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LECTURERS' READINESS FOR INTEGRATING ARTIFICIAL INTELLIGENCE (AI) IN TEACHING, LEARNING, AND RESEARCH ACTIVITIES IN EDUCATIONAL INSTITUTIONS

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Abstract

The study determined lecturers' readiness for integrating Artificial Intelligence (AI) in teaching, learning, and research activities in educational institutions. Three research questions and three hypotheses were answered and tested in this study. A descriptive research design of survey type was used. The population of this study comprised 921 academic staff of Olabisi Onabanjo University (OOU) and Tai Solarin University of Education (TASUED). A total of 150 academic staff of Olabisi Onabanjo University (OOU) and Tai Solarin University of Education (TASUED) were selected as sample size of the study, using purposive sampling technique. A self-researcher-designed instrument tagged: Lecturers' Readiness, Integrating Artificial Intelligence, Teaching, Learning, and Research Activities Questionnaire (LRIAITLRAQ) was used for data collection with 0.83 as reliability coefficient. Descriptive statistics of mean and standard deviation were used for answering research questions. Hypotheses were tested using PPMC. The findings of the study revealed that there was low level of lecturers' readiness for integrating Artificial Intelligence (AI) in teaching within higher educational institutions. There was low level of lecturers' readiness for integrating Artificial Intelligence (AI) in learning within higher educational institutions. There was medium level of lecturers' readiness for integrating Artificial Intelligence (AI) in research activities within higher educational institutions. Integration of Artificial Intelligence (AI) do enhance teaching ($B = 0.426$, $t = 8.772$, $p < .05$), learning ($B = 0.502$, $t = 14.201$, $p < .05$) and research activities ($B = 0.787$, $t = 31.175$, $p < .05$) in higher educational institutions in higher educational institutions. It was recommended that universities management should integrate AI components into the curriculum. Additionally, lecturers are encouraged to use AI to enhance personalized teaching-learning experiences, and effectively manage course content, assessments, and student communication.

Keywords: Lecturers' Readiness, Artificial Intelligence, Teaching, Learning, Research Activities Educational Institutions

Introduction

The goal achievement of an institutions depends on the capability of Lectures in those institutions. A lecturer is a person who gives lectures, especially as an occupation at a university or college or polytechnic or any other tertiary institutions. Lecturer is an academic rank within many universities, though the meaning of the term varies somewhat from country to country. It generally denotes an academic expert who is hired to teach on a full- or part-time basis. The role play by lecturers in institutions is germane towards national development and their capability to equip students for future benefits largely depend on the applicability of digital technology tools (Ellen, 2023). Even, with the rate of global changing in education, mostly in the area of instruction delivery in school, lecturers need to be familiar themselves in the integration and usage of technology such as Artificial Intelligence in teaching and learning with the sole aim to produce world class students who can compete globally with colleagues (Zhang & Lu, 2021). However, what matter is lecturer readiness to integrate technology such as AI into the teaching and learning as well as research activities.

Lecturer readiness involves awareness, knowledge, attitude and skill in using information technology. Information and communication technology (ICT) provides lecturers with vast opportunities to integrate digital learning resources into the teaching and learning process, enhancing student achievement (Ogoronte & Bupo, 2024). As Hung (2020) noted, readiness is crucial for lecturers to benefit from e-learning. Access to e-learning facilities should facilitate readiness and usability in education. However, if lecturers are not prepared to incorporate e-learning technologies such as computers, internet connections, smartphones, Artificial Intelligence (AI), and Learning Management Systems, their potential benefits will remain unrealized. Therefore, lecturers must demonstrate readiness to integrate Artificial Intelligence (AI) to improve the teaching and learning effectively. Artificial intelligence (AI) involves the use of computers to mimic human cognitive processes and behaviors, including planning, learning, understanding, recognizing, reasoning, and problem-solving, as well as addressing complex problems that typically require human expertise, like programming, forecasting, consulting, and diagnosing (Akpomi, 2022). Accordingly, Chernov (2023) emphasized the importance of lecturers' readiness to integrate AI into the teaching and learning in tertiary institutions, because AI offers personalized learning, improved content delivery, enhanced assessment, greater accessibility and efficiency in education.

