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COMPUTER EDUCATORS' PERCEPTION OF E-ASSESSMENT IN PUBLIC UNIVERSITIES IN ENUGU STATE

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ABSTRACT

This study investigated computer educators' perception of e-assessment in public universities in Enugu state. The study was guided by four research questions. Theoretically, the study was anchored on the unified theory of acceptance and use of technology (UTAUT) proposed by Venkatesh et al in 2003. The design of the study was descriptive survey. A total population sampling technique was used to sample 25 education lecturers from two public universities in Enugu state. The instrument for data collection was a 48-item questionnaire developed by the researcher. Three experts validated the instrument. The reliability index of 0.83 was obtained using Cronbach Alpha method. The data collected were analyzed using frequency, percentage count, mean scores and standard deviation. The finding of the study revealed that in overall, computer education lecturers in public universities in Enugu state utilized Google forms App, Module project, Survey Monkey, Free online surveys and Organized computer-based test for students' academic assessment while the other 11 e-assessment platforms were not utilized in this regard. The findings of the study also revealed that computer education lecturers possessed the skills required to use e-assessment platforms for students' academic assessment. The challenges relating to poor network connectivity, hacking of e-learning/e-assessment platforms by unauthorized users, lack of sufficient facilities like laptops, desktops, furniture etc., poor funding to build more ICT laboratories and many others affect the use of e-assessment platforms by lecturers for assessing students in universities surveyed. The study further revealed that partnering with network providers, provision of free WIFI in every part of the school, building and equipping ICT laboratories were revealed as some of the solutions to these challenges.

Keywords: Academic Assessment, E-assessment Platforms, Computer Education Lecturers, Public Universities, Perception.

Introduction

Assessment is the process of rating, evaluating or judging something or someone's actions or capabilities in order to either approve or disapprove it. Assessment in education refers to the act of determining the extent to which learning objectives have been achieved in a particular setting, be it in the industry, sports, health care or school. It is mostly administered where teaching and learning takes place so that learner's level of understanding of what is taught is measured using different assessment approaches. Assessment of learning in education can also be referred to as the act of administering test/examination to students in order to understand and describe their level of understanding of a concept at the end of a lesson, program or period of schooling for decision

making (Nworgu 2015; Joshua 2018). Gronlund (2006), Amua-Sekyi (2016), and Yambi (2018) view assessment as a variety of task by which teachers collects information regarding the performance and achievement of their students. According to Kuh, Jankowski, and Ikenberry (2014) assessment data can be obtained from directly examining students works to assess the achievement of learning outcomes or can be based on data from which one can make inferences about learning. Assessment of learning could be done through practical examination (also referred to as competency-based assessment) or written examination (such as hand written or typed using word processor) among other approaches which include audio visual assessment, interviews, etc.; and these can be conducted using paper and pencils/pen, electronic devices or through physical observations (as in practical exercises).

Assessment is an integral component of curriculum development and implementation as well as a tool for measuring academic performances of learners in a given field of study. Islam's, Ahmadi and Yousaf (2018) stated that assessment and students learning performance are two inseparable elements in higher education. Assessment of learning exposes the strengths and weaknesses of teaching and learning process, specifically, the extent to which teachers have imparted knowledge into learners and the extent the learners mastered what was taught to them. As a continuous process, assessment establishes measurable and clear student learning outcomes for learning, provisioning a sufficient amount of learning opportunities to achieve these outcomes, implementing a systemic way of gathering, analyzing and interpreting evidence to determine how well student learning matches expectations, and using the collected information to inform improvement in students learning (Suskie, 2004).

