EXAMINING LECTURERS' AND STUDENTS' ACCEPTANCE OF COMPUTER-BASED TEST IN SELECTED NIGERIAN UNIVERSITIES

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Abstract
Computer-Based Testing (CBT) is a mode of administering test in which the responses are electronically recorded, assessed, or both but universities in Nigeria are using CBT with paper-based test for academic assessment of students depending on students' population and lecturers interest which shows partial acceptance. This study examined the predictors of lecturers' and students' acceptance of CBT as a method of administering tests in selected Nigerian Universities. The study is a descriptive research type using cross sectional survey. The sample for this study comprises 420 lecturers and 806 undergraduates from four selected Nigerian universities. Data was collected through a researcher designed questionnaire for lecturers and students' acceptance of CBT. The internal consistency of the instrument was determined using Cronbach Alpha for 0.72 and 078 coefficient for lecturers and students instrument. Multiple regression was used to determine the relationship among the variables of perception (Perceived Usefulness (PU), Perceived Ease of Use (PEOU) and Perceived Credibility (PC)) and acceptance of CBT. The result shows that the most significant variable was Perceived Ease of Use for lecturers' and Perceived Usefulness for students'. Based on these findings, it was concluded that relationship between their perception and acceptance was significant. It was recommended that Nigerian Universities should intensify efforts in improving on their CBT centres and make provision for necessary facilities for the conduct of the exams so that students can have their examinations easily without any delay.

Keywords: *Information and Communication Technology, Computer-Based Test, Technology Acceptance Model, Learning Assessment, E-testing*

Introduction

Information and Communication Technology (ICT) involves the application of new technologies in an educational context and environment, and also a tool for supporting various components of education such as teaching and learning, resources management (human, material, financial resources) and admission and examination processes also known as learning assessment (Joshua, Joshua & Ikiroma, 2016). One specific form of ICT for assessment is the Computer-Based Test (CBT), also known as Computer-Based Assessment or e- assessment/testing. CBT simply refers to tests and assessments conducted through the use of the organized systems on computers with the ability to automate a very time consuming task, marking and monitoring progress (Olumorin, Fakomogbon, Fasasi, Olawale & Olafare, 2013). It is a method of administering tests in which the responses are electronically recorded, assessed, or both.

Olafare (2014) stated that CBT involves a range of activities which include the delivery, marking, and analysis of all or part of the student assessment process using computer technologies alone. CBT also increases the frequency of assessment, motivates students to learn and encourages skill practice, to broaden the range of knowledge to be assessed by lecturers. CBT increases feedback to students and lecturers involved, increases objectivity, consistency and reduction in marking loads of script and other cases resulting in administrative efficiency and credibility.

CBT for internal examinations in Nigerian Universities are conducted in CBT centers higher institutions which may be managed by the institutions or corporate body using a PC with an Internet connection and an online proctoring service. Although this transitions through CBT has healed the setback been faced by the traditional paper-pencil system which has been long associated with inconsistency, fraud, poor delivery, malpractice, insecurity, improper scoring of candidates and so on in Nigerian Universities (Ipaye, 2009, Ogunlade & Olafare, 2015) but these universities are still using CBT with paper-based test for students assessment depending on students population, nature of the course and lecturers interest which shows partial acceptance.

For Nigerian universities to transit from the paper-based test (PBT) to CBT for academic assessment of students like other universities globally, lecturers and students must accept the usage based on its usefulness, ease of use and credibility which are the major factors affecting the transition. According to Jones (2000) the successes of transition from PBT depend on the extent and ability of stakeholders such as lecturers and students to accept the benefits and limitations of mode of assessment because the face of examinations in Nigeria is gradually getting a new look due to the introduction of the computer-based test (CBT) system by examination bodies like Joint Admission Matriculation Board (JAMB) transiting totally from PBT to CBT in conducting their Unified Tertiary Matriculation Examination (UTME) for prospective students to higher education. JAMB in their website defined Computer-based testing as a simple and better way to offer the Jamb test as it allows testing centers to offer a more consistent test delivery, faster scoring and reporting, and enhanced test security.

The rationale for the development and integration of educational technologies in Nigerian University was to fast track two priority areas in the Universities strategic plan, they are: Expanding access and participation and enriching quality academic programmes through the infusion of ICT such Computer Based Test (Olumorin et.al.2013). For the transition from PBT to CBT as a mode of assessment in Nigerian Universities, the executive management of the institutions must commit resources for the development and improvement of the assessment mode (Olawale & Shafi'i, 2010). The acceptance of computer-based test as a mode of assessment depend on perception of the stakeholders (Olafare, 2014) in terms of how useful the technology is, how easy is it to use and how reliable and credible it is for assessment. On this note, Technology Acceptance Model (TAM) was introduced to determine lecturers and students acceptance of CBT.

