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ASSESSMENT OF LECTURERS' LEVEL OF AWARENESS, UTILIZATION, AND CONSTRAINTS OF ARTIFICIAL INTELLIGENCE (AI) FOR TEACHING AND ASSESSMENT IN UNIVERSITIES IN NIGERIA

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Abstract

The rise of Artificial Intelligence (AI) has ushered in a new era of opportunities and challenges across various sectors, particularly in educational assessment. As AI technology continues to evolve, academics and researchers are examining its impact on assessment procedures, especially in Nigerian universities. This study aims to evaluate the extent of awareness, utilisation, and limitations of AI tools for teaching and assessment among lecturers in Nigerian universities. The study was guided by one hypothesis and three research questions. The research design used in the study was a mixed approach. The study population was infinite, consisting of all lecturers in all the universities in Nigeria. 4193 respondents participated in the study. 2 instruments were used for data collection: a Questionnaire on University Lecturers' Awareness and Utilization of AI in Teaching and Assessment (QULAUAITA) and a Key Informant Interview (KII) guide titled constraints of utilizing AI for Teaching and Assessment (CUAITTA). The instruments were validated by three experts in Measurement and Evaluation. The reliability coefficient of 0.82 was established using the split-half method. Mean and Standard Deviation were used to analyse the research questions while Pearson product movement correlation was used in hypothesis testing. The data collected using KII were transcribed, coded and analysed thematically. Findings from the study revealed that while lecturers in Nigerian universities have moderate awareness of AI applications in teaching and assessment, their utilisation of AI tools remains low. A key reason for this limited usage is inadequate knowledge and training on AI integration in teaching and assessment. The study recommends that workshops and seminars could be organised to equip lecturers with innovative teaching and assessment methods that incorporate AI, thereby enhancing students' learning experiences. Furthermore, programs that aim at increasing the skills of lecturers in utilising AI in their various fields of specialty could be prioritised. By addressing the current gaps in awareness and utilisation, universities can better equip their lecturers to utilize these innovative tools effectively.

Keywords: Teaching, Assessment, Lecturer, Artificial Intelligence, Awareness, Utilization.

Introduction

The advent of Artificial Intelligence (AI) has revolutionized the education area in significant ways. It has improved both teaching and learning environments across different fields of study. Hitherto, due to the surge in the use of AI, teaching and assessment were conducted in a traditional way, where the teacher must be physically present for teaching and assessment to be conducted. Nowadays, the reverse is the case courtesy of AI. Shukla and Jaiswal (2013) define AI as a field of study that deals with developing systems that possess human-like intelligence, such as the capacity to obtain novel ideas and perceptions, motivation and make insightful conclusions, grasp natural language, or sense and comprehend visual scenes. According to Fernandez, Fernandez and Aburto (2019), AI facilitates individualized useful learning behaviours, including self-regulation, self-monitoring, and self-explanation, by delivering learnable actions at the students' convenient time, with the best course outline, prompt supervision, remediation strategies, and clearer clarifications. Intelligent tutoring systems allow teachers to modify their courses to some degree, give continuous feedback on students' assessments, and automatically correct specific types of schoolwork so that teachers have more time for other activities. AI is being used, for instance, by MOOC platforms and Coursera to alert instructors when a large number of students provide an inaccurate response to a topic (Karsenti, 2019).

There are several AI tools that can be used in teaching and assessment. These include Khan Academy, Knewton, Moodle, Chatgpt, Grammarly Turnitin, Coursera, Zotero, and RefWorks. Kundariya (2023) identified the top AI tools for enhancing academic research: Semantic Scholar, IBM Watson, Scholarcy, Elicit, Trinka, Google Scholar, Scite, Tableau, Mendeley, Consensus, and Zotero. Barua (2023) also identified AI tools that can be used in teaching and assessment, including SciSpace, Schoarlcy, Jenni AI, ChatGPT, Paperpal, Casper, Grammarly, QuillBot, Elicit, Turnitin, Consensus, Search Smart, Mendeley, and Evidence Hunt, among others. According to Okuonghae and Tunmibi (2024), the application of AI tools requires digital competency. Okuonghae and Tunmibi (2024) further categorized digital competency into several key areas, reflecting the manifold nature of the skills needed to traverse and be successful in the digital world. This, therefore, means that lecturers should attain digital competency before utilizing AI in teaching and assessment.

