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EMPIRICAL EVALUATION OF LECTURERS' AWARENESS AND COMPETENCE ON DIGITALIZATION OF ASSESSMENT

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ABSTRACT

Digitalization of assessment is the introduction of digital technologies into the business of assessment. This study investigated lecturers' awareness and competence on digitalization of assessment in Alvan Ikoku Federal University of Education, Owerri, using a survey research design. The population was made up of all the lecturers in Alvan Ikoku Federal University of Education, Owerri, totaling 801. The number of sampled lecturers used in the study was 200 using accidental sampling method. This comprised 92 male and 108 female lecturers. In line with the aim of the study, two research questions and two hypotheses guided the study. The instrument for data collection was the researcher's adopted structured questionnaire of the 4-point scale Likert format. The research questions were answered using mean (that is comparing the mean response on each item by the mean of the scale: 2.5) while the hypotheses were tested using t-test at 5% level of significance. The findings indicated that both male and female lecturers independently were fully aware of digitalization assessment. Furthermore, their digital competence and skills were generally poor. This study recommended among others, that lecturers should be motivated and encouraged to develop the desire to use digital technologies relevant to educational assessment in the 21st century. This study contributed to understanding of digital assessment incompetence in Nigerian high institutions, advocating for robust approach towards curbing the malady.

Keywords: Digitalization, Assessment, Digital Technology, Digital Competence,

Introduction

Assessment is part and parcel of teaching and learning process. It involves collecting information to understand individual progress and provide feedback to support learning (Ohiri & Ihenacho, 2023). Assessment is universally recognised as one of the most important and powerful elements of an educational experience. Assessment sits at the heart of the learning process, as it provides observable evidence of learning, determines students' progress and demonstrates understanding of the curriculum. It is used to ascertain learner's academic outlook. It provides a structure on which educational goals may be set and students' academic progress showcased and monitored. According to Yessingeldinov *et al.* (2023), assessment is an essential component of teaching and learning as it allows teachers, policymakers and other stakeholders to be informed about students' achievements and to make decisions based on the results and evidence. They went further to assert that assessment helps to harmonize lesson plans and to model activities for students to meet their needs. As a result, assessment should be integrated meticulously into teaching and learning methods in order to identify problems with the view of solving them. It helps the school to strengthen learning across the curriculum and helps teachers enhance their skills and judgements

It is imperative to acknowledge that the scope of assessment should extend beyond conventional pencil-and-paper tests, and encompass the integration of technology to provide efficient and immediate access to students' progress data and enabling prompt intervention (Yessingeldinov *et al.*, 2023). The biggest problem pointed out by Park *et al.* (2021) regarding paper-written tests is that it is difficult to provide sufficient feedback to students due to the structural factor of the overwhelmingly small number of evaluators compared to the number of students. Technological advancements have continued to offer a wide range of potential benefits to the teaching and learning process and these benefits have also extended to the online assessment of learning (Ezeugo, 2021). The current reliance on computers to facilitate teaching and learning has led to increased interest in facilitating assessment through online means (Ramgovind & Pramjeeth, 2023). These changes have given rise to digitalized assessment system. Therefore, it is time that those in education catch up with the rest of society and move into the digital world especially when considering assessment (Campbell, 2010). Digital technology is used to support and simplify the process of assessment and reporting, effectively informing improvements in learning and teaching, based on data that can be accessed and shared where required (Education Scotland, 2022). Bucăţa & Tileagă (2024) opined that digital technology-based tools are a top priority in this regard as they offer a number of benefits such as greater flexibility, accessibility and interactivity.

In the contemporary world, one can no longer imagine education without digitalization. Digitalization of assessment is the introduction of modern technologies into the business of assessment. Digital assessment refers to all the evaluation tasks based on technology in which designing, achieving performance and giving feedback are mediated by digital technologies (Grosseck *et al.*, 2024). An assessment is digitalized if the students come into contact with digital processing media during the performance of the assessment. This advancement implies not only the installation of modern technological equipment or software, but also fundamental changes in approaches to assessment culture. Timmis *et al.* (2016) saw digitalization of assessment as the use of digital technologies for the purposes of enhancing formal or informal educational

assessment for both formative and summative purposes. The term digitalized assessment covers all examination scenarios in which at least the proper processing of the examination tasks, including the submission of results, occurs in partially or fully digital form.

