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## **LECTURERS' AWARENESS AND UTILISATION OF ARTIFICIAL INTELLIGENCE IN OPEN AND DISTANCE LEARNING IN THE NATIONAL OPEN UNIVERSITY OF NIGERIA**

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### **ABSTRACT**

Artificial Intelligence (AI) is increasingly transforming teaching, learning, assessment, and research in Open and Distance Learning (ODL), yet evidence on lecturers' awareness and utilisation of AI in the National Open University of Nigeria (NOUN) remains limited. This study investigated lecturers' awareness and utilisation of AI in the Faculty of Education, NOUN. A descriptive survey design was adopted, and a census of all 150 lecturers was conducted using two researcher-developed instruments. Data were analysed using descriptive statistics and independent samples *t*-test. The findings revealed that lecturers had a high level of AI awareness (weighted mean = 2.67) and a high level of AI utilisation (weighted mean = 2.56). No significant gender differences were found in lecturers' awareness ( $t = -0.411, p > .05$ ) or utilisation ( $t = 0.414, p > .05$ ) of AI. Although utilisation was high, it lagged slightly behind awareness, suggesting that increased awareness alone may not guarantee effective pedagogical integration of AI. The findings underscore the need for institutional strategies that move beyond awareness creation to sustained support for AI implementation in ODL. The study recommended regular professional development programmes, institutional AI policies and ethical guidelines, and increased investment in AI-enabled infrastructure to promote effective teaching, learner engagement, and research productivity in ODL institutions.

**Keywords:** Artificial Intelligence, Open and Distance Learning, Lecturers' Awareness, AI Utilisation, National Open University of Nigeria

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## Introduction

Digital technologies have advanced at a rate never witnessed before in the twenty-first century, radically changing many facets of human endeavour, including education. Artificial Intelligence (AI) has become one of the most revolutionary technical advancements, having the potential to transform research, teaching, learning, evaluation, and educational administration. The ability of computer systems and computers to carry out tasks that often require human intellect, such as reasoning, learning, decision-making, problem-solving, language processing, and pattern recognition, is known as AI (Kaplan & Haenlein, 2019). According to Russell and Norvig (2021), AI encompasses computational systems capable of perceiving their environment, learning from data, and taking actions that maximise the likelihood of achieving specified goals. Through sophisticated algorithms, machine learning, natural language processing, and predictive analytics, AI systems can analyse large volumes of data, generate insights, and automate complex tasks with remarkable efficiency.

UNESCO (2023) noted that AI is increasingly influencing educational systems worldwide by enhancing access to knowledge, supporting personalised learning, and improving educational management processes. The increasing adoption of AI across educational settings has generated significant interest among educators, researchers, policymakers, and institutions globally. Educational systems are progressively leveraging AI technologies to enhance instructional delivery, personalise learning experiences, improve learner engagement, facilitate assessment processes, and support institutional decision-making. According to Holmes et al. (2019), AI has the capacity to transform education by providing adaptive learning experiences that respond to individual learners' needs, preferences, and abilities. Similarly, Zawacki-Richter et al. (2019) observed that AI applications in higher education are increasingly being utilised to support personalised learning, student retention, assessment, and administrative decision-making. The integration of AI into education therefore represents a paradigm shift from traditional teacher-centred

approaches towards more adaptive, learner-centred, and technology-driven pedagogical models. Consequently, educational institutions worldwide are exploring innovative ways of incorporating AI technologies into their teaching and learning ecosystems.

Open and Distance Learning (ODL) institutions are particularly well positioned to benefit from the opportunities presented by AI. ODL is an educational approach that provides flexible learning opportunities to students regardless of geographical location, age, occupation, or socio-economic status. According to Moore and Kearsley (2012), ODL seeks to overcome barriers to education by enabling learners to access instructional resources and engage in academic activities through technology-mediated platforms. ODL institutions rely heavily on Information and Communication Technologies (ICTs) for course delivery, learner support, assessment, and communication, making them ideal environments for the integration of AI-powered educational solutions. As digital technologies continue to evolve, ODL institutions are increasingly adopting intelligent systems to improve instructional effectiveness, learner engagement, and educational accessibility.

