
A SURVEY OF THE ATTITUDES OF UNDERGRADUATES TOWARDS COMPUTER-BASED TESTS IN EKITI STATE, NIGERIA

¹SULEIMAN, Zubairu; ²ONOJAH, Amos Ochayi; ³OMOYAJOWO,
Bamidele Stephen; ⁴ADEROJU, Adekola Musiliu

¹Department of Education, Gombe State University, Gombe, Nigeria
^{2,3 & 4}Department of Educational Technology, University of Ilorin, Nigeria

Corresponding Author: zubairusulain@gmail.com; szubair@gsu.edu.ng

ABSTRACT

This study was a survey of the attitudes of undergraduates towards computer-based tests in Ekiti State, Nigeria. The study adopted a survey design. The study targeted all universities in Ekiti State based on accessibility and convenience, and 261 undergraduates were sampled using Research Advisors (2006) model. A researcher-designed questionnaire was used for data collection and the instrument was validated by the researchers. Mean was used to answer the research question, while independent t-test was used to test the hypothesis. The reliability index of 0.72 was obtained in the instrument. The results of the study revealed that the undergraduates had negative attitudes towards CBT. The results further established that there was a significant difference (with $0.02 < 0.05$) between the attitudes of male and female undergraduates towards CBT in favour of females. It was however recommended that the attitudes of undergraduates need to be considered in the design, development and implementation of CBT and that more orientation should be organized for male undergraduates on the effectiveness of CBT, as this will enable them to embrace CBT like the female counterpart.

Keywords: Information and Communication Technology, CBT, Attitudes of Undergraduates.

Introduction

A survey through literature indicates a groundswell of interest in how computers and the Internet can best be harnessed to improve the efficiency and effectiveness of education at all levels, and in both formal and non-formal settings. The emergence of information and communication technology (ICT) in sustaining Nigeria's standard of education cannot be overruled due to its benefits in the teaching and learning (Ofondu, 2010). ICT is an umbrella

term that includes any communication devices or media, encompassing radio, television, cellular phones, computer and network, satellite systems and so on, as well as the various services and applications associated with them such as video conference and distance learning (Akpan, 2008). ICT has become a prevalent part of life. It has turned the entire world into a global village, where people communicate to function effectively. The prevalence and rapid development of ICT have transformed society from the information technology age to a knowledge age known as a millennial society that converts information (text), images, sound, motion and so on into digital form (Obioma, Junaidu, & Ajagun, 2016).

Attitude is the controller of the actual behaviour of an individual, consciously or unconsciously (Yusuf, 2005). Little John, Suckling, Campbell and McNicol (2002) have theorized the concept of attitude as an accumulation of information about an object, person, and situation or experience; a disposition to act in a positive or negative way toward some object. This theory implies that attitudes toward any object play an extremely important role in influencing subsequent behaviours towards it. Adetimirin (2008) studied factors affecting the use of technology in higher education, and among these factors are students' attitudes and disbelief in the use of technology. Studies on the student's attitude to computer confirmed that students have a positive attitude, yet computers were not being used for the instructional purpose (Olumoriin, 2008). The national policy on education (Federal Republic of Nigeria, 2014) emphasized the need to use ICT at all levels of the Nigeria's educational system including use of ICT for assessment. Students at the university level should therefore not develop a negative attitude to the implementation of ICT in general and online collaborative tools in particular. This is because good ICT-related behaviour among the students would replicate effective assessment of students' learning outcome.

The prevalence and rapid development of information and communication technologies (ICTs) which brought the use of a computer for conducting examination have transformed human society from the information technology age to the knowledge age (Jimoh, AbdulJaleel, & Kawu 2012). It is used to make activities easier and more productive irrespective of time, location or nature of data. Okerulu (2003) stated that ICT has fashioned limitless prospects for open access to information. Computer-based testing is the use of computers to administer tests. Computer Based Test (CBT) means the candidate sits in front of a computer and the questions are presented on the computer monitor and the candidate submits the answers through the use of keyboard or mouse. CBT had advantages over the Paper-

based test, both for lecturers that give the test and for the students who participate in the test. CBT allows for more accurate, secure, rapid and more controlled test administration. Administration of test on the computer helps to minimize almost entirely the use of paper printing. This could also reduce administrative costs as well as environmental impact (Ogunlade & Olafaree, 2007).

