



REVIEW ARTICLE

THE EVER INCREASING CHALLENGES OF PAPER PENCIL BASED TESTING (PPT) IN EXAMINATION: COMPUTER BASED TESTING (CBT) TO THE RESCUE

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ABSTRACT

The need to produce quality personalities for any of the following: job placements, admission of candidates into universities or promote students in institutions of higher learning from one level to another cannot be over emphasized. Hitherto, nearly all examinations were taken by paper and biro approach of testing (PBT). This has produced results; however, in recent times this method of conducting examinations in our centers compared with the availability of and the level of development in the technological world with the use of personal digital assistants (PDA), it is becoming more and more glaring that this PBT approach has overwhelmed the authenticity and the reliability of the result obtained. In this study, it is the researcher's interest to identify ways in which students are now perpetrating examination crime on the PBT, and show how to encourage the incorporation of the CBT into major examinations to minimize crimes. At the end, the researcher identified the issues and the challenges that will provide opportunities to effectively deploying a CBT system in our organizations and institutions. At the end, the researcher is able to identify some benefits of CBT over PBT, identify challenges that are standing in the way of properly installing a CBT system in our organizations or institutions in Nigeria and finally, provide a recommendation to setting up a CBT centre.

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INTRODUCTION

The computer as a tool has permeated all spheres of human activities: the areas we see today includes the process of teaching and learning in the academic and provision of academic materials as well as the provision of several innumerable tools for accessing these materials on the internet. According to (Sadiq and Onianwa, 2011) It is becoming common place to see institution across the educational strata adopt the computer based test and assessments to admit or screen students for entrance into their institutions. An assessment system provides the way to measure individual and institutional success (Jim and Sean, 2004). The Computer Based Test (CBT) is simply testing / examinations conducted or delivered through the use of Computers or Computer related devices. The examination is thus based on technology and technology related devices. It may be conducted in a Hall, but it has restrictions to one person per test and with a particular system. Once the minimum requirement is met as prescribed by the testing body, the CBT examination can be organized. The environments are usually controlled and monitored from a server. A study of the Joint Admission and Matriculation Board (JAMB) which is the central body in Nigeria to process

candidates into Nigeria tertiary institutions provides some means of information. JAMB since its inception in 1978 conducted examinations employing the Paper and biro Test (PBT) method of examination. This practice spanned its inception till the 2012 examination.

So why the sudden change to CBT?

It is widely believed that, the PBT was marred with great irregularities including the ever increasing cases of examination malpractices in each passing year amongst others. JAMB constantly improving, sought for a replacement and an effective examination method. All thanks to technology innovations, CBT came to the rescue to improve on the ever increasing challenges of traditional method of examination, PBT. The early stage of every innovation is always challenging. Suffice to say, if the PBT conducted for 34 years never became perfect by the examination body, the need for a change became necessary. CBT is aimed at overcoming the limitations of PBT and become a better agent in the administration of examinations in our educational system. Generally, an assessment system provides ways to measure individual's and institutional success (Jim and Sean, 2004; Olumorin *et al.*, 2013) Identify that computer based test has gained popularity as a way of taking tests with large scale professional examinations. Such as U.S

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English test GRE, TOEFEL, COMPTIA, ORACLE NETWORK certifications and Microsoft certifications etc. Though apart from these bodies that have been present in Nigeria for some significant time now, the presence of CBT was not widely noticed until the Joint Admission and Matriculation Board introduced it massively into the Nigerian university admission system as means of testing candidates for admission. Today, In institutions like the delta state university and Ambrose Ali University, most undergraduate assessments at lower levels are conducted using the CBT platform. The CBT provides several advantages over the PBT According to (Bodmann and Robinson, 2004) Technology based assessments provides opportunities to measure complex form of knowledge and reasoning that is not possible to achieve in the use of our traditional form. (Bodmann and Robinson, 2004) Opines that the computer and the technologies that comes with great and excellent platform to design and implement methods of assessments that by far out-weighs the traditional methods and open the means of acquiring cognitive skill and knowledge.

The CBT has been widely accepted in entrance examinations for multi-national organizations, banks, and educational organizations in Nigeria. For the ubiquitous tests available to students today, examination conduct and monitoring pose a severe challenge to any manager in the academic sector hence it has become necessary to modify our examination methods.