Over the years, the widely used means of assessment of learning had been the paper and pencil test (PPT). Government of Canada (2007) refers to Paper-and-pencil instruments as a general group of assessment tools in which candidates read questions and respond in writing. According to Karthikeyan (2021), Paper-and-pencil assessment refers to traditional student assessment format such as written test and also to standardized test that ask students to use pencil to fill in bubbles on a scannable answer sheet. In Nigeria tertiary institutions, PPT is still widely assessment method used for examinations, assignments, term papers and project/thesis (Fluck, Adebayo & Abdulhamid, (2917). However, this approach appears to be faced with numerous concerns ranging from reliability, credibility and time consumption (Azores & Ogwu, 2019), to tedious process in the conduct of the exam, marking and result publication (Sanni & Muhammad, 2015; Nwangwu, Omeh, & Okorie, 2020), to high level and rate of all meaner of examination malpractices. (Abubakar & Adebayo, 2014; Onyibe, Nwachi-Ikpor & Abdulhakim, 2015). Based on the above-mentioned challenges of paper-and-pencil testing, it becomes very vital to adopt electronic assessment (e-assessment) for assessing students' academic performance. This is because e-assessment provides ease and flexibility of administering and grading test, as well as allowing for the development of novel technology-based testing environments (Hardcastle, Herrmann, & DeBoer, 2017).

Furthermore, while human beings can be partial in assessing students' performance, electronic machines used for assessment (e-assessment) is impartial in assessing and grading students. Also,

adopting e-assessment enables efficient storage of students results in the cloud without fear of being misplaced, stolen or corrupt unlike the paper and pencil assessment whereby the results of the assessment can be easily misplaced, stolen or degenerate when kept for a longer period of time in a file. With the use of e-assessment, instant or real-time feedback on the performance of the students is guaranteed. It is very easy to reshuffle question types in e-assessment unlike the difficulty faced by educators in re shuffling questions and administering it to students. Other benefits of e-assessment have been discussed in the subsequent paragraphs. E-assessment also referred to as Computer Based Test-CBT, Computer Assisted/Aided Assessment-CAA, or Electronic Based Assessment-EBA, is an assessment method that uses ICT to deliver test, assignment, and examination to students (Acosta-Gonzaga & Gordollo-Mejia, 2015). It includes the entire process of assessment ranging from designing the questions, administering the questions, marking the answers provided, publishing the results using any electronic means. According to Alruwais, Wills and Wald (2018), e-assessment is basically the end-to-end electronic assessment process involving the presentation of questions to the saving of learner's responses. Here, computers, mobile phones and pencil assessment. The use of electronic means for teaching, learning and assessment was highly advocated during COVID-19 pandemic lockdown whereby students take their lessons and exam online using digital tools like computers and internet. This helps to eliminate disruptions to teaching and learning.

Furthermore, the proliferation of ICT tools in the education system has led to an increased efficiency, better opportunities and convenience especially in the conduct of e-assessment, which is now a trending keyword in the current global reality. Kuyoro, Maminor, Kanu, and Akande (2016) strongly argued that the increase in students' population in Africa (Nigeria inclusive) has presented the dire need for the adoption of e-assessment in the educational sector. There are two basic modes of administering e-assessment. One is e-assessment done under a planned environment with supervision and the other is done under a non planned environment. The first is exemplified in the assessment done by Admission and Matriculation Board (JAMB), Unified Tertiary Matriculation Examination UTME), etc., whereby assessment is conducted in a hall where security agents and supervisors are present to monitor the assessment process. Therefore, this is location bound and it uses intranet. But the latter is not location bound. The learners could engage in the assessment process from anywhere they are using their mobile devices connected to the internet. It is exemplified in the assessment process that was recently adopted and done by the School of General Studies, University of Nigeria, Nsukka (UNN), and the School of Postgraduate Studies, UNN, whereby students wrote their mid-semester tests entrance examination respectively using their mobile devices from any location. For the sake of the study both methods were covered since the present study dwelt on e-assessment in Public Universities in Enugu State in general. The introduction of e-assessment into the school system offers several benefits to both students and lecturers. E-assessment helps in ensuring accurate record keeping and keeping and supports individualized learning (Gikandi, Morror, & Davis, 2011). It is a very flexible assessment tool that does not consider location barrier. This means that students can enroll into the examination anywhere they are. Many higher institutions adopted e-assessment. In order to obtain and develop accurate and faster method to assess students (Alruwais, et al, 2018; Ajinaja, 2017). Since e-assessment could be used to access large number of students faster and get their results published,

it then saves time and energy of the lecturers marking, grading, sorting and publishing of results. On the other hand, Sanni and Muhammed (2015) stated that e-assessment ensures low administrative cost in printing of examination scripts, hiring of personnel and transporting examination scripts and answer sheets to the required location. In most cases, e-assessment ensures impartial assessment, ensures efficiency in data storage (Onyibe, Nwachi-Ikpor, & Abdulhakim, 2015), and it checkmates all forms of examination malpractices.

