implementation is considered. Analyzing the users' behaviour by such acceptance models as UTAUT is a proper method to define the adoption of new technologies like e-learning. With respect to the association between PE and behavioural intention toward the use of e-learning technology, the standard coefficient of PE and behavioural intention was 0.74 with a p-value of 0.001. This finding is in line with the findings of [15], [16], [17] and [18], reporting a direct and significant path coefficient rates between PE and e-learning systems (2,15,19,21). The association between EE and behavioural intention towards using e-learning, the standard coefficient of EE and behavioural intention was found to be 0.26 with a p-value of 0.001; thus, H2 was supported, indicating that EE will have a direct effect on the faculties' perception to use e-learning tools and technologies. Likewise, [19], [20], and [21] found that EE had a direct and significant effect on the use of e-learning systems [2], [15], [19]. The findings of this study and those of similar studies have acknowledged the fact that EE is an important factor when using e-learning and should be considered when comprehensive implementation of such system is pursued.

Concerning the relationship between SI and behavioural intention to use e-learning systems, the findings suggest that SI had a direct and significant effect on behavioural intention (β=0.24, p=0.001). This finding is in line with the findings of [22], [23], [24], [25], and [12], who have reported that SI is an important factor controlling new technology acceptance. Therefore, this factor should be considered when successful implementation of e-learning systems is in progress [2], [15], [19], [22], [23]. With respect to the relationship between FC and the use of e-learning, the results of this study revealed that FC had no significant effect on PU (β=0.05, p=0.001). This finding is in line with the findings of [7], and [2], who found that FC had no direct and significant effect on E-learning acceptance [15], [23]. However, this finding is in contrast with the findings of [4], [23] and [4], who reported that FC had a significant effect on new technology acceptance [2], [19], [21]. Finally, concerning the relationship between behavioural intention and the actual use of e-learning, the standard coefficient of BI and the use of e-learning was found to be 0.48 with a p-value of 0.001; thus, some hypotheses were supported, indicating that behavioural intention will have a direct effect on the behaviour in accepting e-learning technology. Similarly, [16], [12] and [11] found that behavioural intention had a direct and significant effect on the users' acceptance of new technologies [2], [15], [19]. The model shows about 56% of the variance for the use of e-learning, while it shows 52% of the variance for behavioural intention towards the use of e-learning as explained by PE, EE and SI. Consequently, this study has a triple contribution to the adoption of e-learning. First, the findings of this survey acknowledged that UTAUT is a proper model for explaining and elucidating the users' behaviour in adopting e-learning. Second, factors affecting e-learning adoption were addressed. Finally, in line with prior studies, the results of this study revealed that some conditions do not appear to have a significant impact when widespread implementation of e-learning is considered; this might be due to the insignificant path coefficient rate on the users' behavioural intention towards the use of e-learning.

CONCLUSION

From the theoretical standpoint, the results from this study were consistent with the theories and previous literature. The empirical evidence from this study contributes to the body of knowledge in the fields of e-learning. This study was undertaken with various underpinning theories. Therefore, this study contributes to each of these theories by means of supporting the theories. This study hopes to contribute to knowledge on the adoption of e-learning among higher institutes in general. Generally, it gives an indication of how higher institutes can be motivated and enhance the willingness to adopt e-learning. This study helps in providing the alternative approach toward measuring perception of e-learning adoption.

ISSN (Online) 2321-2004
ISSN (Print) 2321-5526

IJIREEICE

International Journal of Innovative Research in Electrical, Electronics, Instrumentation and Control Engineering

