Readiness, Acceptability and Challenges of Computer Based Test among Senior Secondary Three Students in Borno State, Nigeria.

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Abstract

The study was a survey design. It examined readiness, acceptability and challenges of Computer Based Test (CBT) in Borno State Senior Secondary Schools. . The study had three objectives and three research questions. The population of the study was 3,000 final year students drawn from 10 senior secondary schools in Maiduguri Metropolitan. The sample for the study was 20% of the population which was 600 students. Stratified and simple random sampling techniques were employed to select the sample. Self-designed questionnaire was developed and validated by experts in administration and planning as well as measurement and evaluation units, University of Maiduguri. The logical validity index was 0.7. The instrument was also pilot-tested using split-half method and was analysed and the reliability index was 0.81. Frequency count and percentage were used to analyze the data. The study finding revealed that although students were ready for the CBT, they did not accept the use of CBT Based on the findings; it was recommended that awareness campaign and advocacy be mounted by Borno State Government through the ministry of education on the relevance of CBT in secondary schools in Borno State. .

Keywords: ***Readiness, Acceptability, Challenges, Computer Based Test***

Many educational institutions have been using lots of technologies in classrooms to improve the effectiveness of learning activities. Technology, especially when it exist in busy environments, and gets very important in the environments such that students defined it as "digital native" can be used effectively for test administration.

Good performance in examination at all levels of education and especially at secondary schools is very significant. Many educational institutions have been using lots of technologies in classrooms to improve the effectiveness of learning activities. In Borno State and in Nigeria, in general, students willing to attend high institutions of learning must first obtain the Senior Secondary School Certificate (SSCE), administered by either the West Africa Examination Council (WAEC) or the National Examination Council (NECO) (Ojerinde, 2005)

In 1952, WAEC was established with the mandate to "determine examination required in the public interest in West African Countries", WAEC have five member countries; the Gambia, Ghana, Liberia, Sierra Leone and Nigeria. However, in 1999, the government of Nigeria created NECO, which was given the responsibility to administer Secondary School Certificate Examination (SSCE) and SSCE was first administered in the year 2000.

In Nigeria, entrance examination into tertiary educational institutions (Universities, Polytechnics, Colleges of Education and related/similar institutions) is conducted by Joint Admission and Matriculation Board (JAMB) which conducts Unified Tertiary Matriculations Examination (UTME) and forwards the results to various institutions of their choice for selection and admission.

Over the years the UTME conducted by JAMB has been in a Paper and Pencil Test (PPT) form, which has been characterized by a lot of fraudulent practices ranging from leakage of examination papers, use of mercenaries of all sorts by candidates, bribe taking by examination officials, impersonation, and use of unauthorized gadgets (Osuji, 2012).

In order to eliminate or minimize incidence of the vices, JAMB in 2013 introduced the Computer Based Testing (CBT) form of examination and gave massive publicity and sensitization. JAMB gave the advantages of CBT to include increased delivery of test items that have been calibrated and delineated according to their pertinent item characteristics instructional level objectives, difficulty level, discrimination level and functionality of distracters, efficient administration of examination and scoring of tests, reduced costs for many elements of the testing lifestyle and logistics, improved test security resulting from electronic transmission and encryption for total eradication of breaches of examination security, unbiased test administration, reduction in the spate of examination security breaches, and improvement in the quality and standard of education in the long run. As expected with any innovation, there were apprehensions and public outcry among the citizenry. Some called for outright cancellation, some called for delayed implementation, some raised questions, with genuine aim of understanding the innovation, while some supported the innovation and saw in it a means through which Nigeria will be seen as aligning with the rest of the technological world.

Computer-Based Testing (CBT) has emerged as one of the recent "innovative" approaches to assessments most pursued by countries. CBT is lauded as the answer to having cheaper and speedier test delivery for state and District-wide assessments. Many countries regard understanding and mastering its basic skills and concepts as very crucial in education. This is because it adds value to the process of learning and to the organization and administration of learning institutions. It encompasses different types of technologies, which are utilized for capturing, processing and transmitting data and information using computer facilities.

