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Student Perception and Acceptance of Computer Based Testing: A Case Study of Landmark University Students

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ABSTRACT

Abstract
Computer Based Testing has taken its root in several universities in Nigeria and it becomes pertinent to access the perception of students as critical stakeholders in the education system. Three hundred questionnaires were distributed, of which 168 were returned and analyzed. Descriptive analysis and regression analysis were carried out using the Statistical Package for Social Science Software(SPSS). Result revealed that the acceptance rate of Computer Based Testing by students is high, though majority of the students were in support of training prior to taking assessments. Also, the acceptance rate of Physics and Chemistry assessments were relatively low compared to other courses. The study also reported gender differences in the acceptance of CBT and also discovered that College of Study determined the acceptance of CBT. This study has implications for university administrators to ensure that assessments align with the international guidelines for computer testing and also the need to consider the interface design in Physics and Chemistry assessments.

Keywords: Computer Based Testing, assessment, acceptance, perception

1. INTRODUCTION

Computer Based Testing has brought about a transformation in learning, pedadaogy and curriculum in educational institutions (Scheueriman& Pereira, 2008). However, its successful acceptance is largely dependent on students, who are critical stakeholders in the universities. Globally, researchers have sought students' perception on CBT (Rickettes& Wilks, 2001, Walker & Delious, 2004, Bacon, 2003, Jimoh eta al. 2003). Alabi, Issa and Oyekunle (2012) identified challenges with the PPT method in Nigeria, which includes high risks, subjective scoring, and manipulation of results amongst others which the computer based testing method has altered**.** Some of the advantages of computer based testing includes increased delivery, administration and scoring efficiency, improved test security, consistency and reliability, faster response rate, measure complex forms of knowledge and reasoning, recording a broader knowledge of repertoire knowledge and skills (Riku, Laurif & Ari, 2001;Wilks, 2002; Delious, 2004 ; Bodmann and Robinson, 2004).

In Nigeria, many universities have adopted this technology for assessment of student's performance Sadiq & Onianwa (2011). Landmark University conducts computer based tests for specific programmes in the university that have a large population of students.

Hence, the objective of this study

- is to ascertain the perception of students of computer based testing in assessment
- consider if there is any difference in acceptance among courses
- Gender differences in acceptance of computer based testing

2. LITERATURE REVIEW

The predominant mode of accessing student performance in Nigeria is traditional. This method has been faced with several limitations (Isa, Alabi & Oyekunle, 2010). Though these limitations exist; it is also pertinent to access the perception of students who are critical stakeholders in the educational system. Several researchers have accessed these with diverse views. Ricketts & Wilkis (2001) suggested that the introduction of computer assisted assessment without consideration of the interface design could lead to a drop in performance, in the analysis of three courses (biology, business and geography) it was revealed that only 55% of students preferred computer based assessment in Geography, 72% preferred computer based assessment in Biology and 90% preferred computer based assessment in Business. These findings showed that the acceptability of computer based test can be said to be dependent on the course type. Bertolo & Lambert (2007) carried out a study in Chemistry and found that computer based assessment had a positive effect on student learning experience.

In Physics, Bacon (2003) revealed that only few students found the system easy, most students considered computer based assessment unfair. Lin et al. (2006) also showed that more than 75% of respondents preferred computer based assessment for their medical exams. These findings show that the acceptance of computer based test is dependent on the course being tested, while some students have a positive attitude towards computer based assessment (Karadeniz, 2006), others consider it unfair (Bacon, 2003). These findings show that the acceptability of computer based test can be said to be dependent on the course type. Daly and Waldon (2010) discovered that student acceptance of CBT is dependent on their performance. Though there has been a diverse opinion among students on its acceptance. The International Guidelines on Computer Testing states that equivalent test scores should be established for Paper-Based Testing (PBT) and its computer mode (International Test Commission, 2004).

Researchers have had different findings as relates to the international guidelines of computer testing. Chua (2012) found that there was no testing effect on test performance in computer testing method. It was also discovered that the computer based testing method increased motivation. This finding is also corroborated by Doolan and Banker (2005) in an evaluation of computing students' performance using the computer based testing method, it was discovered that students had a positive attitude towards the system. Calarina and Wallace (2002) also found that the CBT group out-performed the PPT group. However, Ricketts and Wilks (2001) findings negated these findings. It was discovered that students had poor performance using the online assessment method in a numeracy and statistics testing method.