Venkatesh, Morris, and Davis 2003 was considered in the present study. This theory focuses on user perception and acceptance of information technology. UTAUT consists of four main concept, Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC). These four main concepts are independent variables which influence dependent variables, behavioral and usage. Performance expectancy (PE) is the degree to which an individual believes that using the system will help him or her to attain gains in job performance. Effort expectancy (EE) is the degree of ease associated with the use of the system. Social Influence (SI) is the degree to which an individual perceives how important others believe he or she should use the new system. Facilitation expectancy (FC) are the degree to which an individual believes that an organizational and technical infrastructure exist to support use of the system. The first three are direct determinants of usage intention and behavior, and the fourth is the direct determinant of user behavior. Behavioral intention is seen as a critical predictor of technology use. UTAUT is useful for understanding computer education lecturers' perception and level of usage of e-assessment tools in assessing academic performance in public universities in Enugu state. UTAUT will also help to validate the reason why computer education lecturers decide whether to adopt e-assessment or not.

UTAUT

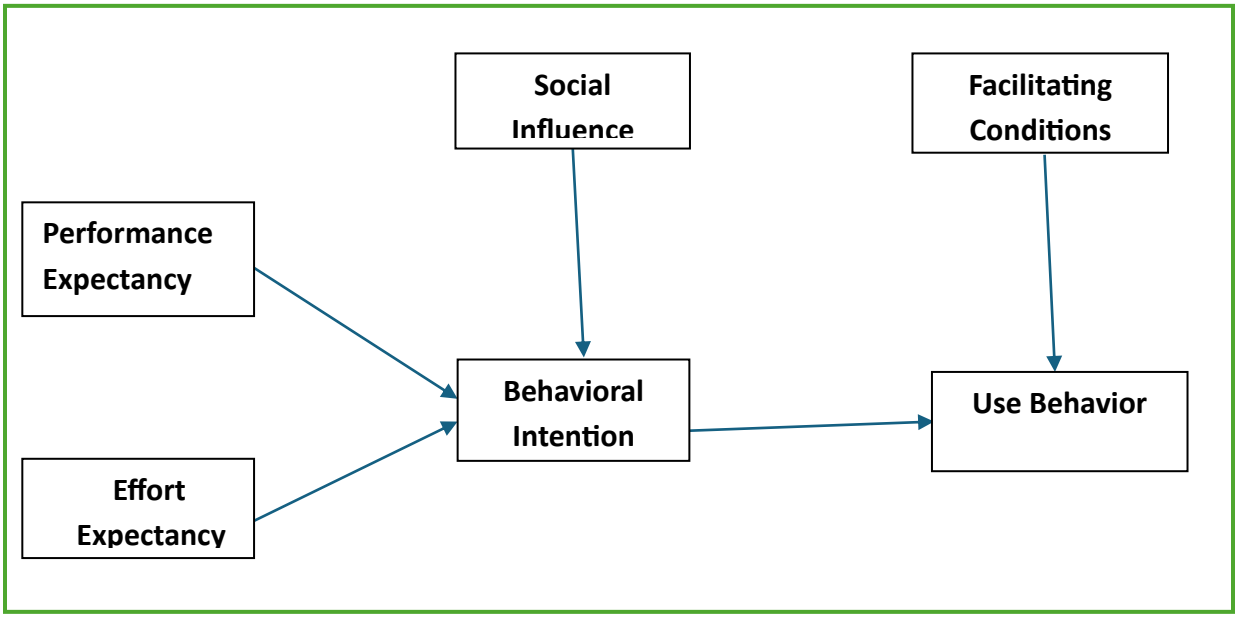

FIGURE 1: Unified Theory of Acceptance and use of Technology (UTAUT) mode
Source: Venkatesh et all., 2003

Purpose of the study

The main purpose of this study was to determine computer educators' perception of e-assessment in public universities in Enugu state.

