

## PERCEIVED CHALLENGES OF AUTOMATING THE UNIFIED TERTIARY MATRICULATION EXAMINATIONS IN NIGERIA

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### Abstract

*The automation of the Unified Tertiary Matriculation Examination (UTME) by the Joint Admissions and Matriculation Board (JAMB) in 2013 has been greeted by criticisms and counter criticisms. Some have called for the system to be scrapped because of certain challenges, shortcomings and irregularities. It is against this background that this study was conducted to investigate the perceived challenges confronting this laudable innovation. The researchers adopted the descriptive survey design. A total of 720 respondents across Nigeria were sampled using stratified and multistage sampling techniques. The instrument that was used for data collection was tagged 'Challenges of Automating UTME Questionnaire'. The instrument was validated by experts in Educational Research and Measurement and Evaluation. A test re-test procedure was used to determine the reliability of the instrument. Data collected were analysed with Chronbach's Alpha reliability statistical technique which yielded a value of .70. Two research questions and one hypothesis were formulated for this study. The research questions were answered using frequency count and mean scores, while the hypothesis was tested using t-test statistic at .05 level of significance. The results showed that Nigerian students are ready for automated UTME, being that they have access to computers and have the basic skills required. It was further revealed that there is no significant difference in the level of readiness of public and private senior secondary school students for automated UTME in Nigeria. The study recommended among other things that JAMB's automated UTME should be sustained but serious efforts must be made by governments at all levels to make computers available and accessible to students in all locations to enable them learn and practice computer skills.*

## **Introduction**

Prior to the introduction of the Joint Admissions and Matriculation Board (JAMB) in 1978, there were seven federal universities in Nigeria. Every one of the existing universities conducted its concessional examination and admitted its students. However, this system of admission was beset by difficult challenges that severely marred its success. Some of such challenges included the massive waste of resources in the process of conducting the concessional examination, multiple applications, examinations and acceptances. The general untidiness of the uncoordinated system of admissions with the attendant challenges escalated into a full-scale confusion for stakeholders consequent upon the establishment of more universities, polytechnics and colleges of education.

In order to address these problems related to admissions into higher institutions, the Joint Admissions and Matriculation Board (JAMB) was established in 1978. JAMB is the statutory body responsible for conducting examinations for admission into Nigerian universities, polytechnics and colleges of education. The first examination of the board which was conducted in May 1978 was a success (Ohaeri, 2015). However, because of societal influence and the need to get into the university by all means, students devised a lot of means to cheat in the examinations conducted by JAMB. This brought in a lot of discrepancies that undermined the efficiency and credibility of JAMB results. The grading system of the hitherto reputable examination body was greeted by serious criticisms and controversies because of the overall poor performance of the candidates.

Over the years, JAMB has witnessed a lot of challenges. These challenges are as a result of the nature of the Nigerian society which is rapidly changing, and the pressure on the society to adjust in order to meet up with global demand. Every year, JAMB conducts Unified Tertiary Matriculations Examination (UTME) and forwards the

results to the candidates' institutions of choice for selection and admission. For years, the UTME by JAMB has been a Paper and Pencil Test (PPT) form, and has been characterized by a lot of fraudulent practices ranging from leakage of examination papers, use of machineries of all sorts by candidates, bribe taking by examination officials, impersonation and use of unauthorized gadgets (Osuji, 2012).