Furthermore, AI technology offers lecturers more precise and prompt assessments and feedback, including information from students. This, in turn, helps lecturers better understand students' requirements and tailor teaching strategies to support effective teaching. According to Zhang and Lu (2021), AI assessment and feedback system can assess teaching effectiveness and quality, providing guidance and suggestions to assist lecturers in improving their teaching methods and proficiency over time. This corresponds with the concept that lecturers' preparedness to incorporate AI into learning management systems can greatly improve the teaching and learning experience in business studies, offering personalized learning paths, adaptive content, data analytics, automated assessment, intelligent support, and resource recommendations. In the same vein, Xia (2022) emphasized that AI offers real-time feedback, adapts to individual learning performance, and guides teachers to adjust their strategies and methods, ultimately leading to more efficient teaching and better educational outcomes. The author further highlighted the following artificial intelligences that have gained considerable popularity among lecturers for effective teaching: Chat GPT, Quillbot, and Education Copilot.

Chat-GPT is a chatbot designed to understand natural human language and produce detailed, human-like written text. It has demonstrated its potential in various applications, including education, by providing personalized learning experiences and assisting teachers in creating tailored content. Chat-GPT aligns with the dynamic nature of the curriculum (Xia, 2022). Similarly, Zhang and Lu (2021) stated that lecturers often rely on examples to elucidate theories and concepts, highlighting Chat-GPT's ability to generate creative and innovative examples as a valuable supplement to classroom instruction. Moreover, Quillbot's advanced paraphrasing, capabilities and grammar checking features empower lecturers to improve the clarity and professionalism of instructional materials and summarizing lengthy passages in lesson notes which is essential for effective communication in business studies classes (Ho, 2022). Consequently, Education Copilot, an AI-powered platform, assists lecturers in efficiently managing lesson planning, preparation, and the creation of educational materials. It streamlines the generation of high-quality content, such as lesson plans, writing prompts, handouts, student reports, and project outlines, thereby enhancing the overall teaching experience (Ellen, 2023).

The Learning Management System (LMS) is a major approach to e-learning that enables lecturers and school administrators to monitor student progress, time spent on tasks, and attendance (Ülker & Yılmaz, 2016). An LMS, is a software application or online platform created to streamline the development, delivery, supervision, and monitoring of educational courses and training initiatives. These platforms are widely utilized in academic institutions, corporations, and various organizations to offer organized learning opportunities for individuals. According to Chaw and Tang (2018), students and lecturers heavily rely on the LMS in online education, as it serves as the central platform for sending course materials and assignments during the learning process. Furthermore,

LMS plays a crucial role in enhancing the effective teaching by offering tools and features that help lecturers prepare, deliver, and assess course materials in an organized and engaging way. This fosters effective communication, collaboration, and data-driven teaching strategies, ultimately leading to improved learning outcomes for students. The successful incorporation of LMS into the teaching process depends on the readiness of lecturers to embrace this technology. Andersson (2019) opined that an LMS serves as a software application or online tool utilized to design, execute, and assess learning processes. Generally, it allows educators to create and distribute content, track student participation, and assess student performance. Incorporating an LMS also provides an organized platform for synchronous teaching methods, such as utilizing videos and conducting online meetings (Alzahrani, 2019). According to Abdulazeez and Zeebaree (2018), organizations and educational institutions frequently invest in LMSs for course registration and online training purposes. Conversely, the adaptability of LMSs is crucial for catering to the diverse requirements of lecturers and students.

Statement of the Problem

During the last global pandemic, countries of the world including Nigeria, have begun to look for antidotes to curb the recurrence because during the time, all activities including educational activities like teaching and learning short down automatically. Along the process, scientists and technologist experts see the need to continue normal life with the used of digital tools particularly in educational sector. However, in response to global initiatives aimed at controlling the spread of the pandemic, e-learning was introduced for lecturers-students across various educational levels, from early childhood through tertiary education. These necessitated educational institutions to explore alternative methods to ensure the ongoing delivery of high-quality education. Educational institutions struggled to adapt to e-learning as one of their instructional delivery modalities. Lecturers were unenthusiastic about the changes because of their unwillingness to keep up with technological development. These resulted in some lecturers' inability to utilize the e-learning approach to teaching, their inability to impart 21st-century skills to the students, and their failure to understand the different learning styles among them. Currently, the pandemic restriction has been eased and educational activities have gone back to normal, but the question is: In the event of another lockdown, are the public tertiary institutions lecturer ready to for effective integration of AI in teaching, learning and research activities within educational institutions? Thus, this question among other necessitate the need to assess lecturers' readiness for integrating artificial intelligence (AI) in teaching, learning and research activities in educational institutions.

