

## **Challenges Encountered Using Cbt by 2015 Utme Candidates In Owerri Zone One, Nigeria: Test Validity Implications**

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**Abstract:** *This research investigated challenges encountered using CBT by 2015 UTME candidates in Owerri zone one and examined their implications on the test validity. Survey design was adopted. The population of the study comprised 1,006 SSIII students in public secondary schools in Owerri zone one who took 2015 UTME. The sample comprised of 20% of the population selected using stratified random sampling and simple balloting. Seven research questions guided the study. A Likert-type questionnaire was used for data collection. Mean scores were used for data analysis. Among the challenges identified were; insufficient computers and computer centers, power failure, candidates' incompetence in use of computers, posting of candidates far from home by JAMB and unfavourable timing of exam sessions. The study concludes that these challenges hinder test validity. The implication is that candidates in Owerri zone one centers would have performed better than they performed in 2015 UTME if they were examined under a conducive exam environment. Some recommendations made are: Construction of more computer centers, provision of more computers for UTME and enhancement of power supply by the Government, posting of candidates close to their homes and postponement of use of CBT for UTME by JAMB till the identified challenges have been curbed.*

**Key words:** *Challenges, test validity, incompetence in computer, exam session, CBT, JAMB, 2015 UTME*

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### **I. Introduction**

Admission and Matriculation Board (JAMB) was established in 1978 to conduct entrance examinations for candidates seeking admission into tertiary institutions in Nigeria. The Board organizes what is called unified Tertiary Matriculation Examination (UTME) for all the candidates.

From the inception of the Board to year 2011 the only type of examination given to candidates was paper/pencil tests (PPT). In 2012 two forms of computer based examinations were introduced for UTME candidates. They were the computer Based Tests (CBT) and Dual Based Tests (DBT). For the CBT form, each candidate was required to download the questions from internet and type the responses into the computer. For the DBT type, candidates were asked to download the questions from internet and respond with paper and pencil.

Oduntan, Ojuawo and Odunntan (2015), define computer based tests as “assessment 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.” Abubakar and Adebayo (2014) opine that some major reasons for introducing CBT tests for UTME were to inhibit the rate of examination misconduct and also to speed up the release of results. The stance of this paper is that these reasons can be accepted as tangible if results produced using CBT forms are satisfactorily valid and reliable. Test validity is described as the extent to which a tests measures what it is designed to measure and nothing else.

The purpose of organizing Unified Tertiary Matriculation Examination for candidates is to be able to select candidates who will be capable of coping with tertiary education scheme of work. Wikipedia the free encyclopedia (n.d) records that “In education, an examination is a test to show the knowledge or ability of a student.” Oxford English Mini Dictionary (1999: 173) cited in Nkwocha (2015) define the word examination as a ‘formal test of knowledge or ability’.

A test that has low validity, lacks credibility. Test credibility is the extent to which the test result is accepted as authentic by relevant authorities. Nwana (2007), further states that for a test to achieve the purpose for which it designed ( test validity) there must be test civility. Test civility is the degree to which the conditions under which candidates are made to take an exam or test is devoid of challenges which can affect candidates performance in the test. Some of such challenges are : insufficient, accommodation, facilities, equipment, materials and incompetence in use of equipment provided for taking the test. Exams taken under conditions which lack test civility would measure psychological stresses encountered by the candidates during the examination, instead of measuring their ability in the objectives or skills the test is designed to measure. For instance, UTME will lack validity if a candidate who is not competent in use of computer fails the exam because of his incompetence in the use of computer rather than his/her inability in the objectives the test is designed to measure.

Furthermore, a standardized test like UTME should be conducted with uniform administrative procedure. All candidates should be given uniform exam schedule. According to Annastasi (1988:25), in

Nkwocha(2015),"standardization implies uniformity of procedure in administering and scoring the test" Fixing the exam for some candidates in the morning and compelling some to take theirs in the night may give undue advantage to some candidates more than to others. It goes against the principle of standardization of a test.

