

ADOPTION OF ELECTRONIC EXAMINATION (E.E) SYSTEM FOR CURRICULUM EVALUATION IN NIGERIAN UNIVERSITY EDUCATION AMONG UNDERGRADUATE AND POSTGRADUATE STUDENTS

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Abstract

The application of electronic mode of assessment is fastly becoming an integral part of evaluation system in the educational sector worldwide. It is obvious that online mode of assessment is uprising, and a welcome alternative to paper-based assessment. The problem however lies on the rising criticisms of how valid and reliable are the scores and evaluation reports of computer-based examinations that have become almost ubiquitous. Thus prompted the paper which focused on the adoption of electronic examination system for curriculum evaluation in Nigerian university education. The study is a descriptive survey guided by two research questions and two null hypotheses. Two hundred (200) postgraduate students and four hundred (400) undergraduate students totaling 600 participants were the sample for the study. Descriptive statistics and chi-square statistics were used to answer the research questions and test the hypotheses respectively. The findings revealed that the adoption of e-examination system is an acceptable technological-driven innovation but network issue in navigating the internet, and complications in e-exam software packages are among the serious challenges affecting the electronic mode of assessment. The need for technical and procedural approaches to the emerging e-examination connected issues are supported to better reposition the adoption of e-examination in Nigeria.

Key words: Curriculum evaluation, E-examination, University Education.

Introduction

Evaluation is one of the basic elements of any programme of education, and the means of evaluation are obviously strong determinants of the value judgments passed on the recipients of educational programmes at all level of education. The emergence of information and Communication Technologies however, which covers the notion of the application of various technologies and gadgets to communication and information landing has been gaining prominence since the late half of the 20th century; In fact, the online process of education in both teaching and learning approaches has equally influenced the evaluation method for both offline and online instructions in the process of implementing educational programmes.

Gbadebo, Iposu, Adeyemi, Kehinde, Abimbola and Salome (2019) assert that the emergence of electronic based information transmission is rapidly transforming socio-economic, political, cultural and educational practices across the globe. In the field of education, electronic-mediated teaching, learning and evaluation is no longer uncommon. On e-learning for instance, Thalheirner (2017) reported that e-learning utilizes ICT and the internet to provide rich environment to engage learners in learning activities via various modalities, and can be used in conjunction with classroom instruction. The range of ICT applications available for teaching and learning is well established and well informed by extensive research and evaluation (UNESCO, 2017b). Such applications are not limited to teaching and learning but also covers the use of information technology for assessment related activities.

Existing literature recorded that in many academic domains, curriculum evaluation is fastly engaging the use of computer based testing (CBT) and electronic examinations. This developed has also led to many research work on electronic-mediated means of evaluating programmes and as a condition for admitting candidates into educational institution in Nigeria. Different stakeholders have been engaged in interviews, reports, researches and on recommendations on the use of electronic examination (e-exam) as against the reliance on face to face examinations which has been ubiquitous in Nigerian educational institutions for many years. Of interest to the writers of this paper is the concern of undergraduate and postgraduate students about e-examination because they are the audience directly exposed to university curricula and their opinions and positions about electronic mode of examinations would no doubt

helpful in better re-positioning of electronic examination in Nigeria, and by implication serves as a booster to authenticate the evaluation reports from this technology-based examination, paramount in educational programmes and as a condition to get a true representation of the abilities of candidates of all sorts.

Review of Related Literature

There have been a surge of theoretical and empirical literature on computer based testing and broadly, electronic means of examination over the years at national and international levels. On students' perception of computer-based test (CBT) for examining undergraduate chemistry courses, Jimoh, Abdul and Kawu (2012) established that computer based test has been seen as an alternative to the unmanageable population of undergraduate students in Nigerian universities. Still, as far as performance (test score) is concerned, the students (respondents) are of the discernment that CBT test mode had effect on their scores. Obeidallah Farouq and Awad (2015) in their study on students authentication in e-assessment sessions: a theoretical biometric model for smart phone devices submitted that the inconvenience economical situation had imposed organizations to adapt affordable and reasonably secured online exam systems. They however proposed a model which combines strong biometric techniques to control the process of students' authentication before and during the session. The proposed model by Obeidallah, Farouq and Awad (2015) is, perhaps a solution to security breach of e-learning which poses various threats especially when examinations are held electronically (online).

