PROBLEM AND PROSPECT OF COMPUTER-BASED TEST IN ASSESSING LEARNING OUTCOMES IN BAMIDELE OLUMILUA UNIVERSITY OF EDUCATION SCIENCE AND TECHNOLOGY, IKERE- EKITI, EKITI STATE, NIGERIA

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ABSTRACT

This study investigated the problems and prospects of Computer Based Test in assessing learning outcomes in Bamidele Olumilua University of Science and Technology Ikere- Ekiti, Ekiti State, Nigeria. The study adopted a descriptive research design of the survey type. The population for the study comprised 2,000 students admitted into 100-level programmes across the three (3) Colleges in Bamidele Olumilua University of Education, Science and Technology, Ikere-Ekiti in 2019/2020. The sample size was 500 students and 100 academic members of staff selected from the 3 colleges of the university using proportional sampling techniques. The instrument for data collection was Computer Based Test Questionnaire developed by the researcher which was validated by three experts in test and measurement. The data collected were analyzed using descriptive statistics such as frequency counts and percentages. The main findings of the study revealed among other things that Computer Based Test curtail examination malpractice and manipulation of scores often perpetrated by lecturers. Computer Based Test have prospects in assessing learning outcomes in the university. The study also revealed some challenges associated with the integrity of the computerised examinations including problems of ICT infrastructure availability, poor network, inadequate computers and poor power supply. The major recommendation in the study was compulsory teaching of computer literacy at the secondary school level and the provision of ICT infrastructure in the university.

Keywords: Challenges, prospects, Computer Based Test, learning outcomes

INTRODUCTION

Students learning outcomes, which may take the form of a change in behaviour or practice, allow teachers to observe the progression in the learning process. Without student

assessment, the behaviour change could not be seen. Assessment entails evaluating the appropriateness and relevance of a student's education and assigning a value to it in accordance with the criteria set by the educational institution. According to Dimyati & Mudjiono (2000), a teacher must conduct an assessment to provide information about the strengths or weaknesses of the learning process and outcome. Osuji & Agi (2017) observed that assessment enables the teacher to know the effectiveness of his effort. Through assessment, success in the school system can be known by the teacher, parents and other stakeholders in the school system. From assessments, information can be obtained by the teacher and parents to determine the extent to which learners are making progress in their learning activities.

Assessment can also be used to diagnose the strengths and weaknesses of the learners. There are forms of assessment, including "formative assessment" which is the assessment in the service of individual learning. This is in contrast to "summative assessment", which is intended to guide decision-making (Fagbola, Adegun & Oke, 2013).

Consequently, the process of gathering data or information used to guide educational decisions concerning students can be referred to as assessment. Assessment in schools involves administering tests to the students in other to know and be able to describe their level of achievement of the objectives of the lesson or programme for the purpose of taking decisions concerning their promotion. Assessment leads to certification which learners can use publicly to represent their achievements on the program.

Teachers may access the students by test or non-test. In the test method, the assessor conducts a written text to measure the extent to which students understand what had been thought by the assessor. Generally, schools conduct these assessments in the form of paper or pencil tests; in order words paper and pencil (PPT) are used as the media Fagbemi (2021); Jacob & Lar (2001) noted that the earlier pencil and paper test method is associated with various forms of examination misconduct such as coming to the examination hall with unauthorized materials which sometimes has contents of examination malpractice, Substitution of answer sheet and changing of examination scores by the assessor, impersonation, leakage of questions to students before the examination, body writing or tattoo most especially on female students and writing on private part. PPT has many problems such as tedious marking processing, the cost of conducting examinations on

the part of the university, missing grades, and stress due to ever increase of students. Hence, there was a need to employ a method of assessment that can be used to examine a large number of students at a time. This brought about the need to introduce Computer Based Test (CBT). Computer Based Test does not only serve as an alternative method of assessment but a shift from PPT. According to Ajinata (2017), Computer Based Test is an innovation that has brought changes in the assessment of learning outcomes. Computer Based Test has been described differently by researchers as Computer Assisted Assessment or Electronic Based Assessment. For this study, it will be called Computer Based Test (CBT). CBT is a modern way of answering examination questions. CBT has been in used before 1980 to test knowledge base skills. It is an innovation that has reduced the weakness of the PPT style of writing examinations.

CBT is a test using the computer as the media rather than paper and pencils as the media. CBT requires a system of interconnected computer networks connected over a standard internet protocol suite to serve the user. CBT infrastructure is made of two major components used to carry out functions in assessment. According to Williams (2007), there is computer hardware which are physical component, and the software components refer to a set of instructions that are fed into the computer to enable the computer to process data.