The use of tools in education is possible with having the knowledge about these tools and using them. However, the readiness to and the acceptance of the technology are very important for using a tool at first. "When related literature is examined, it was shown that the use of technology is associated with the belief, attitude and intentions of the individuals who are to use the technology (Horzum & Cakir, 2012).

Readiness means to have the preconditions and pre-experiences in order to perform an event, issue or situation. Readiness is valid for many situations in daily life, for example, driving car, swimming, literacy, skills to do a task. Readiness concept is a situation that is emphasized in many applications related to education. One of the most important variables associated with readiness in education is readiness to learn. Readiness to learn means having all the elements that an

individual has to make the learning happen. Jonson (1973) considered readiness to learn as the capacity of the child to benefit or gain from teaching. Readiness to learn means that students have pre-information, pre-conditions and experiences about the topic they are to learn. This situation differs in learning by technological tools, and so two different readinesses come forth. The first one is readiness for using the tool to learn. In the literature, there are some examples of readiness for technology (Parasuman, 2000), Computer and internet (Parnell & Carreher, 2003), ICT (Tan, Yin & Sheu, 2011), online portals (Chiou, Ayub & Luan, 2010), distance learning (Horzum & Cakir, 2012), e-learning (Darab & Montazer, 2011), Web-based learning (Davis, 2006), CMC (Gunawardena & Duphorne, 2001), mobile learning (Cheon, 2012).

CBT readiness has been gaining importance with Tablet Portable Computer (TPC)'s spreading and being used in education today. When the literature is examined, it is seen that studies about Tablet Portable Computer (TPC) are associated with CBT acceptance as a means of conducting examination, and there are limited studies about readiness. Readiness is a variable that affects students satisfaction (Gunawardena & Durporne, 2001), increasing their success, enhancing their potential of life-long learning (Davis, 2006), motivation to learn (Hung, Chou, Chen and Own, 2010). Readiness is also an important variable in acceptance of tools and their use in educational contex t(Demir Kaymark & Horzam 2011).

Technology acceptance is a concept associated with information and communication technologies into lives. To accept technology is to be willing to use technology (Teo, 2011). With this definition, different models which examined and revealed variables that make the individuals to be willing to use technology have been developed about technology acceptance. With these models, the variables that affect individuals' technology acceptance and technology acceptance are being considered.

Among the models associated with technology acceptance; Technology Acceptance Model is one of the most frequently used and developed models (Pynoo, 2011). Technology Acceptance Models are associated with the use of technology with beliefs, attitudes and intentions starting from the Theory of Reasoned Behaviour developed by Fishbein and Ajzen (1975) and the Theory of Planned Behaviour developed by Ajzen (1991). In the Technology Acceptance Model, individual's use of technology is affected by the intention to use; intention is affected by attitudes towards the use, perceived ease of use and perceived usefulness; perceived ease of use and perceived usefulness are affected by external variables (Davis, 1993).

Technology acceptance model has been used in studies that investigated the acceptance of the use of many technologies such as computers, websites and web-based training system (Pynoo, 2011) e-learning (Ong & Lai, 2006; Pan, 2005; MA & Yeung, 2011), Especially in recent years, at a time that the increasing prevalence of computers and mobile devices, with the importance of tablet computers and frequent use of tablet computers in field of education (MEB, 2012) within the scope of the FATIH Project implemented in Turkey, acceptance of the use of tablet computers also has become one of the subjects to be explored.

In Nigeria, employers conduct aptitude test for job seekers through electronic means; Universities and other tertiary institutions are registering and conducting electronic examination

for students through the internet and other electronic and networking gadgets. Similarly, different examination bodies in the country such as West Africa Examination Council (WAEC), National Examinations Council (NECO), National Business and Technical Examination Board (NABTEB) and National Teachers' Institute (NTI), register students through electronic means (Olawale & Shafii, 2010). Computer and related technologies provide powerful tools to meet the new challenges of designing and implementing assessments that go beyond the conventional practices to record a broader repertoire of cognitive skills and knowledge (Mubashrah, Triq & Shami, 2012).

