



Assessing Lecturers' Knowledge, Literacy and Readiness for AI-Powered E-Assessment and Evaluation in Selected Nigerian Universities

^aBanjo Moshood Lawal* , ^bOluwagbemiga Samson Ajayi 

^{a,b}Unicaf University, Larnaca, Cyprus

Abstract

AI-powered e-assessment is attracting growing interest in higher education, yet little attention has been paid to lecturers' knowledge, digital literacy, and readiness to implement and evaluate these systems in Nigerian federal universities. This study assessed these factors among lecturers in selected Nigerian universities using a descriptive survey design. The population comprised approximately 100,000 lecturers in federal universities, from which 121 lecturers were selected through a multistage sampling process involving 12 states and 12 universities. Data were collected using a researcher-developed questionnaire with acceptable reliability coefficients for knowledge ($\alpha = .77$), literacy ($\alpha = .81$), and readiness ($\alpha = .83$). Descriptive statistics (percentages and mean ratings) were used to answer the research questions, while two-step hierarchical multiple regression tested the hypothesis at the .05 significance level. Findings showed that lecturers possessed moderate knowledge of AI-powered e-assessment and moderate digital literacy. Their readiness to adopt AI-powered e-assessment and evaluation tools ranged from moderate to high. Knowledge and digital literacy jointly predicted readiness; however, knowledge emerged as the only significant predictor, with digital literacy contributing no significant additional variance. The study concludes that Nigerian university lecturers have moderate knowledge and digital literacy regarding AI-powered e-assessment, alongside a generally moderate-to-high readiness for adoption.

Keywords: AI-Evaluation, AI-Powered E-Assessment, AI Readiness, Digital Literacy, Knowledge of AI

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* Corresponding author.

Unicaf University, Larnaca, Cyprus, e-mail: b.lawal@faculty.unicaf.org

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INTRODUCTION

Artificial Intelligence (AI) is not simply a push in the right direction for education, it has changed the way it is taught, learned, and assessed. Consider the possibilities of an AI-Powered E-Assessment (AIE) system: automatic scoring that does not get tired, adaptive testing that adjusts as it goes, and feedback that is intelligent enough to respond in real time (Gardner et al., 2021). These tools are powered by machine learning, natural language processing, and data analytics, which help to quickly process student responses and identify key insights. This streamlines the workload for educators and can even guide their teaching to improve learning outcomes (Owan et al., 2023; Flores & Chiappe, 2025; Kumar, 2025). But the catch is that if the people running the show, the academic staff, are not equipped with the knowledge, digital literacy and readiness to make effective use of these systems, then none of it will work (Lawal & Afolabi, 2024).

What then is knowledge in this instance? In the case of lecturers, it means whether they truly have an understanding of concepts, tools, and how AI can be applied practically in assessment and evaluation. It is not enough to know about such tools, however – it is important to be able to apply that knowledge to design an assessment, to run it correctly, and to interpret the findings correctly (Lawal, Afolabi & Ajayi, 2017; Gheda et al., 2025). According to Mah and Gross (2024), there is strong and consistent digital literacy levels among lecturers in well-resourced educational systems. However, research by Eguagie (2025) suggests that the level of knowledge of educators about educational technologies plays an important role in their ability to incorporate educational technologies meaningfully into pedagogical practices. Since the lecturers have less knowledge of AI functionalities or AI underlying principles, they are less likely to adopt or trust AI-driven assessment tools (Owan et al., 2023; Cosgun, 2025). Such gap may negatively influence successful application of AI tools.

The application of AI tools in the assessment process cannot be exhaustibly discussed without references to digital literacy. Digital literacy speaks of lecturers' proficiency in the use of digital tools, ability to interpret digital information, and effectively apply technology in addressing professional responsibilities. It involves being proficient in the use of technology, application of cognitive strategies, and display of socio-emotional competencies necessary for effective use of AI-powered platforms (Tenberga & Daniela, 2024). Digital literacy, as indicated in the literature, is significant in the decision regarding technology adoption in education, with digital literate lecturers more

confident in incorporating new system of assessment and evaluation (Lim, 2023; Eguagie, 2025; Chukwu, 2025). According to Ogunbodede et al. (2023), lecturers in Nigeria have different level of digital literacy as a result of uneven access to digital infrastructure and professional development opportunities. This may likely necessitate differentiated capacity to engage with AI assessment technologies (Omojemite, 2025).