High institutions must adapt to the digital transformation in order to stay relevant and remain an essential component of this transformation over time (Bucăţa & Tileagă, 2024). This implies that lecturers in high institutions must welcome new technologies, incorporate them into their undertakings and assessment methods, and cultivate the essential abilities and knowledge to use them well. The use of digitalized assessment for formative and summative purposes has become a major component of assessment reforms in many educational systems due to its potentials to provide important data for teacher-decision making to improve learning and inclusive classroom. In contrast to maintaining of physical records for assessment, the use of digital technology potentially improves efficiency of data management such as marking, moderating and storing information by helping teachers use their time and resources better; offers more environmentally friendly administration of assessment (Priyanka, 2021). Gasanova *et al.* (2021) argued that the higher education sector has increased interest in digital assessment and feedback, at a time when there is a growing call for teaching and learning to be digitalized as a result of the outbreak of the Covid-19 pandemic, and the globalization of higher education. When the Covid-19 pandemic hit the world in early 2020, digital assessments suddenly came into the spotlight as high institutions were expected to provide lecturers and students with the possibility to continue assessing and advancing their teaching and learning even under new and difficult circumstances (Smith & Cekiso, 2023). According to Campbell (2010), the digitization of the assessment process offers the possibilities to drive learning and education in positive directions through the capture of authentic student work in both standard and non-standard forms, and to assess students more efficiently, reliably and in different ways. Digital assessment of students enhances the learning experience and makes learning more dynamic. According to Priyanka (2021), the benefits of digital assessment include high security, better accuracy, accelerated results, improved credibility and compliance, safe record-keeping. Properly automated assessment (e.g., AI-based assessment, automated feedback systems, adaptive learning tools based on test scores) will make grading easier and give more efficient feedback to students, thus improving the learning experience of students and facilitating teachers' work (Williams, 2023).

The effective digitalized assessment programmes have been adopted in different countries in the world. In Tanzania, there is education training policy called ICT Competency Standards for teachers which guide instructors to integrate ICT into curriculum and assessment in order to meet the national development needs which are consistent with the 21st century skills (United Republic of Tanzania in Ndibalema, 2021). According to Nwafor *et al.* (2023), we have the Lifelong Learning Strategy in Estonia 2020 and the Good School Reform in Italy 2015. However, the use of this mode of assessment has not been fully realised in Nigerian high institutions, especially in Alvan Ikoku Federal University of Education, Owerri. The hesitancy to seriously adopt digitalized assessment at the high institution's level is

an indication that educational stakeholders and lecturers at large may have varied perceptions about digitalized assessment especially as it relates to awareness and competence. Nwachukwu *et al.* (2020) revealed in their study that secondary school teachers' level of digital awareness, competence and skills were generally low. Nwafor *et al.* (2023) observed that most teachers avoid the use of modern technological pattern in instructional delivery as they are still connected to traditional method. The challenge could be that they lack the required skills. The assumed lack of digital competence among lecturers has generated a lot of assertions. Nwafor *et al.* (2023) went further to assert that factors such as self-efficacy, gender, qualification, availability of infrastructure, motivation for utilization, among others were the reasons for non-use of digital tools. Appiah and van Tonder (2018) saw challenges which include security issues, lack of institutional e-assessment policies, lack of preparation and experience among instructors to control the e-assessment systems to meet the learning needs for all. According to International Telecommunication Union (2020), one of the main barriers to greater uptake is lack of skills required to use digital products, services and content, particularly among populations in poor countries and among marginalized groups. Priyanka (2021) outlined potential barriers for the adoption of technology enhanced assessment practices to include

i. User identity verification and security issues
ii. Lack of proper training for the staff and sufficient time for rethinking assessment strategies and how to use new technologies, from a technological and pedagogical perspective
iii. Lack of policy leadership and system-wide imperatives
iv. Lack of suitable physical spaces for technology enhanced assessment, which has not developed for the needs and purposes of technology enhanced assessment.

Lecturers' digital competence is an important condition for the effective application of digital technology to assessment. Although several digital competence tools have been designed, adjustments to digital education and pedagogical or professional components are still scarce (Tzaflkou *et al.*, 2023). Digital competence stands as an important challenge for the educational systems of the new century. Understanding that this concept cannot be reduced to a single component, nor can it be assessed with just one type of test is the real crucial point (Calvani1 *et al.*, 2016). To determine the prospects for such support, it is important to find out what level of digital competence teachers have, how they assess it, and whether they can develop their digital skills on their own (Ovcharuk & Ivaniuk, 2022)

Based on the foregoing, the present study assessed the current status of the lecturers' awareness and competence on the use of digital technology in the assessment of students' instructional achievement outcomes, providing appropriate recommendations to stakeholders. Digital competence consists of being able to explore and face new technological situations in a flexible way, to analyze, select and critically evaluate data and information, to exploit technological potentials in order to represent and solve problems and build shared and collaborative knowledge, while fostering awareness of one's own personal responsibilities and the respect of

reciprocal rights/obligations (Calvani1 *et al.*, 2016).

