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Lecturers' Perception and Adoption of Artificial Intelligence (AI) Tools in Tertiary Institutions in Ondo State, Nigeria

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ABSTRACT

The study investigated lecturers' perception and adoption of Artificial Intelligence (AI) tools in tertiary institutions in Ondo State. The study employed a descriptive survey research design. 150 participants were randomly selected from each of the schools sampled, resulting in a total of 450 participants across the three senatorial districts. A university was randomly selected in each of the three senatorial districts (Ondo South, Central, and North) in Ondo State. A self-developed questionnaire titled Lecturers' Perception and Adoption of Artificial Intelligence Tools Questionnaire (LPAAITQ) was used to collect data for the study. Data collected were analyzed with the use of both descriptive and inferential statistical tools (Pearson Product Moment Correlation). The study revealed that lecturers' perception of AI was positive. The study also revealed a very low level of AI adoption among lecturers. The study further revealed some of the challenges confronting lecturers in the effective adoption of AI tools in tertiary institutions in Ondo State. Such challenges include poor internet connectivity, poor funding, and lack of infrastructure to support AI usage in most of the tertiary institutions. The finding also revealed a significant relationship between the lecturer's perception and adoption of AI. The study concluded by giving appropriate recommendations, which include increased funding, enhanced training programs for lecturers, and research initiatives to advance AI-driven instructional methodologies in tertiary institutions in Nigeria.

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1. INTRODUCTION

Artificial Intelligence (AI) has emerged as a revolutionary influence across multiple sectors, providing novel solutions to intricate challenges (Lu, 2019; Aldoseri et al., 2024; Secundo et al., 2025). In education, AI possesses the capacity to transform conventional pedagogical approaches and enhance research methodologies. Gonzalez (2024) characterizes Artificial Intelligence (AI) as the process of emulating human cognition and engineering a machine to exhibit human-like behavior, sometimes

referred to as cognitive tasks, which entails the computer's ability to autonomously learn from programmed facts and knowledge. Alkatheiri (2022) defines artificial intelligence as the creation of computer systems that can execute tasks usually necessitating human intelligence. In this instance, AI encompassed multiple technologies, including machine learning, natural language processing, and data analytics. AI systems utilize algorithms and data to replicate cognitive capabilities, allowing computers to assess information, adjust to evolving conditions, and enhance performance progressively (Verma, A., & Singhal, 2023; Shandilya et al., 2024).

AI solutions have been created to address the specific requirements of the teaching and learning process in academic environments (Kim et al., 2022; Lin et al., 2023). These technologies utilize sophisticated algorithms and data processing skills to optimize workloads, deliver customized learning experiences, and furnish vital insights for research activities. Examples of these AI learning technologies encompass Intelligent Tutoring Systems (ITS): Intelligent Tutoring Systems employ AI algorithms to tailor instruction to specific learning requirements (Nye, 2015). These technologies offer tailored feedback and direction to pupils, facilitating their academic advancement. AI learning technologies can assist educators in customizing instructional materials according to individual student needs (Essa et al., 2023; Almuhanna, 2025). Plagiarism detection software is an AI-driven technology essential for upholding academic integrity. These technologies utilize sophisticated algorithms to analyze submitted work against extensive databases, detecting instances of plagiarism and verifying the originality of research findings. Sun et al. (2025) asserted that AI-driven automated grading systems can effectively evaluate assignments, examinations, and coursework. These technologies not only conserve time for educators but also deliver consistent and impartial evaluations, promoting equity in the assessment process. Additional AI learning technologies encompass predictive analytics, which employs AI algorithms to examine previous data and predict trends in student performance. Instructors can utilize these insights to promptly identify at-risk pupils, facilitating tailored interventions to enhance their academic progress (Romero & Ventura, 2010; Bettahi et al., 2025).

In this study, perception pertains to how lecturers regard AI and its prospective influence on their pedagogical methods and professional responsibilities. Lecturers' impressions of AI are influenced by a confluence of personal convictions, institutional backing, cultural elements, and the anticipated advantages of technology (Sanders & Mukhari, 2024; Pang et al., 2025). These factors have the potential to either promote or hinder the adoption of AI in higher education. Favorable opinions of AI may facilitate its adoption, but unfavorable impressions can engender resistance to its implementation in educational settings. The perceived advantages of AI implementation for educators are crucial in influencing favorable opinions (Al-Mughairi & Bhaskar, 2024; Ma & Lei, 2024). Lecturers may perceive AI as a mechanism to enhance the efficiency of administrative responsibilities, such as grading and evaluation, thereby liberating additional time for instructional activities (Ahmad et al., 2022; George & Wooden, 2023). This notion of enhanced productivity can incentivize lecturers to adopt AI solutions that automate mundane duties.