The National Open University of Nigeria (NOUN), established to widen access to higher education and promote lifelong learning, represents the largest Open and Distance Learning institution in Nigeria. Since its establishment, NOUN has utilised various digital technologies to facilitate teaching, learning, assessment, and learner support services across its numerous study centres nationwide. The university's commitment to technology-enhanced learning aligns with global trends in ODL and positions it strategically for the adoption and utilisation of AI technologies. As higher education increasingly embraces digital transformation, the integration of AI into NOUN's academic and administrative processes offers opportunities for improving educational quality, learner satisfaction, institutional efficiency, and academic productivity. Technology-driven innovations remain central to the achievement of NOUN's mandate of providing accessible and quality higher education to diverse categories of learners across Nigeria (National Open University of Nigeria, 2024).

For lecturers, these AI-powered technologies offer numerous opportunities to enhance professional practice. They can support the development of instructional materials, facilitate curriculum design, generate assessment items, automate routine administrative tasks, analyse student performance data, provide personalised feedback, and assist in scholarly research. AI tools can also enhance communication between lecturers and

learners, improve responsiveness to student inquiries, and support evidence-based decision-making. According to Kasneci et al. (2023), AI technologies have demonstrated considerable potential for improving instructional efficiency and supporting educators in managing diverse learning needs. Consequently, the effective utilisation of AI has the potential to improve teaching effectiveness, increase productivity, and enrich learning experiences within ODL environments.

Despite the numerous benefits associated with AI integration, successful implementation depends largely on the awareness, acceptance, competence, and utilisation levels of educators. Lecturers remain central to the educational process and play a critical role in determining how emerging technologies are adopted and applied within instructional contexts. Their understanding of AI concepts, capabilities, limitations, ethical implications, and pedagogical applications significantly influences their willingness and ability to integrate these technologies into teaching and learning activities. Davis's (1989) Technology Acceptance Model posits that users' acceptance of technology is influenced by their perceptions of its usefulness and ease of use. AI literacy extends beyond basic awareness by equipping educators with the knowledge, skills, and critical understanding required to evaluate, use, and integrate AI technologies responsibly in educational practice. Consequently, awareness represents the initial stage of AI literacy, as educators must first understand the existence, capabilities, and potential applications of AI before they can develop the competencies necessary for its effective and ethical use. According to Long and Magerko (2020), increasing AI awareness should be accompanied by improved AI literacy, institutional support, and policy frameworks to promote responsible AI adoption in higher education. Awareness, therefore, serves as the foundation upon which utilisation is built.

Awareness is an individual's level of knowledge, understanding, perception, and consciousness regarding a particular phenomenon, innovation, or technology. In educational technology, awareness is considered a prerequisite for technology adoption because individuals are more likely to utilise technologies they understand and perceive as beneficial. In the context of AI, awareness encompasses educators' knowledge of AI concepts, functionalities, opportunities, limitations, and ethical implications, as well as their understanding of how AI can be applied to teaching, learning, assessment, research, and educational administration. Grassini (2023) emphasised that effective AI integration in

education depends on educators possessing adequate knowledge of AI technologies and their pedagogical and ethical implications.

Similarly, UNESCO (2023) highlighted that AI-aware educators should understand both the opportunities and risks associated with AI to ensure its responsible use in education. Empirical evidence also suggests that lecturers' awareness of AI significantly influences their readiness to adopt AI tools in higher education (Thomas et al., 2024). Although awareness of AI has increased across African higher education institutions following the emergence of generative AI tools, its effective utilisation remains constrained by inadequate training, institutional support, and policy frameworks (Ojubanire et al., 2025). Recent scholars have conceptualised AI awareness as educators' understanding of how AI technologies function and their potential applications in teaching, learning, assessment, research, and educational administration. Artificial Intelligence awareness involves not only knowledge of AI tools and systems but also an understanding of their ethical, social, and educational implications.