In a bid to minimize cases of examination malpractice and reform the assessment system to fit an ICT-driven society, JAMB in 2013 introduced the Computer-Based Testing (CBT) form of UTME running concurrently with the traditional Pen and Paper Test. The CBT administered by JAMB is an on screen presentation of multiple choice knowledge tests. The computer marks or assesses the responses provided by candidates. As a candidate finishes the examination, the system gives him/her a pictorial presentation of his/her performance on the spot, while 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 (Obioma, Junaidu & Ajagun, 2013). JAMB conducted the 2013 edition of the UTME with three test options, namely the traditional Paper and Pencil Test (PPT), Dual-Based Test (DBT), and Computer-Based Test (CBT). In 2015, only Computer-Based Test was used in assessing students. It is therefore on record that the Joint Admissions and Matriculation Board (JAMB) pioneered the first Computer-Based Test (CBT) in public examinations in 2013 Unified Tertiary Matriculation Examinations (UTME) (Obioma et al, 2013). The UTME is an examination administered once a year by JAMB to all candidates seeking admission into Nigerian public and private monotechnics, polytechnics, colleges of education and universities. Albeit JAMB pioneered the first Computer-Based Test in Nigeria, the advent of automation in public examination systems could be traced to the use of punch card machines by the West African Examinations Council (WAEC) for

handling all aspects of examinations from the capture of candidates' registration information to the printing of certificates. The use of punch-card machines was replaced in 1970's with Optical Mark Reader (OMR) which Ojerinde (2013) lauded its efficiency of scoring multiple choice examination items. Similarly, the National Examinations Council (NECO), in 2004, keyed into the automation of examination procedures in Nigeria by introducing e-registration of candidates for its examinations, online MTN-SMS results checker and online verification and confirmation of examination results. With these developments, candidates were able to access their results from any part of the country with their mobile phones; while educational institutions could verify the authenticity of candidates' results with ease.

The automation of the UTME in Nigeria, according to Ojerinde (2013), has improved the efficiency of the UTME, enhanced its credibility as well as reduced the incidence of breaches of examination security. Other benefits of automated assessments and examinations according to Obioma, Junaidu and Ajagun (2013) include:

1. Instant feedback to candidates
2. Extensive and efficient use of existing item banks
3. Precision measurement through the adaptation of test contents to individual student's competence
4. Greater flexibility with respect to location and timing of examinations
5. Improved reliability (machine marking is much more reliable than human marking)
6. Creation of digital records of students' growth and development which can easily be passed along from grade to grade
7. Cost and time efficiency
8. Improved impartiality (computerized marking does not 'know' the students and so does not favour nor make allowances for minor errors)
9. Greater storage efficiency (tens of thousands of answer scripts and

results can be stored on the server compared to the physical space required for paper scripts, and

10. Enhanced question styles which incorporate interactivity and multimedia
11. Increased productivity and low operational variability
12. Accommodation of special needs candidates

Despite the lofty benefits of automating the UTME, there seems to be a deluge of challenges confronting it in Nigeria. Some of the perceived challenges include dearth of infrastructure required for the successful uptake and sustenance of the system, absence of computer and internet facilities in rural areas, students' lack of basic computer skills, the challenge of erratic power supply, the preservative and resistance-to-change public attitudes and the low level of e-education among students and teachers.

### Research Questions

The following research questions were raised and answered.

1. To what extent do senior secondary school students in Nigeria (who are prospective UTME candidates) have access to computer facilities?
2. To what extent do senior secondary school students in Nigeria have basic skills in computer operations to make them ready for automated examination?
3. Is there any difference in the level of readiness of public and private senior secondary school students for automated UTME in Nigeria?

### Hypothesis

The following hypothesis was formulated and tested at .05 level of significance:

There is no significant difference in the level of readiness of public and private senior secondary school students for automated UTME in Nigeria.

## Research Method

This study is a descriptive survey because it sought to elicit and describe information from a representative sample of prospective UTME candidates in Nigeria. All the prospective UTME candidates in Nigeria constituted the population from which a representative sample was chosen for the study.

A total of 720 respondents were sampled using stratified and multistage sampling techniques. Stratification was done by putting the country into six strata of existing geopolitical zones from each of which one state was randomly selected through deep-hand sampling technique to produce: Gombe State from North East, Sokoto State from North West, Plateau State from North Central, Abia State from South East, Ondo State from South West and Delta State from South South. Each state was stratified into existing three senatorial districts from each of which three local government areas were randomly drawn. From each local government area, four secondary schools were purposively selected to ensure fair representation of rural and urban, co-educational and single sex, and

public and private schools. From each of the selected schools, ten senior secondary school three (SSS3) made up of five males and five females were randomly chosen to complete the questionnaire.