Further, a pilot study by Wibowo, Grandhi, Chugh and Sawir (2016) on an examination system at Central Queenstand University discovered that students and staff expressed a variety of feedback and concerns. For instance, it was suggested that future selection of e-exams system should consider features missing in current e-exams system Fluck, Adebayo and Abdulhamid (2017) in their case studies on secure e-examination systems when comparing African countries, found out that, e-learning and e-examination innovations in African countries are generally still at a low level. The few countries in the forefront of the awareness and usage of e-examinations are facing challenges that range from poor electricity supply to facility maintenance. A case study of National Open University of Nigeria on electronic examination in Open and Distance Learning Institutions as available in literature revealed the students more support to the use of e-examination which the students perceived that it will help reduce examination malpractices. Computer-based testing allows educators and trainers to author and schedule surveys, quizzes, tests and examinations to be administered through the computer system and responses are electronically recorded and assessed (Omotehinwa & Durojaye, 2013).

Theoretical Framework

Obviously, the role of examination in the curriculum process, in this aspect, at the university level cannot be overlooked. Despite the fact that the use of paper-based examination (PBE) have been effective in evaluating learners achievement intern of knowledge and skills acquisition for many years, e-examination module is fastly becoming a part of e-learning platforms, increasingly used by private and public educational institutions and training centres. The adoption of computer-based assessment as a means of evaluation by stakeholders find basis in theory of Reasoned Action (TRA) and Technology Acceptance Mode (TAM). The Theory of Reasoned Action (TRA) has Social Psychology as its origin. It is a theoretical model developed by Fishbein and Ajzen in 1975. It implies that a person's behaviour is determined by the behavioural intention to perform it. This intention itself is determined by human attitude and his subjective norms towards the behaviour. In respect of the use of electronic means of examination in education sector, it is gradually being embraced in evaluation process, and the intention is to get a more reliable evaluation results and reports and by implication, reducing examination complications. The use of computer becomes the external stimuli which influence the positive attitude of the examinees to relatively embrace emergence of online approach to curriculum and programme evaluation. In tunes with the theory of Reasoned Action, Davis also developed the Technology Acceptance Model (TAM) in 1986 which deals more specifically with the prediction of the acceptability of electronic information system by individuals.

Technology Acceptance Model also Identify the modification which must be brought to the electronic information system in order to make it acceptable to users. The acceptability of online information system wherein electronic examination is subsumed is determined by perceived usefulness and perceived ease of use. Existing literature like the ones reviewed in the paper among others have revealed the usefulness and acceptance of electronic-based examination to a proportionate extent, though with limitation, and criticisms obviously abound on ease of use. This study therefore, further explored the perceptions of the university students on their experience and what they feel about e – examination in terms of its adoption and the challenges with a view to improving its ease of use and improve programme evaluation along with the validity of evaluation judgment. Many companies and universities increasingly use electronic exam systems, but its challenges are worrisome to all and sundry. That is why research related to online testing has raised a number of security issues such as authentication of the test taker and test results (Alan & Charlotte, 2011). Notwithstanding, many tests are administered through computers nowadays and in some cases computer technology is the preferred method of choice e.g. driving license examinations, language tests, etc (Nikou, 2013).

Arising from the available literature, electronic examination has become an integral part of evaluation systems in the education sector because paper-based examinations have been faulted with shortcomings. Problems such as cost of conduct of the examination, malpractices, heavy resources in terms of manpower and manual way of marking among

others are crucial issues (Alabi, Issa & Oyekule, 2012; Abubakar & Adebayo, 2014). Computer-Based examination has been applauded for increased objectivity, increase in feedback to students and lecturers, consistency and reduction in marking loads of scripts and improvement in managerial efficiency. Be as it may, university students obviously lament during the course of electronic examinations due to the reason that cannot be assumed as they queue up for the examination. Added is the uproar usually observed on many occasions during and after the examinations. These observations informed this study on electronic means of evaluation in the university system in Nigeria.