Within Open and Distance Learning (ODL) environments, the utilisation of AI has become particularly important because of the technology-dependent nature of instructional delivery. ODL institutions serve large and diverse learner populations who often require flexible, personalised, and continuous academic support. AI technologies provide mechanisms for addressing these needs through intelligent tutoring systems, adaptive learning platforms, virtual assistants, chatbots, automated grading systems, and learning analytics tools. The utilisation of AI among lecturers encompasses a wide range of academic activities. In teaching, lecturers employ AI-powered tools to develop instructional materials, generate lesson content, design learning activities, and create assessment items.

Within the National Open University of Nigeria (NOUN), lecturers' utilisation of AI is particularly significant because of the institution's reliance on technology-mediated instructional delivery. The effective utilisation of AI can enhance learner support services, improve teaching effectiveness, facilitate timely feedback, strengthen research productivity, and promote institutional efficiency. However, the extent to which lecturers utilise AI technologies may depend on their level of awareness, digital competence, access to technological resources, and institutional encouragement. Given the central role of lecturers in the implementation of educational innovations, understanding their utilisation of AI is essential for developing strategies that promote effective technology integration

within the university. Therefore, this study investigated lecturers' awareness and utilisation of AI in Open and Distance Learning in the National Open University of Nigeria.

### **Statement of the Problem**

Artificial Intelligence has become an important technological innovation in higher education, with increasing applications in teaching, learning, assessment, research, and learner support. In Nigeria, awareness of AI tools such as ChatGPT, Gemini, Copilot, learning analytics systems, and intelligent tutoring platforms has grown considerably among academics due to the rapid expansion of digital technologies and the global prominence of generative AI. However, evidence from recent studies suggests that while many lecturers are aware of AI technologies, their actual utilisation for instructional and academic purposes remains uneven because of challenges such as inadequate training, limited technological infrastructure, ethical concerns, and insufficient institutional support. As the largest Open and Distance Learning institution in Nigeria, the National Open University of Nigeria (NOUN) relies heavily on technology-mediated instructional delivery and therefore stands to benefit significantly from the effective integration of AI. The utilisation of AI tools has the potential to enhance personalised learning, improve learner support services, facilitate assessment, strengthen research productivity, and increase institutional efficiency. Conversely, low or suboptimal utilisation of AI may limit these benefits, resulting in reduced instructional innovation, less effective learner support, and missed opportunities for improving educational quality within the ODL environment. Despite the growing relevance of AI in higher education, there is limited empirical evidence on the extent to which lecturers in NOUN are aware of and utilise AI technologies in their professional activities. This knowledge gap makes it difficult for the institution to develop appropriate policies, training programmes, and support mechanisms for effective AI integration. Therefore, this study investigated the level of lecturers' awareness and utilisation of AI tools in the National Open University of Nigeria.

1. What is the level of lecturers' awareness of Artificial Intelligence tools in the National Open University of Nigeria?
2. What is the level of lecturers' utilisation of Artificial Intelligence tools in the National Open University of Nigeria?

Gender has frequently been examined as a demographic variable in studies investigating the adoption and utilisation of emerging educational technologies, including Artificial Intelligence (AI). Although AI is increasingly becoming an integral component of teaching, learning, and research, empirical evidence on whether male and female lecturers differ in their awareness and utilisation of AI remains inconclusive. The current study therefore further investigated whether lecturers' gender influences their awareness and utilisation of AI within the Open and Distance Learning (ODL) context. Examining gender differences is important because demographic characteristics may shape access to digital technologies, technological confidence, professional development opportunities, and patterns of technology adoption in higher education.