Specifically, the study sought to ascertain;

1. The e-assessment platforms that are utilized by lecturers of computer education in assessing students' academic performance.
2. Computer educators' perception of the extent to which they possess the skills required to utilize e-assessment platforms in assessing students' academic performance.
3. The perceived challenges of e-assessment in universities in Enugu state.
4. The strategies that could be adopted for effective implementation of e-assessment in universities in Enugu state.

Research Questions

The following research questions will guide the study:

1. What e-assessment platforms are utilized by lecturers of computer education in assessing students' academic performance?
2. To what extent do computer educators possess the skills required to utilize e-assessment platforms in assessing students' academic performance?
3. What are the perceived challenges of e-assessment in universities in Enugu state?
4. What are the strategies that could be adopted for effective implementation of e-assessment in universities in Enugu state?

Methodology

The study adopted descriptive survey research design, which according to Nworgu (2015) refers to people or items that are studied by collecting and analyzing data from only a few people or items considered being a representative of the entire group. Survey design is therefore considered appropriate for this study because the researcher made use of data collected from the sample to determine computer educators' perception of e-assessment in public universities in Enugu state, Nigeria. The population of the study was 25 computer education lecturers; 19 from UNN and 6 lecturers from Enugu State University of Science and Technology (ESUT). The researcher was able to access 22 out of 25 computer education lecturers. There was no need for sampling of the respondents since the population was manageable. The instrument for data collection was a structured questionnaire termed "Perception of E-assessment in Public Universities in Enugu State" developed by the researcher. The questionnaire covered the four research questions that the study anchored on. It was made up of two sections (A and B). Section A contains the demographic information of the lecturers such as their gender and rank. Section B is made up 4 clusters. Cluster 1 consists of 16 item statements seeking to find out the extent of utilization of e-assessment platforms by Computer Education lecturers for assessing students' academic performance. Cluster 2, 3, and 4 were measured using 4-point Likert rating scales: Strongly Agree (SA)/Very High Extent (CHECK)/Highly Possessed (HP) = 4; Agree (A)/High Extent (HE)/Possessed (P) = 3; Disagree (D)/Low Extent (LE)/Slightly Possessed (SO) = 2; and Strongly Disagree (SD)/Very Low Extent/Not Possessed (NP) = 1. Responses for the level of utilization of e-assessment platforms were scored using two rating scales of 1 = Utilized and 2= Not Utilized.

The instrument for data collection was face validated by three experts for its credibility. Their corrections were appropriately effected in the final instrument that was used for data collection for the study. Also, Cronbach Alpha method was used to analyze the reliability of the instrument and the reliability coefficients of 0.87, 0.81 and 0.79 was obtained for clusters 2, 3, and 4 respectively, while the overall coefficient of 0.83 was obtained. The instrument for obtaining data for the study was administered by the researcher. Upon administering the instrument to the respondents, the researcher collected back the instrument on the spot from the respondents after they had responded to it. This was to ensure total return of the instrument to avoid the case of missing instrument. Furthermore, using SPSS version 20, the data collected for the study were analyzed descriptively – frequency count, percentage, mean and standard deviation. Interpretation of the data and decision point were carried out based on the real limit of numbers as follows: 0.50-1.49 = Strongly Disagree (SD)/Very Low Extent/Not Possessed (NP): 1.50 – 2.49 = Disagree (D)/Low Extent (LE)/Slightly Possessed; 2.50 – 3.49 = Agree (A)/ High Extent (HE)/Possessed (P); and 3.50 – 4.00 = Strongly Agree (SA)/Very High Extent (VHE)/ Highly Possessed (HP). For research question one, 50% and above indicated Utilized (U), while below 50% indicate Not Utilized (NU).