The use of AI-powered tools for assessment and evaluation is capable of being influenced by lecturers' readiness. While knowledge and literacy are important, without readiness it may be difficult to experience effective application of modern digital tools in assessment process. Readiness is lecturers' preparedness to adopt and implement AI-powered e-assessment and evaluation. Readiness is multidimensional variable that has psychological willingness dimension, institutional support dimension, and the availability of relevant infrastructure (Lawal & Afolabi, 2024; Robinson, 2025). Readiness, according to technology acceptance models, influence educators' behavioral tendency and actual use of e-assessment and evaluation (Robinson, 2025; Tappeiner, 2025). In many Nigerian universities, institutional policies, training programmes, and incentives associated with the use of emerging technologies are still evolving (Ukpe, 2023). Inadequate level of readiness may adversely predict the integration of AI in assessment practices. Even instructors with high knowledge and digital literacy can hesitate to incorporate AI in their assessment practices in the absence of adequate readiness (Lawal & Afolabi, 2024).

In the Nigerian higher institutions of learning, including the universities, the drive towards digital transformation has been uneven. Efforts have been geared by many institutions to ensure proper investment in learning management systems and periodically organise capacity-building workshops, the adoption of AI- driven assessment technologies is still in its infancy (Ogunbodede et al., 2023). Technology related studies in Nigeria are on e-learning adoption and less had been done on AI-powered systems, leaving a gap in how lecturers prepare for its adoption in the execution of key academic tasks, including assessment (Omojemite, 2025; Sheu, 2025). This misalignment is particularly prominent as a result of the increase in global attention paid to data-based evaluation practices and the potential of AI for effective and equitable service to large numbers of students.

Furthermore, the global discussion around AI in education brings out the opportunities and challenges. According to Kumar (2025), the use of AI in assessment process helps to improve objectivity, facilitate the provision of personalized feedback, and also take some administrative load off lecturers. As good as this sound, issues have surfaced on the possibility of algorithmic bias, data

privacy, and de-professionalization of academic judgment (Idowu, 2024). This can lead to low level of readiness due to concern on ethical implications, academic integrity and possible loss of professional autonomy (Idowu, 2024; Tappeiner, 2025). This consequently point to the need for lecturers to be aware of AI capabilities, and the associated ethical, pedagogical, and practical considerations. Without a clear picture of the levels of knowledge, literacy, and readiness of lecturers, universities are at risk of implementing AI assessment functionality that is underutilised, misapplied, or resisted by faculty.

Considering this, the present study seeks to critically analyze the knowledge, digital competence and preparedness of lecturers regarding the use of AI for e-assessment and evaluation in Nigerian Universities. A study of these connected constructs is likely to offer empirical support to the educational policy and practice discussions, enrich the field of capacity development, and offer strategic planning for sustainable integration of technology. Gaining an understanding of where lecturers are in this rapidly changing landscape is key to unlocking the potential of AI in higher education, as well as considering contextual issues that may potentially impede successful adoption.

Despite the increasing adoption of AI in education worldwide, most universities in Nigeria are at the infancy of AI powered e-assessment and evaluation system (Akinwumi et al., 2025). Lecturers lie at the heart of implementing this new adventure in technologies; however, there is some evidence that indicates that there is a wide variation of lecturer knowledge in terms of AI concepts, digital literacy, and willingness to use AI tools. Considering the novelty of AI tools in assessment as compared to the traditional paper and pencil model, some lecturers might have a lack of awareness of the functions of AI, feel uncertain about their ability to effectively operate AI systems, or question the reliability and fairness of AI-driven assessment. This situation restricts the potential benefits of AI, for example, enhanced efficiency, objective evaluation, and personalised feedback.

This issue is important as the successful integration of AI in assessment is not only related to the availability of the technology used, but also to the preparedness and actual engagement of lecturers with the systems. A lack of knowledge, digital literacy, and readiness for the use of AI can result in poor assessment practices, poor quality of feedback, and possible inequities in student evaluation (Umar et al., 2025). Moreover, non-addressing of such gaps could impede the professional development of lecturers, retard the adoption of innovative teaching practices, and hinder the

competitive edge of universities, which are striving to attain international standards of education (Lawal & Afolabi, 2024). If the problem remained unsolved, the Nigerian Universities will continue to use the traditional and labour-intensive assessment approaches that hinder their ability to leverage AI for enhanced efficiency, accuracy, and fairness in student assessments.

