

Electronic Examination in Nigeria, Academic Staff Perspective—Case Study: National Open University of Nigeria (NOUN)

Francis Osang

Abstract—With the increasing acceptance of open and distance learning (ODL) as a major channel of widening access to higher education in Nigeria, it has become increasingly necessary that the procedure for educational evaluation process be established to maintain standard if the ODL provision is to be relevant and recognized as complementary to conventional higher education. With the introduction of e-exams, institutions still grapple with serious issues including the preparedness of the lecturers coping with more technicalities associated with electronic examinations. Unfortunately, there is shortage of research on Academic staff (lecturers) perception of e-exams in Nigeria in an ODL environment since they are stakeholders in the evaluation process of their students. This study therefore seeks to take a critical look at how the adoption of electronic examination have assisted National Open University of Nigeria (NOUN) in the evaluation phase of students study circle as well as the architecture for electronic examination as implemented by NOUN, which can be used by any other ODL institution. The study will zero in on the perception of the Academic Staff on e-examinations since Lecturers' perceptions of technology have great influence on the acceptability of the technology (Fabry and Higgs, 1997; Keller and Cernerud, 2002; Murphy and Greenwood, 1998; Samuel and Bakar, 2006). 105 questionnaires were administered to the Academic staff based on the five schools seeking their views on their level of computer literacy, e-exams administration compared to the pen and paper exams as well as the ease of use of the maple ta platform currently being used by NOUN. The findings show that 81.9% of the Lecturers are computer literate, while the remaining 28.4% are still getting use to basic computer usage skills which implies that most academic staff (lecturers) employed by National Open University of Nigeria are computer literate hence should appreciate e-exams. 63% of the Lecturers found maple ta (the software used) quite challenging while 47.3% found it very easy with time after training which implies that more can still be done to make the e-exam platform more user friendly for the Lecturers.

Index Terms—Open and distance learning, electronic examination, e-learning, maple ta, platform, intranet, course coordinators, study centre.

I. INTRODUCTION

Resuscitated in 2002 by president olusegun obasanjo, national open university of nigeria (NOUN) currently has the following schools: School of arts and social sciences (SASS), Management Sciences (SMS), School of Education (SEDU), school of law (SOL) and School of Science and Technology (SST), School of Post graduate studies. Apart from the

schools, other Centres are: Lifelong Learning and Workplace Training dedicated to undertake the certificate programmes and other skills training, Access Programme and retridal established in collaboration with common wealth of learning (COL) to encourage research in Africa. Each school is headed by a Dean who is a Professor and various programmes are headed by Programme Leaders who are either Associate Professors or Senior Lecturers and are responsible to the Dean of their various schools. There are also Course Coordinators and Assistant Course Coordinators in the schools who are responsible for the coordination of the courses in the various programmes and they are responsible to the Programme Leaders.

Prior to 2010, the University was able to conduct only two pen and paper exams since inception due to lack of capacity to handle the overwhelming student population compared to the human and infrastructural requirements for such exercise. The scope of NOUN End of semester examination as at 2010 showed that NOUN has ninety thousand, seven hundred and sixty seven (90,767) registered students and one thousand and twenty examinable courses. The courses and the students are spread in seven (7) schools and centres in the university and dispersed in thirty nine (39) study centres in all the thirty-six (36) states of Nigeria. This implies that if the entire registered students will also register and sit for examination, the institution will be handling about one million (1,000,000) answer scripts multiplied by number of courses registered per student (Okonkwo, 2010b). The manual processing of such scripts poses administrative nightmare. Hence, the decision to explore the possibilities of conducting electronic examination.

But what do the lecturers think about e-exams?

It is a fact that Lecturers' attitude towards e-learning activities could be seen as the product of their perceptions of the usefulness of e-learning and the level of technical difficulty envisaged to be encountered while exploring the potentials of e-learning technology. In other words, the negative or positive perception of lecturers' ease of technology use and the value associated with its use in educational processes have greater influence on their intention to explore the potentials of the technology.

Lecturers' decision about the use of ICT for instructional process is affected by factors such as demographic, experience in the use of the technology, intellectual enhancement, training, enabling environment, and individual's perception (Fabry and Higgs, 1997; Keller and Cernerud, 2002; Murphy and Greenwood, 1998; Samuel and Bakar, 2006).