In 2012 when JAMB introduced CBT and DBT forms for UTME, candidates were given the opportunity to use paper /pencil, CBT or DBT forms of the exam. Similar opportunities were given in 2013 and 2014 sessions. In 2015 UTME , JAMB authority restricted every candidate to use of computer based test format.

Introduction of CBT exams has attracted comments from researchers like Adebayo (n.d) Oduntan, Ojuawo and Oduntan (2015) and Abulakar and Adebayo (2014). Adebayo, (2015) noted that some candidate failed CBT form UTME exam because of incompetence in use of computer and also noted that the epileptic power supply and poor level of economic situation in Nigeria are challenges that hinder effective use of CBT for UTM examinations in the present Nigerian situation. JAMB 2015 UTME experience: Advantages and disadvantages, record that candidates who took UTME in UNIPORT using CBT complained that systems were 'doing off and on magic' and that the systems were insufficient. Some candidates got fatigued as they waited for their turn to use the computer and no JAMB official attended to people's complaints. Adebayo,(2014) identified power failures as a problem encountered in computer based tests in Nigeria. The coordinator, JAMB office, Owerri also reported that in the recently concluded 2015 UTME , a faulty generator at a center in Owerri zone one, damaged the computer systems in the center, the candidates in the center were directed to transport themselves quickly to a center in Orlu where they took the exam. It is noteworthy that statistics obtained from the office of the Director, JAMB office Abuja, reveals that eighty-two thousand four hundred and forty-four candidates(82,445) took UTME in the whole of Imo state which is called Owerri JAMB zone one. Only twenty-two (22) computer centers were made available for the 82,445 candidates. In Owerri senatorial zone which consists of five local governments, forty-five thousand five (45,005) candidates took JAMB in 2015. Only twelve computer centers were provided for them. Majority of the centers did not have more than 150 computers.

As narrated by the coordinators, JAMB office Owerri, to forestall some anticipated problems during the 2015 exam, JAMB engaged the services of supervisors, technical staff, proctors, centre managers, centre technical staff, generator maintenance staff, computer engineers and security personnel. The examination was run for two weeks, and conducted daily in three sessions. The first session commenced at 6am while the last session ended in the evening. CBT tapes which could be used for practice were made available for purchase to candidates before the exam date.

Nonetheless, for JAMB Management, the arrangements made so far was sufficient to make 2015 CBT, UTME in Owerri hitch free and capable of producing valid results. No wonder only CBT computer based tests were made available to candidates for 2015 UTME in Owerri zone one.

The problem of this study therefore is: Were challenges capable of inhibiting test validity still encountered by candidates during the 2015 CBT UTME in Owerri Senatorial Zone one ? Based on this backdrops, the purpose of this study was to investigate the challenges encountered by candidates who used CBT for 2015 UTME in Owerri Senatorial zone one and explain the implications of any challenge encountered on test validity. The study specifically investigated the extent to which the following challenges were encountered during the 2015 UTME exam in Owerri zone one: Power failure, problems posed by insufficient supply of computers, candidates' lack of competence in use of computer, lack of adequate assistance for candidates who had technical hitches, non- functional computers, problems caused by posting candidates far from their residences, provision of more favourable exam sessions for some candidates more than others.

If the recommendations made by this study to curb the challenges encountered during the 2015 UTME examination in Owerri Zone one are implemented, the study would be beneficial to candidates who take UTME because conducive environment which will ensure test civility will be provided for them. It would be to relevant to university authorities because the result of UTME would be more valid and enable them select appropriate candidates for admission. It would be relevant to the society at large as more efficient graduates would be produced. Considering the purpose of the study the following research questions guided the study.

## **II. Research Questions**

1. What extent did power failure pose challenges while using for 2015 CBT, UTME in Owerri zone one?
2. What challenges did candidates encounter because of insufficient supply of computers for 2015 UTME in Owerri zone one ?
3. To what extent did candidates' incompetence in use of computers hinder their exam activities during 2015 UTME in Owerri zone one?
4. To what extent were 2015 UTME candidates in Owerri zone one, who had technical hitches not adequately assisted by JAMB staff ?

