

EVALUATION OF GENERAL STUDIES COMPUTER BASED TESTS IN UNIVERSITIES IN SOUTH WEST NIGERIA

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ABSTRACT: *There are perceived short - comings such as server and power failure, denials of right choice of types of examination, limited CBT centres, problem of state of the students' computer literacy and accessibility, inadequate computers and internet facilities in some universities. The study evaluated the general studies computer based tests in Universities in South West Nigeria. The purpose was to ascertain the extent to which the objectives of General Studies programme had been implemented using computer - based test. The research design for this study was a descriptive research of the survey type. The population for the study comprises 60,000 100 level undergraduate students of 2016/2017 academic session and 330 lecturers in GST in both private and public universities. The sample for the study consisted of 1890 respondents made up of 1800 students and 90 lecturers selected through Multistage Sampling Procedure. Three self designed instruments which are used as General Studies Achievement Test (GSTAT), Questionnaire on General Studies Interest Scale (QGSTIS) and Questionnaire for Lecturers on General Studies (QGSTL) were used. Face, Content and Construct validity of the instruments were ensured and the reliability of the instruments was ensured using Pearson Product Moment Correlation Analysis. The reliability coefficients of 0.65, 0.70 and 0.72 were found for GSTAT, QGSTIS and QLGST respectively. The data collected were analysed using descriptive statistics such as frequency counts and percentages. All the hypotheses were tested at 0.05 level of significance. The study concluded that the students' attitude to Computer Based Test for General Studies examination was positive and the objectives of general studies using computer based test were achieved and effectively implemented. In view of the findings of this study, it was recommended that both the Public and Private universities should emphasize the use of CBT for General Studies examination since there was positive attitude of students on the use of CBT for GST. Multiple choice tests should be used for setting General Studies examination when Computer Based Tests have been adopted because multiple choice tests are very effective for measuring students' performance.*

KEYWORDS: evaluation, computer based test, general studies

INTRODUCTION

Evaluation is the systematic assessment of the design, implementation or results of an initiative for the purposes of learning or decision-making. (United Nations *Evaluation Group*, 2005). An evaluation process should be as systematic and impartial as possible. Studies on evaluation are based on empirical evidence and typically on social research methods in the process of collecting and synthesizing evidence. Conclusions made in evaluation encompass both an empirical aspect and a normative aspect (Fournier, 2005). It is the value feature that distinguishes evaluation from

other types of enquiry such as basic science research, clinical epidemiology, investigative journalism, or public polling.

University education is an institution at the highest level of education where one can study for a degree or do research. University education is popularly suggested, for three purposes: (i) to train the minds of young people (ii) for research activities and (iii) to recognize achievement (Hornby, 2006).

Umunadi (2011) posited that the philosophy behind the General Studies is to expose the students to knowledge outside their chosen disciplines as fresh student in the university. The General Studies courses are meant to expose students to greater awareness about other disciplines of study with a view to making them perform better in their chosen field of study and become better members of the society in the long run. General Studies Handbook, Ekiti State University (2014), stated that the General Studies was designed to co-ordinate multi-disciplinary studies that could broaden knowledge and widen the academic horizons of students of the University in all Departments and Faculties. General Studies was established to achieve some objectives like assisting the students to develop, appreciate and expand the awareness of their social and cultural values; helping students to develop adequate competence in the life of the English Language and improve their language and communication skills as a tool for their present studies and future employments; introducing students to the broad areas of sciences and create awareness of the services of science to man and the effect of science on human society.

It is important to note that the pencil-and-paper examination has been fraught with numerous problems ranging from shortage of examination materials to impersonation, cheating in examination halls, cases of missing scripts, improper scoring of examinees' responses, delay in computing and processing of results, demand for gratification by the lecturers, delay in the issuance of transcript of academic records and so forth (Abdulkareem and Alabi, 2004; Ekere, 2009). All these problems lead to the introduction of CBT for General Studies. The disturbing trend of examination fraud in Nigeria tends to show that educational measurement is losing credibility which is a serious threat to quality educational standard.

Fagbamiye (1998) remarked that examination is a powerful educational tool for measuring and judging the standard of education in any country and hardly can a country rise beyond the level of her educational standard except such a country fashions out a dynamic educational system matched with valid and reliable testing programme. In other words, without valid and reliable examination and examination results, there can be no national development whether socially, economically, scientifically or technologically. Consequently, there arises a question, if pencil-and-paper examination fails to repose confidence in the test-takers and test- users, what alternative mode would provide credibility and civility besides validity and reliability?