Purpose of the Study

The study determined lecturers' perceptions on the use of digital technologies in the assessment of students in Alvan Ikoku Federal University of Education, Owerri. Specifically, the study determined the:

- lecturer level of awareness on digitalization of assessment in AIFUE Owerri.
- lecturers' level of competence on digitalization of assessment in AIFUE Owerri.

Research Questions

The following research questions were raised to guide the study.

1. What is the level of lecturers' awareness on the use of digital technologies in the assessment of their students?
2. What is the level of lecturers' competence on the use of digital technologies in the assessment of their students?

Hypotheses

In line with the objectives of this study, the following hypotheses were postulated:

1. There is no significant difference between the mean ratings of male and female lecturers on their level of awareness on the use of digital technologies in the assessment of their students
2. There is no significant difference between the mean ratings of male and female lecturers on their level of competence on the use of digital technologies in the assessment of their students

Research Method

The design adopted for the study was a survey method. The appropriateness of the design stemmed from the postulation of Nworgu (2015), that survey research design is one in which a group of people or items is studied by collecting and analyzing data from only a few people or items considered to be a representative of the entire group. This design was considered appropriate because only a part of the population was studied and findings were used to generalize for the entire population. The area of this study was Alvan Ikoku Federal University of Education, Owerri. The institute has six Faculties, with 25 academic Departments. The population of the study consisted of 801 Lecturers. The sample size for the study was 200 lecturers representing 25% of the population. This comprised 389 male and 412 female lecturers. The sample was obtained using accidental sampling method across the six Faculties.

The instrument for data collection was the researchers' adopted structured questionnaire of the 4-point scale Likert format of Strongly Agree (SA) = 4 points, Agree (A) = 3 points, Disagree (D) = 2 points and Strongly Disagree (SD) = 1 point, titled: Assessment of lecturers' perception on digitalization of assessment in Alvan Ikoku Federal University of Education, Owerri (ALPDA-ALVAN).

ALPDA-ALVAN had three sections. Section A was designed to get information on demographic variables from the lecturers. Section B contained 10 items constructed to generate information on the lecturers' awareness of digitalization of assessment and Section C contained 10 items constructed to generate information on lecturers' competence on digitalization of assessment. Experts

opinions were sought to ensure content validity of the instrument. The instrument was first administered to 12 lecturers who were not involved in the study. Using Cronbach Alpha, the coefficient of reliability obtained was 0.83. The research questions were answered using mean (that is comparing the mean response on each item by the mean of the scale: 2.5) while the hypotheses were tested using t-test at 5% level of significance.

Presentation of Results

The collected data were analyzed and the results were presented in Tables and based on the stated research questions and hypotheses

Research Question One: What is the level of lecturers' awareness on the use of digital technologies in the assessment of their students?

The frequency mean ratings of the lecturers' level of awareness on the use of digital technologies on the assessment of students were presented in Table 1.

Table 1: **Lecturers' level of awareness on the use digital technologies**

S/N	Items	SA	A	D	SD	Mean	Decision
1	Digital technology-based tools offer a number of benefits such as greater flexibility, accessibility and interactivity in the assessment of students	84	70	31	15	3.11	Agreed
2	Digitalized assessment provides lecturers with immediate feedback	90	68	25	17	3.15	Agreed
3	Assessment methods are boosted with the use of accessible digital tools and platforms	73	67	36	24	2.94	Agreed
4	Digital technology can be used to support and simplify the procedure of assessment	87	71	29	13	3.16	Agreed
5	Digital technology can be used in monitoring of students' performances	80	74	27	19	3.07	Agreed
6	Digitalized assessment provides an unbiased grading	84	66	29	21	3.06	Agreed
7	Digitalized assessment enhances self-learning and problem-solving skills	74	62	35	29	2.90	Agreed
8	The use digital technologies support learners' self-regulated learning	68	72	34	26	2.91	Agreed
9	Digitalized assessment improves Learners' digital competence	79	65	35	21	3.91	Agreed
10	Digital technologies can create, select, carefully examine and interpret digital evidence on learner activity, performance and progress.	69	61	40	30	2.84	Agreed
	Grand Mean					**3.10**	**Agreed**

Source: Adopted from Education Scotland (2021)

Table 1 shows that all the items had mean score greater than 2.5. The implication is that lectures were fully aware of the use digital technologies in the assessment of academic outcome of students.

Research Question Two: What is the level of lecturers' competence on the use of digital technologies in the assessment of their students?