5. To what extent were the exam activities of candidates in Owerri zone one disrupted by non functioning of computers?
6. To what extent did posting of candidates to centres far from their residences pose problems for 2015 UTME candidates in Owerri zone one ?
7. To what extent did the timing of the UTME exam sessions used in Owerri zone one, create more favourable conditions for some candidates than for others?

### **III. Methodology**

Survey design was used for the research. The area of the study was Owerri senatorial zone one in Imo State Nigeria.

The population of the study comprised of SS3 candidates from government owned secondary schools in Owerri zone one, who took the Unified Tertiary Matriculation Examination in 2015 in Owerri Zone one centers. Candidates from secondary schools were used for the study because location of all UTME external candidates is not visible. Owerri Zone one comprises of five local government. The names of the government owned secondary schools in the zone which had candidates for 2015 UTME was obtained from the statistics office in the zonal Education management Board Urratta road Owerri. They were sixty-five in number. Since there is no office from where the number of candidates who took UTME from each secondary school could be obtained, the researchers adopted stratified random sampling techniques for selection of schools for the study. One school was randomly selected from each of the five local governments. Identification of the candidates who took the UTME exam was done on the spot by the researchers.

Twenty percent(20%) of the students from each of the schools was selected using simple balloting. The population size was 1,006 candidates while the sample size was 206 candidates.

N/s	Local Government	Number of schools	Number of schools selected	Names of schools selected	Number of candidates who took the UTME in 2015	Sample Size
1.	Owerri Municipal	8	1	Comprehensive Development Secondary School Owerri	588	112
2.	Owerri West	12	1	Comprehensive Secondary School Avu	150	30
3.	Owerri North	14	1	John .F. Kennedy Obibiezena	133	26
4.	Mbaitoli	18	1	Comprehensive School Ogbaku	82	16
5.	Ikeduru	13	1	Comprehensive School Avuvu	112	22
<b>Total</b>		<b>65</b>	<b>5</b>		<b>1006</b>	<b>206</b>

One likert-type questionnaire was designed by the researchers for data collection. It comprised two sections, the personal data section and section B which consisted of fourteen items designed to elicit answers for the seven research questions. The respondent were required to respond to section B through ticking in any of the columns, very large extent, large extent, little extent and not at all. The scores for the responses were respective 4,3,2, and 1. The figure obtained as the average for each item and each research question was used for its interpretation. Data was analyzed with mean scores.

The content validity of the questionnaire was ascertained through subjecting it to the scrutiny of two Measurement and Evaluation Experts. To establish the reliability of the instrument a pilot study was conducted with thirty students. Cronbach Alpha method was used to compute the reliability of the instrument. The obtained reliability indices was 0.89. This indicates that the instrument is highly reliable.

The questionnaire was distributed to the sample through direct contact of the researchers and two assistants. 100% of the questionnaire was retrieved. Data was analyzed with mean scores.

**IV. Results**

1. **Research question 1:** To what extent did power failure pose challenges while using CBT for 2015 UTME in Owerri zone one?

**Table 1**

Interruption of 2015 CBT, UTME by power failure

Item	N.R	(4) V.L.E	(3) LE	(2) L	(1) N.A	$\bar{X}$	Results
		N:S	N:S	N:S	N:S		
1. Power failure disturbed the Exam.	206	200:800	0:0	0:0	6:6	4	Very large extent
2. Generators used when power failed also broke down.	206	200:800	0:0	0:0	6:6	4	Very large extent
<b>Total</b>	412	400:1600	0:0	0:0	12:12	8	
<b>Grand mean</b>		200:800	10:0	0:0	6:6	4	Very large extent

VLE=Very large extent, LE=Large extent, L=Little, NA=Not at All, S=Score, N=Number, N.R=Number of response

Table 1 reveals that the average response is 3.9, which is '4' four stands for very large extent. The answer to research question 1 is that power failure disturbed 2015 UTME to a very large extent.

**Research question 2**

What challenges did candidates encounter because of insufficient supply of computers for 2015 UTME in Owerri Zone one?

**Table 2**

Insufficient supply of computers and challenges posed for candidates.