Nonetheless, despite the enormous potential of AI tools in education, their adoption by lecturers in Nigerian postsecondary institutions remains in its nascent phase (Eze & Nwachukwu 2023; Ejeh & Igbokwe, 2025). Multiple factors affect lecturers' adoption of AI, with perceived ease of use and perceived utility being the most significant. Research on technology acceptance within educational settings extensively utilizes these elements as components of the Technology Acceptance Model (TAM) (Granić & Marangunić, 2019; Al-Nuaimi & Al-Emran, 2021; Papakostas et al., 2023). Instructors are more inclined to utilize AI tools if they perceive them as user-friendly and believe these tools will improve their teaching efficiency or effectiveness (Choi et al., 2023). AI-driven grading systems that automate the assessment of students' assignments and examinations are regarded as exceptionally beneficial due to their time-saving capabilities and minimization of human mistake. Likewise, Zhai et al. (2021) asserts that AI tools providing individualized learning experiences for students are likely to be embraced by educators who acknowledge the capacity of these technologies to address varied student requirements and enhance academic outcomes.

The integration of Artificial Intelligence (AI) in Nigerian tertiary institutions encounters substantial obstacles, chiefly due to infrastructural inadequacies, insufficient finance, and a deficiency in technical proficiency. Oyeleke et al. (2019) asserted that the requisite hardware and software infrastructures for the implementation of AI technologies, including high-performance computing systems, machine learning frameworks, and cloud-based platforms, are frequently lacking. The absence of modern infrastructure obstructs the implementation of AI-driven solutions that necessitate substantial computational power and dependable connectivity (Bello & Adebayo, 2022). Moreover, inadequate funding for educational institutions in Nigeria renders AI adoption a luxury rather than a necessity, resulting in limited funds for investment in essential technology and training programs.

Nonetheless, despite global trends favoring the integration of AI technology in higher education (Zawacki-Richter et al., 2019; Jin et al., 2025; Ruano-Borbalan, 2025), a significant study vacuum exists regarding lecturers' perceptions and utilization of AI tools for instructional delivery in Nigerian tertiary institutions, notably in Ondo State. This study examines lecturers' perceptions and utilization of artificial intelligence tools in tertiary institutions in Ondo State. Specifically, the study aims to achieve the following: (1) Determine university lecturers' level of adoption of learning management system (LMS) in Ondo State, (2) Examine university lecturers' level of use of learning management system (LMS) in Ondo State, and (3) Ascertain the relationship between the adoption and lecturers' use of learning management system (LMS) in Ondo State. Meanwhile, the following research questions were raised and answered in this study: (1) What is the lecturers' perception of AI tools in tertiary institutions in Ondo State? (2) What is the level of lecturers' adoption of AI tools in tertiary institutions in Ondo State? and (3) What are the challenges of adopting AI tools for teaching and learning by lecturers in tertiary institutions in Ondo State?

2. METHOD

The study employed a descriptive survey research design. The sample population consisted of 450 lecturers randomly selected from three public universities in Ondo State. One university was randomly selected from each of the state's three senatorial districts (Ondo South, Ondo Central, and Ondo North). 150 lecturers were randomly selected in each of the universities. The following is a flowchart of descriptive survey research designs in Figure 1.

Figure 1. Flowchart Descriptive Survey Research Design

Data was collected using a self-developed questionnaire titled Lecturers' Perception and Adoption of Artificial Intelligence Tools Questionnaire (LPAAITQ), which consisted of three sections (A-C). Section A gathered demographic information, including the participants' qualifications and the name of the institution. Section B contained ten question items assessing lecturers' perception of Artificial Intelligence (AI), while C consisted of ten question items on lecturers' level of adoption of AI tools in tertiary institutions. Responses were recorded using a 4-point Likert Scale: Strongly Agree (SA = 4), Agree (A = 3), Disagree (D = 2), and Strongly Disagree (SD = 1). The questionnaire underwent face and content validation by two experts in test measurement and evaluation from the Department of Educational Foundation and Counseling in Adeyemi Federal University of Education, Ondo, to ensure accuracy, appropriateness, and completeness for the study. The instrument's reliability was confirmed using Cronbach's Alpha, yielding a coefficient of 0.82, indicating high reliability. Data analysis involved calculating mean scores and standard deviations to answer the research questions, while the Pearson Product Moment Correlation coefficient was used to test the research hypothesis, with significance set at the 0.05 alpha level.