Fagbemi (2001); Jacob and Lar (2001); cited by Olatoye (2013) noted that, the traditional method i.e. the PPT is characterized by various forms of examination malpractices such as bringing in unauthorized materials, writing on currency notes and identity cards, spying of other candidates in examination hall, substitution of answer sheets and changing of examination scores or grades. Others include, impersonation, leakage of questions to students before the examination, conniving with supervisors and school authorities to cheat, body writing or tattoo in which students especially

females write on hidden parts of their bodies corroborated this by identifying the Paper-based Tests (PBT) with many problems such as tedious processing as the examination was conducted at various centers simultaneously and marked manually; cost of conduct of the examination on the part of the examination bodies including honoraria for invigilators, coordinators, markers, collators and other allied staff; subjective scoring and possible manipulation of results; late release of results and missing grades, stress and trauma.

Due to the ever increasing number of students offering GST courses, there was a need to employ a method of assessment that can be used to conveniently examine large number of students at a time. Hence, the use of Computer-Based Test (CBT) for all General Studies courses offers compulsory opportunity to the use of computers by all students taking General Studies courses, irrespective of their dispositions. The use of computers for General Studies examination will definitely help place our students at par with other students in several countries of the world in line with international best practices and also help in sustaining the global visibility of our University through our exploiting Information Communication Technology maximally since Computer-Based Test will also enhance our students' abilities to access their results online. Other related multiplier effects of the CBT in the evaluation of the General Studies courses will include: quicker compilation of results by the Examinations Unit of the University, faster preparation of Transcripts, and so on. It will also reduce the enormous workload of General Studies staff in the area of marking scripts and collating of results of about 5000 students will be easier than before. In addition, it will help to re-direct manpower to research, more effective teaching and community development. Again, Computer-based testing (CBT) is gaining popularity over the traditional paper-and-pencil test (PPT) due to many advantages it provides. For example CBT increases students' motivation, improves accuracy in data collection, improves match for special populations, and enhances preparation of results (Kapoor & Welch, 2011). Accessibility features can be conveniently embedded into CBTs, thereby allowing for supports and accommodations such as glossaries, color contrast, text to-speech, spelling check, highlighting, and closed-captioning (Bennett, 2015). Merritt (2009) observed that over the years, however, computer based tests (CBT) have become more popular. In these tests, students use computers to input their answers to the multiple choice questions. This has evolved into two main styles of computer-based testing, and a need for some specific strategies for taking the tests. Computer - Based Test is a modern approach to testing and assessment. It is one of the modern breakthroughs of technology. Technology has significantly reshaped the method of evaluating students. For instance, Computer as tool for technology is used in multi-dimensional ways, though only very few organizations in Nigeria, including tertiary institutions have gone beyond word processing and other routine tasks. (Olumorin & Sofoluwe, 2012). In many educational sectors, educational evaluation has moved towards the use of computer-based testing (CBT) which is known as tests or assessments that are administered by the use of computer through technological devices linked to the intranet and in certain cases, internet.

Olumorin, Fakomogbon, Fasasi, Olawale, Olafare (2013) confirmed that Computer based Test simply refers to tests and assessments conducted through the use of the organized systems on computers. Computer - Based tests have the ability to automate a very time-consuming task such as marking and monitoring progress. Chalmers (2011) asserted that Computer -Based test is a test

that can be used in a supervised or non-supervised environment, and can allow students to check their own progress through self-assessment. It can also be used for testing lower-order skills (such as knowledge, understanding and application); it can also be used for testing higher-order skills to improve the students' analysis,

Olatoye (2013) stated that General Studies unit in any university should administer different question formats in which questions do not follow the same order. The alternatives under each question in a format do not also follow the same order. However, it seems that candidates too are not relenting in frustrating and voiding all efforts by these bodies. Proposed model for e-examination for the General Studies is a way of curbing examination irregularities. However, the advantages of using computer technology for educational assessment in a global sense have been recognised and these include CBTs which have the advantage of flexible scheduling and rapid score reporting, lower administrative cost, time saving and less demand upon teachers among others. Whilst recognising these system-level advantages, it is important to explore the relationship between assessment mode and the perception of the students being assessed because the assumption of comparability between CBT and PBT without proper investigation within that particular testing context is inappropriate. What problems militate against the full deployment of the CBT method in the University? When the systems were wireless, students could cause disruptions in the conduct of examinations by deliberately or otherwise, tampering with the modems. Initially, more than one login was allowed in which case Matriculation numbers and password of candidates could be given to emissaries resulting in impersonation other problems are: too many things on the server which slow down records (which was requiring formatting and reloading), system malfunctioning occasioned by bad temperature condition at the centres and insufficient time allocation, especially in numerical courses requiring calculations.