The instrument that was used to elicit information from the respondents was a questionnaire adopted from Ohaeri (2015) which was slightly modified by the researchers. The instrument was tagged 'Challenges of Automating UTME Questionnaire'. The instrument was validated by experts in Educational Research and Measurement and Evaluation. A test re-test procedure was used to determine the reliability of the instrument. Data collected were analysed with Chronbach's Alpha reliability statistical technique which yielded a value of 70. This indicated that the instrument was reliable. Descriptive statistical techniques were used to analyse the data gathered from field work.

## Results

**Research Question One:** To what extent do senior secondary school students have access to computer facilities?

**Table 1:** Frequencies and percentages of responses on access to computer facilities

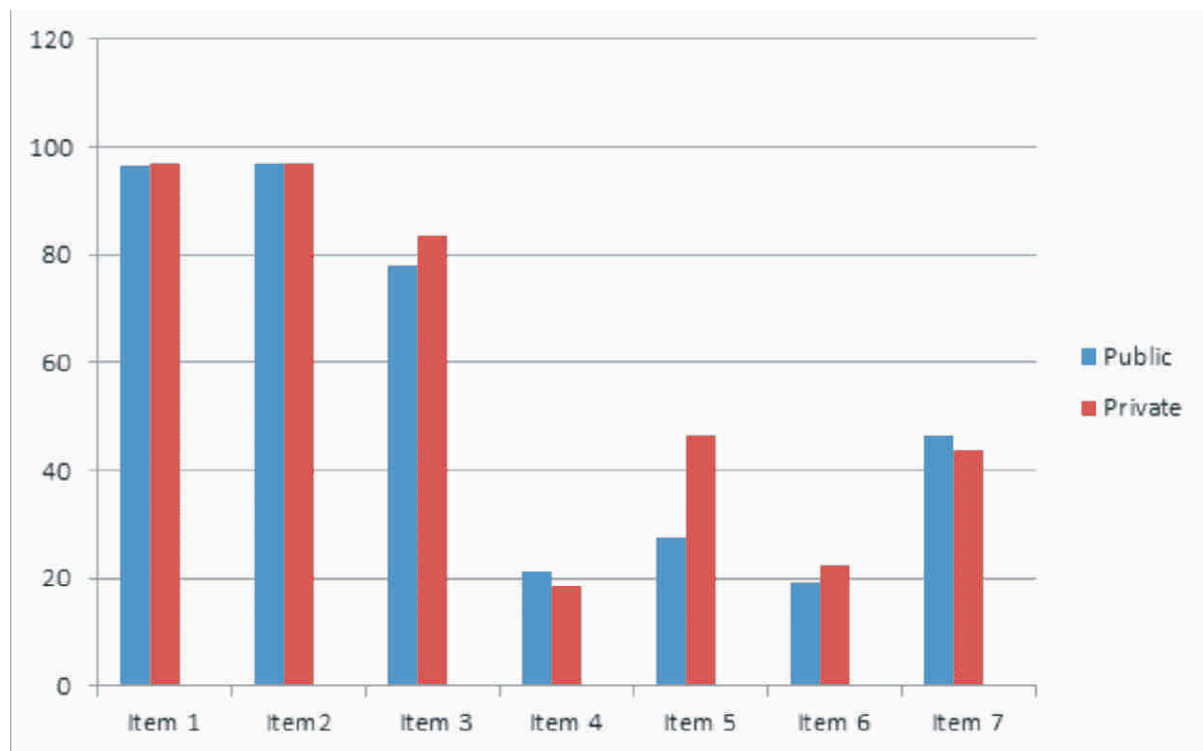
S/No	Items	School Type	Agreed		Disagreed		Total	
			F	%	f	%	F	%
1.	I have seen a computer	Public	348	96.7	12	3.3	360	100
		Private	350	97.2	10	2.8	360	100
2.	I have touched a computer before now	Public	349	96.9	11	3.1	360	100
		Private	350	97.2	10	2.8	360	100
3.	I have operated a computer before now	Public	281	78.1	79	21.9	360	100
		Private	301	83.6	59	16.4	360	100
4.	I have access to my friends' computers	Public	77	21.4	283	78.6	360	100
		Private	67	18.6	293	81.4	360	100
5.	There are computers in my home	Public	99	27.5	261	72.5	360	100
		Private	168	46.7	192	53.3	360	100
6.	There are computers in my school for practicals	Public	70	19.4	290	80.6	360	100
		Private	81	22.5	279	77.5	360	100
7.	I can use computer in cyber café anytime	Public	167	46.4	193	53.6	360	100
		Private	158	43.9	202	56.1	360	100