Empirical studies have reported mixed findings regarding gender differences in AI awareness and utilisation among teaching faculty. For instance, Ofosu-Ampong (2024) found that although university lecturers generally demonstrated positive perceptions and acceptance of AI for teaching, gender did not significantly influence their willingness to adopt AI technologies. Similarly, Thomas et al. (2024) reported that lecturers' awareness and readiness to integrate AI into instructional practices were largely comparable across male and female academics, suggesting that institutional support and AI literacy are more influential than gender. Likewise, Ojubanire et al. (2025) observed that while awareness of generative AI tools was widespread among academics, variations in AI utilisation were associated more with training opportunities, institutional policies, and digital competence than with gender. These findings suggest that gender may not be a major determinant of lecturers' awareness and utilisation of AI, although further empirical evidence from the Nigerian ODL context remains necessary.

Based on these empirical findings, the following research questions were raised:

1. What is the significant difference between male and female lecturers' level of awareness of Artificial Intelligence tools in the National Open University of Nigeria.
2. What is the significant difference between male and female lecturers' level of utilisation of Artificial Intelligence tools in the National Open University of Nigeria.

## **Theoretical Framework**

### **Unified Theory of Acceptance and Use of Technology**

The model was propounded by Venkatesh et al (2003). The model identifies a range of factors including: performance expectancy, effort expectancy, social influence, and facilitating Conditions, which impact upon behavioural intention and use behaviour. The model uses a technology, in this case the Information and Communication Technology, that is influenced by people's perceptions of performance expectance, effort expectance, social factors and facilitating conditions which are moderated. The Unified Theory of Acceptance and Use of Technology (UTAUT) model has been applied in a variety of settings relating to the intended use of technology and facilitating conditions (Groves and Zemel, 2000; Teo, 2009). UTAUT tries to explain the degree of acceptance of the use of Information Technology. These theories assess whether the user will be able to accept the new technologies and the user's ability to deal with them. The UTAUT model employs four constructs that play a significant role as direct determinants of user acceptance and usage behaviour (Venkatesh et al, 2003): The first three constructs determine behavioural intention; and behavioural intention plus facilitating conditions determine use behaviour. Each of the constructs comprises a distinguishing set of criteria. One of the strengths of the model is its focus on usage (Use Behaviour) as a key dependent variable. The effects of its four core determinants, performance expectancy, effort expectancy, social influence, and facilitating conditions, on behavioural intention and technology use are moderated by gender, age, experience, and voluntariness of use. These moderating variables explain why individuals differ in their acceptance and utilisation of emerging technologies across different contexts.

The UTAUT model is relevant to this study because it explains the factors that influence lecturers' acceptance and utilisation of Artificial Intelligence (AI) tools in Open and Distance Learning. The theory posits that performance expectancy, effort expectancy, social influence, and facilitating conditions determine users' intention and actual use of technology. In the context of this study, lecturers are more likely to utilise AI tools if they perceive them as useful, easy to use, supported by colleagues and the institution, and backed by adequate infrastructure and training. Therefore, the UTAUT model provides a suitable framework for understanding lecturers' awareness and utilisation of AI technologies in the National Open University of Nigeria (NOUN).

## Literature Review

### Artificial Intelligence Awareness and Utilisation in Higher Education

Recent studies have examined educators' awareness and utilisation of Artificial Intelligence (AI) technologies in higher education across different contexts. The findings generally indicate increasing awareness of AI tools among academics, although actual utilisation varies considerably depending on institutional support, technological infrastructure, and digital competence. Grassini (2023) reported that university educators generally demonstrated a high level of awareness of generative artificial intelligence tools such as ChatGPT and recognised their potential to enhance teaching, learning, and academic productivity, although concerns regarding ethical use, academic integrity, and reliability remained significant. However, utilisation was largely concentrated on content generation, information retrieval, and assessment support, while more advanced applications such as learning analytics and adaptive learning systems remained underutilised. Similarly, Kasneci et al. (2023) observed that although educators recognised the potential of generative AI for enhancing teaching and research productivity, concerns regarding academic integrity, reliability, and ethical use constrained widespread adoption.

