An Evaluation of the Challenges Encountered in the First General Computer Based Test in Nigeria

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ABSTRACT

The study sought to empirically document the challenges encountered in the 2015 JAMB (Joint Admission and Matriculation Board)/UTME (Unified Tertiary Matriculation Examination) first general Computer Based Test (CBT). The study participants comprised 278 students of Gombe State University, School of Basic and Remedial Studies and the Federal College of Education (Tech.), Gombe Pre-Nigeria Certificate in Education programme that sat for the 2015 JAMB/UTME CBT. An instrument called Computer Based Test Challenges Questionnaire (CBT-CQ) was developed by the researcher and used for the collection of data. The results indicate that 54% of the candidates of the 2015 JAMB/UTME in Gombe State were not familiar with computer usage prior to the CBT. As much as 47.2% of the candidates did not receive training about CBT prior to the examination. The major challenges encountered by the candidates of the 2015 JAMB/UTME were that: 1) the test did not start on time, 2) erratic internet networks during the examination, 3) incidents of power failure during the examination, and 4) unfavourable conditions of examination centers. The study recommends that appropriate measures should be taken by concerned stakeholders to find out means of eliminating and reducing the reoccurrence of such challenges in subsequent CBTs.

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Introduction

Computer-Based Test (CBT), also known as Computer-Based Assessment, e-Examination/ Assessment, Computerized Testing and Computer-Administered Testing, is a method of administering tests in which the responses are electronically recorded, assessed, or both. CBT enables educators to author, schedule, deliver, and report on surveys, quizzes, tests, examinations and other forms of testing. It may be a stand-alone system or a part of a virtual learning environment, possibly accessed via the World Wide Web (Adewale & Etuk-Iren, 2015; Davey, 2011; Kuzimina, 2010; Ridgway, Mccusker, & Pead, 2004).

Literature abounds with various advantages of the use of Computer Based Test. The key advantages include: (1) lower long-term costs, (2) instant feedback to students, (3) increased productivity and low operational variability, (4) accommodation of candidates with special needs and (5) improved impartiality (computerized marking does not 'know' the students so neither favour nor make allowances for minor errors). Other observable merits of CBT include the elimination of impersonation and cheating. The method also ensures the release of results a few hours after the examination (Abubakar & Adebayo, 2014; American Psychological Association, 1986; JAMB, 2015; Obioma, Junaidu & Ajagun, 2013; Ojerinde, 2015; Okoronkwo, 2015).

The task of conducting entrance examinations into tertiary educational institutions in Nigeria is saddled on the Joint Admissions and Matriculation Board (JAMB). As an examination body, JAMB conducts entrance examinations for the purpose of admissions into tertiary institutions in Nigeria. Presently, JAMB conducts what it calls "Unified Tertiary Matriculations Examination (UTME)" (Ojerinde, 2015). All candidates intending to be admitted into any type of tertiary educational institutions (Universities, Polytechnics, Colleges of Education and similar institutions) in Nigeria have to sit for and pass the JAMB/UTME.

The JAMB up till 2012 had been conducting examinations basically by means of the paper and pencil test (PPT) form, and in 2013, it experimented with the computer based testing (CBT). The decision by JAMB in migrating from paper and pencil test (PPT) to computer-based test (CBT) in 2015 was due to various factors; the chief were security challenges, high cost of producing writing materials for paper-based tests, high cost of transporting materials and curbing examination malpractices, flexibility and swiftness in processing results, reduction of

cheating and conformity with global trends (JAMB, 2015).

The CBT administered by JAMB is an on-screen presentation of multiple choice objective tests and the computer marks the responses provided by candidates (JAMB, 2015). As a candidate finishes the examination, the system gives him/her on the spot pictorial presentation of his/her performance and the final results are made available to candidates on the same day through short message service (SMS), e-mail or by candidates checking JAMB examination results portal (JAMB, 2013; Obioma, Junaidu & Ajagun, 2013).

It needs to be mentioned that ICT has been used as an important tool for assessment in military training, and certification examinations by professional groups and promotional examinations in various stages and categories of life (Abubakar & Adebayo, 2014). In Australia as an example, the State of Victoria has a system for essay marking where students key in their responses to questions, which are then distributed electronically and marked by human markers (www.vcaa.vic.edu.au). Davey (2011) informed that the use of computers and related technologies is on the rise in the USA for assessment, and cited the Graduate Record Examination (GRE) as an example.