3. RESULTS AND DISCUSSION

Results

Research Question1: What is the lecturers' perception of AI tools in tertiary institutions in Ondo State?

Table 1. Lecturers' Perception of AI Tools in tertiary institutions in Ondo State

Item	SA	A	D	SD	Mean	Std. D
AI tools can significantly enhance the quality of instructional delivery in tertiary institutions.	103	150	160	37	2.70	.91
The use of AI tools aligns with modern teaching practices in higher education.	70	289	88	3	2.94	.61
AI tools are essential for achieving effective student engagement in lectures.	215	169	63	3	3.32	.73
I believe the use of AI tools makes instructional delivery more interactive and personalized.	241	126	47	36	3.27	.94
The adoption of AI tools will increase the credibility of teaching and learning processes.	178	226	30	16	3.25	.73
AI tools have the potential to bridge the gap between lecturers and students.	146	266	29	9	3.22	.64
The introduction of AI tools into instructional delivery is necessary for future academic progress.	120	271	50	9	3.11	.66
I perceive AI tools as reliable resources for managing instructional content.	172	258	14	6	3.32	.60
AI tools improve the efficiency of grading and evaluation processes.	134	288	22	6	3.22	.59
AI tools enhance access to diverse and up-to-date learning materials.	128	260	59	3	3.14	.65
Weighted Average						**3.15**

Key: *SD* = Strongly Disagree, D = Disagree, A = Agree, SA = Strongly Agree
Decision Value: *Negative* = 0.00-2.49, *Positive* = 2.50-4.00

Table 1 illustrates lecturers' perceptions of AI tools at tertiary institutions in Ondo State. The table indicates agreement among respondents on all items, including: AI tools can significantly enhance the quality of instructional delivery in tertiary institutions ($\overline{x}$ = 2.70), the use of AI tools aligns with modern teaching practices in higher education ($\overline{x}$ = 2.94), AI tools are essential for achieving effective student engagement in lectures ($\overline{x}$ = 3.32), the use of AI tools makes instructional delivery more interactive and personalized ($\overline{x}$ = 3.27), the adoption of AI tools will increase the credibility of teaching and learning processes ($\overline{x}$ = 3.25), AI tools have the potential to bridge the gap between lecturers and students ($\overline{x}$ = 3.22), the introduction of AI tools into instructional delivery is necessary for future academic progress ($\overline{x}$ = 3.11), AI tools are reliable resources for

managing instructional content ($\bar{x}$ = 3.32), AI tools improve the efficiency of grading and evaluation processes ($\bar{x}$ = 3.22), and AI tools enhance access to diverse and up-to-date learning materials ($\bar{x}$ = 3.14). The weighted average of 3.15 out of a maximum of 4.00, which is inside the threshold for a positive assessment, indicates that lecturers in Ondo State have a favorable opinion of AI technologies for instructional delivery in higher institutions.

Research Question2: What is the level of lecturers' adoption of AI tools in tertiary institutions in Ondo State?

Table 2. Level of Lecturers' Adoption of AI Tools

Item	SA	A	D	SD	Mean	Std. D
I have adopted AI tools for at least one aspect of my instructional delivery.	77	328	36	9	3.05	.57
I regularly use AI-powered tools to prepare my teaching materials.	16	69	242	123	1.95	.75
AI tools have become a critical component of my teaching practice.	30	32	238	150	1.87	.80
I am willing to integrate AI tools into more aspects of my teaching.	228	114	84	24	3.21	.92
I encourage my students to use AI tools for their academic activities.	68	75	116	191	2.04	1.09
I participate in workshops or training programs on adopting AI tools for teaching.	139	139	110	62	2.78	1.03
My department supports the adoption of AI tools for instructional purposes.	22	20	170	238	1.61	.78
I collaborate with colleagues to explore new AI tools for instructional delivery.	108	319	23	0	3.18	.50
I have tested multiple AI tools to identify the ones most suitable for my teaching.	6	19	263	162	1.70	.61
My adoption of AI tools has positively impacted my students' academic performance.	110	250	63	27	2.98	.79
Weighted Average						**2.43**

