NATIONAL INNOVATION AND RESEARCH ACADEMIA
International Journal of Academia and Educational Research
ISSN: 2713-4680. Volume 6, Issue 2. Pages 44-53. December, 2020
Double Blind Peer Reviewed International Research Journal
editornirajournals@gmail.com

Predicting the Intention to Utilize E-learning System: Perceived Usefulness, Perceived Ease of Use, Perceived Enjoyment, Facilitating Conditions, Subjective Norm and Attitude towar:ds Use Based on Technology Acceptance Model: Perspective of University Lecturers in the Northeastern Nigeria

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Abstract: *Learning technology is the use of technology to support the learning process – widely known as e-learning. In higher education, this term refers to educational web sites such as online courses. The acceptance of technology in the learning process depends on some crucial factors. This research paper investigated the relationship among several variables that are related to educational technology performance based on the technology acceptance modal (TAM). The respondents were 230 Academic staff who are lecturers from six Universities in North-eastern Nigeria. Descriptive, SPSS and Structural Equation Modeling (SEM) were conducted to date. The results of the investigation showed that there was a positive relationship among variables correlated with the others. The SEM resulted that three of independent variables, had a significant positive effect on the intention of use and two non-significant.*

Keywords: *Perceived usefulness, perceived ease of use, Perceived Enjoyment, Facilitating Conditions, Subjective Norm and Attitude towards use.*

1. Introduction

E-learning system is the use of technology mediated process to support the learning style widely in the learning environment. In university education, this term refers to educational net locations such as accessible online progressions. Nevertheless, handling online courses in terms of system development, approachable policy for users, and end-users' involvement are predictable as the most critical factors among lecturer's fulfilment and utilization. Moreover, according to AlHamad, (2020); Siron, Wibowo and Narmaditya (2020); Galib, Hammou and Steiger (2018), technology is not just a tool for delivering

information or conveying knowledge to students but also enhances learning process (Siron, Wibowo, & Narmaditya, (2020). Indicators of well-informed and confident lecturers, using e-learning system upsurges desired learning upshots, and can support learners in building understanding. Therefore, E-learning can be considered as an extensive arrangement of uses and procedures which integrate electronic learning, computer (PC) based knowledge, virtual learning environments, and computerized collaborations. Quite a bit of this is conveyed using the web, intranet/extranet (LAN/WAN), sound and tape, satellite communication, intelligent TV, and CD-ROM (Aparicio, *et. al.,* 2016). Arkorful *et al.* (2015) embrace E-learning and considers pre-packaging of crucial data so that every scholar will benefit from a personal access. This approach enables academic staff to focus on high level exercises at the delivery stage. As indicated by Ocholla *et al*. (2013) concur with caution that utilization of electronic data assets can be once in a while be faced with acts of plagiarism, specifically reference to written falsification of data through reordering. However, the success of the E-learning system will certainly be determined by lecturers' intense to work and utilize the system. Researchers have conceded out numerous studies in E-learning based on Technology Acceptance Model (TAM) and have functioned on the expansion of TAM model with other variables in diverse nations and settings (Hanif *et al.,* 2018, Sylvia & Abdurachman, 2018, Al-Adwan & Smedley, 2013).

For instance, according to Dias, *et al.,* (2018), in 2013, about 82% of European higher education institutions were accessible via online learning courses using technology, as a result of charitable increase to an educational support where different University institutions coexist with difference of teaching methods and pedagogical models (Gaebel, *et. al.,* 2014). Innovations have a vital role in the advancement of quality education by providing a different approach to improve information and knowledge content (Al Kurdi, Alshurideh & Salloum, 2020). Interactive and communicative technology may support the development of skills in students (called "21st Century Skills") such as decisive thinking and problem solving, communication, teamwork, and inventiveness as well as provides lecturers' and students' ICT skills (Chan and Holosko, 2016). Therefore, integrating technology into the classroom by lecturers provides them with the diversity of opportunities that help to guide learners to the greater idea and expand useful mutual projects amongst them (Al Kurdi, Alshurideh & Salloum, 2020 and Saadé, *et. al.,* 2012; Smaldino, 2011).