The two types of CBT are linear and adaptive, whereby a linear test is a full-length examination in which the computer selects different questions for individuals without considering their performance level (Alabi, Issa, & Oyekunle, 2012). It consists of a full range of test questions-from easiest to most difficult but not always in that order. The linear test is scored in the same way as a paper-based test. A computer adaptive test is one in which the computer selects the range of questions based on individuals' performance level. These questions are taken from a very large pool of possible questions categorized by content and difficulty levels. When you take a paper-based test, you will find that you are asked to answer questions ranging from easy to hard. In a computer-based adaptive test, each test-taker receives questions that are at the right level of difficulty for his or her ability. These tests begin with a question that is of medium level of difficulty for most test takers. After each question is answered, the computer uses the answer and all previous answers to determine which question would be answered next.

The next question is one that best follows the previous performance. This means that different test taker seven in the same room on the same day will receive different questions. Since adaptive test questions are selected according to performance on previous questions, less time is spent than on a paper-based test on questions that are either too easy or too hard. Usually, one cannot skip ahead or go back, as it is possible with the paper-based examination. Friedrich (2008) noted that CBT enables educators and trainers to author, schedule, deliver and report on surveys, quizzes, tests and examinations. It could be a stand-alone system or a part of a virtual learning environment, possibly accessed via the World Wide Web (WWW). In addition to the examination itself, CBT takes care of other related activities that interact with the assessment such as test administration, setting questions and automated marking, grading and compilation. Computers are used by candidates to conduct their examinations online, usually in the form of multiple-choice questions, submit and get immediate results. Fagbola, Adigun and Oke (2013) reported that while computer-based testing has been effectively applied to almost all human endeavours, paper and pen examination still remain a big void to be filled in many areas, especially in Nigeria Universities. Assessment needs to be taken as a very vital component

of the educational process, because one of the challenges facing educational institutions was how to conduct examinations with a high population of undergraduates (Alabi, Issa, & Oyekunle, 2012), especially from the inception of admitting students into universities.

Previous studies on attitudes of students toward CBT have varying findings and gender dimensions. Dammas (2016) studied students' attitudes toward CBT at Chemistry course and reported that most students have high attitudes towards the adoption of the CBT. In some studies, investigating the difference between assessment methods in terms of gender, race and age, such as (Bennett, (2015), no significant difference was found in achievements, whereas in some other studies (Bennett, Braswell, Oranje, Sandene, Kaplan & Yan, 2008) little significant difference was observed. Terziz and Economides (2011) described the trends of male and female students towards CBT. Studies further stated that the attitudes of male and female towards CBT are under the influence of social environment such that the boys focus on the usefulness, while the girls stress the ease of use (Yurdabakan, 2011; Leeson, 2006).

Statement of the Problem

Despite the opportunities offered by CBT, the transition from the traditional pen/pencil test to the computer-based testing still remains critical to many candidates in Nigeria as a result of their attitudes. Some experts still hesitate whether the use of technology like the CBT can achieve mastery. It has been observed in this study that no matter how well a test is designed or what media are used, students who developed an attitude towards the testing system would likely pass or fail, or would not master the material tested. This implies that the attitudes of undergraduates to CBT partly determine the effectiveness of the computer-based testing. Most universities in Ekiti state of south-western Nigeria have embraced the CBT in programmes that are more theoretical than practical, and/or programmes where the undergraduates are too many especially at the early stage of their studies. Hence, this study investigated attitudes of undergraduates towards CBT in Ekiti state, Nigeria. Towards this end, the following research question and hypothesis were included.

Research Question

This study answered the following question:

1. What was the attitude of undergraduates towards the use of CBT in Ekiti State?

Research Hypothesis

The following hypothesis was tested in this study:

Ho: There was no significant difference in the attitudes of male and female undergraduates towards CBT in Ekiti State.

Methodology

This study was a descriptive research of the survey type. The population for this study comprised all undergraduates in Ekiti State, Nigeria. The study purposively chose all the universities in Ekiti state based on accessibility and convenience regarding the variables under investigation. Stratified random sampling technique was used across public, private, state and federal universities, and two hundred and sixty-one (261) undergraduates were sampled using Research Advisors (2006) model of sample size. The instrument used for data collection was researchers-designed questionnaire with sections A and B for demographic data of the respondents and their attitudes towards the use of CBT respectively. The questionnaire was validated by the researchers and other colleagues, and a pilot study was conducted at the University of Ilorin, Nigeria through split-half method. Then, the reliability index of 0.72 was obtained using Cronbach alpha. The questionnaire was personally administered by the researchers following all ethical issues on questionnaire administration. Mean was used to answer the research question, while the hypothesis was tested using independent t-test at .05 level of significance.