Some bodies using the CBT in Nigeria today for interaction includes:

- The Joint Admission and Matriculation Board
- Some Nigeria universities e.g. DELSU, EDSU
- Some oil and gas industries Chevron, Shell
- WAEC
- NECO
- NABTEB
- NIT

They correspond with candidates or students via online platforms. It is glaring today that the use of the manual method or PBT is fraught with many fraudulent practices such as leakage of papers which often time is measuring impersonation of candidates by syndicates, lecturers or invigilators and sometimes those in higher authorities such as supervisors and management staff requesting for stratification and bribe (Olawale and Shafi'I, 2010). This has even raised national consciousness as reported in the vanguard Nigerian (Vanguard, 2012) and derived the complete use of CBT for the conduct of the examination to completely eliminate all forms of examination malpractice. (Alabi *et al.*, 2012) The cognitive assessment of student and candidates using the PBT has serious limitations (Sadiq and Onianwa, 2011) States that it is more effective to use e-portfolios or simulation software and e-testing to assess human's cognitive abilities.

Some types of malpractice PBT

- Bringing in unauthorized materials
- Writing on walls and desks or fans
- Coping from other candidate or student in the examination
- Changing of scripts during exams

- Removing booklets from the exam hall
- Bringing paper to the exam hall
- Changing script covers during submission
- Changing of scores by teachers
- Writing on body part
- spying others work

In addition to these process of providing final result is very tedious due to:

- Manual marking
- Inconsistencies in marking
- Risk of collection and collation of scripts
- Possible loss or damage of some scripts
- Increased financial implication to conduct the exams
- Delay in result presentation
- Long distance travel to go for the examination (Alabi *et al.*, 2012)
- Missing score or grades

Some benefit of CBT over PBT

- In an assessment conducted in (Bodmann and Robinson, 2004) to plot speed and performance it was observed that the candidate completed the CBT faster than the PBT with no difference in scores. Hence no added advantage or disadvantage to the student's performance
- That integrated well designed online formative assessment can have significant positive effect on learning
- The questions are more explicit and where there are images they are clearer and better described than the PBT
- Ease of use and understanding
- When properly managed it can totally curb exam malpractice
- Time of repeating exams can be increased within a given period of time several numbers per semester or year with less financial implication
- It can be design to provide result or scores immediately exam is over
- It is more convenient to use one it has been set up
- Better security
- Easy correction or flexibility of test

The environment for the testing is both controlled and monitored. This has helped reduced the pains of CBT which included ever increasing examination malpractices' in conducted examinations.

Issues and challenges

- Initial capital to set up and start is high
- High cost of ICT equipment
- High cost of internet bandwidth in third world countries
- Poverty
- Power supply
- Insufficient computers
- Low level of computer literacy
- Technical assistance