Studies conducted in other African countries reveal comparable trends. In Kenya, universities have increasingly explored AI-supported learning environments, yet utilisation remains constrained by inadequate infrastructure and limited AI literacy among educators (Mtebe & Raphael, 2023). A critical synthesis of the literature reveals a consistent pattern across contexts. Most studies report relatively high levels of awareness of AI technologies among educators, largely driven by the visibility of generative AI tools and increased digitalisation of higher education. However, awareness does not automatically translate into effective utilisation. The literature consistently identifies facilitating conditions, such as training, infrastructure, institutional policies, and technical support, as crucial determinants of actual use. This observation aligns with the Unified Theory of Acceptance and Use of Technology (UTAUT), which emphasises that behavioural intention alone is insufficient unless supported by favourable facilitating conditions.

Despite the growing body of literature on AI in higher education, empirical studies focusing specifically on Open and Distance Learning institutions in Nigeria remain limited. Existing Nigerian studies have largely examined AI adoption in conventional universities, with little

attention given to lecturers in ODL environments such as the National Open University of Nigeria (NOUN). Consequently, there is limited empirical evidence regarding the extent of lecturers' awareness and utilisation of AI within the unique context of technology-mediated instruction that characterises ODL. This gap justifies the present study.

## **Research Design**

### **Methodology**

The study adopted a descriptive survey research design. The population of the study comprised all 150 lecturers in the Faculty of Education, National Open University of Nigeria (NOUN). The faculty consists of five departments: Arts and Social Sciences Education, Science Education, Library and Information Science, Educational Foundations, and Human Kinetics. Since the population size was manageable, the study adopted a census approach, whereby all the 150 lecturers were included in the study. Therefore, no sampling technique was employed, as every member of the population participated in the study. The distribution of the respondents is: Arts and Social Sciences Education (10), Science Education (17), Library & Information Science (12), Educational Foundations (92), and Human Kinetics (10). Two researcher-developed instruments were used for data collection: Lecturers' Awareness of Artificial Intelligence in Open and Distance Learning Questionnaire and Questionnaire on Lecturers' Utilisation of Artificial Intelligence in Open and Distance Learning Questionnaire. The instruments were designed to elicit information on lecturers' awareness and utilisation of AI tools in teaching and learning at the National Open University of Nigeria. The instruments were subjected to face and content validation by experts in Educational Technology and Measurement and Evaluation. The instruments were examined for clarity of expression, relevance, appropriateness of items, language suitability, and adequacy of coverage of the study variables. Their comments, observations, and recommendations were carefully incorporated in producing the final versions of the instruments. To determine the reliability of the instruments, the instruments were trial tested on 30 lecturers in a university outside the study area. Data collected were analysed using Cronbach's alpha, which yielded a coefficient of 0.76 for the Lecturers' Awareness of Artificial Intelligence in Open and Distance Learning Questionnaire and 0.81 for the Lecturers' Utilisation of Artificial Intelligence in Open and Distance Learning Questionnaire, indicating that the instruments were reliable for the study. Copies of the validated instruments were personally administered to the respondents with the support of two

research assistants. Respondents were adequately informed about the purpose of the study, and confidentiality and anonymity of their responses were assured. Completed questionnaires were retrieved, coded, and prepared for statistical analysis. Data collected for the study were analysed using descriptive statistics of percentage, frequency count, mean and standard deviation. Also, inferential statistics of the t-test were used.

### **Ethical Considerations**

Ethical approval for the study was obtained from the relevant authority within the Faculty of Education, National Open University of Nigeria. Permission was also sought from departmental heads before data collection. In addition, informed consent was obtained from all participating lecturers. The purpose of the study was clearly explained to the respondents, and participation was entirely voluntary. Respondents were assured of confidentiality and anonymity, and they were informed that the data collected would be used strictly for academic purposes. No identifying information was collected, and participants were free to withdraw from the study at any point without any consequence.