Individual's computer knowledge and access to computers

Manuscript received May 6, 2012; revised June 11, 2012.
Francis Osang is with the Computing and Network Services, National Open University of Nigeria (e-mail: fosang@nou.edu.ng, bukiesosang@yahoo.com).

cannot be underscored in respect of student evaluation. Albion (1999) reported that teacher's use of technology for teaching is a product of their belief about technology in respect of the acquired knowledge in computer usage. Similarly, Aduwa-Ogiegbaen (2006) identified computer knowledge as one of the components of computer competencies.

II. ELECTRONIC EXAMINATION.

Ayo et. al. (2007) defines e-examination as a system that "involves the conduct of examinations through the web or the intranet" (p. 126). Though the definition of Wikipedia is that of e-assessment, it is related to e-examination. E-assessment in its broadest sense is the use of information technology for any assessment related activity

Ayo et al. (2007) also say that e-examination reduces the large proportion of workload on examination, training, grading and reviewing, thus bringing the ability for the institution to release examination results in record time. This is because where the lecturer would spend weeks marking scripts manually, the computer would grade the students as soon as they finish their paper.

Awosiyan (2010) quoting Prof. Olu Jegede, the former Vice-Chancellor of NOUN, says that: e-examination was introduced to address series of anomalies being encountered in the manual tests. He said that the e-examination would remove all human errors recorded in manual examination and create opportunity for students to access their results immediately.... With this, we have removed so many hiccups in the compilation of answer scripts and movement of examination papers from one part of the country to another. The examination is conducted now through the net." ... it would be difficult for students to carry out any form of examination malpractice.

A. Architecture of E-Examination Platform

The system is made up of two main modules that contain some basic components such as data storage, data call, user identity, certification, and data security.

Ayo et. al. (2007) classified e-Examination system as a 3-tier architecture comprising the presentation tier, the business/logic tier and the database tier. The presentation tier offers an interface to the user; the business/logic tier serves as the middleware that is responsible for processing the user's requests, while the database tier serves as the repository of a pool of questions. The system is made up of two main modules that contain some basic components such as data storage, data call, user identity, certification, and data security.

- Identification Module: The authentication starts with the physical identification of the lecturer for uploading of questions. This module authenticates the lecturers' identity, user name, and password. After the authentication, the lecturer proceeds to the selection of course (s) to be uploaded.
- Examination Module: After verifying the user's identity, this module comes into effect. The module is responsible for uploading of questions, display questions for editing, setting of policies (date, time,

number of questions, marks per question etc)

B. Technical Activities Involved in E-Exams As Organized by NOUN.

An overview of the technicalities involved in the operation of E-exams involves the following:

Planning and building up of necessary high end servers where the a functional question bank resides

- Technical training for the question databank administrators
- Training of Course Coordinators and Programme Leaders on item development procedures for the 'blue prints' for courses to be examined
- Development of questions by Course Coordinators and Programme leaders in different platform like ms word, power point etc
- Conversion to maple ta format (scripting)
- Uploading of scripted questions into the server
- Provision of a functional network and workstations to be used by students for the e-exams.
- Administration of the e-exams by Technical Officers supervised by the Study Centre Directors
- Copies of the results are harvested from the data bank and forwarded to the headquarters from the Study Centres
- Backup of the maple ta grade book, result analysis and the entire postgres SQL files

C. Procedure for Administration of E-Exams to Students.

The diagram below shows the detail procedure for administration of e-exams as implemented by NOUN.

D. Challenges of E-Exams.

- More investment is needed in the area of infrastructure and human development especially in the area of ICT infrastructure, ICT skill development and training
- Essay writing- Most researchers in this field agree on the thesis that some aspects of complex achievement are difficult to measure using objective-type questions (Valenti, Cuc chiarelli, and Panti. 2002). Some Course coordinators believe that their students should still be given the opportunity to express themselves in writing.
- Scripting Problems – Scripting of the questions to be uploaded into the maple ta server is very tasking and a measure of errors introduced into the questions. All questions type in microsoft word are being converted into the format acceptable by the maple ta software.
- The question bank needs to be large enough to prevent high levels of repetition.
- Computer crashes occur – regardless of the computer system in use. There is need for contingency plan in case of other technical faults in the middle of the examination period that may affect smooth conduct of examination and assessment processes; and
- Other resources required – sufficient numbers of computers, room for installing them, appropriate software and adequate technology expertise are necessary for effective implementation.