This study is hinged on The Unified Theory of Acceptance and Use of Technology (UTAUT) proposed by Venkatesh, Morris, Davis, and Davis (2003). UTAUT argued that an individual's behavior to use technology is influenced by his or her performance expectancy, effort expectancy, social influence, and facilitating conditions. These factors are however influenced by age, gender, experience, and voluntariness. UTAUT was developed by integrating eight major technology acceptance models. The model was empirically tested and it explained variance in intention to use and use of technology well. In this study, UTAUT shall be used to explain lecturers' readiness in using AI-powered e-assessment and evaluation in their academic work. Digital literacy in this study is a critical competence required by lecturers to interact with technologies including those that are enabled by AI for assessment purposes. Knowledge of functions, applications, and implications of AI-powered e-assessment also enable lecturers to make judgment regarding the usefulness of such technology and the effort required to use it (Dwivedi et al., 2020; Luo & Day, 2026). Thus, knowledge and digital literacy in this study are conceptualized as two critical individual-level factors that determine a lecturer's readiness to make use of AI-powered e-assessment within the wider framework of technology acceptance by individuals.

The study draws from an extended version of the UTAUT framework in order to adapt it to the readiness of lecturers to implement and evaluate AI-powered e-assessment in selected Nigerian universities. Knowledge of AI-powered assessment and digital literacy for using and evaluating the different technologies for assessment have been conceptualized as individual capabilities that will strengthen the functions of technology-acceptance within readiness of lecturers for adopting and evaluating AI-powered e-assessment. Recent research in the higher education domain has been applied within the extended UTAUT framework, where lecturers' Intention to use generative AI was predicted by the set of UTAUT constructs as before, and additional predictors of AI literacy and faculty AI literacy for use were significantly and positively related to their use (Luo & Day, 2026). Conclusively, the present study is anchored within an adapted version of UTAUT within the specific context of the study, in order to explore the Readiness of lecturers with knowledge and digital

literacy in selected Nigerian universities for implementing and evaluating the AI-powered e-assessment within their teaching practice

The purpose of the study was to assess lecturers' knowledge, literacy and readiness for AI-powered E-assessment and evaluation in the Nigerian universities. Specifically, the study: assessed the level of knowledge of AI-powered e-assessment and evaluation tools among lecturers in the Nigerian universities; examined the level of digital literacy of lecturers in using AI-powered e-assessment and evaluation systems in these universities; explored lecturers' readiness to adopt AI-powered e-assessment and evaluation tools, and examined the extent to which lecturers' knowledge of AI-powered E-assessment and evaluation tools, and whether digital literacy explains additional variance in readiness over and above knowledge. Based on the objectives, the research questions raised in the study are: What is the level of knowledge of AI-powered e-assessment and evaluation tools among lecturers in the Nigerian universities? What is the level of digital literacy of lecturers in using AI-powered e-assessment and evaluation systems? To what extent are lecturers ready to use AI-powered e-assessment and evaluation tools? Also, the hypothesis to be tested in the study is: Lecturers' knowledge of AI-powered E-assessment and digital literacy do not significantly predict their readiness to use AI-powered E-assessment and evaluation tools.

MATERIAL AND METHOD

Research Design

A descriptive survey research design was used for this study. The design enables the researcher to collect standardised data from a relatively large sample of lecturers and quantify their perceptions, competencies, and preparedness without manipulating the study variables. It is therefore suitable for providing a systematic description of lecturers' current knowledge, literacy, and readiness for the adoption of AI-powered e-assessment in the Nigerian university context. Although states were selected randomly at the first stage, universities were selected purposively and lecturers were recruited by convenience sampling at the final stage. The overall sample is therefore non-probabilistic, and the distribution of respondents across geopolitical zones reflects the availability of lecturers at participating universities rather than proportional representation of the national population of federal university lecturers. The findings are accordingly interpreted as describing the

participants lecturers and should not be generalized to all lecturers in Nigerian federal universities without caution.

Population, Sample and Sampling Techniques

The population of the study was all the University lecturers in the Nigerian University, which is estimated at 100,000. The target population was all the lecturers in Federal universities in Nigeria. A multistage sampling approach was used to select the study participants. At the first stage, simple random sampling technique was used to select two states from each of the six geopolitical zones of Nigeria, which are South-West (SW), South-South (SS), South-East (SE), North-West (NW), North-East (NE), and North-Central (NC). This led to the selection of 12 states. At the second stage, purposive sampling was used to select one conventional federal university from each selected state. Private universities were not included in the study. Private universities were excluded to maintain a relatively homogeneous institutional context and ensure that the study focused specifically on the conditions and practices of federal universities in Nigeria. This process resulted in the selection of 12 public universities from which a sample of a total of 121 university lecturers participated in the study.