Despite the increasing use of ICT in educational testing, CBT is fraught with lots of challenges, foremost among which have been identified to include, resistant to change, inadequate power supply, lack of knowledge, low competency and familiarity with computer, lack of qualified personnel, shortage of facilities such as computer and related devices, and erratic internet networks (Abubakar & Adebayo, 2014; American Psychological Association, 1986; Davey, 2011; JAMB, 2015; Obioma, Junaidu & Ajagun, 2013; Ojerinde, 2015).

Conscious of the relative advantages and challenges of the use of computer technology in testing, between 10th and 21st March, 2015; the JAMB fully utilized the CBT format for the conduct of the UMTE in which a total of 1,475,477 candidates sat for the examination (including no fewer than 192 visually impaired candidates) in more than 400 centres nationwide as well as in seven foreign centres namely Accra in Ghana; Buea in Cameroon; Cotonou in Benin Republic; London in UK; Jeddah in Saudi-Arabia; Johannesburg in South Africa and Addis Ababa in Ethiopia (http://www.jambcbttest.com). Of the 400 centers for the CBT nationwide, nine were in Gombe State in which 19,729 candidates were registered, representing 1.34% of the total number of candidates.

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Notwithstanding the promising advantages necessitating the adoption of CBT in the conduct of the 2015 JAMB/UTME, several criticisms trailed the conduct of the examination. As an example, the editorial of the Sun (March, 22 2015) laments that "notable among the CBT's shortcomings are the server and power failures experienced in some centres, as well as non-availability of other sources of power supply. There were also cases of outright change of examination dates without notification to the affected candidates". In an article appraising the 2015 JAMB CBT examinations, Okoronkwo (2015) writes in the Guardian Newspaper of April 29, 2015 that many brilliant candidates, who had yet to be computer literate, were denied the opportunity of making good scores in the exam.

This study, therefore empirically documents the challenges encountered during the 2015 JAMB/UTME first general Computer Based Test in Gombe State. The results of this study provide empirical evidence of challenges encountered in the very first general CBT by a public examination body in Nigeria. Besides, they also provide insights to all stakeholders to avoid similar challenges in subsequent CBTs.

Research Questions

The following questions were posed in order to guide the focus of the study:

1. What is the profile of the Gombe State 2015 JAMB/ UTME general Computer Based Test candidates as regards:

    i. Gender
    ii. Age
    iii. Familiarity with computer usage
    iv. Reception of training prior to the test?

2. What is the perception of the candidates of the Gombe State 2015 JAMB/UTME general Computer Based Test with regards to the adequacy of training on CBT received prior to the test?

3. What are the challenges encountered by the Gombe State candidates in the 2015 JAMB/ UTME first General Computer Based Test?

Methodology

Population and Sampling

The target population comprised all the 19,729 candidates of the 2015 JAMB/UTME first general Computer Based Test in Gombe State. The participants were selected from the students enrolled in Gombe State University, School of Basic and Remedial Studies (SBRS) (with a total number of 2,717 students as at the time of the study) and the Federal College of Education (Tech.) Pre-NCE (Nigeria Certificate in Education) programme (with a total number of 2,864 students as at the time of the study).

The selection of the participants for the study from these two institutions was due to the very nature of the programmes of these two institutions. All the students of these institutions have to be registered mandatorily for the JAMB/UTME in order to secure admissions for the degree programmes and the NCE programmes respectively. Approximately, 5% of the students in each programme were randomly selected as the study participants (with the valid assumption that all had sat for the 2015 JAMB/UTME first general Computer Based Test). 135 students from Gombe State University, SBRS; and 143 students from the Federal College of Education (Tech.) Pre-NCE programmes were selected, comprising the total sample of 278.

Instrumentation

A Questionnaire labeled 2015 UTME CBT Challenges Questionnaire (CBT-CQ) was developed for the collection of data. The CBT-CQ comprised two sections. Section A solicits for participants' background information of age, gender, and familiarity with computer usage while Section B solicits for the respondents' challenges experienced during the CBT.

Data Collection and Analysis

Administration of instrument for data collection was done on the 23rd March, 2015 - the first school day after the end of the general CBT which ended on Saturday, 21st March, 2015. Participants were selected in each of the classes at random just prior to the commencement of lectures. It took an average of eight minutes per participant to respond to the questionnaire. In all, the participants were 278 students of the two

institutions that sat for the 2015 JAMB/ UTME. Data was analyzed by the use of frequency counts and percentages.