Statement of the Problem

The emergence of electronic means of assessment in education and for various trainings as well as a process involved in admission in Nigeria has largely influenced examination conduct system, quality, reliability and validity exercise of evaluation reports. Indeed, many Nigerian tertiary institutions have installed and integrated electronic mode of test assessment and broad-based e-examinations. However, the outcry persists on technical issues often raised by the examinees during and after the electronic-based examinations along with the e-examination results. Some other commentators on this era of technology which has ushered in online means of examination as a supplement to paper-based test if not to totally jettison it, often argue on whether the increased attention and usage of electronic means of examination is a blessing or a curse to the whole gamut of curriculum evaluation on Nigerian higher institutions. In response to address the criticisms levied against electronic mode of assessment in Nigerian education therefore, this study examined the adoption of electronic examination (E.E) system of curriculum evaluation in Nigerian university education among undergraduate and postgraduate students.

Purpose of the Study

The main purpose of the study was to examine the adoption of electronic examination (e-e) system of curriculum evaluation in Nigerian university education among undergraduate and postgraduate students.

Specifically, the study sought to examine the:

1. Perception of undergraduate and postgraduate students on the adoption of electronic-examination (E.E) system integrated into their programme evaluation
2. Views of undergraduate and postgraduate students on the challenges encountered while undertaking electronic university examination.

Research Questions

The following research questions guided the study

1. What is the perception of undergraduate and postgraduate students on the adoption of electronic examination (e-e) system integrated into their programme evaluation?
2. What are the views of undergraduate and postgraduate students on the challenges encountered in the use of electronic university examinations?

Research Hypotheses

The following research hypotheses were raised and answered in the study at 0.05 level of significance.

H₀₁: There is no significant relationship between undergraduate and postgraduate students perception on the adoption of electronic examination (e-e) system integrated into the university programme evaluation.

H₀₂: There is no significant relationship between undergraduate and postgraduate students views on the challenges encountered in the use of electronic university examinations

Scope of the Study

The study is limited to the adoption of electronic examination (e-e) system of curriculum evaluation in Nigerian university education among university undergraduate and postgraduate students. Tai Solarin University of Education, Ijagun, and Olabisi Onabanjo University, Ago –Iwoye both in Ogun State of Nigeria are within the geographical scope of this study.

Methodology

Descriptive survey research design was adopted to obtain direct information from the study participants without the manipulation of any variables. All the undergraduate and postgraduate students of Tai Solarin University of Education, Ijagun and Olabisi Onabanjo University, Ago- Iwoye both in Ogun state of Nigeria were the universities covered by the study. Four hundred (400) undergraduate students and two hundred (200) postgraduate students were randomly selected from the two both universities based on their availability, interest and readiness to participate in the study. Two hundred and twenty (220) and one hundred and eighty (180) undergraduate students were randomly selected from Tai Solarin University and Olabisi Onabanjo University respectively while one hundred (100) postgraduate levels based on the willingness of the participants. In all six hundred (600) participated in the study.

Electronic Examination Adoption Questionnaire (EEAQ) was the instrument used for data collection. It consists of section A and section B. Section A covered the bio-data of the study participants while section B is divided into two

parts, 1 and 2. Part 1 contains items on the perception of undergraduate and postgraduate students on the adoption of electronic means of examination in Nigerian University education. Response categories of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) are identified for section B, part 1 while the items on part 2 of section B are to be responded to with either a Serious Challenge (SC), Mild Challenge (MC), and not a Challenge (NC).

The validity of EEAQ was ensured by giving three copies to experts in tests and measurement and curriculum evaluation to ensure both face and the content validity. Thus, the modification of the research instrument was done as directed. Twenty (20) copies of EEAQ were administered once the similar participants in the university outside the state where this study was carried out and Cronbach Alpha Reliability Coefficient of 0.97 obtained which is an equivalent of 79% was considered suitable enough for the EEAQ to be used for data collection.

The administration of the research instrument covered the participants through their course lecturers with anonymity as their names were not required on the research instrument. No data that would damage the image of their institutions were required, and the participants were involved based on their interested readiness and assurance that the ethics of their university is not damaged. The researcher and four supporting academic staff in the two institutions were involved in the data collection which lasted for about one(1) month. Although, six hundred and fifty (650) research instruments were administered to the participants the six hundred (600) retrieved eventually constituted the sample of this study. The remaining fifty research instrument could not be retrieved due to their examination that started during the collection of data.

Frequency count and mean with a decision rule of 250 and above as acceptance level were used to interpret the items of the research instrument and answer the two research questions while Chi-Square non-parametric statistical tool was used to test the two null hypotheses at 0.05 level of significance.