Objectives of the Study

The main objective of the study was to determine lecturers' readiness for integrating Artificial Intelligence (AI) in teaching, learning, and research activities in educational institutions. Specifically, the study sought to:

1. find out lecturers' readiness for integrating Artificial Intelligence (AI) in teaching;
2. ascertain lecturers' readiness for integrating Artificial Intelligence (AI) in learning;
3. examine lecturers' readiness for integrating Artificial Intelligence (AI) in research activities;
4. determine the extent to which integration of Artificial Intelligence (AI) can enhance teaching;

Research Questions

The following research questions guided this study:

1. What is the level of lecturers' readiness for integrating Artificial Intelligence (AI) in teaching within higher educational institutions?
2. What is the level of lecturers' readiness for integrating Artificial Intelligence (AI) in learning within higher educational institutions?

3. What is the level of lecturers' readiness for integrating Artificial Intelligence (AI) in research activities within higher educational institutions?

Research Hypotheses

The following null hypotheses were tested in this study:

$H0_1$: Integration of Artificial Intelligence (AI) do not enhance teaching in higher educational institutions.

$H0_2$: Integration of Artificial Intelligence (AI) do not enhance learning in higher educational institutions.

$H0_3$: Integration of Artificial Intelligence (AI) do not enhance research activities in higher educational institutions.

Methodology

A descriptive research design of survey type was used for the study. The design was appropriate because it enabled the researcher to collect needed data from the respondents towards achievement of objective of the study. The population of this study comprised 921 academic staff of Olabisi Onabanjo University (OOU) and Tai Solarin University of Education (TASUED). These two universities were Ogun state owned Universities. However, OOU has a total of 603 academic staff and TASUED has 313 academic staff. A total of 150 academic staff of Olabisi Onabanjo University (OOU) and Tai Solarin University of Education (TASUED) were selected as sample size of the study, because the size represented the opinions of other students. Purposive sampling technique was used for the selection of the sample size. Purposive sampling was adopted depend on researcher discretions. A self-researcher-designed instrument tagged: Lecturers' Readiness, Integrating Artificial Intelligence, Teaching, Learning, and Research Activities Questionnaire (LRIAITLRAQ) was used for the collection of data from lecturers regarding lecturers' readiness for integrating Artificial Intelligence (AI) in teaching; learning and research activities. The questionnaire requested responses on a four (4) – point scale format which is a modification of 5-point Likert scale. The responses rating scales are as follows: Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD). To ensure the face and content validity of the instrument (LRIAITLRAQ), copies of the instrument were given to 3 experts in the Department of Business Education, Tai Solarin University of Education (TASUED). Reliability test of the instrument (LRIAITLRAQ) was done using a test-retest method. In this case, copies of the instrument (LRIAITLRAQ) was administered twice on 10 lecturers in Lagos State University that are not part of the sample size within a week interval. The collected data from the instruments subjected to Pearson moment reliability statistic. Reliability coefficient of 0.83 was reported. Descriptive statistics of mean and standard deviation were used for answering research questions. Hypotheses were tested using PPMC.

Results

Research Question 1: What are the level of lecturers' readiness for integrating Artificial Intelligence (AI) in teaching within higher educational institutions?

Table 1: Descriptive statistics on the level of lecturers' readiness for integrating Artificial Intelligence (AI) in teaching within higher educational institutions

Items	Mean	SD
I am willing to use Quilbot to improve grammatical structure.	2.63	.917
I am ready to use ChatGPT to generate lessons plans for effective teaching	2.97	.956
I am ready to employ Quilbot to summary my lesson notes.	2.58	.888
I am eager to use education copilot to generate PowerPoint Slides	2.91	.904
I am eager to use education copilot to create handouts.	2.64	.822
I am willing to use ChatGPT to produce multiple explanations and questions.	2.77	.804

Cluster Mean	2.75

Source: Field Survey, 2025

Table 1 depicted that cluster mean was 2.75 which greater bench mark mean value 2.50. The implications of these results were that there was low level of lecturers' readiness for integrating Artificial Intelligence (AI) in teaching within higher educational institutions.

Research Question 2: What are the level of lecturers' readiness for integrating Artificial Intelligence (AI) in learning within higher educational institutions?

Table 2: Descriptive statistics on the level of lecturers' readiness for integrating Artificial Intelligence (AI) in learning within higher educational institutions

Items	Mean	SD
I am ready to adopt Learning Management System for lesson planning and evaluation	2.99	.877
I am willing to use Learning Management System for creating educational content.	2.66	.801
I am open to using LMS for monitoring students' participation and performance.	2.72	.844
am willing to embrace LMS for distributing instructional materials.	2.69	.798
I am eager to use LMS for delivering lessons through video conferencing and live chats.	2.80	.893
I am prepared to use LMS to participate in training to enhance my digital and teaching skills.	2.51	.861
Cluster Mean	2.73	

Source: Field Survey, 2025

Table 2 showed that cluster mean was 2.73 and the bench mark mean value was 2.50. Since, 2.73 > 2.50, this implied that there was low level of lecturers' readiness for integrating Artificial Intelligence (AI) in learning within higher educational institutions.