JAMB (2013) conducted the first UTME with three test options, namely the traditional Paper and Pencil Test (PPT), Dual-Based Test (DBT), and Computer-based Test (CBT). The DBT and CBT were successful in spite of some challenges faced by the introduction of the technology. JAMB announced that, from 2015, CBT will be used to conduct all UTME to achieve the objectives of ensuring 100 percent elimination of all forms of examination malpractice that has been a major challenge in the public examinations in the country. The apprehension about CBT form of UTME is perhaps understandable given the poor infrastructure in the public institutions of learning, particularly in the rural communities in Nigeria. UTME is primarily taken by students in the final year of secondary schools (Senior Secondary Three –SS III) and by a large number of such candidates who had failed it or who had not secured admission, in the previous year(s). These sets of candidates are drawn from different sectors of Nigeria who possess varied background and levels of computer literacy and proficiency.

The UMTE of 2017 results is very poor such that the JAMB registrar had to lower the cut off mark for admission into Universities from the usual 180 score to 120. This has attracted many criticism and outright rejection by public and tertiary institutions because it will worsen the poor level of education in the country.

Purpose of the study

Although JAMB's CBT has come to stay and has been tacitly supported by government, the results of students' performance in the CBT over the years are not encouraging, most especially that of the 2017. It is necessary to find out how prepared or ready students are in CBT, the extent to which they accept it and challenges faced while writing CBT. It is against these observations that this study was designed to determine the extent of readiness (possession of basic skills) in computer for CBT, the acceptance of CBT and the challenges faced while writing CBT by Senior Secondary Schools Students (Senior Secondary Three- SS III) Borno State.

Method

Design

The design of the study was a survey which according to Kerlinger and Lee (2000) are generalized means of data collection through interviews or questionnaire. Surveys are designed or modified to meet the needs of the researchers or fit to the topic of research. Since the study was concerned with sampling the opinions of the participants on readiness, acceptance and the challenges faced by students while using CBT, the design was found suitable for the study.

Participants

The population of the study was made of 3000 final year (SSS III) students drawn from 10 Senior Secondary Schools in Maiduguri Metropolis, Borno state. The sample for the study was 20% of the total population which was 600 students. Stratified and simple random sampling techniques were employed to select the sample.

Instruments

The instrument that was used in collecting data for this study was developed by the researchers and validated by experts in administration and planning as well as measurement and evaluation units, University of Maiduguri. The logical validity index was 0.7. The instrument was also pilot tested using split-half method in two (2) schools apart from those in the sample to test the reliability of the instrument and was subjected to chi-square analysis, and the reliability index was 0.81. Frequency count, percentage and chi-square were used to analyze the data.

Results

The results of data analyses are presented in tables 1-3 addressing students' readiness for, acceptance of and challenges faced while writing CBT

Table 1

Students' basic skills in computer operation for readiness to CBT

Items				Response	
	No	Yes (F)	%	No (F)	%
Knowledge of the functions of different keys on the keyboard of the computer	600	470	78.0	130	21.7
Ability to read information on the computer screen.	600	420	70.0	180.	30.0
Ability to receive information (e.g. e-mail) with a computer	600	436	72.7	164.	27.3
Experience in using computer	600	360	60.0	240	40.0
Confidence in writing computer based test (CBT) in any form of external examination	600	314	52.3	286	47.7
Basic skills in computer operation to enable you be ready for CBT	600	508.0	84.7	92	15.3

Table 1 shows those students' basic skills in computer, meaning they are ready for CBT

Table 2

Students' acceptance of CBT in Boron State Secondary Schools

Items	Agree	Disagree	Total %

	F	%				
There are no enough teachers to teach computer	308	51	292	49	600	100
I see CBT form of examination as making us flow with others in technological world	356	59	244	41	600	100
Insufficient computers to circulate in the school.	292	49	308	51	600	100
I feel that CBT form of examination should wait for a few more years before we adopt it.	418	70	182	30	600	100
There is no technical know-how about CBT	550	92	50	08	600	100
I do not welcome wholly the application of computer-based test	547	91	53	09	600	100

The results on table two shows that senior secondary school students do not accept CBT Table 2 above shows acceptability of CBT

Table 3:
Students' challenges while writing CBT in Boron State Secondary Schools.