Benet (2019) opined that CBT is a combination of hardware and software as well as means of communication. It is a form of assessment that requires that students have knowledge of computer operations. According to War Burton (2005), CBT is an application of computers for students learning; Ajinata (2007) sees CBT as an assessment of examination in media that requires students to supply answers presented to them on the screen of a computer based on their subject specification. It was emphasized by Ojuawo & Oduntan (2015) that CBT is a method of taking examinations with computers. It is a form of assessment technique in which the computer is part of question paper delivery, response storage, marking of response or reporting of results from a test or exercise. According to Conole & Warburton (2005), CBT is the use of computers for assessing students' learning. Akande (2016) said the computer is an integrated part of CBT. According to Newhouse (2013), Computer-Based Testing could be delivered on a stand-alone personal computer connected to a Local Area Network (LAN) or it could be delivered through the use of web pages over the Internet.

However, studies have revealed the reasons for introducing CBT as an examination method to replace PPT. According to Mohammed (2015), CBT was introduced because of problems associated with the PPT mode of testing such as missing scripts, and tedious processes in the conduct of examination, marking and resulting dissemination. Also, Abubakar & Adebayo (2015) were of the opinion that examination malpractice is associated with PPT. They further pointed out some weaknesses of PPT such as the huge amount of money in its implementation and cheating during examination. These submissions have been supported by Aila (2017). Sanni (2015) opined that the benefits of conducting a test in CBT mode go beyond accuracy in the result computation, it also includes economy. He opined that CBT ensures low administrative cost and save education. While NIGROHO (2009) listed some benefits of CBT including cost-effectiveness, effectiveness in conducting a test, time-saving, effective and accurate test results and independence of the students while doing the test. Robinson and Bodman (2004) also showed that students could finish Computer Based examinations faster than PPT with the same score.

Apart from cutting expenses, CBT improves students' skills in using computers. CBT increases students' proficiency in the use of computers and it introduces students to the world of Information and Communication technology. Apart from this, Computer Based Test has also helped assess learning in distance education. Kuyoro (2016) 0pined that CBT can as well facilitate the operation of distance education however, a number of studies have also highlighted the weaknesses and challenges of using Computer Based Test in the assessment of learning. For instance, Abubakar & Adebayo (2014) identified poor access to Internet facilities as one of the challenges for CBT running on the webpage with the Internet. Sanni & Mohammed (2015) identified computer illiteracy among students and technical problems in computer laboratories as challenges. Adebayo & Mohammed (2010) mentioned poor funding in our schools. However, with all the identified challenges, CBT has been adopted for use for assessment in some universities including Bamidele Olumilua University of Education Science and Technology, Ikere- Ekiti.

The first examination in Computer Based Test mode conducted at Bamidele Olumilua University of Education Science and Technology was for the first-semester examination 2020/2021 academic session. It was the first implementation of the CBT mode tested by the Directorate of General Studies.

However, based on the observation of the researcher, the introduction of Computer Based Test for the assessment of learning outcomes received various criticism from members of staff and students of the university. This could be because of their anxiety in using computers or because of the level of computer illiteracy among students. Now students have embraced the system as a method of assessment of learning outcomes as they have been enjoying the system. Personally, the researcher felt that there are some problems with the implementation of CBT in conducting examinations at the university. Such problems hinder the effective implementation of CBT as a method of assessing learning outcomes in the university. Based on this, the study seeks to find out the prospects and challenges of Computer Based Test in Bamidele Olumilua University of Education Science and Technology Ikere- Ekiti.

Research questions

In an attempt to achieve the purpose of the study, the following research questions were raised to guide the study:

1. What are the challenges of Computer Based Test as assessment techniques in Bamidele Olumilua University of Education, Science and Technology?

2. What are the prospects of Computer Based Test as assessment techniques in Bamidele Olumilua University of Education, Science and Technology**?**

Methodology

The study employed descriptive research of the survey type, this is because there was no control of any of the variables. The population for the study comprised 2,000 100-level students admitted into various colleges in Bamidele Olumilua University of Education, Science and Technology, Ikere- Ekiti in 2019/2020 academy session and 200 lecturers of the university.

The sample for the study was 600 students and 100 academic staff selected from the 3 colleges of the university using proportional sampling techniques. A questionnaire on the challenges and prospects of Computer Based Test was developed by the researcher to collect data. It was designed after conducting interviews for the students. The questionnaire

was divided into two sections, Sections A and B. Section A sought information on the personal biodata of the respondents and Section B was designed to elicit responses from respondents as regards the challenges and prospects of Computer Based Test in BOUESTI. The instrument was validated by a computer specialist and subsequently modified. To ensure the reliability of the research instrument, it was piloted on fifty students that have the same characteristics as the targeted sample. Cronbach alpha an estimation of the internal constituency was computed and it yielded a reliability estimate of 0.89 value which was considered good enough for the purpose of collecting data for the study data collected were analyzed using descriptive statistics such as frequency count percentage mean and standard deviation

Research Question 1

What are the prospects of Computer Based Test in BOUESTI. Responses from the questionnaire were subjected to analysis using frequency counts percentage. The two points rating scale was used and the results were presented in Table 1.