A lecturer is a facilitator whose role is to help students in post-secondary (college or university) institutions comprehend the material being taught (Masazi, 2015). According to Williams (2019), lecturers are responsible for delivering lectures, conducting seminars or tutorials, preparing educational materials and assessing student performance, among other responsibilities. Filsecker and Kerres (2012) define educational assessment as a variety of instruments, techniques, or procedures used to measure and evaluate learning outcomes, output, or progress. Madu and Musa (2024) assert that assessments are essential for assessing students' abilities and creating a positive learning environment because they reveal their learning preferences, strengths, and weaknesses. Nigerian universities have been faced with a population explosion recently. The number of students offered admission to universities in Nigeria is disproportionate compared to the number of school facilities and lecturers. This has challenged effective teaching and assessment (Madu & Musa, 2024). The way forward to this quagmire is the adoption and utilization of AI.

Globally, many universities have started using AI to deliver lectures and conduct assessments. For instance, Fahimirad and Kotamjani (2018) stated that in Australia, Deakin University have used IBM's supercomputer Watson, an emerging form of AI, to assist their students in solving their problems. This invention greatly improved the quality of education and the amount of effort spent instructing students. Similarly, in Nigeria, the majority of

Nigerian universities utilize AI tools to identify instances of plagiarism in student work (Karsenti, 2019). For example, Turnitin can recognise many copied works and show the plagiarized part, the source and the percentage. This shows that lecturers utilising AI in teaching will deliver quality and standard instruction.

The formation and inauguration of the National Agency for Research in Robotics and Artificial Intelligence (NARRAI) by the Government of the Federal Republic of Nigeria in 2018 to organize and regulate all studies involving AI and robotics shows the importance of AI in the 21st century. According to Ladeinde (2019), the NARRAI's role is to partner with universal research institutions and advocate for adopting and utilising AI for economic growth in Nigeria. In collaboration with Ladeine's submission, Thomas, Gambari, Sobowale, and Shehu (2024) stated that the mandate of NARRAI is to work in synergy with international bodies for the advancement of AI in the country as well as involvement in activities to explore its utilization.

Utilisation entails practical and effective use of something such as information, materials, products and services, among other things. According to Uhegbu (2007), utilization entails correct usage of learned material. Ochai (2007) defined utilization as the method used to measure a given program's effectiveness and successes. Utilization of AI-based tools for teaching deals with the successful and efficient integration of these technological advancements in teaching and learning environments. According to Anderson and Dron (2011), it entails using AI tools to improve teaching strategies, expedite research procedures, and eventually raise educational standards generally. AI-based technologies like Intelligent Tutoring Systems (ITS) allow for tailored teaching that can facilitate learners' effective acquisition of knowledge by adjusting towards the demands of each individual learner. Thus, its adoption is crucial since it improves personalization. This individualised approach improves students' comprehension and engagement. Moreover, it facilitates efficiency in grading and evaluation. For example, AI-powered automated grading systems simplify the instructor assessment process. In addition to saving time, this guarantees evaluations are impartial and consistent. Thus, using AI to teach and assess students' learning is crucial for advancing education and knowledge creation.

However, studies have shown that the utilization of AI in teaching has remained low. For instance, Nchunge, Sakwa, and Mwangi (2013) stated that most lecturers in higher institutions have accustomed themselves to nearly obsolete systems, making it challenging to fully utilise emerging technologies' educational potential. Sife, Lwoga, and Sanga, as cited in Bamidele (2019), present several reasons for the low level of AI adoption and deployment in schools in many developing countries. These include socio-economic and high-tech glitches such as insufficient resources, personnel growth, awareness, and attitudes towards AI. On the other hand, awareness deals with the extent to which users have information and knowledge of AI. According to Amadi-Iwai, Ubulom and Okiridu (2024), awareness entails knowing about specific information and using one's experience to understand a condition among others. Studies have indicated that many lecturers are unfamiliar or unaware of AI tools.

There is no doubt that AI is embedded in the education sector, and questions concerning the utilization of AI, such as ethics, equity, and the fundamental structure of evaluation procedures, have been raised. Some concerns include erasing creativity and critical thinking (Rudolph, Tan & Tan, 2023). Additionally, there is debate on the effectiveness and consistency of AI tests, especially when identifying subtle aspects of writing like originality and coherence (Aluthman, 2016). This calls into question how best to strike a balance between the comprehensive insights provided by human evaluators and automated methods. The study by Luckin (2017) illuminates the possible advantages of these technologies with regard to AI-enabled adaptive and continuous assessment. However, strong proof of their long-term effects remains a gap in current research.