Results

Research Question 1: What was the attitude of undergraduates towards CBT in Ekiti state?

Table 1: Attitudes of Undergraduates towards the Use of CBT

S/N	Items	Mean
1.	I feel CBT examinations prone students to anxiety due to the high level of stress involved	3.11
2.	Computer Based Test is not well coordinated	2.87
3.	CBT examination increases the studying level of undergraduates compare to PPT	2.13
4.	Students' progress and results can easily be achieved via CBT	3.50
5.	Lesser time is given in CBT as compared to PPT	3.56
6.	CBT does not give room for cheating	3.18
7.	The CBT procedures are often frustrating	3.00
8.	CBT is not a valid test of knowledge	2.98
9.	CBT questions sometimes give two correct answers	3.46
10.	CBT questions do not give room for critical thinking	3.86
Grand Mean		2.92

The attitudes of undergraduates towards the use of computer-based test were investigated and the result was presented in Table 1. The benchmark of 2.50 was used to take decision since the response mode was 4 points Likert rating scale. A mean score of 3.11 established that undergraduates feel that computer-based tests prone them to anxiety due to the high level of stress involved, and a mean score of 2.87 indicates that undergraduates believe the CBT was not well coordinated. But a mean score of 2.13 deduced that undergraduates feel the CBT does not increase their study habits compared to the traditional paper/pencil test. Most of the respondents, however, feel that their progress and results can easily be achieved via the CBT based on a mean score of 3.50. The grand mean score on the attitudes of undergraduates towards the use of computer based test for was 2.92 and since most of the questions were negative, it can thus be deduced that undergraduates have negative attitudes towards the use of computer based test in Ekiti state.

Hypothesis Testing:

There was no significant difference in the attitudes of male and female undergraduates towards CBT.

Table 2: Significant Difference in the Attitudes of Male and Female Undergraduates towards CBT

Gender	N	Mean	SD	Df	t	Sig (2-tailed)	Remarks
Male	134	2.89	23.45	254	5.67	0.02	Rejected
Female	122	2.45	21.21				
Total	256						

Table 2 presents the results of independent t-test on whether there is a significant difference in the attitudes of male and female undergraduates towards CBT. The result showed that $t(254) = 5.67$, and $p = 0.02$. Since the p-value (0.02) is less than the alpha value (0.05), the hypothesis was therefore rejected. Thus, there was a significant difference in the attitudes of male and female undergraduates towards CBT in favour of the females.

Discussions

Two findings were obtained in this study from the results presented in tables 1 and 2. The two findings are hereby discussed in relation to the previous findings reviewed in the literature. This study found that undergraduates in Ekiti state of south-western Nigeria have negative attitudes towards the use of CBT. This finding corroborates with that of Yusuf (2005), who reported that attitude is the controller of the actual behaviour of an individual, consciously or unconsciously. The finding is also in support of the Theory on Attitudes by Littlejohn et al. (2002) that attitude is an accumulation of information about an object, person, and situation or experience; a disposition to act in a positive or negative way toward some objects. The findings also confirmed previous findings by Adetimirin (2008). These findings are, however in disagreement with studies by Dammas (2016) and Olumorin (2008), who reported that most students have positive attitudes towards the adoption of CBT.

This study also discovered that there was a significant difference in the attitudes of male and female undergraduates towards the use of CBT in favour of the females with $t(0.02) < 0.05$ alpha value. This finding is in direct contrast to that of Bennett (2015), who reported that there is no significant difference between assessment methods and students' achievement based on gender and

other variables. However, little significant difference was found in the findings of Bennett et al. (2008). In the same vein, Terziz and Economides (2011) reported similar findings to this study by testing the trends of male and female students' attitudes towards CBT. Studies (Yurdabakan (2011; Leesson, 2006) however stated that the attitudes of males and females towards CBT are under the influence of social environment to the extent that the boys focus on the usefulness, while the girls stress the ease of use of the CBT system.