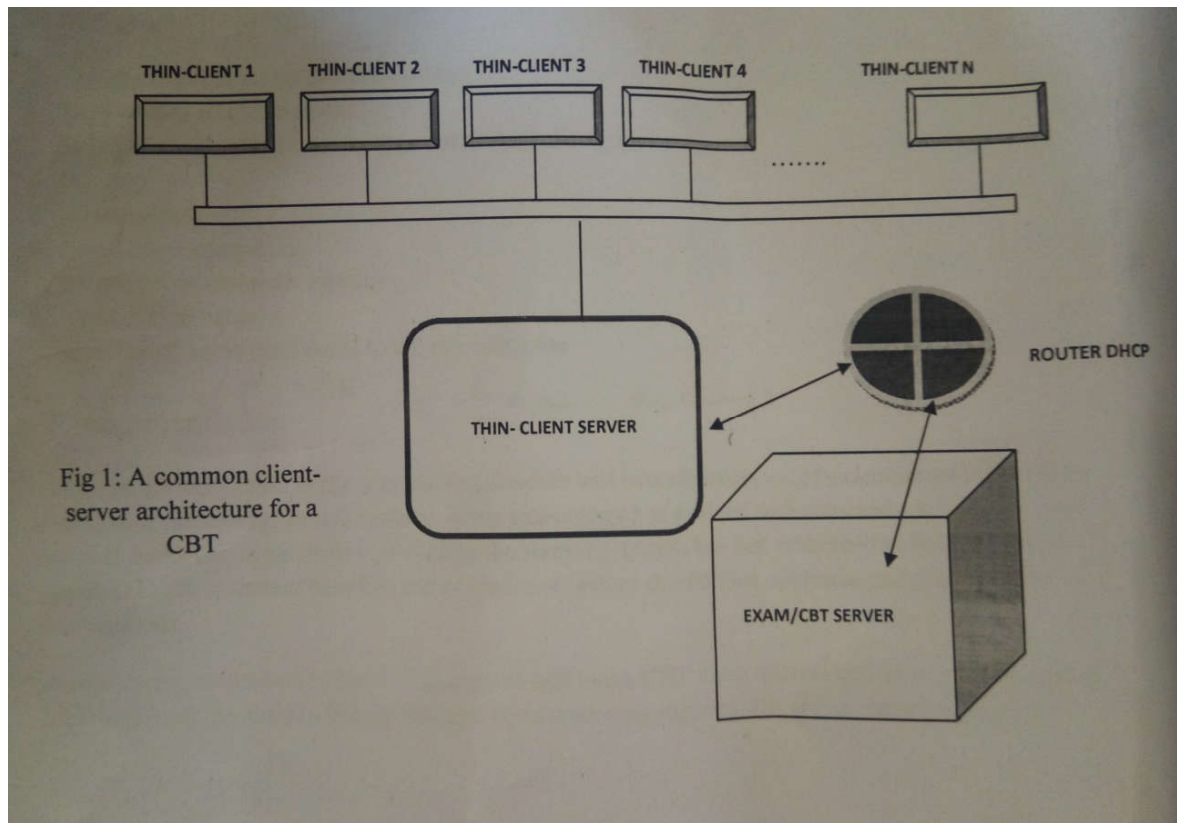


Fig 1: A common client-server architecture for a CBT

Recommendation

The quest for perfection in the preparation, conduct and overall processes of examinations the world over is ever increasing. In this century where technology has evolved and constantly improving and major systems and organization including the Banking system has fast embraced technology in its operations with attendant benefits, the educational system should thus, embrace technology in its examinations. The following recommendation if well applied will make CBT more appreciated as it is believed that, CBT will improve the already failing standard in education as students will set up, be more prepared knowing that they are creating their own videos which can be played and replayed if the need arises as examinations are monitored (CCTV) and also controlled.

- CBT operators should make sure power supply is available throughout the duration of the examination or backup. Power backup is necessarily to fully function.
- CBT operators should be ready to fulfill the increasing numbers of candidates applying for such examinations and thus, computers should be made available with 15% backup system made available.
- For more effective CBT examinations, mock examinations should be made compulsory/mandatory for all candidates of the examination. With this in place, each candidate will be fully abreast of the workability of the CBT system (software) designed for that particular examination. The current practice where MOCK is optionally selected in some examination makes candidates practice in the CBT halls.
- The timing system in CBT examinations should be improved upon.
- Since CBT environments are both controlled and monitored, the security devices should be properly

connected and backup should be made outside the immediate testing environment. The CCTV should be networked and properly secured.

- Extra time should be given to those students who are assigned faulty by
- To enhance decency management should provide large hall
- Competent technical personnel should be available possible in the ratio of 1:20 at the start of the examination. They should be training and re-training of personnel.

REFERENCES

- Alabi, A. T., Isaa, A. O. and Oyekunle R. A. 2012. "The Use of Computer Based Testing Method for the Conduct of Examinations at the University of Ilorin", *International Journal of Learning & Evelopment*, ISSN 2164-4063, Vol. 2, No. 3.
- Bodmann, S. M. and Robinson, D. H. 2004. Speed and Performance Differences among Computer Based and Paper-Pencil Tests. *Journal of Educational Computing Research*, 31(1), 51 – 60.
- Jim R. and Sean, M. 2004. Literature Reviews of E-assessment, Future lab Series, Report 10:
- Olawale and Shafi'i M.A. 2010. E- Exams System for Nigerian Universities with Emphasis on Security and Result Integrity, The Seventh International Conference on e-learning for knowledge- Based Society, Thailand.
- Olumorin, O. C., Fakomogbon, A. M., Fasasi, A. Y., Olawale, O.C. and Olafare, O. F. 2013. "Computer based tests: a system of assessing academic performance in university of Ilorin, Ilorin, Nigeria", *American Academic & Scholarly Research Journal*, Vol. 5, No. 2.

Sadiq F.I. and Onianwa C.U 2011. Towards a Scalable Web Assessment System for Post University Matriculation Examination in Nigeria. *African Journal of Computer & ICTs*, Vol. 4, No. 2. pp 25-30. Retrieved from <http://www.ajocict.net>.

Vanguard, 2012. JAMB Computer Based Test in 2013: Stakeholders react. November 8 www.vanguardngr.com.

Velan, G. M; Jones, P; McNeil, H. P. and Kumar, R. K. 2008. Integrated online formative assessments in the biomedical sciences for medical students: benefits for learning. *BMC Med Educ.*, 8:52.