The points of concern are technical issues in CBT that affect students' response to the designed questions, that is: Use of the mouse, font size, screen clarity, screen size, screen resolution, display rate and scrolling. The User interface-item layout, presentation graphics have been known to affect examinees as they may have difficulty with certain aspects of it, or they may object to particular element of adaptive test delivery. The challenge of CBT test designers and administrators is to construct CBT to be fair and reliable and to produce valid test scores. More so, they have to be designed to minimize examinees' frustration and to limit the sources of examinee anxiety. This is because students' attitudes and feelings towards a test is an important factor in test design; if they are ignored, there may well be adverse effects on test outcome. These additional test design steps are well worth taking, because of the effective and measurement improvements they offer. Therefore, providing key information about students' perception of CBT in General studies may bring about improvement in the current use of CBT.

Moreover, in Nigerian universities, Computer Based Tests were introduced due to the largeness of GST classes because GST courses were offered as compulsory courses for all 100 level and 200 level students which reduces the marking stress of the lecturers. Multiple choice tests are very easy to compute and it saves time and also reduces the cost on the universities expenses. However, it is observed that it seems most of the objectives of General Studies Computer Based Tests have not been achieved. It appears some problems are still prevalent as observed by the researcher. These problems are traceable to shortcomings such as server and power related issues, denials of the right of choice of types of examination, limited CBT centers, state of student's computer

literacy and accessibility, inadequate computers and internet facilities in public and private universities and inadequate preparation for proper implementation of CBT by the General studies unit in the universities. Afrifa Hassan, Hannatu, Moses and Ishaya (2016) confirmed that results revealed that CBT can hinder brilliant students who are not computer literate to pass General Studies examination very well.

Thus, it appears that evaluation of General studies computer based tests in some universities in Nigeria are still lagging behind expectation. Here we are now, most of the universities introducing CBT for General Studies are not even competent to embark on it, why? There are insufficient human, material and financial resources for the commencement of the examination. Before the introduction of any programme, the universities must clearly show that such programmes are subjected to judgement process whether formative or summative. As indicated, most judgements are subjective, without systematic evaluation.

In general, it takes less time to answer than essay questions; lesser amount of time is needed for testees to respond to objective items. In addition, many questions can be asked in a prescribed examination period and more adequate content sampling can be obtained, resulting in higher reliability and better content validity. Multiple choice items are selected for General Studies examination because they can be scored quickly and accurately by machines aides.

Purpose of the Study

The purpose of this study was to:

- evaluate the General Studies Computer Based Test innovation in universities.
- ascertain the appropriateness of CBT on the academic performance of the students on General Studies test items.
- evaluate the extent of the performance of students that participated in GST testing and confirm the effect of GST item testing on the academic performance of the student using CBT.
- assess the extent of students' participation in GST test items using CBT and to determine whether the evaluation of GST test items will improve the CBT usage in the universities.

Evaluation Questions

- 1a. Does CBT improve the performance of students in General Studies?
 - b. Does CBT improve the performances of lecturers in examining GST?
2. Does the introduction of Computer Based Tests for General Studies enhance the interest of students in GST?

METHODOLOGY

The study is an evaluation research work that employed a descriptive research design of the survey type. The population for this study comprised 60,000 2016/2017, 100 level undergraduate students, who took General Studies test items using CBT in universities in South West Nigeria and 330 lecturers in both private and public universities in South West, Nigeria. The sample for this study was (1890) respondents comprising 300 undergraduates' students and ninety lecturers were also

chosen from each university. Descriptive statistics such as Frequency count, Frequency table and Percentages were used to answer evaluation questions

Evaluation Questions 1: Does CBT improve the performance of students in General studies?

Response from General Studies Interest Scale questionnaire (QGSTIS) and General Studies Lecturers questionnaire (QGSTL) were analysed using Frequency counts, percentage and cumulative frequency. The 2 points rating scale were used as shown in Table 4a and 4b.

Table 1a: CBT on students' performance in General Studies

S/N	ITEMS	YES	NO
1	CBT improves my performance in GSTS	1394 (86.0)	227 (14.0)
2	General Studies continuous assessment enhances my performances	393 (85.9)	228 (14.1)
3	I get good marks in General Studies test items when CBT has been adopted for the examination	1374 (84.8)	247 (15.2)
4	I obtained high scores in GST when using CBT	1310 (80.8)	311 (19.1)

Table 1a shows that 1394(86.0%) of the respondents declare that CBT improves their performance in GSTs, while in 227(14.0%) had a contrary view. 1374(84.8%) respondents get good marks in General studies test items when CBT has been adopted for the examination while 247(15.2%) had a different view. 1310(80.8%) respondents obtained high scores in GST when using CBT while 311(19.1%) did not.