Results

Research Question 1

What is the perception of undergraduate and postgraduate students on the adoption of electronic examination (e.e) system integrated into their programme evaluation?

Table 1: University students perception of the Adoption of Electronic-Examination (E.E) system integrated into their programme Evaluation.

S/N	Item	Postgraduate respondents N=200					Undergraduate respondents N= 400				
		SA	A	D	SD	Mean	SA	A	D	SD	Mean
1.	Adoption of e-exam ensures authentication of scores.	80 (40.0)	35 (17.5)	75 (37.5)	10 (5.0)	2.65	200 (50.0)	200 (50.0)	40 (10.0)	60 (15.0)	2.75
2.	Readability of e-exam questions on the screen is very difficult.	20 (10.0)	30 (15.0)	60 (30.0)	90 (45.0)	2.41	30 (7.5)	10 (2.5)	350 (87.5)	10 (2.5)	2.44
3.	E-exam is a good approach to receive test results automatically.	120 (60.0)	10 (5.0)	60 (30.0)	10 (5.0)	2.90	150 (37.5)	110 (27.5)	130 (32.5)	10 (2.5)	3.12
4.	E-exam system saves time and efforts.	180 (75.0)	10 (5.0)	—	10 (5.0)	3.21	201 (50.3)	120 (30.0)	59 (14.8)	20 (5.0)	3.30
5.	E-examination reduces various forms of malpractices.	90 (45.0)	10 (5.0)	30 (15.0)	70 (35.0)	2.50	290 (72.5)	100 (25.0)	10 (2.5)	30 (7.5)	2.70
6.	Adoption of e-exam system reduces examinees expression of opinion.	40 (20.0)	90 (45.0)	40 (20.0)	30 (15.0)	3.19	120 (30.0)	201 (50.3)	50 (12.5)	29 (7.2)	3.12
7.	E- exam system timeframe is unfair compared with Paper-Based Exam (PBE).	30 (15.0)	80 (40.0)	60 (30.0)	30 (15.0)	2.90	201 (50.3)	120 (30.0)	50 (12.5)	29 (7.2)	3.12
8.	E-exam is threatening and highly emotionally distributing.	20 (10.0)	01 (0.5)	90 (45.0)	89 (44.5)	2.30	10 (2.5)	60 (15.0)	250 (62.5)	90 (22.5)	2.40
9.	E-exam system is a positive experience to me.	90 (45.0)	10 (5.0)	30 (15.0)	70 (35.0)	2.50	200 (50.0)	110 (27.5)	40 (10.0)	50 (12.5)	2.80
10.	Adoption of e-exam in the technology – driven era is an acceptable innovation.	50 (25.0)	120 (60.0)	20 (10.0)	10 (5.0)	3.50	201 (50.3)	80 (20.0)	41 (10.2)	78 (19.3)	2.90

Figures in parentheses are in percentages.

The results presented in table 1 on the adoption of e-examination system integrated into university education show the perception of undergraduate and postgraduate students who have been exposed to online examinations at various times thus: Adoption of e-examination ensures authentication of scores (Acceptance mean score of 2.65 and 2.75 for undergraduate and postgraduate students respectively); E-exam is a good approach to receive test results automatically (Postgraduate means score =2.90; Undergraduate mean score =3.12); Exam system saves time and efforts (Mean score

of 3.21 and 3,30 for postgraduate and undergraduate students respectively); E-examination reduces various forms of malpractices (mean score of 2.50 and 2.70); Adoption of e-exam reduces examines expression of opinion (Mean of 3.19 and 3.01); E-exam system is a positive experience to me (mean score of 2.50 and 2,80); and Adoption of e-exam in the technology –driven era is an acceptable innovation (Mean score of 3.50 and 2.90 for both postgraduate participants and undergraduate participants). However, the following items had rejected mean score based on the participants’ responses. Item 2 table 1, which states that readability of e-exam questions on the screen is very difficult was rejected with mean scores of 2.41 and 2.44 by the postgraduate and undergraduate students sampled. Item 8, table 1, which states that e-exam, is threatening and highly emotionally disturbing was rejected with mean scores of 2.30 and 2.40 respectively by the undergraduate and postgraduate students sampled. Item 5 and item 9 table 1, with the least acceptance mean value of 2.50 respectively by postgraduate students who are perceived to have more experience than the undergraduate students perhaps implies that despite the adoption of e-exam in the technology - driven era as a welcome development, there are still challenges facing its integration into the university evaluation of programmes.