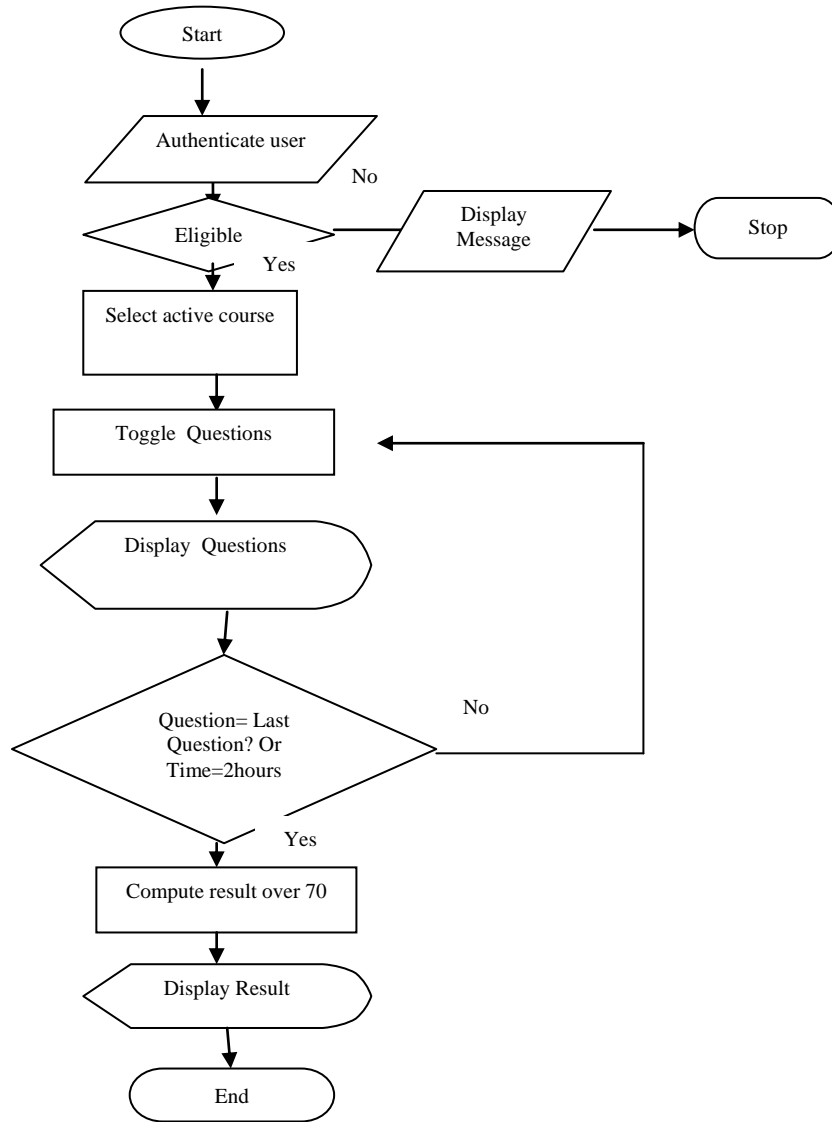


Fig. 1. Flow chart of procedure for e-exams administration.

III. METHODOLOGY

By the time of commencement of this research, NOUN headquarters had a total of 194 Academic staff based at the head Office. 40 staff were sampled randomly within the five schools representing 20% of the Academic staff which is regarded by researchers as representative of the population. In order to determine the participants’ perceptions of e-exams, a structured questionnaire on lecturers’ perception was designed by the researcher. The instrument contained two sections. Section A of the instrument elicited the demographic information of the respondents such as age, gender, academic designation, academic discipline, while section B contained 15 statements eliciting lecturers’ perceptions of e-exam. The instrument was tested by other scholars for validation and reliability before being administered to the Staff.

TABLE I: LEVEL OF LITERACY OF STAFF

Computer Literacy		Frequency	Percent
Valid	yes	78	81.9
	No	27	28.4
Total		105	100.0

From the table above, 81.9% of the Lecturers are computer literate, while the remaining 28.4% were guided through the scripting and uploading of the questions into the question bank. Some ICT staff were assigned to each of the schools to assist in providing some guidance and assistance on maple ta platform. Login accounts were created for each of the schools for uploading with login details and password only known to the school’s examination officer.

This therefore implies that most academic staff (lecturers) employed by National Open University of Nigeria are computer literate. This means that the diffusion of information technology (IT) in schools is gaining ground in Nigeria which further makes the teaching and using of IT related materials easy to administer in the University.

TABLE II: EASE OF USE OF MAPLE TA SYSTEM.

