Effect of Computer-Based Test on the Academic Performance of Undergraduate Students of Library and Information Science in Ahmadu Bello University

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Abstract
This study examines the effect of Computer-Based Test on the academic performance of undergraduate students of undergraduate students of Library and Information Science, ABU Zaria.The study population consists of the Department of Library and Information Science students, Ahmadu Bello University Zaria. The study population consists of 1,200 undergraduate students of the Department of Library and Information Science, Ahmadu Bello University Zaria. A simple random sampling technique was used; this sampling technique allows for equal opportunity for any member of the population to be selected. To this end, a total of twelve (12) students were selected and interviewed. The findings of this study revealed the challenges encountered when taking a Computer-Based Test range from inadequate computer (infrastructure), inadequate power supply, computer anxiety, lack of know-how or computer illiteracy, and log-in-related problems.

Keywords: **Computer Based Test, Academic Performance, Undergraduate Students**

Introduction

In this era of globalization and technological revolution, education is considered the first step for every human activity. It plays a vital role in developing human capital and is linked with an individual's well-being and opportunities for better living (Battle & Lewis, 2002). It ensures knowledge and skills that enable individuals to increase their productivity and improve their quality of life. This increase in productivity also leads towards new sources of earning, which enhances the economic growth of a country (Saxton, 2000).

The academic performance of a student can be regarded as the observable and measurable behaviour of a student in a particular situation. For example, a student's academic performance in social studies includes observable and measurable behaviour of a student at any point in time during a course. In education, students' academic performance consists of scores at any particular time obtained from a teacher-made test. Therefore, we can equate academic performance with the observed behaviour or expectation of achieving a specific statement of or statement of educational intention in

a research. Thus, students' academic performance consists of scores obtained from teacher-made tests, first-semester examinations, mid-semester tests, etc.

Information and Communication Technology (ICT) has become one of the basic building blocks of modern society within a very short time. Many countries now regard understanding it and mastering its basic skills and concepts as very crucial in education. This is because it adds value to learning processes and the organization and administration of learning institutions. It encompasses different types of technologies, which are utilized for capturing, processing, and transmitting data and information using computer facilities. It is an umbrella term that includes communication devices or applications, encompassing radio, television, cellular phones, computers, network, hardware and software, satellite systems, and so on, as well as the various services and applications associated with them (Kumar, 2006). Thus, ICT focuses specifically on applying these new technologies in an educational context and environment and serves as a tool for supporting the various components of education. Such components include, among others, teaching and learning, resources management (human, material, financial resources), and admission and examination processes, also known as learning assessment.

Effect can be seen as the positive or negative changes resulting from an action or product that stimulates a change or consequence. This means that this article will look at changes that occur in student academic performance due to Computer-based tests.

Computer Based Test: means the candidate sits on a computer and the questions are presented

Problem Statement

Information and communication technology is becoming more relevant than usual. This technology gave room for the birth of the Computer-Based Test (CBT) (Olalekan, M., 2014). Castells, M. (1999) opines that the 21st century is the "information age." Some universities, such as; Federal University of Technology, Minna, have adopted this technology in testing (examination) and grading students (Ibrahim, 2014). This technology (CBT) makes it easier for lecturers and students to conduct tests without much stress.

However, students that do not understand this trending technology have a problem owning or accessing this technology; thus, making unfamiliarity with Information and Communication Technology (ICT) and Computer-Based Testing (to be specific) is an issue. Thus, these categories of students find it difficult to cope. Most importantly, this problem leads to poor scores in examinations not because the students do not know but because they find it difficult to access the available digital (electronic) information resources using ICT and difficulty taking Computer-Based Tests. This affects the student, their department, and the university directly or indirectly.

Moreover, many of these categories of students have a few things to say in their defense. Anas (2016) claim that the old method of pen and paper only is the most

appropriate to learning while Khevwe (2016) think we do not have to adapt to this technology because it is not indigenous to our community thus we do not need to adapt. Regardless of this, Abdulgafar, M. (2016) overlooks the importance of this technology when weighed to their excuses outweighs them insignificantly. As this technology evolves, there are youth specializing in this same technology, thus always finding a loophole or a bye-pass to this technology. This also brings access to confidential information easier if proper security is not provided. The recent statistics by World Bank (2015) says, "Nigeria is a developing country (or nation)," and to develop to our content. We need to have the majority of our youth (leaders of tomorrow) familiar or, if necessary fluent with this evolving technology. Lastly, ICT and Computer Based Test, if properly used, can bring great achievements in libraries and also the classroom environment, thereby easing access to information resources.