Presentation and Discussion of Results

The aim of this section is to present and discuss the results of the study on "Computer Educators Perception of E-assessment in Public Universities in Enugu State". These results are presented in tables based on the four research questions that guided the study.

Research Question 1: What e-assessment platforms are utilized by lecturers of computer education in assessing students' academic performance?

Table 1: Frequency and Percentage Count of E-assessment platforms utilized by Computer Education lecturers in Assessing Students Academic Performance. **(n=22)**

S/N	Items	U	*f*(%)	NU	*f*(%)
1	QuizPedia	5	(22.7)	17	(77.3)
2	WebPa	3	(13.6)	19	(86.4)
3	ClassMarker	7	(31.8)	15	(68.2)
4	ProProfs Quiz Marker	7	(31.8)	15	(68.2)
5	Moodle project	15	(68.2)	7	(31.8)
6	Google Forms quiz	19	(86.4)	3	(13.6)
7	QuestBase	5	(22.7)	17	(77.3)
8	Peerwise	7	(31.8)	15	(68.2)
9	Organized Supervised Computer Uesd Test	15	(68.2)	7	(31.8)
10	ESurv	7	(31.8)	15	(68.2)
11	Survey Monkey	13	(59.1)	9	(40.9)
12	ISpring	1	(4.5)	21	(95.5)
13	Poll Everywhere	3	(13.6)	19	(86.4)
14	Kahoot	1	(4.5)	21	(95.5)
15	Quizlet	5	(22.7)	17	(77.3)
16	Free Online Survey	11	(50.0)	11	(50.0)

Key: U = Utilized, NU = Not Utilized, f = frequency, % = Percentage

The results in Table 1 reveal the frequency and percentage count of e-assessment platforms used by Computer Education lecturers in assessing students' academic performance. The results show that in assessing the students, 5 (22.7%) of the lecturers utilize QuizPedia, while 17 (77.3%) do not utilize it. 3 (13.6%) use WebPa, while 19 (86.4%) do not utilize it. Class Marker is utilized by 7 (31.8%) of the lecturers utilize ProProf Quiz Marker, while 15 (68.2%) of the lecturers utilize Moodle Project, while 7 (31.8%) of them do not utilize it. The results further show that 19(86.4%) of the lecturers utilize Google form quiz, while 3 (13 6%) of them do not utilize it. 5 (22.7%) of the lecturers utilize QuestBase e-assessment tool while 17 (77.3%) do not utilize it. 7 (31.8%) of them utilize Peerwise, while 15 (68.2%) do not utilize it. 15 (68.2%) of the lecturers utilize Organized Supervised Computer Based Test, 7 (31.8%) of them do not utilize it. 13 (59.1%) of the lecturers utilize Survey Monkey, while 9 (40.9%) of them do not utilize it. The results also shows that iSpring e-assessment tool is used by only 1 (4.5%) of the lecturers, while 21 (95.5%) of them do not utilize it. 3 (13.6%) of the lecturers utilize Poll everywhere, while 19 (86.4%) of them do not utilize it. Kahoot is utilized by 1 (4.5%) of the lecturers, while 21 (95.5%) of them do not utilize it. 5 (22.7%) of the lecturers utilize Quizlet, while 17 (77.3%) of them do not utilize it. Free Online Surveys is utilized by 11(50.0%) of the lecturers, while 11(50.0%) of them do not utilize it. Therefore, Computer Education Lecturers in Enugu State utilize only the following e-assessment platforms in assessing their students: Moodle Project, Google forms quiz, Organized Supervised Computer Based Test, Survey Monkey, and Free Online Surveys; but they do not utilize QuizPedia, WebPa, ClassMarker, ProProfs Quiz Marker, QuestBase, Peerwise, esurv, iSpring, Poll Everywhere, Kahoot, and Quizlet for e-assessment.

Research Question 2: To what extent do Computer Education lecturers possess skills in utilizing the identified e-assessment platforms in assessing students' academic performance?