A study by Ukeh and Anih (2024) on the use of artificial intelligence by university lecturers at the Federal University of Otuoke found that their usage of AI in teaching and conducting research was relatively low. In a similar vein, Amadi-Iwai, Ubulom, and Okiridu (2024) conducted a study on business educators' level of awareness, competence and utilisation of Artificial Intelligence for job performance and improvement. The study indicated that they (Business Educators) lack knowledge of utilizing AI to improve their performances on the job. The research findings indicate that lecturers in Business Studies lack sufficient proficiency in utilising AI in teaching. Eiriemiokhale and Sulyman (2023) conducted a study on 37 professional library staff to ascertain their level of awareness and perceptions of AI in Kwara State, Nigeria. They reported that librarians' awareness of utilizing AI was high. However, librarians fear that AI will replace them in the future. The study mentioned limited internet connection and low library staff experience as the main reasons for not adopting AI. In the study conducted by Agarry, Omolafe, Animashaun, and Babalola (2022) on the competency of primary education undergraduates in utilising AI for learning, it was found that lack of skills by the undergraduates was the major challenge they faced in using AI in their learning. Similarly, Thomas and Gambari (2021) also reported a low level of utilisation of AI for research purposes. Abayomi, Adenekan, Abayomi, Ajayi, and Aderonke (2020) conducted a study on university libraries' management awareness and perception of AI in Nigeria. The study's result showed that university library librarians were aware of AI and its importance. However, the major challenge they faced was the fear of losing their jobs to AI. Madu and Musa (2024) examined the level of awareness of AI in relation to lecturers' digital competency at Federal University, Wukari (FUW). The study showed that lecturers' level of awareness on the use of AI was moderate.

Theoretically, this study was centred on the Diffusion of Innovation Theory (DIT). DIT was proposed by Everett Rogers in 1962. The theory describes the circulation of innovative concepts and technologies in education as an institution. The theory describes the following five (5) phases of utilisation: knowledge, persuasion, decision, implementation, and confirmation. The variables influencing utilisation are comparative advantages, suitability, difficulty, flexibility, and accessibility. Communication pathways, such as media outlets, relationships, and agents of change, play an important part in propagating the invention (LaMorte, 2022). DIT is applicable to this study given that it describes how innovative concepts such as AI technologies circulate across education as an institution and the relationship between the levels of awareness, utilization and constraints of lecturers in utilising AI in universities in Nigeria.

It is evident from the literature review that there exists a research gap in the level of awareness, utilization and constraints of AI among lecturers and its adoption as a tool for teaching and assessment in universities in Nigeria. The reviewed studies explored AI awareness and utilization in various fields, among various populations of interest and within the university community in Nigeria. This study aims to provide empirical evidence on lecturers' awareness, utilization and the challenges that affect the effective use of AI tools in higher institutions in Nigeria.

Statement of the Problem

A number of industries, including education, have been profoundly impacted by the quick development of AI. With advantages including individualised learning, effective grading, and improved instructional support, AI systems have the prospect to transform teaching and assessment methods. However, as the main implementers, university lecturers' awareness and utilization play a significant role in the successful integration of AI in universities in Nigeria. There are worries that many university lecturers would not be sufficiently knowledgeable about AI technology and their uses, despite the tools' increasing availability and potential benefits.

Additionally, professors' proficiency with AI tools can vary greatly, even if they are aware of them. There isn't much empirical research that looks at how much university lecturers are aware of and use AI tools for teaching and assessment. Educational institutions could find it difficult to create plans for AI tool adoption, training, and support if they don't know these issues well. This study attempts to close this gap by evaluating university lecturers' awareness and use of AI tools. Through determining the elements that impact this awareness and the obstacles to its use, the research aims to offer information that can guide the creation of focused interventions to embolden the successful application of AI in tertiary institutions. This, in turn, can lead to enhanced teaching practices and improved students' learning outcomes.

Research Questions

The researchers formulated these questions as a guide to the study to assess lecturers' level of awareness and utilization of AI in teaching and assessment in universities in Nigeria.

1. What is the level of lecturers' awareness of Artificial Intelligence for teaching and assessment in universities in Nigeria?
2. What is the level of utilization of Artificial Intelligence by lecturers for teaching and assessment in universities in Nigeria?
3. What are the constraints of lecturers in utilizing Artificial Intelligence in teaching and assessment in universities in Nigeria?

Hypothesis

The two hypotheses guiding this study were established at 0.05 significance level.

1. The relationship between lecturers' level of awareness and utilization of Artificial Intelligence for teaching and assessment in universities in Nigeria is not significant.