Objectives of the Study

The primary objective of this study is to show the effect of Computer-Based Testing (CBT) on the academic performance of undergraduate students of Library and Information Science at Ahmadu Bello University, Zaria.

1. The students perceive the Computer Based Test as a welcomed development which will make them world-class and more acquainted with new trends.
2. The limitations of traditional methods encourage the department of Library and Information Science to indulge in the use of Computer Based Test and therefore includes; tedious procedures, delay in the release of results, subjective scoring, missing grades, and also to keep up with new trends in technology among others.
3. The nature of the Computer Based Test questions determines the students' performance, i.e., objective questions will be easier to answer using Computer Based Test, while questions that require mathematical solving will be more advantageous using the paper test because in Computer Based Test, the only close-ended answers matter.
4. Different problems ranging from network problems, erratic power supply to inadequate skills in computer use by candidates are encountered when administering Computer Based Test.

Literature Review

Computer Based Test 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 a keyboard or mouse (Ogunlade et al., n.d). The student only needs to sit and type, move the mouse and click the right option of test or exam. Alabi (2012) also described computer-based testing as administering tests in which the responses are electronically recorded, assessed, or both.

Oduntan, Ojuawo, and Odunntan (2015) define computer-based tests as "assessments that are administered by computer in either stand-alone devices linked to the internet or world-wide-web (www.), most of them using multiple-choice questions."Envisage International Cooperation (2010) pointed out that CBT may affect test scores and consequently then equivalence with PPT and that tests with reading passages may be more difficult when given on computers. Thus, Bugbee (1996) concluded that the use of computers affects testing, notwithstanding that CBT and PPT can be equivalent, especially when the test developers take responsibility by showing how the equivalent can come by. He stated further that the barriers to the use of CBT are inadequate to test preparation and failure to grasp the unique requirements for implementing and maintaining them, emphasizing that such factors as the design, development, administration, and user characteristics needed to be considered in using CBT.

Schenkman, Fukuda &Persson (1999) identified one of the numerous variables that impact students' performance when questions are presented on a computer to be the quality of the monitor. On the impact of CBT on student attitudes andbehavior, Butler (2003) confirmed the association between a moderate number of tests and better student attitudes; especially that his respondents were found to be generally more positive toward the proctored, CBT facility than toward in-class, pencil and paper testing. Similarly, Donn (1991) found that the mean achievement score was significantly higher for the computer-based group in a study of the effects of a CBT on the achievement and test anxiety exploring the relationship between computer anxiety and computer experience and assessing the affective impact of computerized testing on students. There was neither a significant difference in test anxiety between the groups, on the one hand nor a significant relationship between their computer experience and anxiety owing to taking the CBT. The conclusion reached by the study that if computerized test-taking tasks are kept simple, even test-takers with minimal computer experience may not be disadvantaged, was informed by respondents' positive reactions toward CBT generally.

Research outcomes have thus supported that when students are motivated, and testing conditions are equivalent, there are no differences between the scores obtained via computer-based or paper-pencil tests (Lynch, 1997 &Marson, Patry, and Berstein, 2001). Thus the initial low academic achievement in CBT, occasioned by such detrimental effects as computing and test anxiety, soon disappeared as later CBT examinations produced impressive academic achievement for many respondents. The most recent endorsement of this viewpoint came from Telia and Bashorun (2012) in a study whose results demonstrated that the University of Ilorin students, their respondents, have a positive attitude towards CBT as more than half of them indicated a preference for CBT over PPT in addition to establishing a strong perception that CBT increases respondents' performance in learning (Scalise & Clifford, 2006).