The frequencies mean ratings on the lecturers' level of competence on the use digital technologies in the assessment of students were presented in Table 2.

Table 2 : **Lecturers' level of competence on the use digital technologies**

S/N	Items	Always	Sometimes	Rarely	Never	Mean	Decision
1	As a lecturer, I use digital technologies to try out new ways of assessment	68	59	43	30	2.82	Agreed
2	I use digital tools to identify and analyze the needs and characteristics of my students	35	41	59	65	2.23	Disagreed
3	I use digital communication and collaboration technologies to interact and collaborate with my students	41	41	56	62	2.30	Disagreed
4	I use digital technologies to provide effective feedback.	43	47	53	57	2.38	Disagreed
5	I use information from digital monitoring and evaluation tools to continuously adapt my teachings using digital technologies	32	47	53	68	2.21	Disagreed
6	I use digital evaluation tools to evaluate students, my teaching, educational resources, devices, and infrastructure	36	41	58	65	2.24	Disagreed
7	I use digital diaries, blogs, concept mapping, mind mapping, digital tools for recording thoughts, voice, photos, videos, self-assessment, etc. to record my thoughts, feelings, behavior, and performance as well as those of my students	37	40	55	68	2.23	Disagreed
8	I use digital assessment technologies to periodically assess the students' progress	35	37	66	62	2.22	Disagreed
9	I use digital monitoring tools, dashboards and learning analytics to monitor students' activities and performance	42	47	51	60	2.35	Disagreed
10	I use search engines, digital repositories, databases, and test banks to explore, find, and evaluate existing educational resources	39	40	58	63	2.27	Disagreed
	Grand Mean					**2.32**	**Disagreed**

Source: Adopted from Tzaflkou *et al.* (2023)

Table 2 shows that all the items had mean score less than 2.5 (except Item 1) which is the mean value of the four-point scale. The grand mean is also below 2.5. The implication is that lecturers were not competent enough to incorporate digital technologies in the assessment of the academic outlook of their students.

Hypothesis One: There is no significant difference between the mean ratings of male and female lecturers on their level of awareness on the use of digital technologies in the assessment of their students

Table 3 presented the frequency mean ratings on the lecturers' level of awareness on the use digital technologies in the assessment of students as perceived by male and female lecturers in Alvan Ikoku Federal University of Education, Owerri.

Table 3: **Mean Ratings on Lecturers' Level of Awareness on the use of Digital Technologies According to Gender**

S/N	Items	Male Mean	Female Mean
1	Digital technology-based tools offer a number of benefits such as greater flexibility, accessibility and interactivity in the assessment of students	3.22	3.01
2	Digitalized assessment provides lecturers with immediate feedback	3.27	3.05
3	Assessment methods are boosted with the use of accessible digital tools and platforms	3.06	2.84
4	Digital technology can be used to support and simplify the procedure of assessment	3.17	3.14
5	Digital technology can be used in monitoring of students' performances	3.09	3.05
6	Digitalized assessment provides an unbiased grading	3.21	2.93
7	Digitalized assessment enhances self-learning and problem-solving skills	3.04	2.78
8	The use digital technologies support learners' self-regulated learning	2.90	2.91
9	Digitalized assessment improves Learners' digital competence	3.00	3.01
10	Digital technologies can create, select, carefully examine and interpret digital evidence on learner activity, performance and progress.	2.80	2.87
	Grand Mean	**3.07**	**2.95**

From Table 3, the male and female lecturers were of the same opinion on their awareness on the application of digital technologies in the assessment of students since their average ratings were above 2.5 (cut off point)

In Table 4, the t-test of independent samples for comparing male and female lecturers' mean responses on the awareness of digitalization of assessment is being presented.

Table 4: **The t-Test of Independent Samples for Comparing Male and Female Lecturer's Mean Responses on their Awareness of Digitalization of Assessment**

Variables	Males Mean Score (SD)	Females Mean Score (SD)	Mean Score Difference (95% CI)	t-Statistic	*p*-value
Gender	3.076 (0.149)	2.959 (0.111)	0.1170 (-0.0078, 0.2418)	1.99	0.064

As observed in Table 4, there was no significant difference between male and female lecturers' mean responses on their awareness on the application of digital technologies in the assessment of students, since the *p*-value (0.064) is greater than the level of significance (0.05). Thus, the observed differences in the lecturers' perceived responses were not significant.

Hypothesis Two: There is no significant difference between the mean ratings of male and female Lecturers' level of competence on the use of digital technologies in the assessment of their students.