Item	N.R	(4) V.L.E	(3) LE	(2) L	(1) N.A	$\bar{X}$	Results
		N:S	N:S	N:S	N:S		
3. Some candidates waited for others to finish before computers were made available to them	206	206:824	0:0	0:0	0:0	4	Very large Extent
4. Some candidates were posted far from their residences because of shortage of computers	206	200:800	8:24	0:0	0:0	4	Very large Extent
<b>Total</b>	412	406:1624	8:24	0:0	0:0	8	
<b>Grand mean</b>	206	203:812	4:12	0:0	0:0	4	Very large extent

VLE=Very large extent, LE=Large extent, L=Little, NA=Not at All, S=Score, N=Number, N.R=Number of response

Figures in table 2 reveals that candidates stated that a very large extent some candidates had to wait for others to finish before computers were made available to them. They also stated that to a very large extent candidates were posted far from their residences because of short supply of computers. The experiences were challenges.

**Research question 3**

To what extent did candidates' incompetence in use of computers hinder their exam activities?

**Table 3** Problems posed by candidates' incompetence in use of computers

Item	N.R	(4)	(3)	(2)	(1)	X̄	Results
		V.L.E	LE	L	N.A		
		N:S	N:S	N:S	N:S		
5. Some candidates who lacked competence in the use of computers typed wrong information they could not delete	206	190:760	10:30	6:12	0:0	4	Very large extent
6. Some candidates could not finish within exam period because of their incompetence in the use of computer	206	180:720	16:48	10:20	0:0	3.8	Very large Extent
<b>Total</b>	412	370					
	:1480	26:78	16:32	0:0			
<b>Grand Average</b>	206	185:740	13:39	8:16	0:0	4	Very large extent

VLE=Very large extent, LE=Large extent, L=Little, NA=Not at All, S=Score, N=Number, N.R=Number of response

Figures in table 3 shows that the candidates opined that incompetence in the use of computer hindered candidates' exam activities during the 2015 CBT, UTME in Owerri zone one.

**Research question 4** To what extent were 2015 UTME candidates in Owerri zone one, who had technical hitches not adequately assisted by JAMB staff ?

**Table 4** Inadequate assistance given to candidates who had technical hitches

Item	N.R	(4)	(3)	(2)	(1)	X̄	Results
		V.L.E	LE	L	N.A		
		N:S	N:S	N:S	N:S		
7. The assistants posted by JAMB were reluctant to assist candidates who had no money for them	206	200:800	6:18	0:0	0:0	4	Very large extent.
8. Some assistants posted by JAMB could not handle some technical problems.	206	190:760	10:30	6:12	0:0	4	Very large extent.
<b>Total</b>	412	390:1560	16:48	6:12	0:0	8	
<b>Grand Mean</b>	206	195:780	8:24	3:16	0:0	4	Very large extent

VLE=Very large extent, LE=Large extent, L=Little, NA=Not at All, S=Score, N=Number, N.R=Number of response.

Statistics in table 4 indicates that candidates in Owerri Zone one who had technical hitches were to a very large extent not given adequate attention.

**Research question 5**

To what extent were the exam activities of candidates in Owerri Zone one disrupted by faculty computers?

**Table 5** Disruption of exam activities by faculty computers

Item	N.R	(4)	(3)	(2)	(1)	$\bar{X}$	Results
		V.L.E	LE	L	N.A		
		N:S	N:S	N:S	N:S		
9. Fluctuation in network Service during exam disrupted some candidates' speed of writing	206	200:810	6:12	0:0	0:0	4	Very large extent.
10. Non functional computers frustrated some candidates during exam	206	190:760	16:48	0:0	0:0	4	Very large extent.
<b>Total</b>	412	390:1560	22:60	0:0	0:0	8	
<b>Grand Mean</b>	206	185:780	11:30	0:0	0:0	4	Very large extent

VLE=Very large extent, LE=Large extent, L=Little, NA=Not at All, S=Score, N=Number, N.R=Number of response .