Results

Research Question 1: What is the profile of the Gombe State 2015 JAMB/ UTME general Computer Based Test candidates with regards to:

i.   Gender
ii. Age
iii. Familiarity with computer usage
iv. Reception of Training/Orientation?

Table 1

Profile of Gombe State 2015 JAMB/UTME General Computer Based Test Candidates

Profile	Frequency	Percentage
Gender		
Male	164	58.9
Female	114	41.1
Age group		
Below 18years	53	18.9
18-25 years	173	62.2
26-35 years	37	13.3
36-45 years	9	3.3
46 years and above	6	2.2
Familiarity with Computer Usage		
Not Familiar with Computer Usage	151	54.0
Familiar with Computer Usage	127	46.0
Reception of Training/Orientation on CBT prior to the Test		
Training Received on CBT prior to the Test	147	52.9
Training not Received on CBT prior to the Test	131	47.2

Table 1 shows the demographic profile of the Gombe State 2015 JAMB/UTME general Computer Based Test candidates. By gender, the male candidates were 17.8% more than female. With regards to age, majority of the candidates (62.2%) belonged to age group of 18-25 years. A few candidates belonged to the relatively older age groups, that is, 36-45 years (3.3%) and 46-above (2.2%). Another important demographic

variable was familiarity with computer usage. A little more than half of the candidates (54%) did not know the use of computer properly. Likewise about 48% of the candidates did not receive any formal training on CBT prior to the test.

Research Question 2: What is the perception of the candidates of the Gombe State 2015 JAMB/UTME general Computer Based Test with regards to the adequacy of training on CBT received prior to the test?

Table 2 indicates that about two-third majority (68.1%) of the respondents were of the view that training provided on CBT was quite insufficient. Only 16.9% of them perceived it as slightly inadequate while the remaining 15.2% perceived it as moderately or very adequate. This shows that there is dire need of training for students in CBT.

Table 2

Perceived Adequacy of Training on CBT Received by the Candidates of 2015 JAMB/UTME General CBT Prior to the Test

Adequacy of training on CBT received prior to the test?	Frequency	Percentage
No Training Received	131	47.2
Very Inadequate	58	20.9
Slightly Inadequate	47	16.9
Moderately Adequate	26	9.4
Very Adequate	16	5.8

Research Question 3: What are the challenges encountered by the Gombe State candidates in the 2015 JAMB/UTME first General Computer Based Test?

Table 3 depicts the frequency of the Gombe State candidates in the 2015 JAMB/UTME First General CBT who faced several challenges during the conduct of CBT. A considerable majority of the candidates mentioned internet failure (59%), power failure (58%) and non-conducive environment (58%) at the centre as major challenges that they faced. About half of them reported that the test did not start or finish on time. This shows that a proper planning of the test was not done prior to conduct of the test.

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Table 3

Frequency Counts of the Gombe State Candidates in the 2015 JAMB/UTME First General CBT who Faced Challenges (Percentages in Parenthesis)

Sr.#	Challenge	How affected		
		Seriously affected	Slightly affected	Not affected
1.	The test did not start on time	133(48)	81(29)	65(23)
2.	The test did not finish on time	152(55)	90(32)	37(13)
3.	There was power failure in the centre	161(58)	68(25)	50(18)
4.	There was internet network failure in the centre	164(59)	74(27)	40(14)
5.	The centre was not conducive for the test	161(58)	71(26)	47(17)
6.	I don't have knowledge of Computer/ICT	93(33)	65(23)	121(43)
7.	Not familiar with answering questions on a computer screen	87(31)	62(23)	130(47)
8.	I couldn't locate my centre on time	50(18)	40(14)	189(68)
9.	I was transferred to another centre to take/complete the test	62(22)	31(11)	186(67)
10.	We were over crowded in the centre	102(37)	65(23)	112(40)

Percentages are given in the parenthesis

Discussion

The results as regards the general profile of 2015 JAMB/UTME candidates (indicated in Table 1) reveal that majority (62%) of the candidates fall within the age bracket 18-25years. The results further indicate that 46% of the respondents were familiar with computer usage while 54% were not familiar with computer usage. That 54% of the participants were not familiar with computer usage, is an alarming situation for the nation. This also means that computer studies as a core subject in secondary schools in Nigeria (FME, 2014) has not been taught the way it should have been. It is also possible that some of these candidates might be having their first contact with computer usage during the 2015 JAMB/UTME Computer Based Test, a challenge that might have negatively affected their performances (Adewale & Etuk-Iren, 2015; Davey, 2011; Ojerinde, 2015; Okoronkwo, 2015).