Table 1a

S/N	Items	Yes	No
1	Computer Based Test save time of marking scripts,	95(95%)	5 (5%)
2	Computer Based Test Discourages scores manipulation	93 (93%)	(7%)
3	automatic calculation of answer make score accurate in Computer Based Test	85 (85%	15(15%)
4	Computer Based Test do not allow leakages of questions before the examination	65(65%)	35(35%)
5	Computer Based Test allows quicker release of examination result	100(100%)	nill
6	Computer Based Test prevents missing examination scripts	92(92%)	8(8%)
7	Computer Based Test reduces resources needed to conduct examination	88(88%)	12(12%)
8	Proper keeping of results	75(75%)	25Z(25%)

The analysis in Table 1a shows that 95 (95%) of the lecturers were of the opinion that Computer Based Test saves the time of marking scripts, while 5 (5%) did not agree with this. 93 (93%) of the lecturers declare that Computer Based Test did not allow manipulating of results while 7 (7%) had a contrary view.

Also, 85(85%) of the lecturers said that automatic calculation of answers makes the score accurate in Computer Based Test while 15(15%) have a different view. .65 (65%) of the lecturers were of the view that Computer Based Test do not allow leakages of questions before an examination, while 35 (35%) disagree with this view. 100 (100%) agreed that Computer Based Test allows quicker release of examination results none of the lecturer disagreed with this view. 92(92%) of the lecturers declared that Computer Based Test prevents missing examination scripts; 8(8%) lecturers disagree with this. The result from the analysis also showed that 88(88%) of the respondents believed that Computer Based Test reduced resources needed to conduct examinations 12(12%) disagreed with this view. 75(75%) of the lecturers agreed that Computer Based Test allowed proper keeping of examination scores only 25(25%) disagree with this view.

What are the prospects of Computer Based Test in BOUESTI. Responses from the questionnaire were subjected to analysis using frequency counts and percentages. The two points rating scale was used the results were presented in Table 1b.

Table 1b.

S/N	Items	Yes	No
1	Create interest in Computer Based Test because it enhances self-reliance in future	83.3	16.7
2	Computer Based Test reduce the time being used for examination	560 (93.3)	40 (6.7)
3	Computer Based Test is easier to pass than PPT	430 (71.7)	170(28.3)
4	Computer Based Test offer values and potentials than PPT	570 (95%)	30 (5%)
5	Computer Based Test improve my performance in the University	582 (97)	18(3%)
6	Computer Based Test is very easy to read on the screen	462 (77%)	38(23%)

| 7 | Computer Based Test increase skills and writing exams on the screen | 570 (90%) | 30(5%) |
| 8 | Performance Computer Based Test is more efficient than PPT | 482(80.33) | 18(19.6) |

Table 1b indicates that 500, 833 of the respondents declared that they create interest in Computer Based Test because it enhances self-reliance in future while 100 (16.7%) had a contrary view.

560 (93.3%) respondents were of the view that Computer Based Test reduces time being used for examination, 40(7%) had a contrary view. 430 (71.7%) respondents get good marks in test items when Computer Based Test is used for examination, while 70 (28.3%) had another view. Also, 570 (95%) respondents were of the view that Computer Based Test offers more value and potential than pencil paper test; 30(5%) did not support this view. On whether Computer Based Test increase skills of writing examinations, on the scores 462 (77%) of the respondents agreed with this statement while only 38 (23%) disagreed with the statement.

What are the challenges of Computer Based Test in BOUESTI. Responses from the questionnaire were subjected to analysis using frequency counts percentage. The two points rating scare were used the results were presented in Table 2.

Table 2

S/N	Items	Yes	No
1	Poor network	476 (95.2)	24(4.8)
2	Inadequate of computer system	448(89.6%)	52(10.4%)
3	Computer systems not functioning well during examinations	492 (98.4)	8(1.6)
4	Computer Based Test software is complex	392 (78.4)	108 (21.6)
5	Computer illiteracy by students	480 (96%)	20 (4%)
6	Inadequate building to accommodate the students during Computer Based Test	493 (98.6%)	7(1.4%)
7	Poor power supply	440 (88%)	60 (12%)
8	Lack of facilities like tables, chairs and laptops	482 (96.4)	18(3.6)

The results in Table 2 show the responses of the students on the challenges of using Computer Based Test in Bamidele Olumilua University of Education, Science and Technology, Ikere-Ekiti.

The response to item one shows that 476(95.2%) respondents were of the view that poor network is a constraint of Computer Based Test in BOUESTI while 24(4.8%) had another view.