Vol. 6, Issue 10, October 2018

REFERENCES

[1]. Ching-Ter Chang, Jeyhun Hajiyev, Chia-Rong Su, 2017, Examining the students' behavioural intention to use e-learning in Azerbaijan? The General Extended Technology Acceptance Model for E-learning approach, https://doi.org/10.1016/j.compedu.2017.04.010
[2]. Marilynne Coopasami, Stephen Knight, Marí Pete, (2017), e-Learning readiness amongst nursing students at the Durban University of Technology, https://doi.org/10.1016/j.hsag.2017.04.003.
[3]. ZuhalHussein, (2017), Leading to Intention: The Role of Attitude in Relation to Technology Acceptance Model in E-Learning, https://doi.org/10.1016/j.procs.2017.01.196
[4]. Eun HyeKwon, Martin E.Block, (2017), Implementing the adapted physical education E-learning program into the physical education teacher education program, https://doi.org/10.1016/j.ridd.2017.07.001
[5]. Jorge Tiago Martins, Miguel Baptista Nunes, (2016) "Academics' e-learning adoption in higher education institutions: a matter of trust", The Learning Organization, https://doi.org/10.1108/TLO-05-2015-0034
[6]. Richard Boateng, Alfred Sekyere Mbrokoh, Lovia Boateng, Prince Kwame Senyo, Eric Ansong, (2016) "Determinants of e-learning adoption among students of developing countries", The International Journal of Information and Learning Technology, https://doi.org/10.1108/IJILT-02-2016-0008
[7]. Vivek Agrawal, Akash Agrawal, Sucheta Agarwal, (2016) "Assessment of factors for e-learning: an empirical investigation", Industrial and Commercial Training, https://doi.org/10.1108/ICT-03-2016-0015
[8]. Ali Tarhini, Ra'ed Masa'deh, Kamla Al-Busaidi, Ashraf Bany Mohammed, Mahmoud Maqableh, (2016), "Factors influencing students' adoption of e-learning: A structural equation modelling approach", https://doi.org/10.1108/JIEB-09-2016-0032
[9]. Christos Skourlas, Anastasios Tsolakidis, Petros Belsis, Dimitris Vassis, Argyrw Kampouraki, Panos Kakoulidis, Georgios A. Giannakopoulos, (2016) "Integration of institutional repositories and e-learning platforms for supporting disabled students in the higher education context", https://doi.org/10.1108/LR-08-2015-0088
[10]. MaryamAsoodar, ShahinVaezi, Balal Izanloo, (2016), Framework to improve e-learner satisfaction and further strengthen e-learning implementation, https://doi.org/10.1016/j.chb.2016.05.060
[11]. Mohammad Khasawneh, (2015), Factors Influence e-Learning Utilization in Jordanian Universities - Academic Staff Perspectives, https://doi.org/10.1016/j.sbspro.2015.11.356
[12]. Hossein Mohammadi, (2015), RETRACTED: Factors affecting the e-learning outcomes: An integration of TAM and IS success model, https://doi.org/10.1016/j.tele.2015.03.002
[13]. Sangjae Lee, Byung Gon Kim, (2015), Users' preferential factors in Web-based e-learning systems for ease of workplace learning in Korea, https://doi.org/10.1016/j.lindif.2015.03.027
[14]. Hetty Rohayani.AH, Kurniabudi, Sharipuddin, (2015), A Literature Review: Readiness Factors for measuring e-Learning Readiness in Higher Education, https://doi.org/10.1016/j.procs.2015.07.564
[15]. Lucia Kovacova, Martina Vackova, (2015), Implementation of e-learning into the Process Security Education in Universities, https://doi.org/10.1016/j.sbspro.2015.04.810
[16]. Sujit Kumar Basak, Marguerite Wotto and Paul Belanger., January 2017, Factors Affecting to E-Learning in Continuing Education in Africa: A Review of Literature, International Journal of Engineering Sciences & Management Research.
[17]. Osubor, V. O. & Chiemeke, S. C., 2015, The Impacts of Information Culture on E-Learning Innovation Adoption in Learning Institutions in Nigeria, African Journal of Computing & ICT.
[18]. Olutola, Adekunle Thomas, Olatoye, Olufunke Omotoke, 2015, Challenges of E-Learning Technologies in Nigerian University Education, Doi:10.5901/jesr.2015.v5n1p301.
[19]. Olabode Olatubosun, Fasoranbaku Olusoga, Shemi A.P, 2014, Direct Determinants of User Acceptance and Usage behaviour of eLearning System in Nigerian Tertiary Institution of Learning, Journal of IT and Economic Development
[20]. Stella Ngozi Anastasi, Hussaini Ali, (2014) "Academic librarians' perceptions of the benefits and challenges of adopting e-learning for continuing professional development in Lagos state, Nigeria", https://doi.org/10.1108/NLW-01-2014-0016
[21]. The Computer Science Dept Federal University of Technology, Akure, Ondo State, Nigeria olabode_olatubosun@yahoo.co.uk Statistics Dept Federal University of Technology, Akure, Ondo State, Nigeria
[22]. Olabode Olatubosun, Fasoranbaku A. Olusoga and Oluwadare A. Samuel, 2015, Adoption of eLearning Technology in Nigerian Tertiary Institution of Learning, www.sciencedomain.org.
[23]. Egbe Adewole-Odeshi, 2014, Attitude of Students Towards E-learning in South-West Nigerian Universities: An Application of Technology Acceptance Model, http://digitalcommons.unl.edu/libphilprac.
[24]. Amedu, Silifat Ozoemena, 2014, Assessment of the Use of E-learning Facilities by Home Economics Teachers in Delta State, Nigeria, Journal of Education and Practice.
[25]. Bappah Magaji Abubakar, 2014, Rethinking E-Learning in Library and Information Science (LIS) Education in Nigeria: Developing a Model for the 21st Century, Information and Knowledge Management.