The study sample comprised of 121 respondents who were selected from the 12 federal universities using convenient sampling. The choice of convenient sampling is premised on the fact that it might not be easy to gather the lecturers in a situation that allows the use of simple random sampling approach.

Variables of the Study

The study involved three variables. The outcome (dependent variable) was Readiness to use AI-Powered E-assessment and Evaluation Tools. The predictor (independent) variables were (1) Knowledge of AI-Powered E-assessment and (2) Digital Literacy. Each variable was measure with a 12-item sub-scale of the researcher-developed questionnaire with response ranging from Strongly Disagree (1) to Strongly Agree (4).

Instrumentation

Questionnaire on knowledge, literacy and readiness for AI powered E-assessment and evaluation developed by the researchers was used to collect information for the study. The instrument comprised three sections measuring lecturers' knowledge, digital literacy, and readiness for AI-

powered e-assessment and evaluation. The questionnaire was developed based on review of relevant literature. The knowledge, Literacy, and readiness sub-scales contain 12 items each that are designed with a 4-point Likert response scale of Strongly Agree = 4, Agree = 3, Disagree = 2, and Strongly Disagree = 1. Reliability of the instrument was found by using the method of reliability known as Cronbach Alpha method. To achieve this, the instrument was administered to 20 lecturers who had the same characteristics as the actual respondents. The obtained responses were subjected to Cronbach's alpha. The reliability coefficients for the instrument are 0.77, 0.81, and 0.83, respectively, for knowledge, literacy and readiness for AI-powered E-assessment and evaluation. The observed coefficients make the instrument worthy to be used for data collection. To establish content validity, the draft questionnaire was subjected to expert review to assess the relevance, clarity, adequacy, and alignment of the items with the study objectives and constructs, after which necessary modifications were made before administration. All the three-sub-scales are self-report measures. They capture lecturers' perceived knowledge of, perceived digital literacy for, and self-reported readiness to use AI-powered e-assessment and evaluation tools, and do not constitute objective assessments of competence

Data Analysis Procedure

The data that was obtained was analyzed with appropriate statistical tools. Research questions 1 to 3 were answered with descriptive statistics. For each respondent, a composite score was computed for each sub-scale as the mean of its 12 items, giving a possible range value of 1.00 to 4.00. Although responses to individual Likert items are ordinal, composite scores obtained by averaging several items that measure a single construct approximate interval-level measurement and can appropriately be summarized with means and standard deviations (Carifio & Perla, 2007; Norman, 2010; Harpe, 2015). Frequencies and percentages were used to show how lecturers were distributed across three levels (low, moderate and high) defined by the cut-off points described below. The two statistics serve complementary purposes: the percentage distribution shows how many lecturers fall at each level, whereas the mean and median locate the typical lecturer.

Composite scores were classified into three levels using cut-off points defined a priori and anchored to the response labels of the 4-point scale: low (1.00-2.33), moderate (2.34-3.33) and high (3.34-4.00). The lower cut-off (2.33) lies one-third of the way from “Disagree” (2) to “Agree” (3), so a low score

indicates that a respondent’s answers lay predominantly in the disagreement range. The upper cut-off (3.34) lies one-third of the way from “Agree” (3) to “Strongly Agree” (4), so a high score requires consistent strong endorsement; a respondent who selected “Agree” for every item (mean=3) is classified as moderate. The bands are therefore intentionally conservative in assigning the high level.

The hypothesis was tested using two-step hierarchical multiple regression at the .05 level of significance. This procedure was adopted because the study’s aim was not only to establish whether knowledge and digital literacy jointly predict readiness, but specifically to test whether digital literacy contributes explanatory power over and above knowledge, which is a question of incremental validity that hierarchical regression addresses directly through the change in R2 (Cohen et al., 2003; Petrocelli, 2003). The order of entry is expected to be determined by theory rather than by statistical criteria in hierarchical regression (Cohen et al., 2003; Field, 2018). In the analysis, knowledge was entered at Step 1 as this complied with the Unified Theory of Acceptance and Use of Technology (UTAUT) framework adopted for this study. Knowledge of the functions, applications and implications of AI-powered E-assessment are considered as the cognitive basis on which lecturers form performance-expectancy and effort-expectancy judgement, that is, whether such tools are useful for assessment and how much effort they demand (Venkatesh et al., 2003; Dwivedi et al., 2020). Digital literacy, conceptualized in the study as an enabling, skill-based capability for using digital tools, was therefore entered at step 2 (Tenberga & Daniela, 2024; Luo & Day, 2026).