Research Question 2

What are the views of undergraduate and postgraduate students on the challenges encountered in the use of electronic university examination?

Table 2: Undergraduate and postgraduate views on the challenges of Electronic- Examination

S/N	Item	Postgraduate respondents N=200			Undergraduate respondents N= 400		
		Serious Challenge	Mild Challenge	Not Challenge	a Serious Challenge	Mild Challenge	Not Challenge
		SC	MC	NC	SC	MC	NC
1.	Network issue in navigating the internet.	191 (95.5)	09 (4.5)	-	250 (62.5)	150 (37.5)	-
2.	Insecurity of e-exam system.	150 (75.0)	50 (25.0)	-	80 (20.0)	320 (80.0)	-
3.	Auditability of results (Errorfree).	41 (20.5)	102 (51.0)	17 (8.5)	61 (15.3)	339 (84.8)	-
4.	Authenticity of results.	31 (15.5)	50 (25.0)	119 (59.5)	120 (30.0)	280 (70.0)	-
5.	Complications in exam protocols.	52 (26.0)	108 (54.0)	40 (20.0)	300 (75.0)	90 (22.5)	10 (2.5)
6.	Inadequate electricity.	142 (71.0)	58 (29.0)	-	301 (75.3)	38 (9.5)	61 (15.3)
7.	Economy.	61 (30.5)	119 (59.5)	20 (10.0)	301 (75.3)	90 (22.5)	09 (2.3)
8.	Different e-exam softwares.	40 (20.0)	129 (64.5)	31 (15.5)	280 (70.0)	50 (12.5)	70 (17.5)
9.	Exam location.	90 (45.0)	81 (40.5)	29 (14.5)	350 (87.5)	20 (5.0)	30 (7.5)
	Average (%) .	44.4%	39.2%	16.4%	44.5%	50.5%	5.0%

The results presented in table 2 shows that the challenges bedeviling electronic system of evaluation in university education as identified were rated as serious challenges with 44.4% and 44.5% respectively as responded by undergraduate and postgraduate students. Clear difference in the views of the two categories of respondents reflect in 39.2% and 50.5% recorded on the mild challenges posed by the nine items identified in table 2. Specifically, the following are responded to as serious challenges facing the adoption of e-examinations; Network issue in navigating the internet (95.5%), insecurity of e-exam system (75.0%), inadequate electricity (70.0%) complications in e-exam protocols (75.0%), different e-exam softwares (70.0%) and e-exam location (87.5%).

Hypotheses testing

H₀₁: There is no significant relationship between undergraduate and postgraduate students’ perception of the adoption of electronic-examination (e-e) system integrated into the university programme evaluation

Table 3: Chi-Square Test Statistics of Relationship between Undergraduate and Postgraduate Students’ Perception of the Adopted Electronic Examination

χ^2 (2-sided)	Value	Df	Significance
Chi-Square	25.484 ^a	11	0.09
Likelihood Ratio	33.225	11	0.01
Number of Valid Cases	599		

From table 3, since the chi-square calculated ($\chi^2_{cal}=25.484$), is greater than the critical value ($\chi^2_{crit}= 0.009$), the null hypothesis (H_{01}) is rejected. It thus implies that there is significant relationship between undergraduate and postgraduate students perception of the adoption of electronic – examination system integrated into the university programme evaluation.

H_{02} : There is no significant relationship between undergraduate and postgraduate students views on the challenges encountered in the use of electronic university examinations.

Table 4: Chi-Square Test Statistics of Relationship between Undergraduate and Postgraduate students’ views on the challenges encountered in the use of electronic university examinations.

χ^2 (2-sided)	Value	Df	Significance
Chi-Square	9.556 ^a	9	0.009
Likelihood Ratio	9.535	9	0.128
Number of Valid Cases	599		

The chi-square calculated value of 9.556^a is greater than the critical value of 0.009 ($\chi^2_{cal}=9.566 > \chi^2_{tab} = 0.009$; $p > 0.05$, thus, the null hypothesis is rejected. It implies that there is a significant relationship between undergraduate and postgraduate students views on the challenges encountered in the use of electronic university examinations.