Table 5 presented the frequency mean ratings on the lecturers' level of competence on the use of digital technologies in the assessment of students as perceived by male and female lecturers in Alvan Ikoku Federal University of Education, Owerri.

Table 5: **Mean Ratings on Lecturers' Level of Competence on the use Digital Technologies According to Gender.**

S/N	Items	Male Mean	Female Mean
1	As a lecturer, I use digital technologies to try out new ways of assessment	2.93	2.73
2	I use digital tools to identify and analyze the needs and characteristics of my students	2.19	2.25
3	I use digital communication and collaboration technologies to interact and collaborate with my students	2.31	2.29
4	I use digital technologies to provide effective feedback.	2.40	2.36
5	I use information from digital monitoring and evaluation tools to continuously adapt my teaching using digital technologies	2.19	2.23
6	I use digital evaluation tools to evaluate students, my teaching, educational resources, devices, and infrastructure	2.25	2.23
7	I use digital diaries, blogs, concept mapping, mind mapping, digital tools for recording thoughts, voice, photos, videos, self-assessment, etc. to record my thoughts, feelings, behavior, and performance as well as those of my students	2.18	2.26
8	I use digital assessment technologies to periodically assess the students' progress	2.25	2.20
9	I use digital monitoring tools, dashboards and learning analytics to monitor students' activities and performance	2.38	2.33
10	I use search engines, digital repositories, databases, and test banks to explore, find, and evaluate existing educational resources	2.28	2.26
	Grand Mean	**2.33**	**2.31**

From Table 5, the male and female lecturers were of the same opinion on their competence regarding the application of digital technologies in the assessment of students. Their grand mean ratings were below 2.5 (cut off point). In Table 6, the t-test of independent samples for comparing male and female lecturers' mean responses on the competence of digitalization of assessment was presented.

Table 6: **The t-Test of Independent Samples for Comparing Male and Female Lecturer's Mean Responses on their Competence on the use of Digital Technologies in the Assessment of their Students**

Variables	Males Mean Score (SD)	Females Mean Score (SD)	Mean Score Difference (95% CI)	t-Statistic	*P*-value
Gender	2.336 (0.222)	2.314 (0.154)	0.0220 (-0.1592, 0.2032)	0.26	0.800

As observed in Table 6, there was no significant difference between male and female lecturers' mean responses on their competence regarding the application of digital technologies in the assessment of students, since the *p*-value (0.800) is greater than the level of significance (0.05). Thus, the observed differences in the lecturers' perceived responses were not significant.

Discussion of Findings

The study investigated the awareness and competence on digitalization of assessment among lecturers of Alvan Ikoku Federal University of Education, Owerri. The findings of this study revealed that lecturers' level of awareness on the use of digital technologies in the assessment of students was general moderate based on items measured. This result is not in consonance with the results of the research conducted by Nwachukwu *et al.* (2020) where they revealed that secondary school teachers' level of digital awareness was generally low. Regarding gender differences, the non-significant finding between male and female lecturers' view suggests that both genders generally share

similar views on their awareness of digitalization of assessment.

Contrarily, this study revealed that the digital competence level of lecturers was poor. This result happened to be in agreement with Nwachukwu *et al.* (2020) where they revealed that secondary school teachers' level of digital competence was generally low. This result happened not to be in agreement with the results of the research conducted by Gasanova *et al.* (2021) where they maintained that the higher education sector has increased interest in digital assessment and feedback. The resultant implication of this result is that the pace of development and utilization of digital tools for educational purposes including assessment of students' instructional achievement outcomes is still very low in Nigerian tertiary institutions. Regarding gender differences, the non-significant finding between male and female lecturers' view suggests that both genders generally share similar views on their competence level on digitalization of assessment.

Conclusion

Based on the findings of this study, lecturers displayed moderate level of awareness and poor level of competence on the use of digital technologies in the assessment of students' instructional achievement outcomes. The overall implication of the findings in this study suggests that the adoption of digitalization of assessment in most high institutions still lags behind. The results did not indicate divergent perceptions between male and female lecturers. Hence, gender should not be a factor on digital technology awareness and acquisition of skills therein. As a result of practical implications to this study, high institutions must welcome new technologies, incorporate them into their undertakings and assessment methods, and cultivate the essential abilities and knowledge to use them well.

Recommendations

Based on the findings and conclusion of this study, the following recommendations were made:

1. Lecturers should be motivated and encouraged to develop the desire to use digital technologies relevant to educational assessment in the 21st century
2. Information and communication technology laboratories should be functional and well equipped with modern digital technologies for teaching and learning in all the high institutions in Nigeria.
3. Digital competence should be a core skill for all educators and should be embedded in teacher education programmes.

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