RESULTS

Table 1: Demographic Characteristics of the University Lecturers

Demographic Variables	n	%
Gender		
Male	79	65.3
Female	42	34.7
Total	121	100.0
Age Category		
25-31yrs	2	1.7
32-35yrs	19	15.7
36-38yrs	-	-
39-45yrs	50	41.3
46yrs and Above	50	41.3
Total	121	100.0

Years of Working Experience		
1-5yrs	29	24.0
6-10yrs	51	42.1
11yrs and Above	41	33.9
Total	121	100.0
Geopolitical Zone		
SW	33	27.3
SS	17	14.0
SE	18	14.9
NW	17	14.0
NE	16	13.2
NC	20	16.5
Total	121	100.0

SW=South West, SS=South South, SE= South East, NW= North West, NE= North East, NC=North Central

Table 1 summarises the characteristics of the 121 lecturers that participated in the study. Most respondents were male (65.3%) and aged 39-45 years, and 76.0% had at least six years of teaching experience. All six geopolitical zones were represented, with the largest share of respondents from the South West (27.3%) and between 13.2% and 16.5% from each of the remaining five zones. This sample was predominantly male, largely composed of middle-aged and older lecturers, with moderate to extensive work experience, and reasonably distributed across the six geopolitical zones in Nigeria.

Answering of Research Questions

Research Question 1: What is the level of knowledge of AI-powered e-assessment and evaluation tools among lecturers in the Nigerian universities?

The level of knowledge of university lectures on AI-powered e-assessment and evaluation tools was assessed using a 12-items questionnaire rated on a 4-point Likert scale ranging from Strongly Agree (4) to Strongly Disagree (1). The result is presented in Table 2.

Table 2: Level of Knowledge of the University Lecturers on AI-powered E-assessment and Evaluation Tools

Knowledge Level	Score Range	n	%
Low	1.00 – 2.33	19	15.7
Moderate	2.34 – 3.33	48	39.7
High	3.34 – 4.00	54	44.6
Total		121	100.0

M= 3.12, SD = 0.71, Mdn = 3.25

Table 2 shows that 44.6% (n = 54) of the lecturers demonstrated a high level of knowledge of AI-powered E-assessment and evaluation tools, 39.7% (n = 48) a moderate level and 15.7% (n = 19), a low level. The overall mean score was 3.12 (SD = 0.71; 95% CI) [2.99, 3.25], which falls within the moderate range band. These results are compatible, although the high category was the largest single group, it did not constitute a majority, as 55.4% of lecturers scored in the moderate or low bands. Because the mean reflects every score in the distribution, the low-scoring minority draws the average below the high threshold, and the median (Mdn = 3.25) likewise falls in the moderate band. The typical lecturer's self-reported knowledge is therefore best described as moderate, within a heterogeneous sample containing a large high-scoring group alongside a notable low-scoring minority

Research Question 2: What is the level of digital literacy of lecturers in using AI-powered e-assessment and evaluation systems?

The level of digital literacy of university lecturers on AI-powered e-assessment and evaluation systems was measured using a 12-item Likert scale ranging from Strongly Agree (4) to Strongly Disagree (1). The result is presented in Table 3.

Table 3: Level of Digital Literacy of the University Lecturers on AI-powered E-assessment and Evaluation Systems

Digital Literacy Level	Score Range	n	%
Low	1.00 – 2.33	30	24.8
Moderate	2.34 – 3.33	34	28.1
High	3.34 – 4.00	57	47.1
Total		121	100.0

M= 3.04, SD = 0.72; Mdn = 3.33

As shown in Table 3, 47.1% (n = 57) of lecturers reported a high level of digital literacy, 28.1% (n = 34) a moderate level and 24.8% (n = 30) a low level of digital literacy. The overall mean score was 3.04 (SD = 0.72; 95% CI) [2.91, 3.33], within the moderate band. As with digital literacy, the high

category was the most frequent but not a majority (52.9% scored moderate or low), and the median (Mdn = 3.33) falls in the moderate band. The distribution is notably polarized as nearly half of the lecturers rated their digital literacy as high while about one in four rated it as low. The moderate mean therefore reflects an average of two contrasting groups rather than a sample in which most lecturers are moderately literate, which suggest as marked disparity in self-reported digital skills. This distribution suggests a pronounced disparity in digital skills among lecturers. This implies that while a substantial group of lecturers appears well-equipped to engage with AI-powered e-assessment and evaluation systems, a significant proportion may lack the necessary competencies.