Research Question 3: What are the level of lecturers' readiness for integrating Artificial Intelligence (AI) in research activities within higher educational institutions?

Table 3: Descriptive statistics on the level of lecturers' readiness for integrating Artificial Intelligence (AI) in research activities within higher educational institutions

Items	Mean	SD
I used AI to get needed materials for a paper.	3.11	.752
AI help me too soft for quality published journal online.	2.93	.903
AI is used to contact respondents to questionnaire administration.	3.28	.798
AI produce required answer to any research activities.	3.07	.763
AI make research activities more flexible.	3.29	.875
Cluster Mean	3.14	

Source: Field Survey, 2025

Table 3 revealed that cluster mean was 3.14 and the bench mark mean value was reported as 2.50. Since, 3.14 > 2.50, this implied that there was medium level of lecturers' readiness for integrating Artificial Intelligence (AI) in research activities within higher educational institutions.

H0$_1$: Integration of Artificial Intelligence (AI) do not enhance teaching in higher educational institutions.

Table 4: Integration of Artificial Intelligence (AI) do enhance teaching in higher educational institutions

Model		Unstandardized Coefficients		Standardized Coefficients	t	P
		B	Std. Error	Beta		
1	(Constant)	1.619	2.247		.721	.472
	Integration AI	.638	.073	.426	8.772	.000

a. Dependent Variable: Teaching in higher educational institutions

Source: Field Survey, 2025

Table 4 showed that independent variable was found to be significant and strongly determine dependent variable with the P-value less than 0.05 and magnitude of Integration of Artificial Intelligence (AI) (B = 0.426, t = 8.772, p < .05). This implied that null hypothesis was rejected and the researcher concluded that integration of Artificial Intelligence (AI) do enhance teaching in higher educational institutions.

H0$_2$: Integration of Artificial Intelligence (AI) do not enhance learning in higher educational institutions.

Table 5 Integration of Artificial Intelligence (AI) do enhance learning in higher educational institutions.

Model		Unstandardized Coefficients		Standardized Coefficients	t	P
		B	Std. Error	Beta		
1	(Constant)	30.238	1.559		19.395	.000
	Integration AI	.532	.037	.502	14.201	.000

a. Dependent Variable: Learning in higher educational institutions

Source: Field Survey, 2025

Table 5 revealed that independent variable was found to be significant and strongly determine dependent variable with the P-value less than 0.05 and magnitude of Integration of Artificial Intelligence (AI) (B = 0.502, t = 14.201, p < .05). This implied that null hypothesis was rejected and the researcher concluded that integration of Artificial Intelligence (AI) do enhance learning in higher educational institutions.

H0$_3$: Integration of Artificial Intelligence (AI) do not enhance research activities in higher educational institutions.

Table 6: Integration of Artificial Intelligence (AI) do enhance research activities in higher educational institutions

Model	Unstandardized Coefficients	Standardized Coefficients	t	P

		B	Std. Error	Beta		
1	(Constant)	18.366	1.094		16.793	.000
	Integration AI	.540	.017	.787	31.175	.000

a. Dependent Variable: Research activities in higher educational institutions

Source: Field Survey, 2025

Table 6 depicted that independent variable was found to be significant and strongly determine dependent variable with the P-value less than 0.05 and magnitude of Integration of Artificial Intelligence (AI) ($B = 0.787$, $t = 31.175$, $p < .05$). This implied that null hypothesis was rejected and the researcher concluded that integration of Artificial Intelligence (AI) do research activities in higher educational institutions.

Discussion

The findings of the study based on research question 1 revealed that there was low level of lecturers' readiness for integrating Artificial Intelligence (AI) in teaching within higher educational institutions. These findings were in agreement with Ogoronte and Bupo (2024) findings revealed a high level of readiness among teachers to integrate AI and LMS for effective teaching. Musa et al. (2022) indicated that confidence in teaching AI predicts intention to teach AI while AI relevance strongly predicts readiness to teach AI. While other factors influence the teaching of AI, anxiety and social good could not predict teachers' intention and readiness to implement AI in classrooms respectively. Benson and Muhammad (2024) revealed a moderate level of readiness among lecturers, the article concludes.