Discussion of findings

This study has been able to find out that the adoption of electronic examinations system for curriculum evaluation in university education ensures authentication of scores obtained by the students examined. Apanpa, Wills and Argles (2010) and Alotaibi (2010) had earlier submitted that authentication is one of the user security goals required in e-learning systems. Conversely, in respect of e-learning, Obeidallah, Ahmad, Farouq and Awad (2015) reported that the lack of appropriate practical and affordable solutions to identify students’ identity in e-learning had made some institutions to decelerate their vision in providing such learning method as part of their curriculum. Thus, authentication at times is very challenging. Also, the findings revealed that e-exam approach enables test results to be received automatically. This prompt release of test results is an indication that electronic means of examination facilitate the assessment procedure, leading in an innovative assessment mode (Nikun, 2013).

Another finding is reduction of various forms of malpractices as against reduction in examinees expression of opinions along with the acceptance of e-exam in the technology-driven era as an innovation. From these findings, it means that the emergence and adoption of e-examination is beneficial to educational institutions, but there are challenges which affect effective students’ evaluation. Despite the emerging challenges, the respondents did not significantly perceive e-exam as a threatening system nor causing emotional disturbance (table 1). But existing literature reported that there are other threats which may come from examination authorities such as evaluating students’ answers wrongly, manipulating marks after evaluation, and providing fake diplomas. Fundamentally, both the undergraduate and postgraduate respondents lamented that the adoption of e-exam reduces examinee’s expression of opinions (table 1). This may be as a result of the use of objectives questions on many occasions during electronic-examination (E.E).

It is evidently clear based on the findings of this study that the actual benefits of e-examination system in promoting reliable curriculum evaluation in Nigerian university education cannot be argued still network issue in navigating the internet, insecurity of e-examinations system, inadequate electricity, complications in e-examinations protocols, different e-exam softwares and e-exam location are serious challenges. There are more benefits on online examinations but security remains a problem (Rao, Harshita, Dedeepya & Ushashree, 2011). They buttressed that related security problems to online exams include not only unauthorized access to the problem sheets before the exams but also modification of the questions, answers and the grades. On e-exam protocols, it becomes a serious challenge when there are complications with it as found out in this study (table 2). Events flag important steps in the execution of the exam (Kassem, Falcone & Lafourcade, 2015). They are the activities involved in an e-exam, but when many complex functions / activities connected with e-exams crop up, omission of some parameters from the events have negative implication on the scores and evaluation judgments.

Different e-exam softwares identified as a serious challenge to online exam system in this study agrees with the study of Omotehinwa and Durojaye (2013) who observed that in Nigeria, most of the universities conducting electronic examinations rely solely on the software vendors for the administration of the exams. A few that have managed to domesticate the conduct of the exam are either poorly managed or use defective software. In all, the use of e-examination system in curriculum and programme evaluation is quite developing, the challenges notwithstanding. The views of the undergraduate and postgraduate students who were the participants in this study did not in any way negate the evolving online examination system but the challenges deserve urgent attention for more valid and reliable outcomes of evaluation results.

Conclusion

As the world is increasingly becoming interconnected through electronic means like e-learning, e-teaching, e-marketing, e-government and e-library among others the emergence of e-examination in the educational assessment system of Nigerian also remains crucial for viable learning outcomes to be ensured. Curriculum evaluation of any university programmes that would worth the candle must be genuine and reliable. The findings of this study has reaffirmed the positive values of e-examinations and its evolving challenges. Be as it may, there is hope for better re-positioning of e-examination system in university education evaluation if the emerging challenges are given due attention by concerned stakeholders. In sum, electronic mode of assessment gives the hope that human errors, complications and malpractices not uncommon in paper-based test would become a thing of the past if all the challenges where not in events protocols and the demands of online examinations are systematically addressed. The end result becomes a more objective, valid, and reliable evaluation results and reports.

Recommendations

The prospect of electronic examination system hinges on quick intervention as the challenges emerge. Based on the findings of this study therefore, the following recommendations are suggested.

1. Software packages for e-examinations in Nigerian universities should be designed to accommodate essay questions and to cater for examinees expression of opinions, with a view to developing their language composition skills in their various disciplines.
2. Continuous development of computer- literary skills and specialised training on online learning, online teaching, online evaluation and application of information and communication technology in academic work is essential in this internet-connected era.
3. Network issues, insecurity, complications in e-examination protocols and inadequacies of e-examination software packages among others should be technically and procedurally attended to.

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