Items	No	Responses			
		Agree		Disagree	
		F	%	F	%
Computer system are adequately for conduct of examination	600	114	19	486	81
Light adequately stable in school	600	12	2	588	98
Government commitment to the provision of enough computer system in the school	600	120	20	480	80
Human and finance are adequately provided to take care of computer system in school	600	96	16	504	84
Computer classroom are adequately available	600	96	16	504	84
Computer system in school are adequately maintained	600	12	2	588	98
Funds allocated to schools judiciously utilized for effective CBT	600	84	14	516	86

The results on table reveal students' faced various challenges while writing CBT.

Discussion

The study finding reveals that senior secondary school students are ready to start writing Computer Based Test in their various subjects. This is because the study reveals that students had

knowledge of functions of various keys on the computer. Students were also able to read information on the computer screen as well as receive information such as mail. Table one above reveals students' basic skills in computer operation and 69 percent of the participants have basic skills in computer operation, while 31 percent have not. This finding is contrary to popular opinion among the public and press in Borno State that students lack the necessary skills to write CBT which is currently adopted by JAMB while writing Unified Tertiary Matriculation Examination. This finding is in agreement with Karadeniz (2009) and Ayo et al (2007) who sought the opinions of applicants into Nigerian Universities. Their findings revealed that applicants had basic skills in computer operation. The finding implies that 69% of senior secondary school students in Borno state are computer literate and can write Computer Based Test in both internal and external examinations in Borno State.

The study found that although students have basic skills in computer operation, they did not majority of them do not accept the use of Computer Based Test in their schools. They said it should wait for some years before it adopted

The findings reveal that students faced various challenges while of writing CBT. These may be the reasons for why majority did not accept to the CBT. Some of the reasons for their rejection as reveals in the study include lack of enough computer teachers and insufficient computers in the schools. The results on table 2 reveals that 68% of the participants are not in support of writing Computer Based Test because trained computer teachers who are supposed to teach students are very few compare to the number of students that registered for the examination. Also, computers according to the findings are not sufficient in number in all the secondary schools in the studied area. Since computers are few, students are grouped on computer and because of these students said Computer Based Test be delayed until enough computers are supplied to all senior secondary schools in Borno state.

Furthermore, students reveal that computer systems are not adequate for the conduct of Computer Based Test. In almost all the schools in the study area, there are no stable power supplies for the computer operators. Also, there are few computers which could not go round. Trained computer teachers are very few in all the secondary schools and where they are, they are not adequately remunerated. There are also lacks of computer classrooms. The few computer classrooms could not contain the large number of students that registered for the CBT.

Conclusion

The research findings revealed that Senior Secondary III Students in Borno state have basic skills in computer operation. The students have knowledge of functions of various keys on the computer. They could interpret information on the computer screen as well as receive messages. However, the finding further reveals that although students have basic skills in computer, they do not accept the immediate use of Computer Based Test because of challenges such as lack of trained computer teachers, inadequate computers and computer classrooms as well as lack of electricity that is necessary for computer operation.

Recommendations

Based on the results of the findings, the following recommendations are made. Awareness campaign and advocacy be mounted by Borno State government through the Ministry of Education on the relevance of Computer Based Test in secondary schools in Borno state.

Government should purchase enough computers and distribute them to all senior secondary schools and also employ trained computer teachers in all senior secondary schools in Borno state as well as computer operators for effective handing of the systems during examination

Government should ensure that adequate computer laboratories with adequate lightings are provided in the all schools in commensurate to students' populations . Where the light through PHCN is not possible, generators should be provided to supply light to all computer classrooms so that students should have 24 hours service.