Table 1 shows that 348 (96.7%) of respondents in public schools asserted that they have seen computer, while 350 (97.2%) in private schools have seen computer. 349 (96.9%) in public schools have touched a computer before, while 350 (97.2%) in private schools have touched it. 281 (78.1%) respondents from public schools indicated that they have operated the computer, while 301 (83.6%) of the respondents from private schools have operated the computer. In terms of access to the computer, 77 (21.4%) respondents from public schools agreed that there are computers in their schools for practice, while 67 (18.6%) of respondents in

private schools asserted that there are computers in their schools. Furthermore, 99 (27.5%) of public school respondents agreed to having computers in their homes while 168 (46.7%) of respondents in private schools said same. 70 (19.4%) in public schools have access to their friends' computers, while 81 (22.5%) in private schools agreed to having access to their friends' computers. In public schools, 167 (46.4%) indicated that they can access computer in cyber café anytime, while 158 (43.9%) in private schools can access computers in the cyber café. Figure 1 below depicts the percentage of access in both public and private schools.

**Figure 1:** Graphical Representation of Access to Computer Facilities in Public and Private Schools.



**Research Question Two:** To what extent do senior secondary school students in Nigeria have basic skills in computer operations to

make them ready for automated examination?

**Table 2:** Mean Values of Respondents' Ratings of Their Basic Skills in Computer Operations

S/No	Items	Public			Private		
		Mean	SD	Remark	Mean	S D	Remark
1.	I have knowledge of basic terms used with computers	2.87	0.34	Accepted	3.12	0.32	Accepted
2.	I can put on (boot) a computer.	2.90	1.32	Accepted	2.98	1.56	Accepted
3.	I can shut down a computer.	3.45	0.39	Accepted	2.55	1.08	Accepted
4.	I know how to move the mouse/cursor of a computer.	2.84	1.11	Accepted	3.60	0.62	Accepted
5.	I have knowledge of functions of different keys on the keyboard	3.20	1.54	Accepted	2.88	0.33	Accepted
6.	I can identify different components of a computer.	3.01	0.40	Accepted	2.76	0.22	Accepted
7.	I can save a document on the computer	2.88	1.44	Accepted	3.01	1.11	Accepted
8.	I can undo a command on the computer	3.51	1.35	Accepted	3.21	1.46	Accepted
9.	I know how to open a saved document on the computer	3.70	0.35	Accepted	2.87	1.33	Accepted
10.	I can send information (e.g. mail) with a computer.	3.76	0.56	Accepted	3.54	0.32	Accepted
	<b>Overall on basic skill in computer operation (Readiness for CBT)</b>	<b>3.21</b>	<b>0.88</b>		<b>3.05</b>	<b>0.84</b>	

From Table 2, the grand mean scores of 3.21 and 3.05 for basic skills in computer which is higher than the criterion mean of 2.50 shows that the students have enough skills to operate a computer.

The mean scores of 2.87 and 3.12, 2.90 and 2.98, 3.45 and 2.55, 2.84 and 3.60, 3.20 and 2.88, 3.01 and 2.76, 2.88 and 3.01, 3.51 and 3.21, 3.70 and 2.87, 3.76 and 3.54 respectively for public and private schools indicated that students can perform basic tasks with computers. They have knowledge

in basic terms; they can boot and shut down a computer, move the mouse, have knowledge of different keys on the keyboard, identify components of the computer, save and open a document, undo a command and send information with a computer.

