
ONLINE ASSESSMENT OF STUDENT LEARNING IN NIGERIA: ISSUES AND PROBLEMS RELATED TO THE ATTAINMENT OF BENEFITS

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ABSTRACT

Online assessment of student learning is a common feature in many distances – learning programs. But the prevention of plagiarism has been of great concern without much attention given to the associated problems of online assessment of student learning. Though the objectives of distance–learning program attempt to focus on enhanced sustainable implementation of Education, it would appear that this focus has lost its potency as a means to bring about the needed Educational change in Nigeria. This paper highlights some issues of online assessment of student learning as well as the attendant problems. It also examines the significance of these issues for a sustainable online assessment in contemporary Nigeria.

INTRODUCTION

Assessment of students in a traditional paper- and – pencil approach can be done in distance–learning programs, though modern technology can both teach materials and assess learning. But traditional assessment requires additional costs, namely: the time of human factor, care in control of the assessment materials before and after administration, and grading effort, all of which are simplified in online assessment process.

Over the years however it has been observed that cheating increases as the bandwidth (information per second) of the communications channel between assessor and assessee decreases; that is, people who feel more “distant” cheat more in online assessment process (Gronlund, 2007). Online assessment has a narrower bandwidth than classroom assessment, that is, instructors cannot watch students work during online assessment and this obviously makes cheating easier.

It is against this background that this paper attempts to examine critically the contending issues in the online assessment of student learning in Nigeria with a view to enhancing and sustaining the objective in the Educational world. To achieve this ultimate goal, the paper has a five –item structure and this includes: the introduction; a theoretical framework, which discusses online assessment of student learning in perspectives; an analysis of the fundamental issues and problems in the implementation of online assessment of student learning in Nigeria and their relevance in the educational world; the significance of online assessment of student learning in contemporary Nigeria; and a conclusion that summarizes the central argument of the paper.

Research Objective

The purpose of this paper is to determine those contending issues and problems of online assessment of student learning in Nigeria and their relevance. This will involve the analysis of the following:

- i. identifying and analyzing those contending issues and problems of online assessment of student learning in Nigeria in various perspectives; and
- ii. the significance of the issues, both for the enhanced sustainable online assessment of student learning and the attainment of benefits in Nigeria

Online Assessment of Student Learning in Perspectives

There is no contradicting the fact that Nigeria has a problematic implementation of online assessment of student learning. Equally true is the fact that over the years, the underlying issues and problems have not been adequately addressed for the attainment of the objectives of online assessment (Ford, 2000). Unfortunately, this has seriously affected and still affecting the process of online assessment of student learning development in Nigeria. The problematisation of online assessment in this context has elicited the reactions of many scholars with varying and often conflicting views on the fundamental issues at stake, how they can be resolved and the importance of such resolution in the all important Educational world. From the foregoing therefore, attempts are made to review perspectives with the objective of understanding the substance of their argument and how relevant they are to online assessment of student learning in Nigeria

The first of these is held by those who have consistently and tenaciously maintained that online assessment of student learning in Nigeria, with its present defective implementation is an exercise in futility. The basic argument of this group of thought is that online assessment in Nigeria suffers from a technological imbalance which has been the bane of its full implementation and realization of the objectives, and that this problem can only be resolved through adequate infrastructures for the dynamic technological innovations.

Articulating this view, (Cizek, 1999) argues as follows: the realization of the potential of online assessment is based on the desirability of an equitable global information infrastructure. This however requires a full world-wide and participatory coverage of telecommunications and Internet networks as well as the standards and legal frameworks necessary to run it. Developing countries such as Nigeria will need assistance to establish reliable domestic networks, and also to acquire the expertise necessary for them to play a full part in the online assessment of student learning. Therefore, to delay this or do otherwise is to prolong the apparent failure and multiply its dire consequences of online assessment of student learning in Nigeria.

Another perspective is held by those who believe that the environment in which online assessment is conducted is completely invisible. According to this group of thought, from a practical standpoint, it is often easier to cheat online since what or who the assessee brings to the assessment cannot be seen and this increases temptation. Many students are more comfortable with computers than their instructors are, and many know the potential of

computers for cheating. It is revealed that students often have less commitment to the integrity of distance – learning programs than traditional programs because distance-learning programs often lack tradition, are often taken by people with pressures from other jobs, and many programs are new and not fully debugged. Generally, according to (McMurtry, 2002) cheaters often point to factors like these that facilitate cheating.