448 (89.6%) was of the view that inadequacy of computer hinders using Computer Based Test in the University 32(10.4%) had a different view.

The table also revealed that 492(98.4) were of the view that many of the computer systems are not functioning very well during examination 8(1.6%) had a contrary view.

493 (98.6%) also indicated in the table that most of the students are not knowledgeable in the use of computer systems before the Computer Based Test examination only 71.4% hold a different view. Also, an inadequate building to accommodate the students during Computer Based Test examination is a constraint 440(88%) attended to this in Table 2 above. While 18(3.6%) had a contrary view. The issue of power supply is another challenge observed from the analysis 440 (88%) hold this view while 60 (12%) hold a contrary view

DISCUSSION

From the analysis, it was discovered that CBT saves time in marking students' examination scripts. Several studies supported this, Nweke (2017), and Bala (2018) ascertained that CBT has the advantage of time-saving. McCormack and Jones (1998), Ryan et al (2000), identified time-saving as an advantage of using Computer Based Test as assessment techniques. According to them, CBT can be created using software tools and adapted and reused as needed. The study also discovered that CBT prevents missing examination scripts and promotes examination security; this has earlier been noted by Adebayo (2014) and Abdulhamid (2014). The study also showed that Computer Based Test did not allow examination malpractice and manipulation of scores often perpetrated by lecturers. This finding was in support of Bala(2018) and Nwoke (2017)who submitted that Computer Based Test curtail examination malpractice perpetrated by either the students or the lecturers

On the challenges of Computer Based Test in the assessment of learning outcomes, the study revealed that there are inadequate computer systems in CBT Centre of the university. This is similar to Obioma (2013) observations of inadequate computers in most Computer Based Test centres; they submitted that much of the infrastructures are either obsolete or overstressed in terms of accessibility and reliability according to Ilesanmi & Lasisi (2015) institutions do not only lack ICT infrastructure, but it also lacked the human skills and knowledge to fully integrate ICT. Due to an inadequate supply of computers, students usually write examinations in batches. The examination that could have been written in two to three hours usually lasted for more than a whole day.   The study also revealed poor knowledge of students of computers as a challenge to Computer Based tests. This affirmed the findings of Adebayo and Abdulhamid(2010), Thurlow (2010) and Oyibe(2015) who discovered that poor knowledge of computer among students constitute a challenge to using Computer Based Test in assessing learning outcome. According to Hussaini, Danladi AuduKafwa Dodo (2015) many students are not computer literate, and some of them are not used to working with Computer systems before gaining admission into the university. With these, the students are not adequately equipped for Computer Based Test. This explains the resistance to JAMB's full use of Computer Based Test in 2015 UTME by students.

Another result from the study is poor power supply, this is not suppressing as the irregular and frequent interrupted power supply in Nigeria is a perennial problem affecting every aspect of the economy including education (Oye & Mazleema, 2011). Most communities are not connected to the national grid, the implication is that schools located there cannot undertake computer practical classes effectively. During Computer Based Test examinations, cases of power failure or interrupting the examination have been reported. Analysis from the responses of the students also showed that Computer Based Test software is complex and this has been a constraint in using Computer Based Test in BOUESTI. According to Adebayo and Abdulhamid (2010), significant software in many of the Computer Based Test centres are difficult in their applications they went further that many of them lack universality in their application. In addition, inadequate buildings to accommodate the students continue to be a challenge towards the effective application of Computer Based Test in conducting examinations in the university this finding was in line

with that of Abubarkar & Adebayo (2014) who concluded that poor funding of education affects the application of Computer Based Test in assessment of students.

CONCLUSION

In conclusion, computer Based Test has a lot of benefits in the assessment of learning outcomes in our schools. It has been reported to checkmate examination malpractice; saves time, and brings about automatic calculation of answer which make scores accurate and reduce stress. However, it has some challenges including power supplies, non-availability of adequate computer systems in the Computer Based Test centres and other software-related problems.

RECOMMENDATIONS

The school management should work to improve the network and power supply when conducting Computer Based Test. There is also a need to procure more computer systems into the CBT centres to replace the old and irreparable ones. Preferably, the use of Laptop computers will reduce the cost of running generating sets for power supply and would also minimise the cost of purchasing other computer peripherals such as keyboards and mice required by the existing desktop computers. This can be done by having memoranda of understanding with network providers and third parties who are interested in assisting the university.

More computers and other Computer Based Test facilities should be provided in the CBT centres.

. More computer test buildings should be provided in the schools to accommodate many students at a time during Computer Based Test

Use of computer machine should be made a compulsory subject in secondary schools up to the school certificate level

Teachers at all levels of our schools should be made to go through Computer training programme as this will allow them to have basic knowledge of computer.

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