Conclusions

The study concluded that undergraduates had differed in their attitudes towards the use of computer-based test. It had been found that the attitudinal difference of undergraduates was that male undergraduates had negative attitudes towards the use of CBT for examination, while female undergraduates had positive attitudes towards the use of CBT for examination. The study also concluded that the attitudinal difference of the undergraduates towards the use of CBT was statistically significant in favour of the females. Thus, one of the factors to consider in the successful integration of CBT system of assessing students' learning would be the students' attitudes.

Recommendations

Based on the conclusions made, the following recommendations were offered:

1. The attitudes of undergraduates need to be considered in the design, development and implementation of CBT in university education.
2. More orientation should be organized for male undergraduates on the effectiveness of CBT. This will enable them to change their negative attitudes and embrace the CBT like the female counterpart.

REFERENCES

- Adetimirin, A. E. (2008). Factors affecting undergraduates' use of information and communication technology. Unpublished Dissertation submitted to the University of Ibadan, Nigeria.
- Akpan, C. P. (2008). Enhancing quality in open and distance education via the use of ICT in Nigeria. *A paper presented at the 2nd African council for Distance Education (ACDE) Conference and General Assembly* held on 8th - 11th July, 2008 at Lagos, Nigeria.
- Alabi, A. T., Isaa, A. O., & Oyekunle, R. A. (2012). The use of computer based testing method for the conduct of examinations at the University of Ilorin. *International Journal of Learning & Development*, 2 (3).
- Bennett, R. E. (2015). The changing nature of Educational Assessment. *Review of Research in Education*, 39(1): 370-407.
- Bennett, R. E. Braswell, J. Oranje, A. Sandene, B., Kaplan, B. & Yan, F. (2008). Does it matter if I take my mathematics test on computer? A second empirical study of mode and effects in NAEP. *Journal of Technology, Learning and Assessment*, 6(9): 1-39.
- Dammas, A. H. (2016). Investigate students' attitudes toward computer based test (CBT) at Chemistry course. *Archives of Business Research*, 4(6): 58-71.
- Fagbola, T. M., Adigun, A. A., & Oke, A. O. (2013). Computer based test system for university academic enterprise examination. *International Journal of Scientific & Technology Research*, 2(8): 336 - 342.
- Friedrich, S. (2008). Quality features of CBT Exam: An open source computer-based assessment software. Unpublished Dissertation submitted to the University of Ibadan, Nigeria.
- Ilesanmi, O. A., & Lasisi, F. A. (2015). Nexus of change management on organizational performance and survival in Nigerian universities: A case study of University of Ilorin. *International Journal of Business and Management Review*, 3(4): 66 - 81.

- Jimoh, R. G., AbdulJaleel, K. S., Kawu, Y. K. (2012). Students' perception of computer based test (CBT) for examining undergraduate chemistry courses. *Journal of Emerging Trends in Computing and Information Sciences* 3 (2).
- Littlejohn, A., Suckling, C., Campbell, L., & McNicol, D. (2002). The amazingly patient tutor: Students' interactions with an online carbohydrate chemistry course. *British Journal of Educational Technology*, 33(3): 313-321.
- Leeson, H. (2006). The mode effect: A literature review of human and technological issues in computerized testing. *International Journal of Testing*, 6(1): 1-24.
- Obioma, G., Junaidu, I., & Ajagun, G. (2016). The automation of educational assessment in Nigeria: Challenges and implications for pre-service teacher education. *A paper presented at the 39th Annual Conference of the International Association for Educational Assessment (IAEA), Tel-Aviv, Israel.*
- Ofodu, (2010). Nigeria Literacy Education and their Technology needs in a digital age. *Education Focus*(1): 22-30.
- Ogunlade, O. O., & Olafare, F. O. (2007). Lecturers' perception of computer based test in Nigerian universities. Retrieved December 20, 2016 from <http://www.aiou.edu.pk>.
- Olumorin, C. O.(2008). An investigation to tertiary institution lecturers' attitudes to competence in the use of computer in Kwara State, Nigeria. Unpublished Thesis submitted to Department of Science Education, University of Ilorin, Nigeria.
- Terzis, V. & Economides, A. A. (2011). Computer based assessment: Gender differences in perceptions in perceptions and acceptance. *Computers in Human Behaviour*, 27: 2108-2122.
- Yurdabakan, I. (2012). Primary school students' attitudes towards computer based testing and assessment in Turkey. *Turkish Online Journal of Distance Education*, 13(12): 177-188.