Yet another perspective is that held by those who are of the view that cheating should not be a problem if a course is well designed. This group of thought argues that a combination of online and traditional paper-and-pencil testing as it is presently used at the Nigeria Open University may dilute the problems of cheating online but not eliminate it. Also, if a student does much better in online assessments than traditional examinations, he could just be more nervous in traditional testing. It is also revealed that group projects can reduce cheating if students monitor one another, but group projects are not appropriate for many subjects and learning skills. Articulating this thought, (Bork, 2001) further argues that assessment should be continuous so that it will be less cost-effective for students to cheat. This does not require considerable work in setting up a course. It also gives students less opportunity to study and digest the material at their own paces, a key feature of self-education. It creates more of a climate of distrust, suggesting that students cannot be trusted to learn without constant testing. It is also logically impossible to simultaneously satisfy three important criteria for continuous assessment: that is, the assessments are of equal size; the assessments test all materials of the course to the same degree; and each assessment tests some material covered before the previous assessment. Most seriously, continuous assessment almost inevitably overemphasizes a student's short-term memory, and the purpose of most education to cause long-term effects on a student. This is why final exams at the end of a course are very important.

However, some are of the view that it is insulting to students to suggest they might cheat. It is revealed that students today cheat less in distance learning than with traditional instruction. This may be because new technologies typically first attract smarter and more motivated users with less reason to cheat. Internet is a good example of this, which during the 1980s had virtually no incidents of vandalism, theft, and crime as its users then were highly professional. Things however changed dramatically in the 1990s with the appearance of a larger and broader class of users. As distance –learning technologies in Nigeria become more popular as we indeed wish, we will increasingly see a broader spectrum of students.

Whichever views one holds on this all important online assessment of student learning, the fact remains that contemporary world in relation to online assessment is in a state of critical ferment, of which the balance of the contending issues can only bring about the much needed change in the Educational world.

CONTENDING PROBLEMS OF ONLINE ASSESSMENT OF STUDENT LEARNING

Many innovations enabled by the Internet, such as Internet Applications (IA), Open Electronic Data Interface (EDI), and Online Assessment of Distance-Learning Programs (OADP) have immense benefits to Educational institutions. However, students of distance-

learning programs involving digital as well as traditional approach lag far behind lofty predictions. Hence, there is need to consider now some of the most serious problems involving cheating in online assessment of student learning in Nigeria that have not been sufficiently considered previously.

Availability of Assessment Answers in Advance

The most disturbing problem of online assessment of student learning in Nigeria today is that it is hard to ensure all students in distance learning programs take exams simultaneously. This is prone to a situation where earlier students can supply answers to later students if some of the same questions are used. The earlier students could memorize questions or even take screen shots, which is easy under most operating systems. But creating "windows of availability" for assessments as in WebCT and Blackboard helps a little though does not solve the problem unless the windows are on the order of minutes in width, not days (McClure, 2002). The idea to reward by a grading factor those answers that are the most atypical is revealed, but that often does not work when there is only one correct or good answer.

On the other hand, if once and for all assessment with a single test is not possible, assessment questions can be drawn from a large pool and each student given a random selection, as possible in WebCT and Blackboard (Heberling, 2004). But it is hard to grade students fairly when they get different questions since some students will get harder questions than others. A way to reduce unfairness is to ask many questions, but then assessments become long and tedious. A more serious problem with pools is that instructors systematically underestimate how large the pool must be to make negligible the overlap of questions between tests.

With a large pool, a different danger is that students may be able to log in as the instructor and read the answer key themselves. Most assessment software is protected by short password, as in Blackboard where these can be as few as eight characters and easy to guess with today's systematic "cracker" software. Even when students cannot guess the instructor password, they can use "social engineering" methods that have been successfully used to scam even smart people into revealing their passwords, such as "emergency" calls from alleged programming staff or "please change your password temporarily for system testing" requests (Mitnick, 2002). Since few instructors are security experts, they can fall for many of these scams. It is also difficult to prevent unfair advantage to later students when drawing questions from a pool, as most instructors will not have the patience to provide an adequately large pool.