### **Results**

#### **Demographic Information**

**Table 1: Demographic Distribution of the Students by Gender and Age**

| <b>Demography</b>               | <b>Frequency</b> | <b>Percentage</b> |
|---------------------------------|------------------|-------------------|
| <b><i>Lecturers' Gender</i></b> |                  |                   |
| Male                            | 65               | 43.3              |
| Female                          | 85               | 56.7              |
| <b>Total</b>                    | <b>150</b>       | <b>100</b>        |

Source: Fieldwork, 2026

Table 1 shows the demographic information of the respondents. The table shows that majority of the lecturers selected are female (85; 56.7%) while the remaining 65 (43.3%) lecturers are male.

**Research Question One:** What is the level of lecturers' awareness of Artificial Intelligence tools in the National Open University of Nigeria?

**Table 2: The Level of Lecturers' Awareness of Artificial Intelligence Tools in the National Open University of Nigeria**

| S/N | Learning System:                                                                                    | Management | SA            | A             | D            | SD           | Mean | St. D |
|-----|-----------------------------------------------------------------------------------------------------|------------|---------------|---------------|--------------|--------------|------|-------|
| 1   | I am familiar with the concept of Artificial Intelligence (AI) in education                         |            | 83<br>(55.3%) | 46<br>(30.7%) | 14<br>(9.3%) | 7<br>(4.7%)  | 3.36 | .838  |
| 2   | I am aware that AI can be used to support teaching and learning in Open and Distance Learning (ODL) |            | 62<br>(41.3%) | 80<br>(53.3%) | 6<br>(4.0%)  | 2<br>(1.3%)  | 3.34 | .623  |
| 3   | I am aware of different types of AI technologies used in education                                  |            | 81<br>(54%)   | 62<br>(41.3%) | 6<br>(4.0%)  | 1<br>(0.7%)  | 3.48 | .610  |
| 4   | I understand how AI can enhance personalised learning experiences for students.                     |            | 56<br>(37.3%) | 74<br>(49.3%) | 10<br>(6.7%) | 10<br>(6.7%) | 3.17 | .825  |
| 5   | I am aware that AI can be used to enhance students' performance.                                    |            | 77<br>(51.3%) | 64<br>(42.7%) | 9 (6%)       | -            | 3.45 | .608  |
| 6   | I am aware of AI-powered tools that can assist in content delivery.                                 |            | 90<br>(60%)   | 39<br>(26%)   | 12<br>(8%)   | 9 (6%)       | 1.60 | .874  |
| 7   | I am aware of AI tools that support assessment.                                                     |            | 79<br>(52.7%) | 64<br>(42.7%) | 7<br>(4.7%)  | -            | 3.48 | .587  |
| 8   | I am aware of AI-driven platforms that provide real-time feedback to students.                      |            | 70<br>(46.7%) | 72<br>(48%)   | 7<br>(4.7%)  | 1<br>(0.7%)  | 1.59 | .614  |
| 9   | I am aware of conversational AI tools used for student support.                                     |            | 80<br>(53.3%) | 55<br>(36.7%) | 9 (6%)       | 6 (4%)       | 3.39 | .776  |
| 10  | I am aware that AI can improve learner engagement in distance education.                            |            | 68<br>(45.3%) | 65<br>(43.3%) | 8<br>(5.3%)  | 9 (6%)       | 1.72 | .820  |
| 11  | I am aware that AI can help reduce dropout rates in ODL programmes.                                 |            | 81<br>(54%)   | 55<br>(36.7%) | 11<br>(7.3%) | 3 (2%)       | 1.52 | .717  |
| 12  | I am aware that AI can support inclusive learning for students with diverse needs.                  |            | 64<br>(42.7%) | 69<br>(46%)   | 12<br>(8%)   | 5<br>(3.3%)  | 3.28 | .751  |
| 13  | I am aware of institutional policies or guidelines on the use of AI in teaching                     |            | 77<br>(51.3%) | 59<br>(39.3%) | 13<br>(8.7%) | 1<br>(0.7%)  | 3.41 | 6.77  |
| 14  | I am aware of the potential risks associated with the use of AI in education.                       |            | 83<br>(55.3%) | 57<br>(38%)   | 8<br>(5.3%)  | 2<br>(1.3%)  | 1.52 | .662  |
| 15  | I keep myself informed about recent developments in AI for teaching and learning.                   |            | 108<br>(72%)  | 35<br>(23.3%) | 4<br>(2.7%)  | 3 (2%)       | 3.65 | .634  |
| 16  | I am aware of AI tools that can help lecturers generate                                             |            | 77<br>(51.3%) | 58<br>(38.7%) | 10<br>(6.7%) | 5<br>(3.3%)  | 1.62 | .756  |