The findings also indicated that there was low level of lecturers' readiness for integrating Artificial Intelligence (AI) in learning within higher educational institutions. These findings corroborate with Umali (2024) findings of this study contribute to a deeper understanding of the role of AI in education management and its implications for teacher empowerment and student motivation. The insights derived from this research can inform policymakers, school administrators, and educators on effective strategies for harnessing AI technology to optimize teaching and learning experiences in private schools in Calamba City, Laguna, and beyond.

Based on research question 3, it was found that there was medium level of lecturers' readiness for integrating Artificial Intelligence (AI) in research activities within higher educational institutions. These findings correlate with Mutahir and Rohemoot (2024) finding revealed that the level of awareness among Osun State University students of AI and its applications in science education is high. The perceptions and attitudes of Osun State University students towards the use of AI in science teaching is high. The level of preparedness of Osun State University students to engage with AI as a tool and resource in learning science subjects. Eloho et al. (2019) revealed that among the seven knowledge constructs, the teachers' technological, pedagogical, and technological pedagogical knowledge are the most significant predictors of their performance.

Furthermore, the findings based on hypothesis one revealed that integration of Artificial Intelligence (AI) do enhance teaching in higher educational institutions. These findings were in agreement with Adesina (2024) showed that AI anticipate developments in personalized learning environments, improved data analytics, integration of virtual and augmented reality, enhanced natural language processing, and global cooperation in education. Olatunde-Aiyedun (2024) found that AI integration in education enhanced learning in universities. The results demonstrate a tangible link between AI integration and science education, offering a nuanced understanding of advantages and disadvantages.

The findings showed that the findings depicted that integration of Artificial Intelligence (AI) do enhance learning in higher educational institutions. These findings were in consonant with Ebirim et al. (2023) findings of the research revealed that 'personalized learning' was the highest prospect of artificial intelligence in effective teaching and learning of science in Imo state Colleges of Education and also that 'inadequate preparedness of teachers' was the major challenge of artificial intelligence in teaching and learning of science in Imo State Colleges of education. The study concluded that by leveraging AI-powered tools and platforms, educators can personalize learning experiences, enhance student engagement, and optimize teaching methodologies to better cater to diverse learning styles. Woodruff et al. (2022) findings suggest the overall positive perception of AI and openness towards its integration. However, disparities in access to technology and comfort levels with technology exist among different regions, genders, and age groups.

Finally, the findings revealed that integration of Artificial Intelligence (AI) do enhance learning in higher educational institutions. These findings were in tandem with Odunaya (2023) revealed that AI technologies, including machine learning and natural language processing, play a pivotal role in enhancing educational practices. Notably, AI facilitates personalized learning experiences, automates assessments, and optimizes curriculum design by analyzing extensive datasets on student performance. The findings underscore the potential of AI to address scalability issues in education, offering a dynamic approach to curriculum development that considers individual learner needs and ensures the delivery of high-quality educational content. Moreover, the study identifies future prospects for AI in education, envisioning advancements in adaptive learning systems, intelligent tutoring, and expanded applications of AI-driven virtual assistants. Sameera (2023) results indicated varying teacher readiness levels, influenced by gender, educational background, and concerns over data privacy and security. While there was general sense of optimism about the potential of AI, significant challenges related to limited resource access and insufficient professional development were identified. These results emphasized the need for targeted policy initiatives and training programs to enhance teachers' readiness for AI adoption.

Conclusion

Having assessed lecturers' readiness for integrating Artificial Intelligence (AI) in teaching, learning, and research activities within educational institutions., the following conclusions were drawn based on the findings of the study that there was low level of lecturers' readiness for integrating Artificial Intelligence (AI) in teaching and learning within higher educational institutions; there was medium level of lecturers' readiness for integrating Artificial Intelligence (AI) in research activities within higher educational institutions. It was also concluded that integration of Artificial Intelligence (AI) do enhance teaching, learning and research activities in higher educational institutions.

Recommendations

Based on the findings of the study, the following recommendations are provided:

1. The lecturers should be train and equip with AI skills to effectively ready for usage in instruction delivery in tertiary institutions.
2. The study recommended that the universities management should integrate AI components into the curriculum. Additionally, lecturers are encouraged to use AI to enhance personalized teaching-learning experiences, and effectively manage course content, assessments, and student communication.
3. The government should improve the funding and provision of digital equipment to create enabling environment for optimal integration of AI into the teaching-learning system.

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