Studies on the user's perception and acceptance of CBT focused on them separately as reasons for use of CBT but did not specifically make use of a standard model like Technology Acceptance Model (TAM) and also nothing has been doing on their relationship (Olafare, 2014). However, Technology Acceptance Model (TAM) is which is more on perception is one of the successful approaches that leads to acceptance of technology. According to Venkatesh (2000), TAM has a predictive power that makes it easy to apply to different situations. Though TAM has been extensively tested and validated among users of technology but research on its application in the field of education is limited because it dwells more on perception. In the application of Technology Acceptance Model developed by Davis (1989), the constructs identified by TAM and the additional one by the researcher for this study are perceived usefulness, ease of use, credibility.

Researchers had use Technology Acceptance Model (TAM) to measure the perception of stakeholders on the of CBT (e.g Nurcan 2010, Terzis & Economides 2011, Olafare, 2014) but the researchers in their studies did examine the level of acceptance based on the relationship of the variables that determine the acceptance of computer-based test for

assessment in Nigerian Universities. This is an indication that studies examining the relationship between perception and acceptance of computer-based test in Nigerian university context seem to have been ignored. It is on this note that this study examined the relationship between lecturers' and students' perception and acceptance of computer-based test in selected Nigerian universities based on:

(i) the relationships among the variables of lecturers perception (perceived usefulness, perceived ease of use and perceived credibility) and acceptance of CBT in selected Nigerian universities.

(ii) the relationships among the variables of students perception (perceived usefulness, perceived ease of use and perceived credibility) and acceptance of CBT in selected Nigerian universities.

Research Hypotheses

Ho_1: There is no significant relationship among the variables of lecturers' perception (perceived usefulness, perceived ease of use and perceived credibility) and acceptance of CBT in selected Nigerian universities.

Ho_2: There is no significant relationship among the variables of students' perception (perceived usefulness, perceived ease of use and perceived credibility) and acceptance of CBT in selected Nigerian universities.

Methodology

This study is a correlation research design. The study was limited to lecturers' and students' perceptions and acceptance of computer-based tests in Nigerian universities by determining their perception (perceived usefulness, perceived ease of use and perceived credibility) and level of acceptance of computer-based test in Nigerian Universities. The target population for this study consists of 420 lecturers and 806 students in the two purposively selected Universities in North central Nigeria (University of Ilorin, Ilorin and Kogi State University, Anyigba) that have been using Computer-based test in their Universities for assessment for over 8 years. This gives a total of 1226 respondents for the study. Simple random sampling was used to select sample from the lecturers and students population in the selected universities. The sample size for this study was determined from the total number of lecturers and students who were users of computer-based test in the selected Nigerian universities during the 2015/2016 academic session. Table 1 and 2 below shows the total number of lecturers and students from the selected universities.

Table 1: Lecturers sample election

Universities	Total number of students	Sample
University of Ilorin	2,205	297
Kogi State, University	910	123
Total	3,115	420

Table 2: Students Sample Selection

Universities	Total number of students	Sample
University of Ilorin	37,222	481
Kogi State, University	17,547	325
Total	54,769	806

A researcher-designed questionnaire on Lecturers' and Students' Perceptions and Level of Acceptance of Computer-based Test in Nigerian Universities was used for the collection of data in this study. The instrument was designed to reflect the lecturers' and students' perceived usefulness, perceived ease of use, perceived credibility and acceptance of computer-based test.

Results

Ho_1: There is no significant relationship among the variables of lecturers' perception (perceived usefulness, perceived ease of use and perceived credibility) and acceptance of CBT in selected Nigerian universities.

In order to test hypotheses 1, responses of the lecturers to each of the segments (perceived usefulness, perceived ease of use and perceived credibility) in the perception inventory were collated separately on statistical coding sheets. The lecturers' response for the level of acceptance were also collected and recorded in another coding sheet. The segments (variables) in perception inventory were used as independent variables while the data on level of acceptance was used as the dependent variable. The two sets of data (independent and dependent) were subjected to Multiple Regression analysis and the output revealed thus:

Table 3: The relationship among independent variables and dependent variable

Model	Sum of Squares	df	Mean Square	F-value	p-value
Regression	1902.098	2	237.76		
Residual	15207.448	417	52.26	2.15	0.02
Rejected					
Total	12109.547	419			

Critical Level of Sig. = 0.05

Table 3 shows that the calculated F-value is 2.15 and the Sig-value is 0.02 with 2 and 417 degrees of freedom (df) computed at 0.05 level of significance. Since the sig value 0.02 is lesser than 0.05, hypothesis 1 is hereby rejected. This implies that there is a significant relationship among the variables of lecturers' perception (perceived usefulness, perceived ease of use and perceived credibility) and acceptance of CBT in selected Nigerian universities.

To ascertain the contribution of the independent variables together, R-Square was then computed as shown in the table below.