Alabi Alabi, Issa and Oyekunle (2012) identified several challenges still facing examinations in Nigeria, Nigerian educational system has begun to embrace technology in conduct of its examination. Sadiq & Onianwa (2011) noted that computer based testing has become common place in Nigeria. It is also pertinent to access students' perceptions to the use of computer based testing. Tella & Bashorun (2012) revealed that more than average of the student population preferred Computer Based Tests to Paper Based Test. This finding was also corroborated by Ayo et al (2007) who stated that students have a positive attitude towards CBT; the study revealed that more than 75% of the respondents that participated in electronic exams for the first time found it easy. A study by Ayo (2007) also revealed that 24.2% of applicants found computer based testing difficult because they had never been involved in it.

Alabi, Issa and Oyekunle also noted that when students are motivated and testing conditions are equivalent there are no differences in scores via CBT and PPT. Hence, this study seeks to find the perception of undergraduate students about CBT and also seeks to ascertain variations against course type, performance and acceptance of computer based tests.

3. METHODOLOGY

This study focuses on undergraduate students in Landmark University. Landmark University was established in 2011 and began computer based assessment from inception. This study was carried out using random sampling method. This method was adopted based on differences in subscription among colleges in the university. The overall sample size was 300. Data was collected from students using a structured questionnaire, to ensure face validity, the questionnaire was evaluated by other information science professionals to test its validity and modification was made based on assessment. Content validity was established by carrying out a pilot study, in which 10 students participated.

Descriptive analysis was carried out to ascertain the perception of students on computer-based testing, while regression analysis was carried out to test the relationship between acceptance of Computer based testing and dependent variables (gender, college of study and level of study). The questionnaire was divided into three sections. Section A measured the demographic characteristics of students ranging from gender, colleges and level of study. Section B measured students' acceptance of computer based testing. The questions were measured using a dichotomous scale of 'yes' and 'no' and Likert scales ranging from strongly agree to strongly disagree, while Section C measured courses taken in CBT, preference for paper-based testing and performance in tests/exams taken.

4. DATA ANALYSIS

A total of 300 questionnaires were distributed and 168 was completed and returned. Table 1 shows that males accounted for 60.1%, while females accounted for 39.9%. College of Science and Engineering had a majority of respondents with 56.5% and Level of study was distributed among levels.

Table 1: Demographic characteristics of respondents

Gender	Frequency	Percentage
Male	101	60.1
Female	67	39.9
Level of Study		
100 Level	3	1.8
200 Level	51	30.4
300 Level	61	36.3
400 Level	31	18.5
500 Level	22	13.1
College of Study		
CAS	24	14.3
CBS	49	29.2
CSE	95	56.5

4.1 Perception of Computer Based testing by undergraduate students.

Table 2 reveals majority (95.2 per cent) of respondents are interested in using CBT for examinations and tests. Though only 50 percent of respondents will want to take all courses using CBT, this shows that preference for CBT only affects specific courses. Also, 89.3% of respondents also reported the need for students to be trained on the use of computers with only 77.9 % stating that minimum computer knowledge was sufficient for taking assessments. 34.6% of respondents indicated their preference for paper based test to computer based tests of which 27.4% indicated anxiety when taking computer based tests

Table 2: Perception of Computer Based Testing by Undergraduates

Strongly Agree	Agree	Strongly Disagree	Disagree
CBT is an interesting technique in examinations			
51.2	44.0	1.8	3.0
Students should be trained on use of computers for online tests and exams			
42.3	47.0	3.6	6.5
Prefer Paper Based Test to Computer Based Test			
17.9	16.7	38.1	26.8
CBT test make me anxious			
14.9	12.5	45.2	26.8
Take all courses using Computer Based testing			
34.5	15.5	29.2	20.2
Minimum Computer knowledge is necessary in attempting questions			
31.5	46.4	9.5	10.7

4.2 Preference of Paper Based Tests across Courses Taken

Physics and Chemistry are taken by College of Science and Engineering students, 43.2 % of students were not in support of conducting computer based tests for Physics while 37.8% were not in support of CBT for Chemistry, this amounted to a greater percentage than other courses taken.