Table 1b: CBT on performance of General Studies lecturers

S/N	ITEMS	YES	NO
1	I released my results at the appropriate schedule.	86 (97.7)	2 (2.3)
2	CBT allows course evaluation by me to be undertaken more easily.	62 (70.5)	26 (29.5)
3	CBT allows testing of superficial level of understanding.	63 (71.6)	25 (28.4)
4	CBT test in GST is more creditable and it devoid examination malpractices.	65 (73.9)	23 (26.1)
5	CBT is time saving and allows regular assessment of testees.	61 (69.3)	27 (30.7)

Table 1b shows that 86(97.7%) of the lecturers released their results at the appropriate schedule, while 2(2.3%) of the lecturers did otherwise. 62(70.5%) respondents said that CBT allowed course evaluation by lecturers to be undertaken more easily while 26(29.5%) respondents thought otherwise. 63(71.6%) respondents said that CBT allowed testing of superficial level of understanding while 9(10.2%) respondents said that CBT did not allow testing of superficial level of understanding.

Also, 65(73.9%) respondents noted that CBT test in GST was more creditable and it was devoid of examination malpractice while 23(26.1%) held a different view. 61(69.3%) agreed that CBT is time saving and allows regular assessment of testees while 27(30.7%) disagreed with the assertion. The result on Tables 1a and 1b revealed that there is an indication that CBT improved the performance of students in General studies and also has effect on CBT on performance in General Studies.

Evaluation Question 2: Does the introduction of CBT for General Studies enhance the interest of students in General Studies?

Responses from General Studies Interest Scale and General Studies Lecturers on items (31-34) were analysed using Frequency counts, percentage and cumulative frequency. The 2 points rating scale were used as shown in Table 6.

Table 2: Introduction of CBT for General Studies examination on students' interest

S/N	ITEMS	YES	NO
1	General Studies test are interesting	1428 (88.1)	193 (11.9)
2	I create interest in GST because it enhances self-reliance in future.	1434 (88.5)	187 (11.5)
3	General Studies has been exciting when CBT was adopted	1386 (85.5)	235 (14.5)
4	General Studies examinations are interesting to me since the time CBT has been adopted.	1379 (85.1)	242 (14.9)
5	I often look forward to doing more practical on General Studies using CBT in lecture rooms.	1403 (86.6)	218 (13.4)

Table 2 presents students' perceived effects of the introduction of CBT for General Studies examination on their interest. The result reveals that 1428(88.1%) of the students find that General Studies test are interesting while 193(11.9%) thought otherwise. 1434(88.5%) respondents create interest in General Studies while 187(11.5%) did not.

Also, 1386(85.5%) respondents were of the view that General Studies has been exciting when CBT was adopted while 235(14.5%) disagreed. 1379(85.1%) said that General Studies examinations have been interesting to them since the time CBT was adopted while 242(14.9%) held a different view. 1403(86.6%) respondents often looked forward for more practical on General Studies using CBT in lecture rooms while 218(13.4%) did not look forward for more

practical on General Studies using CBT in lecture rooms. Table 6a revealed that the introduction of CBT for General Studies examination was interesting to the students.

DISCUSSION

The study showed that the performance of students since CBT has been introduced for GST examination is highly encouraging and there is an indication that CBT improves the performance of students in General Studies. According to Schenkman, Fukuda & Persson (1999) one of the numerous variables that impact on students' performance when questions are presented on a computer is the quality of the monitor. On the impact of CBT on students' attitudes and behavior, Butler (2003) confirmed the association between a moderate number of tests and better students' attitudes; especially that his respondents were found to be generally more positive toward the proctored, CBT facility than toward in-class, pencil and paper testing.

Similarly, Donn (1991) found that the mean achievement score was significantly higher for the computer-based group in a study of the effects of a CBT on the achievement and test anxiety exploring the relationship between computer anxiety and computer experience and assessing the affective impact of computerized testing on students. Research outcomes have thus supported the fact that when students are motivated and testing conditions are equivalent, there are no differences between the scores obtained via computer-based or paper-pencil tests (Lynch, 1997 & Marson, Patry, and Berstein, 2001).

Conclusion

Based on the findings of the study, the following conclusions were drawn. The students' attitude to Computer Based Test was positive. The objective of General Studies adopting Computer Based Test were achieved and effectively implemented.

Recommendations

Based on the findings of this study the following recommendations are made.