Table 4: Model summary showing contribution of independent variables together

Model	R	R-Square	Adjusted R-Square	Std Error of Estimate
1	.313	.111	.087	7.22906

Table 4 shows that all independent variables together contributed to R-square of .111 (11.1%) to the model (acceptance). This implies that several other factors could influence the acceptance of CBT. In order to ascertain the contributions of each of the independent variables to acceptance of CBT, Beta weight was computed and the output is shown below.

Table 5: Contributions of the independent variables to acceptance of CBT

Study habits	Unstandardized Coefficients		Standardized Coefficients			Ranks
	B	**Std. Error**	**Beta**	**t**	**p-value**	
(Constant)	33.23	17.88		4.22	.000	
PU	409	.203	.134	2.02	.004	2nd
PEOU	644	.207	.287	3.12	.002	1st

Table 5 indicates that perceived ease of use ranked first by contributing the highest Beta weight of 0.287 and perceived usefulness ranked second as it contributed 0.137. Thus it could be inferred from the findings of the study that the relationship that exists between lecturers' perception and level of acceptance of CBT is predictable across the variables of perception.

Ho_2: There is no significant relationship among the variables of students' perception (perceived usefulness, perceived ease of use and perceived credibility) and acceptance of CBT in selected Nigerian universities.

In order to test hypotheses 2, responses of the students to each of the segments (perceived usefulness, perceived ease of use and perceived credibility) in the perception inventory were collated separately on statistical coding sheets. The students' response for the level of acceptance were also collected and recorded in another coding sheet. The segments (variables) in perception inventory were used as independent variables while the data on level of acceptance was used as the dependent variable. The two sets of data (independent and dependent) were subjected to Multiple Regression analysis and the output revealed thus:

Table 6: The relationship among independent variables and dependent variable

Model	Sum of Squares	df	Mean Square	F-value	p-value
Regression	902.018	2	237.76		
Residual	13207.418	803	52.26	3.52	0.01
Total	10109.517	805			

Critical Level of Sig. = 0.05

Table 4 shows that the calculated F-value is 3.52 and the Sig-value is 0.01 with 2 and 803 degrees of freedom (df) computed at 0.05 level of significance. Since the sig value 0.01 is lesser than 0.05, hypothesis 2 is hereby rejected. This implies that there is a significant relationship among the variables of students' perception (perceived usefulness, perceived ease of use and perceived credibility) and acceptance of CBT in selected Nigerian universities.

To ascertain the contribution of the independent variables together, R-Square was then computed as shown in Table 7.

Table 7: Model Summary Showing Contribution of Independent Variables together

Model	R	R-Square	Adjusted R-Square	Std Error of Estimate
1	.412	.117	.072	6.12105

Table 7 shows that all independent variables together contributed to R-square of .117 (11.7%) to the model (acceptance). This implies that several other factors could influence the acceptance of CBT. In order to ascertain the contributions of each of the independent variables to acceptance of CBT, Beta weight was computed and the output is shown below.

Table 8: Contributions of the independent variables to acceptance of CBT

Study habits	**Unstandardized Coefficients**		**Standardized Coefficients**		**Ranks**
	B	**Std. Error**	**Beta**	**t-value**	**p-value**
(Constant)	42.21	19.21		4.12 .000	
PU	519	.303	.334	2.31 .001	1st
PEOU	324	.204	.217	3.02 .003	2nd

Table 5 indicates that perceived usefulness ranked first by contributing the highest Beta weight of 0.334 and perceived ease of use ranked second as it contributed 0.217. Thus it could be inferred from the findings of the study that the relationship that exists between students' perception and acceptance of CBT is predictable across the variables of perception.

Discussion

This finding is consistent with some other findings reported in the literature such the report by Linn and Miller (2005) who reported that computer-based test is easy to use as it is not stressful. Similarly, Ricketts and Wilks (2002) also reported that computer-based test is perceived to be easy to use as it is user friendly and the user friendliness aids its usefulness. Farrell and Leung (2004) reported that the competency level of lecturers increases the rate at which they find CBT easy to use. In the same vein, the report by Venkatesh (2000) shows the inter-relationship between usefulness and ease of use of computer-based test produced substantial support for it acceptance.

Conclusion

This study explored the relationship among the variables of lecturers' and students' perception (perceived usefulness, ease of use and credibility) of computer-based test in Nigerian Universities. This study inferred that since the relationship between their perception and acceptance was significant. However, all the variables of perceptions contributed only 11.1% and 11.7% for both lecturers and students which indicated that some other factors could have played significant roles in the dwindling of the transition of PBT to CBT in Nigerian Universities.

Recommendation

In the light of the findings and conclusions made in this study, it is recommended that conscious efforts should be made by stakeholders – school management and Ministries of Education(s) to help encourage lecturers and students to imbibe effective use of CBT. Nigerian Universities should intensify efforts in improving on their CBT centres and make

provision for necessary facilities for the conduct of the exams so that students can have their examinations easily without any delay.

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