Research Methodology

The study adopted a Mixed Method Research (MMR) design. This is considered appropriate because it allows the researchers to gain a complete insight of the problem. The design was selected because it enables researchers to investigate a problem from a number of perspectives, utilizing the advantages of both qualitative and quantitative data (Creswell & Plano Clark, 2018). Qualitative data offers researchers rich, detailed insights into the experiences and viewpoints of participants. On the other hand, quantitative data offers statistical relationships or generalizable patterns. The design enables triangulation to produce more robust conclusions and more flexibility in addressing research questions that cannot be fully addressed by either method alone. It also improved the interpretation of findings (Creswell, 2014). The population of the study was infinite. It consists of all lecturers in universities in Nigeria. The study sample size was 4193 respondents. The sample was drawn using a simple random sampling technique to give all the respondents equal opportunity and chance of participating in the study. Google Forms titled Questionnaire on University Lecturers' Awareness and Utilization of AI in Teaching and Assessment (QULAUAITA) and a Key Informant Interview (KII) guide titled Constraints of Utilizing AI for Teaching and Assessment (CUAITTA) were the instruments used for data collection in this study. QULAUAITA was structured into two clusters: Cluster A assessed lecturers' awareness of AI. It had eight items, and Cluster B assessed the level of utilization of AI by lecturers for teaching and assessment. It also has six items. Thus, the total number of items was fourteen. The tool was a self-created questionnaire with items drawn from the body of previous research. The questionnaire items were constructed in accordance with the results of a literature search on lecturers' awareness, utilization and constraints of using AI in instructional assessment in higher education institutions. Three experts in assessment-related fields (Measurement and Evaluation) were provided the developed items for validation. As a result, some items were improved upon, and others were eliminated. The researchers conducted

a preliminary assessment before the distribution to ensure that the items in the online questionnaire were suitable. The split-half reliability method was then used to conduct a trial test to determine the instrument's level of reliability. The split-half reliability of 0.82 was obtained. Lecturers were interviewed about their challenges in using AI for teaching and assessment using CUAITTA. The researchers collected the data by sharing the Google Form on the Academic Staff Union of Universities and other universities lecturers' platforms for participants to complete. The Google Form was left open for two weeks. At the expiration of two weeks, the researchers extracted the responses for analysis. The collected data was analysed using Mean to answer research questions while correlation was used to test hypotheses at 0.05 significance level. The choice of correlation was because the researchers were interested in explaining the relationship between awareness and utilization of AI for teaching and assessment. The instrument was in the form of a continuum of four ratings (Strongly Agree, Agree, Disagree and Strongly Disagree) and was scored using the format thus; SA=4, A=3, D=2, SD=1 The benchmark or anchor point to agree or disagree to an item was 2.50. Hence, the researchers considered any mean of 2.50 and above as agreed, signifying awareness and utilisation, and any mean below 2.50 as not agreed and as such not having awareness and utilisation—the calculated sig. A value of less than 0.05 was used to reject the hypothesis, while a value equal to or above 0.05 was used to accept the hypothesis stated in a null format. The researchers also interviewed 45 lecturers to ascertain their challenges in using AI tools. The data collected using KII were analysed thematically. Data collected from KII were first transcribed verbatim. The researchers then familiarized themselves with the data by reading the transcripts numerous times, coded the data into meaningful units, and grouped the coded data into potential themes, which represent broader concepts or patterns that capture important insights about the data. The researchers then reviewed the identified themes to ensure they were coherent and accurately reflected the data, defined and described each theme to explain what it represented, and reported the data in a detailed discussion of each theme, supported by direct quotes from the KIIs throughout the process.

Data Analysis and Result Presentation

Research Question One: What is the level of lecturers' awareness of AI for teaching and assessment in universities in Nigeria?

Table 1: Analysis of **l**ecturers' level of awareness of AI for teaching and assessment in universities in Nigeria

item/no	Item Description	N	Mean	SD	Remarks
1.	Turnitin (plagiarism detection)	4193	2.52	0.92	A
2.	Grammarly (writing assistance)	4193	3.79	1.21	A
3.	Coursera (online courses and resources)	4193	2.56	0.90	A
4.	Khan Academy (educational videos and exercises)	4193	2.49	0.71	NA
5.	Moodle (learning management system)	4193	2.22	0.74	NA
6.	AI-based adaptive learning platforms (e.g., Knewton)	4193	2.61	0.68	A
7.	AI chatbots for student support	4193	2.16	0.72	NA
8.	AI-driven analytics for student performance monitoring	4193	2.12	0.88	NA
	Cluster Mean Score and Standard Deviation		**2.56**	**0.85**	**A**

N=Number; SD=Standard Deviation; A=Aware & NA=Not Aware

Analysis in Table 1 showed that lecturers are aware of AI in teaching and assessment. The Table reported mean scores ranging from 2.12 to 3.79, cluster mean scores of 2.56, and standard

deviations of 0.85, respectively. Therefore, the cluster mean score of 2.56 is greater than the benchmark score of 2.50. This infers a high level of lecturers' awareness of the application of AI tools for teaching and assessment in universities in Nigeria.