Table 2: Mean Analysis on the Responses of computer educators' perception of the extent to which they possess the skills required to utilize e-assessment platforms in assessing students' academic performance. **(n = 22)**

S/N	Item Statement	$\bar{x}$	SD	Remarks
	I can			
1	create both paragraph, short answer, multiple choice, and checkbox questions in an e-assessment platform like Google forms app	2.95	.95	P
2.	create linear scale and multiple-choice grid questions in an e-assessment like Google forms app	2.31	1.08	SP
3.	schedule exam/test date using the date and time features	3.27	1.03	P
4.	convert results of Students to pdf or excel format	2.45	.91	SP
5.	enroll students for a scheduled test/exam	2.95	.95	P
6.	send notifications to students regarding a scheduled test/exam	3.01	.57	P
7.	converts students results (scores) to charts for decision making on their level of performance	2.13	1.32	SP
8.	reshuffle questions in order to restrict cheating	2.77	1.34	P
9.	upload questions to e-assessment platforms	2.63	1.32	P
10.	send reports of student's performance to parents and wards	2.00	.94	SP
	Grand mean	2.66	.91	P

Key: $\bar{x}$ = mean; SD = Standard Deviation; P = Possessed, SP = Slightly Possessed

The results in Table 2 show the mean and standard deviation analysis of the responses of the respondents about the extent to which Computer Education lecturers possess the skills required to

make use of e-assessment platforms in assessing students' academic performance. From the results, the lecturers can: both paragraph, short answer, multiple choice and chechbox questions (M= 2.95, SD = .95); schedule exam/test date using the date and time features (M = 3.27, SD = 1.03); enroll students for a scheduled test/exam (M = 2.95, SD =.95); send notifications to students regarding a scheduled test/exam (M = 3.04, SD = 57); reshuffle questions in other to restrict cheating (M = 2.77, SD = 1.34); and upload questions to e-assessment platforms (M = 2.63, SD = 1.32). However, the lecturers possess slight skills in creating linear scales and multiple-choice grid questions in an e-assessment tool (M = 2.31, SD = 1.08); converting students results to pdf or excel format (M= 2.45, SD = 91); converting students results (scores) to charts for decision making on their level of performance (M= 2.13, SD = .97). The grand mean and standard deviation scores of (M= 2.65, SD = .94), reveal that Computer Education Lecturers possessed the skills required to use e-assessment platforms to assess students' academic performance in public universities. However, none of the lecturers possessed the skills to a high extent as shown in the table and grand mean which is less than 3.50 benchmark for highly possessed scale.

Research Question 3: What are the perceived challenges of e-assessment in universities in Enugu state?

Table 3: Mean Analysis of the Perceived Challenges in Utilizing E-assessment in Public Universities in Enugu State **(n= 22)**

S/N	Item Statement	x̄	SD	Remarks
1.	Poor network connectivity affects me in using e-assessment to access my students	3.86	.46	SA
2.	I am scared of assessing my students online because exam questions and students' results can easily be hacked by unauthorized users	2.13	.94	D
3.	I lack the skills required to design and conduct e-assessment for my students	3.22	.75	A
4.	Lack of sufficient facilities like laptops, desktops, furniture, etc., in my school discourages from adopting e-assessment	3.13	.83	A
5.	My experience with e-assessment shows that students lacked the internet skills required to take exams online which often affects their academic performance.	3.40	1.00	A
6.	Inability of the government to provide funds to build and equip more ICT laboratories affect my interest in adopting e-assessment in my school.	2.90	1.15	A
7.	Many lecturers find it very difficult to use newer e-assessment platforms to enroll students and manage their results	2.90	1.23	A
8.	Due to constant disruption of power supply in my country, I see the adoption of e-assessment as a waste of time	3.13	.94	A
9.	I don't implement e-assessment because many students lack 4G smartphones for quick internet access	2.72	.55	A
10.	Inability of students to purchase and subscribe data for internet use discourages me from subjecting them to e-assessment	2.95	.72	A
11.	I am not interested in e-assessment because almost all the lecturers in my institution are not ready to adopt e-assessment	2.13	.99	D
12.	Inability of my school to provide technical support for effective use of e-assessment tools for teaching and learning discourages me from adopting e-assessment	3.09	.92	A
13.	`Non implementation of e-assessment strongly affects the adoption of e-assessment in my institution	2.95	.84	A
14.	Lecturers are not regularly and adequately trained on the use of e-assessment tools for taking test/exams	2.86	.77	A
	Grand Mean	2.96	.69	A