Key: *SD* = Strongly Disagree, D = Disagree, A = Agree, SA = Strongly Agree
Decision Value: *Low* = 0.00-2.49, *High* = 2.50-4.00

Table 2 illustrates the extent of lecturers' utilization of AI tools in higher education institutions in Ondo State. The table reveals that lecturers concurred with the following assertions: they have implemented AI tools in at least one facet of their instructional delivery ($\bar{x}$ = 3.05), are inclined to incorporate AI tools into additional dimensions of their teaching ($\bar{x}$ = 3.21), engage in workshops or training programs on the integration of AI tools for teaching ($\bar{x}$ = 2.78), collaborate with peers to investigate new AI tools for instructional delivery ($\bar{x}$ = 3.18), and believe that their utilization of AI tools has favorably influenced their students' academic performance ($\bar{x}$ = 2.98). The lecturers expressed dissent regarding the following assertions: they frequently utilize AI-powered tools for the preparation of teaching materials ($\bar{x}$ = 1.95), regard AI tools as an essential

element of their pedagogical practice ($\bar{x}$ = 1.87), promote the use of AI tools among students for academic endeavors ($\bar{x}$ = 2.04), perceive their department as supportive of AI tool adoption for instructional purposes ($\bar{x}$ = 1.61), and have experimented with various AI tools to ascertain the most appropriate ones for their teaching ($\bar{x}$ = 1.70). The weighted average score of 2.43, situated within the decision value range for low adoption (0.00–2.49), indicates that the adoption level of AI technologies for teaching and learning by lecturers at tertiary institutions in Ondo State is low.

Research Question3: What are the challenges of Adopting AI tools for teaching and learning by lecturers in tertiary institutions in Ondo State?

Table 3. Challenges of Adopting AI Tools for teaching and learning by Lecturers

Item	SA	A	D	SD	Mean	Std. D	Remark
Limited funding affects the availability of AI tools for instructional delivery.	53	327	70	0	2.90	.54	Accepted
My institution lacks the infrastructure required to support AI tools.	238	148	17	47	3.01	.50	Accepted
Insufficient training opportunities make it challenging to adopt AI tools.	241	168	12	29	2.98	.64	Accepted
Technical issues often disrupt the use of AI tools in teaching.	110	286	34	20	2.91	.55	Accepted
Resistance to change among lecturers affects the adoption of AI tools.	85	286	79	0	2.98	.56	Accepted
AI tools are often expensive and not affordable for lecturers.	114	279	57	0	3.00	.44	Accepted
Internet connectivity issues hinder the effective use of AI tools.	79	308	63	0	2.98	.68	Accepted
Lack of institutional policies supporting AI integration is a challenge.	50	383	0	17	2.99	.63	Accepted
Some AI tools are not compatible with the existing educational infrastructure.	41	386	0	23	2.72	.82	Accepted
Students' limited knowledge of AI tools reduces their effectiveness in teaching.	166	261	0	23	2.72	.70	Accepted

Key: *SD* = Strongly Disagree, D = Disagree, A = Agree, SA = Strongly Agree
Decision Value for Remark: *Not Accepted* = 0.00-2.49, *Accepted* = 2.50-4.00

Table 3 delineates the obstacles encountered by lecturers in tertiary institutions in Ondo State while adopting AI tools for teaching and learning. The table reveals that lecturers concurred with the subsequent challenges: restricted funding impedes the

accessibility of AI tools for instructional delivery ($\bar{x}$ = 2.90), inadequate institutional infrastructure hinders AI integration ($\bar{x}$ = 3.01), and a deficiency in training opportunities complicates AI adoption ($\bar{x}$ = 2.98). Moreover, instructors recognized that technological difficulties often hinder the implementation of AI tools in education ($\bar{x}$ = 2.91), and reluctance to change among educators adversely affects AI integration ($\bar{x}$ = 2.98). Furthermore, lecturers concurred that AI technologies are frequently costly and unaffordable ($\bar{x}$ = 3.00), while internet connectivity challenges impede the effective utilization of AI tools ($\bar{x}$ = 2.98). The lack of institutional regulations facilitating AI integration was identified as a difficulty ($\bar{x}$ = 2.99). Compatibility challenges between AI tools and current educational infrastructure ($\bar{x}$ = 2.72) and students' insufficient understanding of AI technologies diminishing their efficacy in instruction ($\bar{x}$ = 2.72) were also recognized as obstacles. The challenges faced by lecturers in tertiary institutions in Ondo State regarding the utilization of AI tools for instructional delivery, as indicated by the table results and mean score acceptance per the decision rule, encompass limited funding, inadequate infrastructure, insufficient training opportunities, recurrent technical difficulties, resistance to change, exorbitant costs of AI tools, internet connectivity issues, lack of institutional policies, compatibility challenges, and students' limited understanding of AI tools.