Research Question Two: What is the level of utilization of AI by lecturers for teaching and assessment in universities in Nigeria?

Table 2: Analysis of lecturers' level of utilisation of AI tools for teaching and assessment in universities in Nigeria.

item/ no	Item Description	N	Mean	SD	Remarks
9.	I use AI tools like Grammarly Premium to automatically check through my writing to dictate and correct errors to avoid potential plagiarism.	4193	2.64	0.77	UO
10.	I usually use goggle classroom AI platform to enhance my classroom interaction	4193	2.51	0.84	UO
11.	I have used AI tools such as Khan to pinpoint students' difficulties in comprehension and this has enabled me to tailored my teaching to address such need.	4193	1..75	0.99	NU
12.	I have used Turn-it-in software to evaluate students works to discover the level of plagiarism.	4193	2.36	0.87	NU
13.	AI tools such as EndNote can be used to automatically assemble research documents and the re-arrangement of bibliography	4193	1.19	0.91	NU
14.	I have used AI tools such as blendspace can be used in creating online classes for teaching and assessment of my learners' achievement.	4193	1.02	1.01	NU
	Cluster Mean Score and Standard Deviation		**1.91**	**0.75**	**NU**

N=Number; SD=Standard Deviation; UO=Used Often & NU=Never Used

Analysis in Table 2 shows that the lecturers were not utilizing AI in teaching and assessment in universities in Nigeria. The Table reported mean scores that range from 1.02 to 2.64, a cluster mean score of 1.91 and a standard deviation of 0.75. Therefore, the cluster means score 1.91 falls below the benchmark score 2.50. This means that lecturers in Nigeria are utilising low levels of AI tools for teaching and assessment.

Research Question Three: What is the level of awareness and constraints of using AI tools in teaching and assessment by lecturers in universities in Nigeria?

One of the key informants interviewed said that.

> *I am aware of AI and have heard how many people especially students are using it to do assignments. But personally, I have not used it because I lack the knowledge of how to use it. My major reason of not using AI is to avoid fraudsters to hack my account and invade my privacy.*

Another lecturer interviewed stated that

> *I am aware of Artificial Intelligence tools that can be use in teaching, however, the tools are not user-friendly and easy to integrate into teaching practices. They require training for one to be able to use it. The lack of*

training support on how to use of AI in teaching and assessment is a challenge why the interviewee is not using AI tools.

The third key informant interviewed stated that

AI has come to stay and whether we like it or not, our students are using it to write assignments and even examination. It is left for us (lecturers) to start using it to teach and assess them. The problem is that majority of lecturers cannot navigate their phones or computer so they will find it difficult to operate some of these AI tools in teaching and assessment. Another challenge is that university management has not made these tools available for lecturers to use nor have train the lecturers on how to use it. The lecturers level of acceptance of using AI tools is another challenge. Some lecturers believed in paper and pen or physical classroom attendance than using technology in teaching. Also, some believed that using AI tools will make students not to think critically and creatively in solving problems. He further stated that, the frustration from network services providers is another barrier to utilizing AI in teaching and assessment.

Another of the lecturer interviewed have used AI tools. The interviewee stated that

I have used grammerly premium and quillbot and turnitin before. However, there are several challenges such as cost of procuring or subscribing for it as well as data for internet services. I was faced with poor network whenever I am using AI tools. Like me, I am computer literate so I did not have challenge using AI tools, but those that are not tech savvy, they will need training to be able to use it.

Similarly, another lecturer corroborated thus:

The benefits of using AI tools are enormous. The interviewee stated further that, Artificial Intelligence AI-based tools, such as Intelligent Tutoring Systems (ITS), enable personalized learning experiences by adapting to individual student needs. This personalized approach enhances student engagement and comprehension. It also enables efficiency in grading and assessment, like, Automated grading systems, powered by AI, streamline the assessment process for lecturers. This not only saves time but also ensures consistency and objectivity in evaluations. But the constraint of using AI tools ranges from cost associated with either buying or subscribing for it, the user's ability in operating it, the availability of internet services and many other challenges.