|    |                                                                                                                    |               |               |               |             |      |      |
|----|--------------------------------------------------------------------------------------------------------------------|---------------|---------------|---------------|-------------|------|------|
|    | instructional materials and lesson content.                                                                        |               |               |               |             |      |      |
| 17 | I am aware that AI can be used to analyse students' academic performance.                                          | 74<br>(49.3%) | 59<br>(39.3%) | 16<br>(10.7%) | 1<br>(0.7%) | 3.37 | .700 |
| 18 | I am aware of generative AI tools such as ChatGPT, Gemini, and Copilot that can support teaching activities.       | 78<br>(52%)   | 59<br>(39.3%) | 10<br>(6.7%)  | 3 (2%)      | 1.58 | .706 |
| 19 | I am aware of ethical issues related to the use of AI in education, such as privacy, bias, and academic integrity. | 41<br>(27.3%) | 92<br>(61.3%) | 13<br>(8.7%)  | 4<br>(2.7%) | 3.13 | .672 |
| 20 | I am aware of training opportunities provided by my institution to enhance lecturers' knowledge of AI tools.       | 46<br>(30.7%) | 99<br>(66%)   | 4<br>(2.7%)   | 1<br>(0.7%) | 1.73 | .539 |

**Weighted Mean = 2.67; Threshold = 2.50**

Source: Fieldwork, 2026

Table 2 shows the level of lecturers' awareness of Artificial Intelligence tools in the National Open University of Nigeria. The result indicates a weighted mean of 2.67, which is greater than the threshold set at 2.50. This result implies that the majority of the selected lecturers have a high awareness of Artificial Intelligence tools.

**Research Question Two:** What is the level of lecturers' utilisation of Artificial Intelligence tools in the National Open University of Nigeria?

**Table 3: Level of Lecturers' Utilisation of Artificial Intelligence Tools in the National Open University of Nigeria**

| S/N | ITEMS                                                                                         | SA            | A             | D            | SD          | Mean | St. D. |
|-----|-----------------------------------------------------------------------------------------------|---------------|---------------|--------------|-------------|------|--------|
| 1   | I use Artificial Intelligence tools to develop instructional materials for my courses.        | 87<br>(58%)   | 43<br>(28.7%) | 14<br>(9.3%) | 6 (4%)      | 3.40 | .820   |
| 2   | I use AI tools to generate lesson notes, course outlines, or teaching content.                | 65<br>(43.3%) | 60<br>(40%)   | 21<br>(14%)  | 4<br>(2.7%) | 3.24 | .791   |
| 3   | I use generative AI tools such as ChatGPT, Gemini, or Copilot to support teaching activities. | 72<br>(48%)   | 61<br>(40.7%) | 15<br>(10%)  | 2<br>(1.3%) | 3.35 | .715   |
| 4   | I use AI-powered applications to personalise learning experiences for my students.            | 70<br>(46.7%) | 68<br>(45.3%) | 9 (6%)       | 3 (2%)      | 1.63 | .689   |
| 5   | I use AI tools to generate assessment questions and assignments.                              | 52<br>(34.7%) | 92<br>(61.3%) | 4<br>(2.7%)  | 2<br>(1.3%) | 3.29 | .585   |