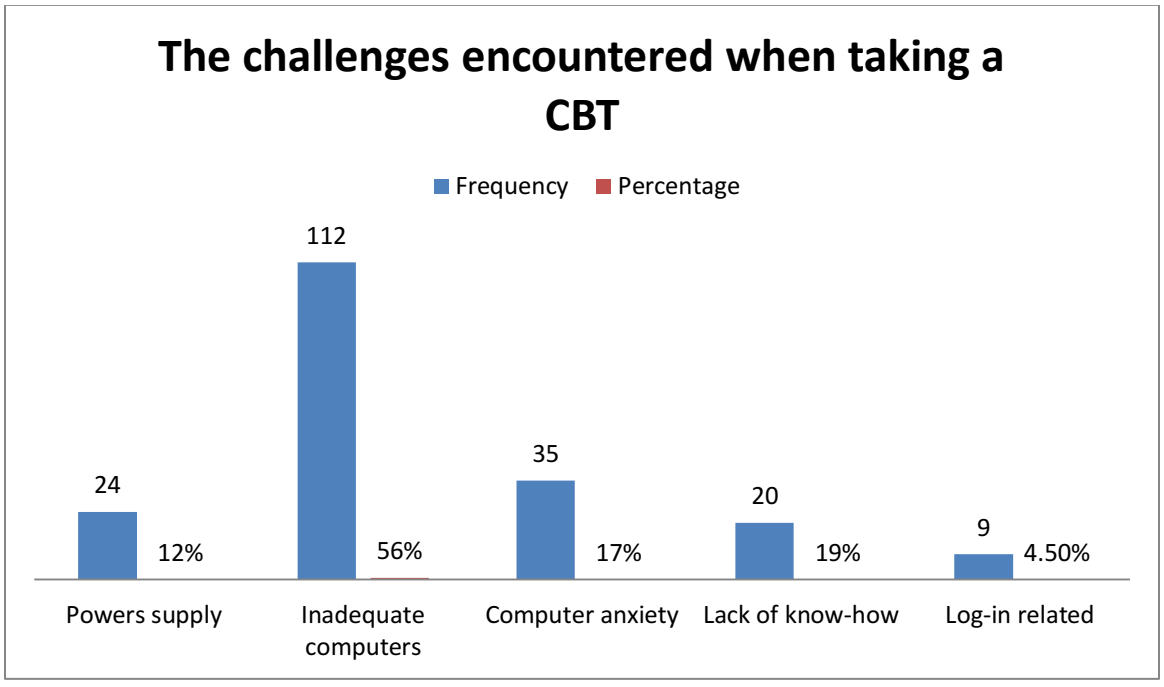
Methodology

The study adopted a qualitative methodology approach; the qualitative approach was chosen because it allows participants to explain their personal experiences and again enables them to express their understanding of the effects of CBT on their academic performance (Beida, 2009). Kennedy and Lowe (as cited in Beida 2009) assert that qualitative research is reflective and interpretive, allowing the voices of both the participants and researcher to become part of the process. The data provide rich verbal descriptions and make phenomenon come to life through the interpretation of the researcher. The population of the study consists of undergraduate students of the Department of Library and Information Science, Ahmadu Bello University Zaria. The total population was 1,200 students.A simple random sampling technique was used. This sampling technique allows for equal opportunity for any member of the population to be selected (Akosa 2012). To this end, a total of ten (12) students were selected and interviewed.

Findings

The findings of this study revealed the challenges encountered when taking a Computer-Based Test range from inadequate computer (infrastructure), inadequate power supply, computer anxiety, lack of know-how or computer illiteracy, and log-in-related problems as presented in figure 1 below.

Figure 1: Challenges encountered when taking CBT



It is agreed with a high response rate of 56% that inadequate computers are the most problem encountered by the population when taking a Computer Based Test, a lesser population of 17.5% come second with computer anxiety as their encountered problem while less significant percentages of 12%, 10%, and 4.5% confide with power supply, lack of know-how and log-in related problems respectively.

Conclusion

In conclusion, Information and Communication Technology (ICT) has become one of the basic building blocks of modern society within a very short time. Many countries now regard understanding it and mastering its basic skills and concepts as crucial in education (Kumar, 2006). This method of testing is important because it can measure different skills or sets of knowledge to provide new and better information about individuals' abilities. While paper-based exams may be the norm in many universities, investing in computer-based exams may be beneficial for the younger generation who are more and more growing up with a computer and digital technologies. Further research is necessary into the optimal design of computer-based exams, such that student acceptance is maximized and not an outside source of stress during exams in a high-stakes context.

Therefore, the study concluded that for Nigerian universities to strive amongst the best in the continent and the world, there is a need for more intensive adoption of technologies such as the Computer Based Test into the university system.

Recommendations

Based on the research findings from the study, the following recommendations were provided:

1. The study recommends that the department and the university provide more computers to fully adopt the computer-based test method adopts the computer-based test method.
2. It was also recommended that the time allocated for taking the Computer Based Test should be an increase in order to maximize performance.
3. The study goes further to recommend the increase of computer based courses to maximize computer literacy amongst the students. This will also help to curb problems of computer anxiety and lack of know-how.
4. The study also recommends the department indulge more in using the Computer Based Test in its assessments and exams.

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