Hypothesis One: The relationship between lecturers' level of awareness and utilization of AI for teaching and assessment in universities in Nigeria is not significant.

Table 3: The relationship between lecturers' level of awareness and utilization of AI for teaching and assessment in universities in Nigeria.

Variables	N	Mean	SD	Df	r-Cal	p-value	Decision
Lecturers level of awareness of AI	4193	3.92	0.7391				
				4191	0.521	0.0000	Accepted
Lecturers level of utilization of AI	4193	3.11	0.6706				

Analysis in Table 3 shows the number of lecturers that participated in the study (N) = 4193. It also shows the correlation value (r) = 0.521 while the p-value was .000. Thus, testing the hypothesis at alpha level = 0.05, the p-value is greater than the alpha value, $0.000 > 0.05$. Therefore, the null hypothesis is accepted. This implies that lecturers' level of awareness and

utilisation of AI in teaching and assessment in universities in Nigeria has a negative relationship. This implies that lecturers' increasing awareness of AI does not automatically lead to an increase in the level of utilization of AI by lecturers in teaching and assessment at universities in Nigeria.

Discussion

The first revelation of the study shows that lecturers' level of awareness of AI for teaching and assessment in universities in Nigeria is moderate. This average score falls within the benchmark considered moderate. This was further affirmed by the Key Informant Interview (KII), which showed that the lecturers' awareness of using AI for teaching and assessment is high. For instance, one interviewee stated, "I have used Grammarly Premium and Quillbot and Turnitin *for teaching and assessment".* Another interviewee stated, "*I am aware of Artificial Intelligence tools that can be used in teaching and assessment; however, the tools are not user-friendly and easy to integrate into teaching and assessment practices".* The finding of this study conforms with the study conducted by Madu and Musa (2024) to correlate the relationship between lecturers, level of awareness, and digital competency in the use of AI in Federal University Wukari. Additionally, the result of the study conducted by Gaber, Shahat, Alkhateeb, Al Hasan, Alqatam, Almughyirah, and Kamel (2023) on the level of awareness of AI amongst staff of King Faisal University, Saudi Arabia, is similar to the finding of this study. The finding could be attributed to the impact of lecturers' exposure to seminars on the use of artificial intelligence in teaching and assessment processes. It could also be attributed to the fact that most lecturers in universities in Nigeria have delved into research on how to migrate from analog to digital teaching and assessment. Thus, making them aware that artificial intelligence tools can solve the problem of analog teaching and assessment.

The study's second revelation showed a low level of AI utilization by lecturers in universities in Nigeria. The result of the study shows a significant difference in lecturers' mean utilization of AI for teaching and assessment in universities in Nigeria. The responses of the KII further affirmed that lecturers' acceptance of using AI for teaching and assessment in universities in Nigeria is low. For instance, some interviewees stated that "*majority of us (lecturers) cannot navigate our phones or computer so we will find it difficult to operate some of these AI tools in teaching and assessment. Another challenge is that university management has not made these tools available for lecturers or trained them to use them. The lecturers' level of acceptance of using AI tools is another challenge. Some lecturers believe in paper and pen or physical classroom attendance rather than using technology in teaching. Also, some believe that using AI tools will make students not think critically and creatively in solving problems. He further stated that the frustration from network service providers is another barrier to utilising AI in teaching and assessment.* The result of this study agrees with Thomas et al. (2024), whose study on the assessment of lecturers' utilisation of AI reported that lecturers rarely utilised AI-based tools in teaching. Edumadze, Ossei-Anto, Edumadze, Tamakloe, Asamoah and Boadi (2014) revealed that lecturers' use of technology for instructional delivery was low. Also, Amuchie (2015) reported a very low usage of information and communication technology in college teaching. Furthermore, Yushau and Nannim's (2020) study revealed a low level of utilisation of ICT by lecturers. In addition, the findings of Ukeh and Anih (2024) showed a relatively low utilization of AI tools among Federal University Otuoke lecturers for instruction. This might result from the unavailability of AI tools for teaching and assessment in universities in Nigeria and the lack of technical capacity to operate the available ones, among others. It could also result from the institutions' policies on the mode of teaching and

assessment and the dearth of training programs for lecturers on utilising AI for teaching and assessment, among others.