Research Question 3: To what extent are lecturers ready to use AI-powered e-assessment and evaluation tools?

The extent of university lecturers' readiness to use AI-powered e-assessment and evaluation tools was assessed using a 12-item Likert scale with response options ranging from Strongly Agree (4) to Strongly Disagree (1). The result is presented in Table 4.

Table 4: Extent of University Lecturers Readiness to Use AI-powered E-assessment and Evaluation Tools

Extent of Readiness to Use	Score Range	n	%
Low	1.00 – 2.33	8	6.6
Moderate	2.34 – 3.33	42	34.7
High	3.34 – 4.00	71	58.7
Total		121	100.0

M= 3.32, SD = 0.59; Mdn = 3.42

The results in Table 4 indicate that a majority of lecturers (58.7%, n = 71) reported a high extent of readiness to use AI-powered E-assessment tools, 34.7% (n = 42) a moderate extent and 6.6% (n = 8) a low extent of readiness. Consistent with this majority, the median (Mdn = 3.42) falls within the high band. The overall mean score was 3.32 (SD = 0.59), however, lies just below the high cut-off of 3.34 because the moderate and low scores of the remaining 41.3% of lecturers pull the average down; its 95% CI [3.21, 3.42]) spans the boundary between the moderate and high bands. Therefore, lecturers' readiness to use AI-powered E-assessment tools is best described as moderate to high.

Research Hypothesis: Lecturers' knowledge of AI-powered E-assessment and digital literacy do not significantly predict their readiness to use AI-powered E-assessment and evaluation tools.

Table 5a: Model Summary for the Hierarchical Regression Predicting Readiness to Use AI-Powered E-Assessment and Evaluation Tools

Step	Predictors	R	R ²	Adj. R ²	ΔR ²	F change (df)	p	Model F (df)	f ²
1	Knowledge	.684	.468	.464	.468	104.48 (1, 119)	< .001	104.48 (1, 119)***	0.88
2	Knowledge, Digital literacy	.691	.478	.469	.010	2.32 (1, 118)	.131	53.98 (2, 118)***	0.02

Note. N = 121. f² at Step 1 = R²/(1 - R²); f² at Step 2 = ΔR²/(1 - R²full), the effect size for the increment. By Cohen's conventions, 0.02 is small and 0.35 or above is large. *** p < .001.

Table 5b: Regression Coefficients

Step/ Predictors	B	SE B	95% CI for B	β	t	p	sr ²	Tol.	VIF
Step 1									
Constant	1.533	.179	[1.179, 1.887]		8.57	< .001			
Knowledge	0.572	0.056	[0.461, 0.683]	.684	10.22	< .001	.468	1.00	1.00
Step 2									
Constant	1.444	.187	[1.074, 1.815]		7.717	< .001			
Knowledge	0.478	0.083	[0.314, 0.642]	.571	5.74	< .001	.143	.45	2.24
Digital literacy	0.126	0.083	[-0.038, 0.290]	.151	1.52	.131	.010	.45	2.24

Note. B = unstandardised coefficient; SE B = standard error of B; CI = confidence interval; β = standardised coefficient; sr² = squared semi-partial correlation (unique variance explained by the predictor); Tol. = tolerance; VIF = variance inflation factor. The CI for digital literacy includes zero, consistent with its non-significant contribution

Table 5c: Means, Standard Deviations and Zero-Order Correlations

Variable	M	SD	1	2	3
1. Knowledge	3.12	0.71	—		
2. Digital literacy	3.04	0.72	.74***	—	
3. Readiness	3.32	0.59	.68***	.58***	—

Note. N = 121. *** p < .001.

The results in Tables 5a and 5b show a two-step hierarchical multiple regression conducted to test the hypothesis, with Readiness to use AI-powered E-Assessment and Evaluation Tools as the outcome variable and Knowledge of AI-powered E-assessment (Step1) and Digital Literacy (Step 2) as predictors (Tables 5a and 5b). At Step 1, knowledge significantly predicted readiness, F(1, 119) = 104.48, p < .001, accounting for 46.8% of the variance (R² = .268, adjusted R² = .464). Lecturers who reported higher knowledge also reported greater readiness (B = 0.572, 95% CI [0.461, 0.683], β = .684, p < .001.