However, an important position that needs to be reached is the point of expansion, where the innovation is utilized everywhere. Thus, to create innovative perceptive in teaching (e.g., e-learning, studies management structure and online-learning) which were not known hitherto is essential (Folden, 2012; Wagner, *et. al.,* 2014). So far, universities in Nigeria has not been doing bad technologically speaking, they have succeeded in covering some miles in becoming technologically richer than they were before (Kuliya, & Usman, 2020). This is justified by looking at the rate with which people make use of e-learning in Nigeria in recent years. It is now obvious that it will just be a matter of time they will catch up with the educational standards set up by the developed countries, if the ministry of education will put it into consideration (Ifeoma, 2013). During the one of the convocation the Open Universities in Nigeria on 18th January 2014, the then Minister of Education, Barr. Nyesome Wike showed the concern of the ministry of education for every Nigerian

citizen to be educated by saying that 'if everyone in Nigeria is educated, the fight against corruption will be easier' and this I believe e-learning can help us to achieve in Nigeria (Thomas, Adeyanju, Popoola, & Odewale, 2017). This necessitates the lecturer's policymakers and curriculum planners to put together new innovation with curriculum for more advancement in technology integration into education.

Therefore, investigating the lecturers' perception towards to E-learning system (perceived usefulness and perceives ease of use) provided by the university as well as their efficacy and readiness towards their intention to utilize the e-learning system is the main objective of this study. Additionally, this study addresses the following research questions.

What are the levels of study constructs with respects to lecturers perception about e-learning system utilization?
Is there any predictive relationship between independents factors and dependent factor?

2. Theoretical Approach

To discourse why users accept or reject an IT system and how user acceptance is influenced by other external factors such as a lecturer's characteristic use of computer in E-learning, Davis (1989) developed technology acceptance model (TAM) that was used to achieve this purpose (Teo, Huang & Hoi, 2017). Hence, according to Davis, Bagozzi, and Warshaw, (1989) this helps the system engineers, designers, and end-users to get enhanced user acceptance of the system in the setting over the plan selections of the system.

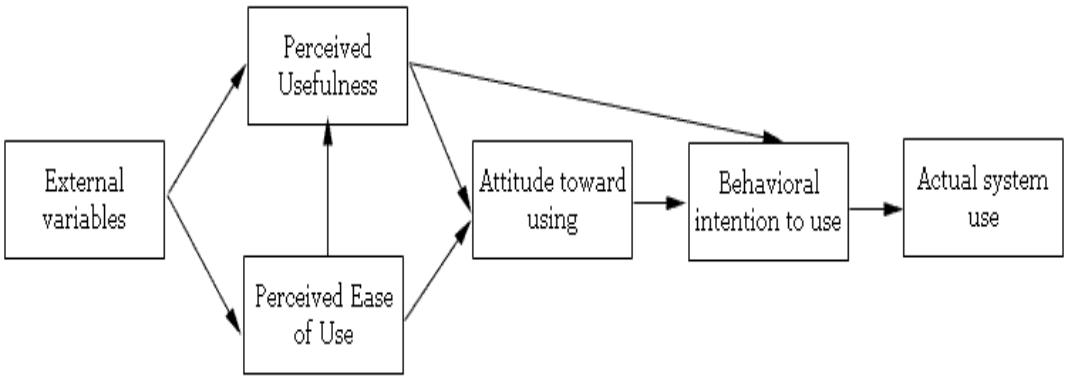

Figure 1: Technology Acceptance Model (TAM) by (Davis, 1989)

TAM is one of the most very much utilized and referred to (Alemi, 2018) adjustments of TRA and was first created by Davis in 1986 to explicitly clarify computer utilization behavior and model user acceptance of IS (Davis, Bagozzi, and Warshaw, 1989). Hat utilized TRA as a hypothetical reason for determining the temporal relationship linking two key convictions: perceived usefulness and perceived ease of use, and users' attitudes, intentions and actual computer adoption behaviour (Davis, Bagozzi, and Warshaw, 1989). In this way, the two hypothetical segments "perceived helpfulness" and "perceived ease" are the establishment of the TAM model to decide a person's aim to utilize a framework, with the expectation to utilize filling in as an arbitrator of real framework use. In the model two factors affecting usage that is defined as perceived usefulness which is "the degree to

which a person believes that using a particular system would enhance his/her job. The Model contains vital variables of user motivation (i.e., perceived ease of use, perceived usefulness, and attitudes toward technology) and outcome variables (i.e., behavioral intentions, technology use). The variables of perceived usefulness (PU) and perceived ease of use (PEU) are considered crucial factors that directly or indirectly explain the consequences (NuriAbdalla, 2019). In investigating the factors that contribute to the utilization of E-learning among lecturers, we applied the extended TAM model in this study. In mandate for scholastic knowledge to be applied in adequate ways, lecturers are require to interact with that skill for curricular use. Other variables were significantly related to TAM vital factors. These variables showed the personal ability to accept the E-learning technology.