Even if students take an assessment simultaneously and the instructor password is adequately protected, students can use "Spyware" to electronically sneak a look at how other students are answering questions during an assessment or what the instructors are typing on their computer. Spyware is a software that secretly sends messages about you to other people. It has become a problem on the Internet where some free utilities secretly install Spyware to send information to advertisers about what sites you are visiting (Heberling, 2004). Spyware software technology is not difficult, and students who steal test answers

could sell them to other students. Students could also use a software called "Sniffers" to decipher the message packets of a local –area network used by fellow students or the instructor and thereby read their answers or passwords (McClure, 2002). Students could also use a variety of hacker attack methods to gain server –administrator privileges on the course–server machine, just as good as obtaining an instructor password, unless the machine is kept "patched" regularly with operating-system fixes. Students do not need to be software experts to do these things, just to download software from a Web site and follow a few simple installation instructions, just as how most hackers attacking computer systems do not understand their attack software because they obtained it from someone else. Installed Spyware and Sniffers can be recognized by careful computer forensics, but it requires some work (Letteron and Pain, 2003). It is also revealed that even without special software, students may be able to find answers by using computer forensics tools themselves on computers used by other students or instructors. That is, when a user logs off a computer, they leave in memory and on disk many records of what they have been working on, and it is not difficult for this information to be retrieved with built-in tools and free software.

Assessments Retake

Yet another serious problem with online assessment of student learning in Nigeria is the possibility for students to retake an assessment multiple times until they are satisfied with their performance, even if that was not the intention of the instructor. WebCT and Blackboard use a "server" architecture for assessments where the answers and assessment software are stored on a central machine. If the server software is not properly designed, students can break their connection to the server during an assessment, then claim they lost power and test answers and need to start over, giving them extra time to consult collaborators or unauthorized reference materials. Students could also crash the server after the grading is done but before the grades have been recorded. It is revealed that crashing is not difficult with the many hacker tools currently available.

Another trick of assessments retake is to change the system clock so that the grading server thinks that a new test assessment is actually prior to an earlier assessment. Many operating systems do not adequately control access to their system clock. Password theft of the instructor password also permits a student to change previous grades, since instructional software must allow instructors to correct grading mistakes. Blackboard does not even bother to tell the instructors when they last logged in, and this is a key clue to this kind of manipulation. However, thorough testing must be done to ensure that these problems do not occur, and WebCT and Blackboard have never provided the necessary test data. Again, computer forensics can detect these unauthorized activities, but it is always a difficult task.

Undue Assistance during Assessment

Confirming that the students are in fact who they say they are during assessment is a serious problem with online assessment of student learning in Nigeria. Since several distance – learning methods such as online discussion groups and email between students are used, these encourage collaboration. Students have an excellent excuse of habit for unauthorized collaboration on assessments. Poor students could easily hire good students to take their

tests, or a team of good students could arrange "consultants" to contact for the hard questions during an assessment. Just because the students provide their passwords does not mean they are the ones answering the questions at a remote site. This issue of "authentication" has been subject of much research in computer security, but usually the problem is that of ensuring that a given person is present, not that he is alone. This will however require different methods. It is revealed that "high-tech" solutions of infrared or electromagnetic monitoring of test-takers are not adequate for preventing unauthorized collaboration because communication can take many forms including aural, optical, and olfactory, for instance, signaling by smells. (Lathrop and Foss, 2000).

As it is in the practice of Nigeria Open University, the approach is to include some traditional test in distance-learning program with proctors and the usual test security. But this is expensive. However, since proctors must have no stake in the outcome for the student, unlike supervisors, contractors may be necessary to proctor, though collusion is still possible. It is possible for one student to impersonate another, so each student will need an identification card and it will need to be checked at the assessment site. Students most often are under pressure during assessment, and some students perform poorly under pressure, and this is a good incentive to cheat.

THE SIGNIFICANCE OF ONLINE ASSESSMENT OF STUDENT LEARNING IN NIGERIA

In very many ways, the issues distance-learning programs have generated over the years are significant, both for the enhanced sustainable online assessment of student learning and full implementation. It is obvious that online assessment of student learning in Nigeria has problematic implementation as evidenced in the issues of availability of assessment answers in advance, assessment retake and undue assistance during assessment, but the benefits that would accrue to it when an effective framework for addressing the contending issues is fully implemented, are enormous. Hence, there is need to reflect on the wide range of benefits that online assessment of student learning would generate for students, and instructors with a view to recognizing the importance for preventing cheating during online assessments for effective implementation in Nigeria.

Entrapment

This is a very useful way to catch the stealing of tests and answers. The process is to plant fake tests in possible accessible places, like on the grading server while keeping the true test offline until test time. Then if a student uses answers from the fake test, we know that our security precautions are defective and can take measures for corrections. This works best when the fake test looks as close as possible to the true test, as with slightly reworded questions or the multiple-choice questions with reordered answers. It also helps if assessment can be encrypted and restored quickly when needed. Fake tests are analogous to "honeypots" computers on the Internet with no legitimate purpose other than to attract attackers for study purposes.