With respect to research question 2, as regards the adequacy of the

training received prior to the CBT, Table 2 reveals that 47.2% of the candidates did not receive any training at all, while only 15.2% considered the training received prior to the CBT as adequate (a combination of 9.4% and 5.8% of the candidates who considered the training received as moderately and very adequate respectively).

The fact that as much as 47.2% of the candidates did not receive training on CBT prior to the test is quite upsetting and contrary to the expectations of the examining body that all the CBT candidates would receive training to get familiar with computer usage prior to the test (JAMB, 2015; Ojerinde, 2015). Moreover, the fact that only 15.2% of the total candidates (representing 28.6 % of those who received training prior to the CBT) considered the training to be adequate suggest the need to take a more critical look at the training format(s) in order to make training more effective. The vital importance of training to get candidates familiar with the use of computers in answering questions cannot be overemphasized as studies have documented the impacts of skills in usage of computer on performance in CBT.

With regards to the challenges encountered by the candidates during CBT, it can be inferred from Table 3 that only 23% of these candidates responded that they were not affected by the fact that the test did not start on time (Challenge SN1). However, a majority of the candidates (77%) were affected by the test not starting on time as specified on the examination time table.

Power failure during the examinations (Challenge SN 3) affected as much as 82% of the candidates (58% were affected seriously while 24% were slightly affected), while only 18% of the candidates claimed that they had no power failure during the examination. An obvious implication of this finding is the need for the JAMB to insist that CBT centres should have backup means of power that would provide uninterrupted power supply in case of power failure from the national grid – keeping in mind the unpredictable supply of power in the country at present.

Related to the problem of power failure is that of internet network failure (Challenge SN 4). Table 3 reveals that only 14% of the candidates were not affected by network failure during the examination during the CBT while the remaining 86% of the candidates had challenges with network failures. While this problem could be regarded as a national issue, the implications for a complete reliance on internet network for the

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conduct of the test in an environment of erratic network calls for the needs for the examination body to be innovative in meting out with this problem. There is a need to deploy all possible means to ensure that internet network becomes better (MBendi Information Services, n.d; National Bureau of Statistics, 2016).

Another major challenge encountered during the 2015 general CBT as revealed in Table 3 is that most of the CBT centres were not conducive for the test (Challenge SN5) as indicated by 85% of the respondents as against 21% whose centres were conducive. Verbal interviews of the respondents indicate that parts of the problem of conduciveness of the centres included over monitoring by several stakeholders, presence of security personnel at the centre (possibly due to the peculiar security challenges faced in this part of the country during the period of the exam (Ludovica, 2015; Ugwumba & Odom, 2015).

Conclusion and Recommendations

The study concludes that:

1. Majority of the candidates of the 2015 JAMB/UTME in Gombe State are not familiar with computer usage prior to the CBT.

2. Many candidates of the 2015 JAMB/UTME do not receive training about CBT prior to the examination.

3. The key challenges encountered by the candidates of the 2015 JAMB/UTME are:

    i.   The test does not start on time.
    ii. Erratic internet network during the examination.
    iii. Power failure during the examination.
    iv. Unfavourable conditions of examination centres.

It could thus, be inferred that the major challenges encountered by the candidates in the CBT are those that could be envisaged and could be minimized with advanced preparations.

Based on the provided insights as to the major challenges faced by the candidates of the 2015 general JAMB/UTME CBT, this study thus recommends that appropriate steps need to be taken by concerned stakeholders to find out means of eliminating and at best reducing the

reoccurrence of such challenges.

It is argued that the reported challenges of the CBT candidates as revealed through this study can be minimized or totally controlled, if the following recommendations are implemented.

1. The examination board should take proactive measures by inspecting all the structural facilities, computer systems to be used and the conduciveness of every approved centre in good time before the date of the examination.

2. Regular power supply should be provided by the Government and the examination board/ centres should make provision for standby generators in case of any power outage.

3. The practical aspect of ICT as a subject should be intensified in secondary schools. This will get prospective candidates of JAMB/ UTME acquainted with the knowledge of the use of computer even before they take the examinations because chances are that they can still have challenges due to the present uncoordinated crash training programmes in place.

4. Tutorials in the form of "Test Drive" should be given to all registered candidates, a few months before the exams are due, so that they can have ample time to practice and get themselves acquainted with answering questions on a computer screens.

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