The study's third revelation shows a negative correlation between awareness and utilization of AI for teaching and assessment by lecturers in universities in Nigeria. This shows that increasing lecturers' awareness does not translate to increasing lecturers' utilisation of AI in universities in Nigeria. This was further affirmed by the KII, which found that the lecturers' level of awareness of using AI for teaching and assessment is not the same as their level of utilization. For instance, one of the interviewees said, "*I have not used AI because I lack the knowledge of how to use it. Another reason that I have not use AI is to avoid fraudsters to hack my account and invade my privacy".* Again, another interviewee stated, "*AI tools require training for one to be able to use it. The lack of training support on how to use AI in teaching and assessment is the challenge why I am not using AI tools".* The results of this study disagreed with the study conducted by Gaber et al. (2023), who established an affirmative correlation between AI awareness and lecturers' digital competency by utilising it. This finding might result from the nonavailability of artificial intelligence tools to be utilised by lecturers in teaching and assessment. Again, the negative correlation between awareness and utilisation of AI for teaching and assessment could result from lecturers' technical ability to utilise the available AI for their instructional and assessment processes.

Conclusion and Recommendations

Based on the revelations from the study, the relevance of artificial intelligence tools in teaching and assessment cannot be overemphasized. Integrating artificial intelligence in teaching and assessment can transition teaching and assessment processes from analog to digital to achieve knowledge-based learning. Based on the results of this study, it was recommended that there should be deliberate efforts towards promoting artificial intelligence in teaching and assessment in universities in Nigeria via workshops or seminars to equip lecturers with new methods of teaching that integrate artificial intelligence to increase students' knowledge. Furthermore, programs that aim to increase lecturers' skills in utilizing artificial intelligence in their various speciality fields should be prioritised. These can lead to enhanced teaching and assessment of students in universities in Nigeria.

References

Abayomi, O. K., Adenekan, F. N., Abayomi, A. O., Ajayi, T. A., & Aderonke, A. O. (2020). Awareness and perception of the artificial intelligence in the management of university libraries in Nigeria, *Journal of Interlibrary Loan, Document Delivery & Electronic Reserve, 29*(1-2), 13- 28. https://doi.org/10.1080/1072303X.2021.1918602.

Agarry, R. O., Omolafe, E. V., Animashaun, V. O. & Babalola, E. O. (2022). Primary education undergraduates' competency in the use of artificial intelligence for learning in Kwara State. *ASEAN Journal of Educational Research and Technology, 1*(2), 23-33. https://ejournal.bumipublikasinusantara.id/index.php/ajert/article/view/55/52#

Aluthman, E. S. (2016). The effect of using automated essay evaluation on ESL undergraduate students' writing skill. *International Journal of English Linguistics*, *6*(5), 54-67.

Amadi-Iwai, P. S., Ubulom, W. J., & Okiridu, O. (2024). Awareness, competence and utilization of artificial intelligence for improved job performance by business educators in universities in south-south Nigeria. *International Journal of Advanced Research and Learning*, *3*(1), 65-77. http://rajournals.net/index.php/ijarl/article/view/221.

Anderson, T., & Dron, J. (2011). Three generations of distance education pedagogy. *The International Review of Research in Open and Distributed Learning, 12*(3), 80-97.

Bamidele, A.O. (2019). Assessment of lecturers' acceptance and adoption of ICT in teaching and learning process in Nigerian universities. *The International Journal of Science & Technology 7*(9), 57-67 DOI No.: 10.24940/theijst/2019/v7/i9/ST1909-019

Barua, A. (2023). Top (FREE) AI tools for research and academic writing 2023 https://www.linkedin.com/pulse/top-free-ai-tools-research-academic-writing-2023-anik-barua/.

Eiriemiokhale, K. A., & Sulyman, A. S. (2023). Awareness and perceptions of artificial intelligence among librarians in university libraries in Kwara State, Nigeria. *Indonesian Journal of Librarianship, 4*(2), 107-118. https://doi.org/10.33701/ijolib.v4i2.3364

Fahimirad, M., & Kotamjani, S. S. (2018). A review on application of artificial intelligence in teaching and learning in educational contexts. *International Journal of Learning and Development*, 9(1), 23-32. https://doi.org/10.5296/ijld.v8i4.14057

Fernandez, O. Y., Fernandez, V. L., & Aburto, G. L. (2019). Artificial intelligence and its implications in higher education. *Propósitosy Representaciones*, *7*(2), 536- 568. http://dx.doi.org/10.20511/pyr2019.v7n2.274/

Filsecker, M., & Kerres, M. (2012). Repositioning formative assessment from an educational assessment perspective: A response to Dunn & Mulvenon (2009). *Practical Assessment, Research, and Evaluation, 17(*1), 1-9. https://doi.org/10.7275/xrkr-b675

Gaber, S. A., Shahat, H. A., Alkhateeb, I. A., Al Hasan, S. A., Alqatam, M. A., Almughyirah, S. M., & Kamel, M. k. (2023). Faculty members' awareness of artificial intelligence and its relationship to technology acceptance and digital competencies at King Faisal University. *International Journal of Learning, Teaching and Educational Research, 22*(7), 473-496. https://ijlter.org/index.php/ijlter/article/view/7916/pdf.