The answer to research questions as revealed in table 5 is that non-functional computers disturbed exam activities of candidates in Owerri Zone one to a very large extent.

**Research question 6**

To what extent did posting of candidates far from their residences by JAMB pose problems for 2015 UTME candidates in Owerri Zone One?

**Table 6** Inconveniences caused by posting candidates far from home

Item	N.R	(4)	(3)	(2)	(1)	$\bar{X}$	Results
		V.L.E	LE	L	N.A		
		N:S	N:S	N:S	N:S		
11. Many candidates posted far from their residences missed 6am exams	206	206:824	0:0	0:0	0:0	4	Very large extent
12. Many candidates posted far from their residences who finished in the evening had accommodation problems	206	206:824	0:0	0:0	0:0	4	Very large extent
<b>Total</b>	412	412:1648	0:0	0:0	0:0	8	Very large extent
<b>Grand Mean</b>		206:824	0:0	0:0	0:0	4	

VLE=Very large extent, LE=Large extent, L=Little, NA=Not at All, S=Score, N=Number, N.R=Number of response

Table 6 unveils that posting candidates far from their residences posed problems to candidates to a very large extent. The grand average is 4 which stands for very large extent

**Research Question 7**

To what extent did timing of some exam sessions create more favourable conditions for some UTME 2015 candidates than others in Owerri Zone one?

**Table 7** Provision of differential exam conditions for candidates

Item	N.R	(4)	(3)	(2)	(1)	$\bar{X}$	Results
		V.L.E	LE	L	N.A		
		N:S	N:S	N:S	N:S		
13. Candidates whose exam started at 6am were the most unfavoured candidates.	206	206:824	0:0	0:0	0:0	4	Very large extent.
14. Candidates scheduled for afternoon session were the most favoured candidates	206	206:824	0:0	0:0	0:0	4	Very large extent.
<b>Total</b>	412	412:1648	0:0	0:0	0:0	8	
<b>Grand Mean</b>	206	206:824	0:0	0:0	0:0	4	Very large extent

VLE=Very large extent, LE=Large extent, L=Little, NA=Not at All, S=Score, N=Number, N.R=Number of response

The answer to research question 7 is, the different exam sessions used for UTME candidates created more favourable exam conditions for some candidates than for others.

### V. Discussion of research findings

The statistics in Table 1 illustrates that 200 out of 206 candidates stated that power failure disturbed the UTME 2015 to a very large extent, only 6 people whose exam center was Federal University of Technology, Owerri said there was no power failure there and ticked 'not at all'. The grand mean is 4 which is interpreted as very large extent. The implication is that power failure was a major challenge experienced by most candidates who took UTME in Owerri Zone one, in 2015. This finding tallies with the discovery by Oduntan, Ojuawo and Oduntan (2015). The implication is that many candidates did not have the opportunity to manifest their optimal ability because of power failure. The validity of the test is therefore hampered.

Table 2 reveals that 203 said that insufficient supply of computers to a very large extent made some candidates wait for others to finish before they started their own exam. It is also why some people were posted to centers far from their homes. It therefore posed inconveniences for candidates to a large extent. Nobody ticked little extent and not at all. The grand mean was 4 which stands for very large extent. The implication of the inconveniences posed on candidates by short supply of computers is that the psychological stresses they encountered could affect their performance in the test and therefore inhibit the validity of the test result. This confirms the discovery by Adebayo(2015) who found that candidates got fatigued waiting for their own turn to start the exam.

Table 3 which presents the statistics obtained for research question 3 reveals that 185 candidates stated that incompetence in the use of computers hindered candidates exam activities to a very large extent. 13 candidates said that the impediment caused by incompetence in use of computer on candidates' exam activities was little. No candidate ticked "not at all" The obtained grand mean is '4' which stands for very large extent. The answer to the research question is therefore: Incompetence in use of computer hindered candidates' exam activities to a very large extent. This discovery confirms the findings by Abubakar and Adebayo (2014) which stated that incompetence in the use of computer mouse and computer operations negatively affected candidates who used CBT for Unified Tertiary Matriculation Exam in Lagos.