At Step 2, adding digital literacy increased R² from .468 to .478, an increment of ΔR² = .476-.468 = .010 (1.0% additional explained variance). This increment was not statistically significant F change

(1, 118) = 2.32 $p = .131$, and its effect size was small ($f^2 = 0.02$). Together, the two predictors significantly predicted readiness, $F(2, 118) = 53.98$, $p < .001$, $R^2 = .478$, adjusted $R^2 = .469$. In the final model, knowledge remained a significant predictor ($B = 0.478$, 95% CI [0.314, 0.642], $\beta = .571$, $p < .001$, $sr^2 = .143$), whereas digital literacy was not ($B = 0.126$, 95% CI [-0.038, 0.290], $\beta = .151$, $p = .131$, $sr^2 = .010$); its confidence interval includes zero. Therefore, the null hypothesis was rejected: Knowledge and digital literacy together significantly predicted readiness, but this prediction is attributed to knowledge, since digital literacy did not significantly predict readiness over and above knowledge.

Digital literacy was nonetheless strongly correlated with readiness at the bivariate level ($r = .58$, $p < .001$) and with knowledge ($r = .74$; Table 5c). Out of the 47.8% of variance in readiness explained by the full model, about 14.3% was uniquely associated with knowledge, 1.0% uniquely with digital literacy, and the remaining 32.5% was shared by the two predictors.

DISCUSSION

The result from the study showed that the level of knowledge of AI-powered e-assessment and evaluation tools among lecturers in Nigerian universities is moderate overall, although high level of knowledge and some level of variation of moderate and low level knowledge were noted in some cases. This means that while many lecturers know about and understand to some degree the use of AI-driven assessment tools, there is a significant number of lecturers who do not have a profound, functional and pedagogically rooted knowledge base for optimal usage. This is because exposure to AI technologies is uneven and professional development opportunities are limited or inconsistently implemented across institutions resulting in inequalities of understanding. This finding corroborates/supported that of Kumar (2025), Omojemite (2025) and Sheu (2025), who found that lecturers tends to have surface-level knowledge on AI tools but lack deeper conceptual understanding on their mechanism and pedagogical applications. However, the finding contradicts that of Tenberga and Daniela (2024) and Flores and Chiappe (2025), who found that where structured institutional training exists, the lecturers tend to demonstrate significantly higher and more uniform levels of knowledge of AI and hence that the moderate level of knowledge seen in this study may reflect insufficient institutional support in the Nigerian context. Variation in the finding of this study and that of Tenberga and Daniela (2024) could be due to differences in study

population. The current study was conducted in Nigeria among university lecturers, while Tenberga and Daniela (2024) conducted theirs in among secondary school teachers teaching Grades 5–12.

The results of the study showed that digital literacy of lecturers in the use of AI-powered e-assessment and evaluation systems is moderate on the whole, but there is a significant difference, with a high percentage of lecturers exhibiting high digital literacy and a significant minority with low digital literacy. This means that while many lecturers have the technical and cognitive skills needed to interact with AI systems, others have difficulty with more advanced functionality such as interpreting algorithmic outputs and troubleshooting issues with the system. This finding corroborates/supported that of Ogunbodede et al., (2023), and Lim (2023) who emphasized that the level of digital literacy among educators is uneven and goes beyond the basic technical skills to include the critical engagement with digital tools. It is also consistent with Eguagie (2025) and Chukwu (2025) who identified persistent deficient gaps in digital competencies among lecturers in developing contexts. However, the finding contradicts that of Mah and Gross (2024) who revealed strong and consistent digital literacy levels among lecturers in well-resourced educational systems, the influence of the differences in context and infrastructure on digital competence development. The variation observed in the result of this study and that of Mah and Gross (2024) could be due to differences in study location. While the current study was conducted in Nigeria, that of Mah and Gross (2024) was conducted in Germany.

The results of the research showed that the lecturers are moderately ready, with the extent approaching the high level of readiness to use AI-powered e-assessment and evaluation tools, and the majority show a high level of readiness despite the fact that there is some variability in the group. This means that lecturers tend to be in a positive disposition and willingness when it comes to adopting AI technologies, although there are certain barriers which may limit full readiness, such as confidence, ethical concerns or institutional constraints. This finding corroborates/supported that of Robinson (2025), and Flores and Chiappe (2025) who conceptualized readiness as a multidimensional construct that is influenced by both individual competence and institutional support. However, the finding contradict that of Tappeiner (2025) who reported lower levels of readiness due to concern on ethical implications, academic integrity and possible loss of professional autonomy, implying that such concerns may be less prominent or differently experienced among lecturers in Nigeria. While the current study was conducted in Nigeria, the study by Tappeiner (2025)

was conducted in Switzerland. This contextual variation could necessitate the observed differences in the study results.