Similarly, Davis et al., (1989) in innovative TAM external constructs were not specific, this means that it accepts different mediating variables which include, perceived enjoyment, technology self-efficacy and facilitating conditions (Alharbi and Drew, 2014; Teo and Noyes, 2011). However, TAM established that the effects of external changes on BI is mediated by the two conducts and the system utilization, likewise, there are different component that may have direct influence on system utilization (Davis, 1989). As a matter of fact devoid of external variables it is not easy for researchers to get enough facts, in fussy situations (Venkatesh & Davis, 2000). In the last model, Davis et al. (1989) proscribed ATT utilizing, on the grounds that it does not mediate between, variably affected beliefs PU and PEU and BI to utilize. The last model considered BI as a mediating task to carry out in PU, PEU and actual system utilization (Davis, 1989). In fact, Tam original is very important in this study because the four constructs (PU, PEU, ATT, and BI) were considered imperative on the ground that Teo (2015) and Teo and Milutinovic (2015) conducted a study that found that contended that attitude has been established considerably to be influenced by both perceived usefulness and ease of use. Similarly, as indicated in TRA, point of view towards a conducts is considered by conducts intentions about expending of the conducts (Ajzen & Fishbein, 1980).

3. Method

3.1. Source of Data

Data was collected using a questionnaire survey at 6 universities in the North eastern Nigeria. The respondents were lecturers in the universities in the Faculty of Education and they might conduct their teaching in online, on-ground, or mixed mode.

3.2. Proposal Model

The study framework presented in the figure is proposed. The independent variables are perceived usefulness, perceived ease of use, perceived enjoyment facilitating conditions, subjective norm and attitude towards use. The dependent variable is the intention to use. The study was conducted with SEM analysis techniques.

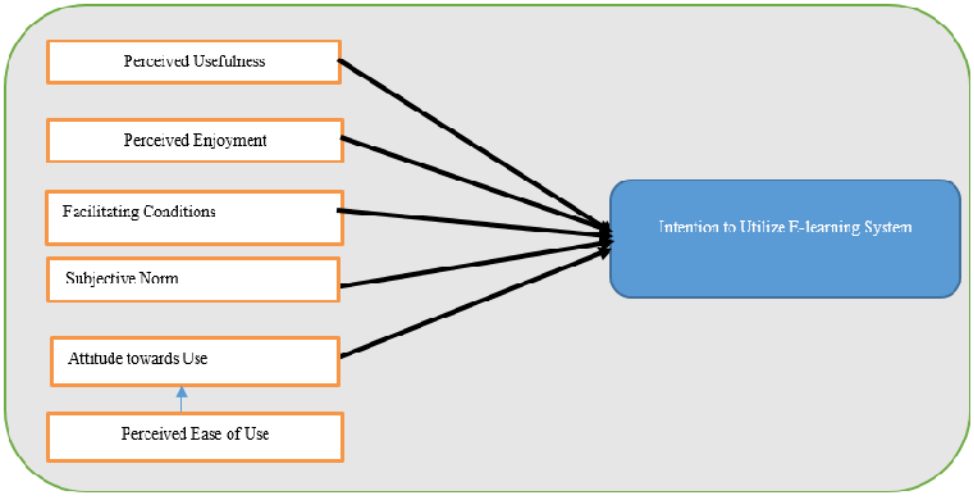

Figure 2: Model to be tested

4. Results

4.1. Reliabili

Cronbach's alpha was used to evaluate the reliability of constructs. The alpha measured were Subjective Norm =.76, Perceived Enjoyment = .80, Facilitating Conditions = .79, Perceived Usefulness = .76, Perceived Ease of Use =.79, Attitude towards use = .84, Behavioural Intention = .82. These values are all more than the least of 0.6 requisite for constructs to be reliable. Table 1 shows the details

Table 1: Reliability

Variables	**Number of Items**	Cronbach's Alpha
Subjective Norm	6	.76
Perceived Enjoyment	6	.80
Facilitating Conditions	8	.79
Perceived Usefulness	7	.76
Perceived Ease of Use	9	.79
Attitude towards use	8	.84
Behavioural Intention	7	.82

4.2. Descriptive Statistics

Mean and standard deviations for all variables were determined as shown in table 2. The maximum mean 3.42 which is between a scale of 1 to 5, for Subjective Norm = 3.31, Perceived Enjoyment = 3.41, Facilitating Conditions = 3.12, Perceived Usefulness = 3.42,

Perceived Ease of Use = 3.23, Attitude towards use = 3.37, for dependent variable (Behavioural Intention = 3.29). This means that the whole lecturers indicated that were conversant to use e-learning system with having more positive attitude towards and perceived it enjoyable to utilize. Perceived usefulness and ease of use e-learning technology were moderately respectively which indicated lecturers perceived the university system to be useful and easy to use comprehensible. The last mean was facilitating conditions, that indicated university lecturers have little confident in the facilities provided to use the e-learning system. The result of the descriptive Statistics on table 2 shows the levels of perception of e-learning utilization among university lecturers.