Assessment Proctoring

Proctors can ensure that students take the assessment at a designated time, without collaborators, and without unauthorized materials. But if computers are used, proctors cannot see everything possible unauthorized materials stored on them. Proctors not personally related to the student are important when students use computers to do the assessment. And all proctoring can still be victimized by both "low-tech" cheating such as crib notes and "high-tech" cheating like handheld devices communicating with collaborators outside the test room.

Countermeasures

The process of countermeasures for cheating should be a consideration in purchase of distance-learning management software for effective implementation of online assessment of student learning in Nigeria. The burden is however on the vendors to prove that their grading servers and client machines cannot be easily broken into and crashed. Also the assessment software must permit random test construction. It is not advisable to use vendor's assessment software if these conditions are not met.

Assessment Security

The instructor passwords should be hard to guess, and this should be checked by the assessment software. Instructors should keep duplicate print copies of grades to guard against changes. Assessment documents should not be stored as files on instructor machines, but only on a server machine, and the server software must be kept up-to-date to minimize hacker attacks to obtain instructor or administrator privileges. The server should have intrusion-detection software to catch attacks before they happen and should do auditing to reveal attacks. The server should also have effective physical security to prevent events like theft of disks. The server site must have a designated security manager in order to keep track of these measures.

CONCLUSION

We attempted to examine the contending issues generated by online assessment of student learning in Nigeria with a view to addressing the significance for an enhanced sustainable implementation. It is against the backdrop, we situate the benefits of online assessment within the context of the contending issues and players of the online assessment of student learning in contemporary Nigeria. The manifestations of this focus indicate that online assessment provides a major opportunity for Nigeria in her quest for Educational development and positive change if fully implemented.

It is however of great concern to note that the number of correct answers on an assessment and the consistency of a student's marks between assessments are not reliable clues for cheating, as extreme values can reflect honest good students or honest bad students and inconsistency can reflect honest students having a bad day. That is, cheating by getting the answers from the instructor password or computer is very difficult to detect by statistics. But in online assessment, many methods of cheating are facilitated, some quite new, and it is inevitable that cheating will increasingly be automated and distributed as software packages.

Hence, there is need to do online assessment of student learning in Nigeria with caution until more progress is made on the technical development of countermeasures.

REFERENCES

- Bork, A. (2001) "What is needed for effective teaching on the Internet" *Educational Technology and Society*, 4(3), 139-143.
- Cizek, G. J. (1999) "Cheating on Tests: How to do it, detect it, and prevent it" Lawrence Erlbaum. Mahwah, NJ.
- Ellis, A. (2002) "Teaching, Learning, and Assessment Together: The Reflective Classroom" Eye on Education London ISBN-13:978-1930556034
- Ford, C. (2000) "Lies! Lies!! Lies!!! The psychology of Deceit" The American Psychiatric Press, Washington, DC.
- Gardner, J. (2006) "Assessment and Learning" Assessment Reform Group Publications London: Sage ISBN 1-4129-1051-x
- Gronlund, N. E (2007) "Assessment of Students Achievement", Pearson Education, Inc. New York
- Heberhing, M. (2004)" Maintaining Academic integrity in online education" Online journal of distance learning administration" (Online):
<http://www.westga.edu/rdistance/ojdla/spring51/heberling5.html>
- Heron, J. and Pain, D. (2003) "WebCT and Online assessment: the best thing Since SOAP?" *educational Technology and Society*, 6(2),62 -71
- Lathrop, A. and Foss, K. (2000) "Student cheating and plagiarism in the Internet era: a wake-up call" Libraries Unlimited, Englewood, Co.
- McClure, S. (2002) "Hacking exposed: network security secrets and solutions". Osborne Media, McGraw-Hill, New York
- McMurtry, K. (2002) "E-Cheating: Combating a 21st century challenge". *T. H. E. Journal*, 29(4), 36-41
- Mitnick, K. (2002) "The art of deception" CyberAge Boks. New York.
- Parshall, C. G. Spray, J. Kalohn, J. and Davey, T. (2002) "Issues in Innovative Item Types. In *Practical Considerations in Computer – Based Testing*" Springer, New York (pp 70 – 91).

Pellegrino, J. Chudowsky, N. and Glaser, R. (2001) "Knowing what Students Know: The Science and Design of Educational Assessment". National Academic Press. Centre for Education, Washington.

Scalise, K, and Wilson M. (2006) "Analysis and Comparison of Automated Scoring Approaches: Addressing Evidence – Based Assessment Principles". Lawrence Erlbaum Associates, Inc. Mahwah, NJ.