Maple ta Usage	Frequency	Percent
yes	45	47.3
No	60	63.0
Total	105	100.0

63% of the Lecturers found maple ta quite challenging while 47.3% found it very easy with time after training.

Towards the exams, Course Coordinators and Programme Leaders are provided with maple ta format or platform which is not user friendly. Although some of these academic staff who were newly employed have participated in only one out the three e-exams conducted, those that have participated in all the exams would still prefer it being compatible with Microsoft word or excel instead of typing word by word into the format which is very cumbersome. This implies that e-Examination is a new innovation in Nigerian Schools or Higher Institution of learning which will be better appreciated when it is simpler and friendlier from the perspective of the Lecturers.

TABLE III: OVERALL ASSESSMENT OF THE SYSTEM.

Examination Preference		Frequency	Percent
E-examination	yes	84	88.2
Pen and paper	No	21	22.1
Total		105	100.0

84 respondents recommended e-examination for conducting examination in Nigerian National Open University based on the fact that it was easy to use by the students, administer and most especially the fact that the result of the exam can be viewed almost immediately after the exams.

IV. DISCUSSION

From table III, the Course coordinators prefer e-examination to the pen and paper examinations lesser administrative tasks for the Coordinators and timely release of examination result. This is in line with the views of Prof. Jegede former Vice-Chancellor of NOUN, as quoted by Awosiyani (2010), that: e-examination was introduced to address series of anomalies being encountered in the manual tests. He said that the e-examination would remove all human errors recorded in manual examination. With this, we have removed so many hiccups in the compilation of answer scripts and movement of examination papers from one part of the country to another as well as increase the level of computer literacy among lecturers since it is a fact that Lecturers' attitude towards e-learning activities such as e-exams could be seen as the product of their perceptions of the usefulness of e-learning and the level of technical difficulty envisaged to be encountered while exploring the potentials of e-learning technology.

From table III, it is observed that 63% found maple ta still challenging from the back end especially the scripting of the questions which are easily typed in Microsoft word or excel and ought to be compatible with the software during uploading. It is also observed that difficulties are experienced in the display of diagrams, mathematical symbols and Arabic

courses.

V. CONCLUSION/RECOMMENDATION

From the findings of this research, e-examination remain the best option for conducting examinations in open and distance learning institutions especially as it would help to eradicate the myriad of problems associated with pen and paper exams such as examination malpractice, human errors in marking and compilation of results, untimely release of results and above all the reduction of the overwhelming task which would be experienced by lecturers in handling such number of students in open and distance learning Institution.

Based on the findings, the following recommendations are made:

- Electronic examinations are preferred to the pen and paper examinations in open and distance learning environment in Nigeria.
- In order to further popularise e-exams, serious attention should be made at making maple ta scripting easier or more user friendly by making it compatible with Microsoft word applications, equation editor and other customise symbols. Since, Lecturers' decision about the use of ICT for instructional process is affected by factors such as ease of use and experience in the use of the technology, intellectual enhancement, training, enabling environment, and individual's perception (Fabry and Higgs, 1997; Keller and Cernerud, 2002; Murphy and Greenwood, 1998; Samuel and Bakar, 2006).
- The development and use of essay type examination should be seriously looked into especially for law students.

REFERENCES

- [1] A. A. Olubiye, O. Ajadi, and J. Inegbedion, "Perception of learners on electronic examination in open and distance learning institutions: case study of national open university of Nigeria, US, China," *Educational Review Journal*. Viewed April 2011.
- [2] C. K. Ayo, I. O. Akinyemi, A. A. Adebisi, and U. O. Ekong, "The prospects of e-examination implementation in Nigeria."
- [3] J. S. Iyilade and W. O. Odekunle, "A web-based student testing and assessment system," *Proceedings of the International Conference On Application Of Ict To Teaching, Research, and Administration, AICTTRA*, vol. 1 pp. 16 – 24. 2005
- [4] Awoseyan and Kunle, "Stress and Success of NOUN examinations," *Nigerian Tribune*, July 1, pp.10, 2010
- [5] Aborisade and Akinwale, "NOUN students grumble over poor academic environment," *The Punch*, vol. 30 May, pp. 8, 2010.
- [6] C. A. Okonkwo, "Adapting on demand examination system in national open university of nigeria end of semester examination," *Online Journal on Distance Education* May 2011
- [7] R. C. Venon, R. D. Diana, and L. Fleet, "Academic Administrators attitudes towards interprofessional education in Canadian School of health professional education," *Journal of Interprofessional Care*. May 2005.