Table 2: Descriptive Statistics

	Levels							
Variables	**Low**		**Moderate**		**High**		**Mean**	**SD**
	Freq.	%	Freq.	%	Freq.	%		
PU	24	10.5	119	51.7	87	37.8	3.42	1.12
PEU	41	17.8	106	46.1	83	36.1	3.23	1.12
SN	15	6.5	160	69.6	55	23.9	3.31	1.01
FC	19	8.3	168	73.0	43	18.7	3.12	1.03
PE	14	6.1	128	55.7	88	38.3	3.41	1.02
ATT	28	12.2	85	37.0	117	50.9	3.37	1.09
BI	28	12.2	101	43.9	101	43.9	3.29	1.10

4.3. Predictive Relationship

To answer the second research question two, SEM analysis was used to assess the influence of independent variables on the dependent variable. Multicollinearity was checked that would cause a problem to contact the regression technique. If the variance inflation factors (VIFs) for the independent variables were greater than 10, the multicollinearity could unduly influence the results of the regression analysis as suggested by many researchers. The VIFs were less than 2 for all independent variables. The result of SEM regression analysis in table 4 showed a significant model at Sig-F=.000 at P<.001.

Table 3: Predictive relationship

	B	***S.E***	***C.R.***	***p***	***Hypothesis***
PE	.306	.075	4.076	***	Supported
FC	.198	.088	2.252	.024	Supported
SN	.150	.090	1.667	.016	Supported
PU	-053	.079	-664	.057	Not supported
ATT	.383	.099	3.863	***	Supported
R-Square				.329	
Sig-F				.000	

*p < .05, **p < .01

5. Discussion and Conclusion

In all lecturers perceived e-learning's usefulness more positively which have influenced their intent to use of e-learning and actual utilization. This result of responses may be seen by the fact that to adopting new technology is preferred than traditional (Venkatesh, et al., 2003). Furthermore, the analysis shows that lecturers from different universities, be it technology or science major, has significant effect on their view on the intent to utilization of e-learning, which validates the earlier theories. This means that lecturers from any of the North-eastern Nigerian universities value e-learning equally, regardless of their academic background or their teaching subject.

However, they indicated that they felt that today's technologies are overly complicated because less attention was paid on adequate facilities in the learning environment. Despite this they suggested that they must be seen to be receptive to technology in their jobs and for this reason an element of peer pressure may explain the lecturers' negative perception toward the intent to utilization of e-learning. It is suggested to have an equip system to overcome this problem of limited system use; most of the participants believe adequate equipment available in the system would be a motivating factor that North-eastern Nigeria should accept. In fact, useful and perceived enjoyed system and a positive attitudes in Nigerian universities will enhance mandatory use of e-learning system. Considering the most important measures that should be taken on board by the university to increase e-learning intent to utilization at the Nigerian universities.

Another analysis (regression analysis) was done to examine another relationship (predictive relationship) among the variables. The results revealed that perceived enjoyment, attitude towards use, facilitating conditions and subjective norm (β =.306, P .001, β =.383, P =. 001 β =.198, P =. 024, β =.150, P =. 016) respectively were found to be significant whereas the other two variables, perceived usefulness was not significant while attitude towards use plays a role of intermediary between behavioral intention to use e-learning utilization and perceived ease of use e-learning system among the university lecturers in Nigeria.. The intention of use can result from perceived enjoyable, subjective norm, facilitating conditions and positive attitude according to finding of this study. This means that university lecturer in Nigeria are more influenced by the enjoyment, effects of people around, availability of adequate facilities, easy to use and positive attitude towards using the system rather than of the usefulness of the system. The strong influence of these significant constructs indicates that university lecturers were more confident in utilizing e-learning technology (Sylvia & Abdurachman, 2018).

This indicates that lecturers accept a new information system which is crucial in shaping intent to utilization, enjoyably and positively than perceived usefulness. Hence, considering the attitude towards use influences the user intention the use of the information system seems important for utilization behavior (Davis et al., 1989; Calisir, et al., 2014; Ong, et al., 2004; Hwang, et. al., 2017). However, perceived usefulness has no more impact on lecturers which means usefulness of e-learning system is a normal issue and it has no lengthier undesirable influence on any person.

Information about the collaboration between, perceived enjoyments, subjective norm, facilitating conditions, perceived of usefulness, perceived ease of use and intention of using E-learning system is of interest to E-learning system engineers and makers in the universities in Nigeria. They can use these findings to enhance their understanding of what makes lecturers perform better while using E-learning system. To sum up, this study viewed that university lecturers would use the system if they find it to be enjoyable coupled with their positive attitudes of using technology in the E-learning environment.

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