**Hypothesis:** There is no significant difference in the level of readiness of public and private senior secondary school students for automated UTME in Nigeria.

**Table 3:** T-test Analysis of Public and Private School Students' Preparedness for Automated Examinations

Variable	N	Mean	SD	df	t -cal	Sig.(2-tailed)
Public	360	32.1	8.80	718	3.56	.872
Private	360	30.05	8.40			

Table 3 shows a calculated t value of **3.56** and a P value of **.872**. Testing at an alpha level of .05, the P value is greater than the alpha level (i.e.  $P=.872 > .05$ ). Therefore, the null hypothesis is not rejected. Consequently, it is concluded that there is no significant difference in the level of readiness of public and private senior secondary school students for automated UTME in Nigeria.

### Discussion of Findings

The finding reveals that most public and private senior secondary school students (who are the prospective UTME candidates) have access to computer facilities which can be in their schools, homes, friends' houses or cyber cafés. This finding agrees with the finding of Ohaeri (2015) who conducted a similar study in Imo State and found that most students from the urban areas have access to computer facilities. However, Ohaeri found that students in rural areas did not have access to computer facilities. This finding is, however, not in line with the findings of Bada, Adewole and Olalekan (2009) that the computer has not really gained its root in Nigerian schools, let alone the entire society as its impact is not strongly felt by all, especially by students. The situation must have improved tremendously since 2009 because the Nigerian child is now exposed to the computer almost on a daily basis with laptops, PCs, android phones and other computerized devices in cybercafés or at home, school, places of worship and banks.

Table two shows the grand mean scores of public and private schools which are 3.21 and 3.05 respectively. This indicates that the prospective UTME candidates have basic computer skills that can enable them to

sit the automated UTME by the Joint Admissions and Matriculation Board Examinations and other automated examinations.

The result in Table 3 shows a calculated t value of 3.56 and a P value of .872. Testing at an alpha level of .05, the P value is greater than the alpha level (i.e.  $P=.872 > .05$ ). Therefore, the null hypothesis is accepted. Consequently, it is concluded that there is no significant difference in the level of readiness of public and private senior secondary school students for automated UTME in Nigeria. This means that they are ready to embrace the innovation of automated UTME.

### Conclusion

The automation of UTME by JAMB is a welcome development and Nigerian students are ready for it. The introduction of this innovation by JAMB in order to key into the modern trend is an exigency. It is a laudable response to a global call to change. This innovation, if faithfully supervised and implemented, would put the Nigerian child on the same pedestal with his counterparts abroad and also help Nigeria to key into the trend in global technological advancement that will bring about development in the conduct of UTMEs. In addition, JAMB as an examination body in this computer age cannot afford to be left out of the modern scheme of things. It is obvious that technology has taken the centre stage in the global village. The quest for national development cannot be adjudged serious and sincere without the readiness of Nigerians to embrace and take advantage of the boundless opportunities in scientific innovations. It is

however, pertinent to state that this study does not gloss over the hitches and myriad of irregularities that have characterized JAMB's computer-based testing since 2013. The position of this study is that the system should be sustained and improved upon and therefore, the call for abolishment of the computer-based testing should be wholly disregarded.

### Recommendations

The following recommendations were made from the findings:

1. JAMB's Computer-Based Testing should be sustained but serious efforts must be made by governments at all levels to make computers available and accessible to students in all locations to enable them learn and practice computer skills.
2. Governments should address problems associated with logistics, funding, infrastructure, curricula and teacher development.
3. Computer education and e-learning must be fully entrenched in the Nigerian educational system. This means that the ministries of education should introduce automated school-based examinations in order to acquaint students with the rubrics of automated examinations.
4. JAMB and other examination bodies should organize tutorials for candidates to help them familiarize themselves with automated examinations.

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