Table 3 Preference for Paper based tests

Course	Frequency	Percentage
Total Man Concept	28	16.7
Entrepreneurial Studies	26	15.5
Physics	41	43.2
Use of Library &Information Technology	18	10.7
Chemistry	36	37.8
General Studies	30	17.9

4.3 Acceptance Rate of Computer based testing in Courses

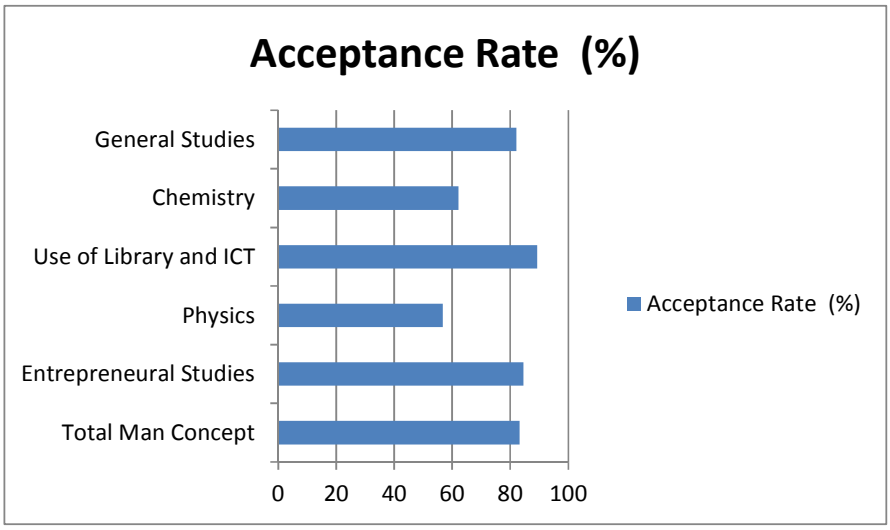

Figure 1: Acceptance rate of CBT in courses

4.4 Regression Analysis

4.4.1 Gender and CBT

There was a negative but significant relationship between acceptance of CBT and gender (Beta=-0.246, p=0.001)

Table 4: Relationship between Gender and acceptance of CBT

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.603	.103		15.586	.000
	Gender	-.227	.069	-.246	-3.270	.001

Table 4: Relationship between Gender and acceptance of CBT

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.603	.103		15.586	.000
	Gender	-.227	.069	-.246	-3.270	.001

a. Dependent Variable: Assessments are best done using CBT

4.1.2 Level of study and acceptance of CBT

Table 5 revealed that there is no significant relationship between Level of Study and Acceptance of CBT (p=0.095)

Table 5: Relationship between Current Level of study and acceptance of CBT

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.461	.110		13.281	.000
	Current Level of Study	-.056	.034	-.129	-1.677	.095

a. Dependent Variable: Assessments are best done using CBT

4.1.3 College of Study and acceptance of CBT

Table 6 showed that there is a positive and significant relationship between College of Study and Acceptance of CBT (Beta=0.158, p=0.041).

Table 6: Relationship between College of study and Acceptance of CBT

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.048	.120		Model	.000
	College	.098	.048	.158	2.058	.041

a. Dependent Variable: Assessments are best done using CBT

5. DISCUSSION OF FINDINGS

Students' perception of the acceptance of Computer Based Testing is pertinent as critical stakeholders in any educational system. The objective of this research is to explore students' acceptance of computer based testing. Research shows that the acceptability of computer based testing is dependent on course type (Rickettes & Wilkis, 2001), Bertolo & Lambert (2007), Bacon (2003), Lin et al. (2006). The study reveals that majority of students had a positive attitude towards CBT though more than 80% of respondents indicated the need for training on the use of CBT. Also undergraduate students who took Physics and Chemistry showed less interest indicating their preference for paper based test.

This corroborates the finding of Bacon (2003) who stated that only few students found CBT easy in Physics as majority of students considered the system unfair. Jimoh et al. (2012) also stated that only 29.2% of respondents were in favor of CBT in Chemistry. The study also reported gender difference in the acceptance of CBT which corroborates the finding of Gallanger, et al (2002), Kirkpatrick & Cuban (1998). College of Study also has a significant relationship with the acceptance of CBT by students. Therefore, the results of this study confirms the results of prior studies on the role of course type and gender differences in the acceptance of Computer Based Testing.

6. CONCLUSION

This study investigates the perception and acceptance of Computer Based Testing by Undergraduate Students. Research results demonstrate the role of course type in the acceptance of Computer Based testing, it also shows that gender differences exist in the acceptance of Computer Based Testing. Furthermore, it buttresses the role of College of Study in its acceptance. This study has implications for University administrators in the need for consideration of Paper Based Testing and improvement of interface design in Physics and Chemistry where students majorly showed preference for Paper Based Testing method.

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