The results of the study showed that lecturers' self-reported knowledge of AI-powered e-assessment significantly predicted their readiness, accounting for 46.8% of its variance, whereas, digital literacy did not explain significant additional variance once knowledge was taken into account ($\Delta R^2 = .010$, $p = .131$). Together the two predictors explained 47.8% of the variance, so the null hypothesis was rejected; however, the prediction was attributable to knowledge rather than to digital literacy. Due to the fact that digital literacy was itself substantially correlated with both readiness ($r = .58$) and knowledge ($r = .74$), this finding should be interpreted as showing that the two capabilities share much of their association with readiness, and that digital literacy adds little unique predictive information beyond knowledge in this sample. However, this outcome should not be interpreted as if digital literacy is unimportant for readiness. The present study adopted a cross-sectional design that hinges on association and the outcome does not establish that increasing lecturers' knowledge would cause their readiness to increase. This finding corroborates/supported that of Sheu (2025) that it is insufficient knowledge that can negatively affect attitudes and adoption behaviors, irrespective of technical proficiency. It is also in line with the findings of Flores and Chiappe (2025) who suggested that knowledge is an important determinant of readiness. The positive bivariate association between digital literacy and readiness observed here is consistent with Mah and Gross (2024) who found positive relationships between digital literacy and readiness, suggesting that in more technologically advanced or better-supported contexts, digital literacy plays a more prominent role in influencing readiness. The difference is that, in the present sample, digital literacy did not contribute unique variance once knowledge was controlled, possibly because the two constructs overlap strongly among the participating lecturers.

CONCLUSION

The study concludes that lecturers in universities in Nigeria have a moderate level of knowledge and digital literacy about AI-powered e-assessment and evaluation tools and their readiness to adopt the technologies is moderate to high. The results showed that knowledge of AI tools significantly predicted readiness, whereas digital literacy, although positively correlated with readiness, but did not explain significant additional variance beyond knowledge. This suggests that conceptual

understanding of how AI can be applied to assessment is more closely associated with lecturers' willingness and confidence to integrate these tools than generic digital skills alone; longitudinal or intervention studies are required to establish whether this relationship is causal. In addition, the variability in the knowledge, digital literacy, and readiness, thus, shows the need for targeted interventions, institutional support, and professional development to ensure effective, ethical, and pedagogically aligned implementation of AI-powered assessment systems in selected Nigerian universities.

Although the use of self-reported measures, convenience sampling, and a relatively small sample size may introduce response bias and limit the generalisability of the findings, these limitations do not invalidate the study's conclusions within the context of the participating lecturers and selected universities. Rather, they suggest that the findings should be interpreted with appropriate caution and provide a basis for further research using larger, more diverse, and representative samples.

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

Universities should offer and carry out structured professional development programmes on both the theoretical and practical elements of AI-powered e-assessment and evaluation. Such programmes should combine conceptual AI knowledge, practical competence, ethical awareness and institutional support.

Universities should work to improve their digital infrastructure and make sure they have access to AI-enabled assessment platforms with reliable access and technical support and maintenance. Clear policies, guidelines, and support systems should be put in place to support the adoption of AI tools by lecturers, so that readiness is paired with an enabling institutional environment.

Given the centrality of knowledge in predicting readiness, universities should give a priority to efforts that promote the conceptual understanding of AI by lecturers. This can involve workshops, seminars, and co-learning communities to discuss and share information with lecturers. Continuous assessment of knowledge gaps and follow up support should be in-built to maintain learning outcomes.

Universities should include AI literacy and hands-on AI evaluation abilities in the professional development and performance assessment of lecturers. This way, there is a continued engagement and accountability, along with the alignment of AI-powered assessment tools and curricular goals.

Additionally, mentoring initiatives that match experienced and inexperienced lecturers in the adoption of AI can assist in creating skill gaps and building confidence in the use of AI for evaluation.

Furthermore, because knowledge and digital literacy were measured by self-report, the findings reflect lecturers' perceptions of their own capabilities, which may differ from their demonstrated competence. Future studies should complement self-report scales with performance-based measures, such as knowledge tests or observed task performance on AI-enabled assessment platforms.

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