Following Nwana's (1981) definition of test civility, the hampering of candidates' exam activities by incompetence in use of computer indicates that test civility was not ensured during the exam. The validity of the exam is therefore lowered.

Table 4 illustrates the answer obtained for research question 4 which is: To what extent were candidates who had technical hitches not adequately assisted during the 2015 UTME in Owerri Zone one? It indicates that 195 candidates stated that to a very large extent the candidates were not given adequate attention. 8 people said they were not given adequate attention to a large extent. 3 people said that the inadequate attention given to them was little while no body ticked not at all. This confirms Adebayo (2015) who pointed out that at Lagos State Polytechnic "invigilators were not allowed to help candidates out of their technical predicaments". This is a factor that hinders optimal performance of candidates and therefore inhibits test validity and civility.

Table 5 presents answers for research question 5 which is to what extent were the exam activities of candidates in Owerri Zone one disrupted by faulty computers? The grand average score is 4 which reveals that for 'a very large extent' faulty computers disrupted candidates exam activities. This discovery up holds the findings of Abubakar and Adebayo (2014) which found that non-functional computers disrupted computer based tests operations in Nigeria. This also limits test validity.



Data in table 6 present analysis of responses elicited for research question 6, which is to what extent did posting of candidates far from their residences by JAMB pose problems for 2015 UTME in Owerri zone one? All the 206 candidate stated that posting of candidates far from their residences caused problems such as coming late to the exams and accommodation problems for those who finished late. The stress caused by inconveniences of being posted far from home can affect candidates' performance. Being made to write exam under emotional stress can lower one's performance in the test . The discovery that the process of executing CBT, UTME posed stress to students confirms JAMB 2015 UTME experience(2015) which states that the time lag of wanting to take exams tired the candidates.

Statistics presented in table 7 reveals that the differential exam sessions used for 2015 UTME provided more favourable exam conditions for some candidates than it did for others. The 206 respondents said that it provided more favourable conditions for some than for others to a very large extent, According to Annastasi (1988) cited in Nkwocha, (2015) standardized exams like JAMB, should employ uniform administrative procedures for all candidates. The commencement time for the exams should be uniform.

## **VI. Conclusion**

Based on the research findings, the paper concludes that challenges experienced by 2015 CBT UTME candidates in Owerri zone were; power failure, insufficient supply of computer, candidates' incompetence in the use of computers, non provision of adequate assistance for candidates who had technical hitches, use of faulty computers and fluctuation in network service, inconveniences caused by posting candidates far from their homes by JAMB and provision of unfavourable timing of exam sessions for some candidates. The paper concludes that all these challenges impeded test civility and consequently hindered the validity of the exam. The abilities of candidates who sat 2015 UTME Owerri zone one centers could have been more effectively taped if the challenges were not encountered by them.

## **VII. Recommendations**

1. The government should make more effort to ensure that power supply is stable in Owerri. JAMB authorities should provide new, stand by generators for the UTME. Old generators which may break down during the exam should not be used.
2. Use of CBT for UTME should be suspended by JAMB till sufficient computers that can enable use of one session for every candidates is made available.
3. Curriculum planners should make practical computer education from Primary school to Secondary Education levels compulsory to make students proficient in use of computer operations for UTME.
4. When fluctuation in network service causes waste of time during UTME, invigilators should add the time lost to the exam duration so that candidates are not disadvantaged. Faulty old computers should not be given to candidates for UTME by exam centre managers.
5. To curb posting candidates far from home because of insufficient computer centers, the government should construct big conducive computer halls in every post secondary institution in Imo State to be used for UTME exams and other important examinations.
6. To eliminate providing more favourable exam session for some candidates than others , JAMB should use all computer halls in every citadel of learning for the UTME. When the halls and computers are sufficient for all candidates, a uniform exam session should be used. It could last for a longer span of time but JAMB should use only one session that will start at 10am.
7. JAMB management should urge the technical assistances to assist candidates who have technical hitches without asking for incentives. Eye-in-the-house could be installed in all exam halls by each school authority to serve as a check for those who want to be unethical.

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