Key: x̄ = mean; SD = Standard Deviation; SA = Strongly Agree, A = Agree, D = Disagree

The results in Table 3 represent the mean and standard deviation analysis of the responses of the respondents on the challenges that computer education lecturers face in using e-assessment

platforms in assessing students' academic performance in public universities in Enugu state. The results in the table show that respondents strongly agreed with the item 1 which means that poor network connectivity affects the lecturers in using e-assessment to assess the students (X = 3.86, SD = 0.46). Furthermore, items 3,4,5,6,7,8,9,10,11,12,13, and 14 had their mean scores ranged from 2.72 to 3.40 which are within the real limit of 2.50 and 3.49 indicating that the respondents rated the items "Agree". However, the respondents disagreed with items 2 (X = 2.13, SD = 0.94) and 11 (X= 2.13, SD = 0.99). The grand mean scores of (X = 2.96, SD = 0.69) indicates that there are numerous challenges that affect the use of e-assessment tools in assessing students' academic performance by computer education lecturers in public universities in Enugu state.

Research Question 4: What are the strategies that could be adopted for effective implementation of e-assessment in universities in Enugu state.

Table 4: Mean Analysis of the Strategies that could be Used to Tackle the Challenges faced by Computer Education Lecturers in Using E-assessment in Universities in Enugu State. **(n = 22)**

S/N	Item Statement	$\bar{x}$	SD	Remarks
1.	The university administration should improve its partnership with service providers to improve the network connectivity in school.	3.77	.75	SA
2.	The school administration should employ more technicians that will maintain the computer systems to avoid malfunctioning during exam.	2.95	.72	A
3.	The school administration should provide enough facilities like laptops, desktops, furniture, for e-assessment.	3.45	.73	A
4.	The department should organize yearly orientation exercises to train both students And staff on the best practices involved in the use of e-assessment tools for academic assessment.	3.27	.88	A
5.	More ICT laboratories should be built to ensure that e-assessments done at once across the students	3.68	.47	SA
6.	Power supply should be improved in the schools to enhance e-assessment practice	3.77	.52	SA
7.	The school administration should provide a suitable WIFI facility in every part of the school to allow students to key into e-quizzes from anywhere they are within the school premises.	3.68	.71	SA
8.	The university administration should adopt e-learning so as to facilitate the adoption of e-assessment.	3.72	.55	SA
	Grand Mean	3.53	.54	SA

Key: $\bar{x}$ = mean; SD = Standard Deviation; SA = Strongly Agree, A = Agree, D = Disagree

The results in Table 4 show the Mean and standard deviation analysis of the responses of the respondents about strategies that could be used to tackle the challenges faced by Computer Education Lecturers in using E-assessment platforms in assessing students' academic performance in Public Universities in Enugu State. The results in the table show that respondents strongly agreed with items 1, 5- 8 since the mean scores of their responses ranged between 3.68 and 3.77.

The rest of the items had their mean scores ranged between 2.95 and 4.45 indicating that the respondents rated the items "Agreed". Furthermore, the grand mean scores of (X = 3.53, SD = .54) indicates that in as much as there are numerous challenges that affect the use of e-assessment tools in assessing the student's academic performance by the Computer Education lecturers in public universities in Enugu state, there are many strategies that could be used to tackle these challenges however.