Hypothesis Testing

Ho1: There is no significant relationship between lecturers' perception and adoption of AI in tertiary institutions in Ondo State.

Table 4. Summary of Pearson Product Moment Correlation

Variable	Mean	Std. D	N	r	Sig (p)	Remark
Perception	31.53	3.85	450	.103	.029	Significant
Adoption	24.42	1.87				

Table 4 illustrates the correlation between lecturers' perceptions and the deployment of AI in tertiary institutions in Ondo State. The table indicates a robust correlation between lecturers' perceptions and the adoption of AI in tertiary institutions in Ondo State, which was statistically significant (N = 450; r = .103; $p < 0.05$). Consequently, hypothesis 1 is dismissed.

Discussion

The research indicated that educators possess an affirmative view of AI tools for teaching purposes. This corresponds with the findings of Olatunde-Aiyedun (2024), Ibrahim et al. (2024), Idika et al. (2025), who indicated that professors in Nigerian universities acknowledge AI as a potent instrument for improving instructional efficacy, student involvement, and content dissemination. A favorable perception frequently enhances the willingness to embrace new technologies (Okafor et al., 2022), indicating

that institutions could leverage this perception to facilitate AI integration in education (Bayaga, 2025).

Notwithstanding the favorable perspective, the survey revealed that the extent of AI use among lecturers is minimal. This aligns with the research conducted by Yusuf and Adebayo (2022), which found that although educators recognize the advantages of AI, elements such as institutional policies, money, and technical proficiency hinder extensive implementation. The limited adoption rate may obstruct the potential advantages of AI in enabling individualized and efficient learning experiences (Eze & Nwachukwu, 2023; Strielkowski et al., 2025).

The research identified numerous obstacles hindering the utilization of AI tools, such as inadequate funding, insufficient infrastructure, limited training opportunities, recurrent technical difficulties, resistance to change, elevated costs, internet connectivity issues, lack of institutional policies, compatibility challenges, and students' deficient understanding of AI tools. These findings correspond with earlier research by Balogun et al. (2023), Festus and Emmanuel (2025), which emphasized that insufficient financial and technical assistance are significant barriers to AI implementation in Nigerian higher institutions.

A notable correlation was identified between lecturers' perceptions and the adoption of AI, corroborating the findings of Nwankwo and Ajayi (2023), Pillai et al. (2024), who contended that a favorable perception directly impacts technological adoption. This suggests that enhancing professors' attitudes toward AI through training and awareness initiatives can substantially increase AI adoption.

4. CONCLUSION

The study concludes that although there is a commendable level of adoption of Learning Management Systems (LMS) among university lecturers in Ondo State, the actual utilization of these systems remains insufficient. This gap between adoption and use can be attributed to several significant institutional challenges, including inadequate training, insufficient technical support, and limitations in infrastructure, such as unreliable internet connectivity. These obstacles hinder the effective integration of LMS into teaching practices. Importantly, the challenges identified in this study are consistent across different demographic groups, including gender and varying levels of teaching experience. This indicates that the issues are systemic and pervasive, rather than being limited to specific subsets of lecturers. Therefore, it is crucial for educational institutions to develop a more comprehensive and supportive framework that addresses these barriers. Such efforts should focus on enhancing the availability of necessary resources, providing ongoing training, and ensuring reliable technical support to fully realize the potential of LMS in improving educational outcomes.

Building upon the study's findings and implications, we propose the following recommendations: Investment in AI Infrastructure: Institutions should allocate more resources to acquiring AI tools and ensuring their availability for instructional delivery. Comprehensive AI Training Programs: Regular training and workshops should be organized to equip lecturers with advanced AI knowledge and practical applications.

Funding and Subsidization: Governments and private stakeholders should provide financial support and subsidize AI tools to enhance accessibility.

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