1. Both public and private universities are advised to introduce CBT in other courses that are like GST courses in the university since CBTs improve the performance of students in General Studies.
2. The university must make sure that each student has his/her own laptop for more competency since CBT has enhanced students' competency in operating computer for General Studies examinations.

References

- Abdul Kareem, A. Y. & Alabi, A. T. (2004). Curbing examination malpractice in the university system: A management perspective. *Nigerian Journal of Educational Researchers and Evaluators*, 5(1): 19-26.
- Afrifa, Hassan Yuguda, Hannatu, G. Moses and Ishaya Bitmus (2016). Comparison between Computer Based Test (CBT) and Paper and Pencil Test (PPT) in Joint Admission Matriculation Board (JAMB): Case Study of Yola North Senatorial Zone of Adamawa State, Nigeria. *Journal of Computer Science and Engineering*, 2(12): 1
- Bennett, R. E. (2015). The Changing Nature of Educational Assessment. *Review of Research in Education*, 39(1): 370-407.

- Butler, D. L. (2003). The impact of computer-based testing on student attitudes and behaviour, *The Technology Source*. Retrieved March 15, 2010, from <http://ts.mivu.org/default.asp?show=article&id=1034>, 13(1).
- Chalmers, D. (2011). Teachers Perception And Attitude Towards the Use of CBT for Assessment in University, 3-5.
- Donn, J. S. (1991). Effects of computer-based tests on the achievement, anxiety, and attitudes of grade 10 science students. *Educational and Psychological Measurement*, 57(3): 735-745. doi:10.1177/0013164491513025
- Ekere, F.O. (2009). Examination Malpractice and the Future of Nigerian Education System. A paper Presented in a Symposium Organised at Paradele Secondary School, Nssuka, Feb. 19. 63-89.
- Ekiti State University Handbook, (2014): Regulations and Curriculum for General Studies Programme Courses
- Fagbamiye, E. O. (1998): Examination malpractice in Nigeria educational institutions: Is there any hope? In A. Adegboye, O. Olutoye and J. O. Adetunberu (Eds.) *Issues on examination malpractice in Nigeria*. Ado-Ekiti: PETOA, educational Publishers.
- Fagbemi, (2001). Jacob and Lar (2004) cited by Olatoye (2013). Using CBT Method for the Conduct of Examination in Nigeria Prospects Challenges and Strategies, 5(2): 48.
- Fournier, D.M. (2005). "Evaluation" in Encyclopedia of Evaluation edited by SiMathison Thousands Oaks, CA: Sage.
- Hornby, A.S. (2006). Oxford Advanced Learner's Dictionary of current English (7th ed). India: Oxford University.
- Kapoor, S. Welch, C. (2011). Comparability of Paper and Computer Administrations in terms of proficiency Interpretations. A paper Presented at the 2011 Annual meeting of the National Council on Measurement in Education. New Orleans L.A .Retrieved 26th <https://itp.education.uiowa.edu/~a/documents/comparability%20of%20paper%20and%20computer%20Administration%20in%20Trem%20of%20proficiency%20interpretation.pdf>
- Lynch, E. (1997). Equivalence of Computer Versus Paper-and-Pencil Academic Testing in an Introductory Psychology Course (Doctoral dissertation, Arizona State University). *Dissertation Abstracts*, 5S-03A, 0833.
- Marson, B. J., Patry, M., & Berstein, D. J. (2001). An Examination of the Equivalence Between Non-Adaptive Computer-Based and Traditional Testing. *Journal of Educational Computing Research*, 24(1): 29-39.
- McIlroy, D., Bunting, B., Tierney, K., & Gordon, M. (2001). The relation of gender and background experience to self-reported computing anxiety and cognitions. *Computers in Human Behavior*, 17(1): 21-33.
- Merritt, S. (2009). Tips for Computer Based Multiple Choice Tests (CBT,CBE and CAT), 1-2.
- Mokobia, J. (2009). Preface: Delta State University, General Studies programme.
- Olatoye, R. A. (2013). Checking the menace of examination malpractice: A call for more teaching and learning in schools. http://naere.org.ng/journal/CHECKING_MENACE_EXAMINATION_MALPRACTICE.pdf

- 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*. 5(2).
- Schenkman, B., Fukuda, T. and Persson, B. (1999). Glare from monitors measured with subjective scales and eye movements, *Displays*, 20: 11–21.
- Scouller, K. (1998). The influence of assessment method on students'
- Umunadi, E. K. (2011). Perception of Technical Education Students on the Role of ICT in General Study Programme in University Education. *International Journal of Academic Research in Business and Social Sciences*, 1(3).
- Uneg (2005). *Norms and Standards for Evaluation . Norms for Evaluation in the UN System International*.