References

Ajzen, I. (1991). The theory of planned behavior, organizational behaviour and human decision processes 50: 179-211

Ayo, C. K., Akinyemi, I. O., Adebiye, A.A., and Ekong, U.O (2007). The prospect of e-examination implementation in Nigeria. *Turkish Online Journal of Distance Education,* Todje, 8, (4):125-134.

Chiou, C.Y., Ayub, A.F.M. and Luan, W.S (2010). Students' readiness in using mathematics. online portal: A preliminary study among undergraduates. *Procedia-Social and Behavioural Science* 2, (2): 677-681

Darab, B. and Montazer, G.A (2011). *An electric model for assessing e-learning readiness in the Irarian universities, Computers & Education. 56(3): 900-910.*

Davis, T.S.B. (2006). Assessing online readiness: perceptions of distance learning stakeholders in three Oklahoma community colleges. *Unpublished dissertation. USA – Oklahoma: Oklahoma State University.*

Demir Kaymak, Z., and Horzum, M.B (2011). Relationship between online learning students Educational Sciences: Theory & Practice, 13(3): 1783-1797

Fishbein, M., Ajzen, I. (1975). Belief, attitude, intention, and behavior: Introduction to theory and research, Addison-Wesley, Reading, M.A

Gunawardena, C.N and Duphorne, P.I., (2001). Which learner readiness factors, online features and CMC related learning approaches are associated with learner satisfaction in computer conferences? *Paper presented at the Annual Meeting of the American Educational Research Association (*Seattle, W.A, April 10-14 2001).

Horzum, M.B. & Cakir, O. (2012). Structural equation modeling in readiness, willingness, anxiety of secondary school students about the distance learning P*rocedia – Social behavior of Science* 47, 369-375

Hung, M.L., Chou, C., Chen, C.H., & Own, Z.Y (2010). Learner readiness for online learning: scale development and student's perceptions. *Computers & Education, 55, 1088-1090*

Jonson, W.C. (1973). Child Development and Learning. New York MSS Information Corporation.

Kerlinger, F.W., Less, B. H. (2000). Foundation of Behavioural Research (4th Edition): Philadephia: Harcourt College Publishers.

MEB, (2012), Milli Egitim Bakanligi Fatith Projesi (Ministry of National Education FAITH Project). Retrieved from http://www.meb.gov.tr.

Mubashrah, J., Tariq, T.H. & Shami, P.A (2012). Computer-based vs paper-based examination: Perception of University teachers. The Turkish online Journal of Educational Technology (TOJET), 11(4), 371-3281

Olawale, & Shafi, I.M.A.(2010). E-exams system for Nigeria universities with emphasis on security and result intergrity, proceeding of the seventh International Conference on e-learning for knowledge-based society, Thailand.

Osuji, U.S.A (2012). The use of e-assessment in the Nigeria higher education system. *Turkish Online Journal of Distance Education* (TOJDE), 11(4), Article 9.

Parasuman, A. (2000). Technology readiness index (Tri) a multiple-item scale to measure readiness to embrace new technologies. *Journal Service of Research, 2 (4), 307-320.*

Parnell, J.A & Carreher, S. (2003). The Management education by internet readiness (Mebir) Scale: Developing a scale assess personal readiness for internet-mediated management education, *Journal of Management Education* 27(4), 431-446.

Pynoo, B. Devolder, Tondeur, J. Van Braak, J. Duyck, W., & Duyck P. (2011). University students acceptance of web-based course management system. In T. Teo (Ed), *Technology acceptance in Education, Research and Issues (* pp 125-143) Boston: Sense Publishers

Teo, T. (2011). Technology acceptance research in education. In T. Teo (Ed.), *Technology Acceptance in Education: Research and Issues* (pp. 1-5) Boston: Sense Publishers