Discussion of the Findings

The study found that among the sixteen listed e-assessment platforms, Computer Education lecturers in the public universities Enugu state only utilize five of them (Moodle project, Google forms, quiz, Organized Supervised Computer Based Test, Survey Monkey, and Free Online Surveys). This is in agreement with Opiwiun(2014) and Doduna, Panaiteb, Seghedinc, Nagild, Dusae, Nestianf, and Slatineanug(2015) whose studies revealed that Moodle is the major online LMS used more often by teaching staff and students in Romania. However, they do not make use of eleven e-assessment tools which are: QuizPodia, WebPa, ClassMarker, ProProfs Quiz Marker, QuizBase, Peerwise, eSurv, iSpring, Poll, Everywhere, Kahoot, and Quizlet. This is an indication that the lecturers are not prepared to face any educational global emergency period such as COVID-19 and Ebola since their pace of migration to remote learning using online apps and assessment platforms is slow. This is the line with Klan, Hasan, and Clement (2012) who found out that teachers need to possess a positive attitude towards the use of technology for its successful implementation in teaching and learning; while Kim (2008) revealed faculty resistance as one of the major causes of low implementation of technology in schools.

The findings of the study also revealed that computer education lecturers possessed the skills required to use e-assessment platforms to assess students' academic performance in the public universities surveyed. This finding is in agreement with Nwangwu and Azih (2015) who found that computer education lecturers possess skills necessary for integration of e-learning in their department. However, the present study revealed that none of the lecturers possessed the e-assessment utilization skills to a high extent as shown in table 4; and the grand mean (X= 2.65) which is less than 3.50 benchmark for highly possessed scale. Also, Coman, Tim, Mesasan-Schmitz, Stancia, and Bulzarca (2020) stated that this might happen due to the lack of teachers experience in using E-assessment and due to the short time in which they had to adapt their teaching style to the new conditions. The study also revealed that there are many challenges that affects the use of e-assessment tools by lecturers in assessing students in the public universities surveyed. Some of these challenges are poor network connectivity, hacking of e-learning/e-assessment platforms by unauthorized users, lack of sufficient facilities like laptops, desktops, furniture, etc., poor funding to build more ICT laboratories among others. The study is in line with Azor and Ogwu (2019), Nwangwu (2011), Jaashan (2020) and Mukhtar, Javed, Arooj, and Sethi (2020), who found that weak network connection, poor power supply, multinational issues, inadequate ICT skills, integrity of examination managers, adaptability, software factors, among others pose as constraints to effective utilization of digital technologies like e-assessment in institutions of higher learning. This study also revealed that although there are many challenges that are faced by computer education lecturers in using e-assessment platforms to assess students' academic performance, there are strategies that could be employed in adopting them for academic assessment as perceived by the respondents. Thus, this study revealed that the university administration should increase its' partnership with service providers to improve the network connectivity in the school. In addition, more ICT laboratories should be built for use in e-assessment as well as improving power supply and provision of WiFi facilities to every part of the school to allow to allow the students to seat for their e-quiz and e-exam. The study is in line with Kim (2008), Daramola (2017), Azor and Ogwu (2019), Muikhtar, Javed, Arooj and Sethi (2020)

and Ogba and Nwangwu (2021), who recommended the way forward in adopting and implementing ICT for teaching and learning in schools.

Conclusion

This study investigated computer educators' perception of e-assessment in public universities in Enugu state. The findings revealed that Google forms quiz was mostly utilized by the lecturers for e-assessment. Findings of the study also revealed that computer education lecturers possess skills in utilizing e-assessment platforms in assessing students' academic performance but not to high extent. Poor network connectivity, hacking of e-assessment platforms by unauthorized users, lack of sufficient facilities like laptops, desktops, furniture, poor funding to build more ICT laboratories are among the perceived challenges to effective implementation of e-assessment by lecturers in universities in Enugu state. On the way forward, findings revealed that provision of uninterrupted power supply, partnering with Internet Service Providers (ISPs) to provide quality and fast network connectivity, and provision of functional WiFi in every part of the school will go a long way in improving and sustaining effective utilization of e-assessment tools and platforms in assessing students' academic performance by computer education lecturers in public universities in Enugu state.

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