Karsenti, T. (2019). Artificial intelligence in education: The urgent need to prepare teachers for tomorrow's schools. *Formation Et Profession*, *27*(1), 112-116.

Kundariya, H. (2023). *Best AI tools to empower your academic research*. https://www.enago.com/academy/author/harikrishna12/

Ladeinde, F. (2019). The Nigeria's agency for robotics and artificial intelligence (RAI): A few pointers. *Daily Trust*.

LaMorte, W. W. (2022). Diffusion of innovation theory. Boston University School of Public Health. Retrieved on 12/12/2024 from https://sphweb.bumc.bu.edu/otlt/mph-modules/sb/behavioralchangetheories/behavioralchangetheories4.html

Luckin, R. (2017). Towards artificial intelligence-based assessment systems. *National Human Behaviour*, *1*(1), 1-28.

Madu, C. O., & Musa, A. (2024). Lecturers' level of awareness of artificial intelligence as correlate of their digital competence at Federal University Wukari, Nigeria. *Journal of Educational Research in Developing Areas, 5*(1), 59 - 61. https://doi.org/10.47434/JEREDA.5.1.2024.59.

Masaazi, F. M (2015). Developing a friendly and productive language learning environment (FPLE) using the learner as a resource. *Journal of Education and Training Studies*, 3(5), 144-154. https://doi.org/10.11114/jets.v3i5.967

Nchunge, D.B., Sakwa, M. & Mwanga, W. (2013). Assessment of ICT infrastructure on ICT adoption in educational institutions: A descriptive survey of secondary schools in Kiambu County Kenya. *Journal of Computer Science & Information Technology*, 1(1), 32-45. Retrieved on March 12,2017 from: http://jcsitnet.com/journals/jcsit/Vol_1_No_1_June_2013/2.pdf.

Ochai, G. (2007). *Information and Communication Technologies at a Glance.* Nsukka; Excellent Press

Okuonghae, N., & Tunmibi, S. (2024). Digital competence as predictor for the motivation to use artificial intelligence technologies among librarians in Edo and Delta States, Nigeria. *Journal of Technology Innovations and Energy, 3*(1), 1–11. https://doi.org/10.56556/jtie.v3i1.728.

Rudolph, J., Tan, S., & Tan, S. (2023). ChatGPT: Bullshit spewer or the end of traditional assessments in higher education? *Journal of Applied Learning & Teaching*, *6*(1), 342-363. DOI: https://doi.org/10.37074/jalt.2023.6.1.9

Shukla, S. S., & Jaiswal, V. (2013). Applicability of artificial intelligence in different fields of life. *International Journal of Scientific Engineering and Research,* 1(1), 28-35.

Thomas, G. & Gambari, A.I. (2021). *A review of artificial intelligent for teaching, assessment and research in Nigerian Universities.* Conference: Association for Innovative Technology Integration in Education (AITIE, 2021) Conference Proceedings, 199-207

Thomas, G., Gambari, A.I., Sobowale, F.M & shehu, B.A. (2024). *Assessment of lecturers' utilization of artificial intelligence for education in a Nigerian university*. Retrieved on 30th October, 2024 from www.researchgate.net/publication/385774372_Artificial_Intelligence_teaching_and_Research_Programmes_in_Tertiary_Institutions-in_Nigeria

Uhegbu, A. N. (2007). *The information user: Issues and themes*. Okigwe; WHYTEM Publishers Nigeria

Ukeh, B.O & Anih, A.A. (2024). Utilization of artificial intelligence based tools for teaching and research among lecturers in Federal University Otuoke, Bayelsa State Nigeria. *Sapientia Foundation Journal of Education, Sciences and Gender Studies (SFJESGS), 6*(1), 153 – 159 ISSN: 2734-2522 (Print); ISSN: 2734-2514 (Online)

Williams, A. (2019). The role of university lecturers in modern education. *Journal of Higher Education, 40*(3), 245-259