|    |                                                                                               |               |               |               |             |      |      |
|----|-----------------------------------------------------------------------------------------------|---------------|---------------|---------------|-------------|------|------|
| 6  | I use AI technologies to provide feedback to students on their academic work.                 | 66<br>(44%)   | 63<br>(42%)   | 19<br>(12.7%) | 2<br>(1.3%) | 3.28 | .735 |
| 7  | I use AI-powered assessment tools for grading or evaluating students' work.                   | 72<br>(48%)   | 61<br>(40.7%) | 17<br>(11.3%) | -           | 1.63 | .679 |
| 8  | I use AI tools to support research activities such as literature review and academic writing. | 77<br>(51.3%) | 55<br>(36.7%) | 16<br>(10.7%) | 2<br>(1.3%) | 3.38 | .729 |
| 9  | I use AI-driven learning analytics to monitor students' learning progress.                    | 62<br>(41.3%) | 82<br>(54.7%) | 5<br>(3.3%)   | 1<br>(0.7%) | 1.63 | .584 |
| 10 | I use AI-powered platforms to enhance learner engagement in my courses.                       | 57<br>(38%)   | 89<br>(59.3%) | 4<br>(2.7%)   | -           | 1.64 | .532 |
| 11 | I use conversational AI tools to respond to students' enquiries.                              | 76<br>(50.7%) | 71<br>(47.3%) | 3 (2%)        | -           | 3.48 | .540 |
| 12 | I use AI tools to improve communication and interaction with students.                        | 68<br>(45.3%) | 79<br>(52.7%) | 3 (2%)        | -           | 3.43 | .536 |
| 13 | I use AI applications to simplify administrative and academic tasks.                          | 59<br>(39.3%) | 83<br>(55.3%) | 8<br>(5.3%)   | -           | 3.34 | .577 |
| 14 | I use AI technologies to identify students who may require additional academic support.       | 76<br>(50.7%) | 66<br>(44%)   | 8<br>(5.3%)   | -           | 1.54 | .597 |
| 15 | I use AI tools to support inclusive learning for students with diverse learning needs.        | 86<br>(57.3%) | 60<br>(40%)   | 4<br>(2.7%)   | -           | 1.45 | .550 |
| 16 | I use AI-powered systems to track students' performance and learning outcomes                 | 69<br>(46%)   | 74<br>(49.3%) | 7<br>(4.7%)   | -           | 1.58 | .581 |
| 17 | I integrate AI tools into my regular teaching practices.                                      | 78<br>(52%)   | 67<br>(44.7%) | 5<br>(3.3%)   | -           | 1.51 | .564 |
| 18 | I use AI tools to create multimedia learning resources for students.                          | 60<br>(40%)   | 82<br>(54.7%) | 8<br>(5.3%)   | -           | 3.34 | .579 |
| 19 | I encourage students to use AI tools responsibly for learning purposes.                       | 70<br>(46.7%) | 74<br>(49.3%) | 4<br>(2.7%)   | 2<br>(1.3%) | 3.41 | .615 |
| 20 | I frequently utilise AI technologies in my teaching, research, and professional activities.   | 48<br>(32%)   | 90<br>(60%)   | 8<br>(5.3%)   | 4<br>(2.7%) | 1.78 | .661 |

**Weighted Mean = 2.56; Threshold = 2.50**

Source: Fieldwork, 2026

Table 3 shows the level of lecturers' utilisation of Artificial Intelligence tools in the National Open University of Nigeria. The result indicates a weighted mean of 2.56,

which is greater than the threshold set at 2.50. This result implies that the majority of the selected lecturers have a high level of utilisation of Artificial Intelligence tools.

What is the significant difference between male and female lecturers' level of awareness of Artificial Intelligence tools in National Open University of Nigeria

**Table 4: Difference between male and female lecturers' level of awareness of Artificial Intelligence tools in National Open University of Nigeria**

| Group  | N   | Mean    | Standard Deviation | Mean Difference | T    | Df | p-value | Remarks  |
|--------|-----|---------|--------------------|-----------------|------|----|---------|----------|
| Male   | 46  | 53.3696 | 2.49763            | -.19774         | -    | 14 | .668    | Not sig. |
| Female | 104 | 53.5673 | 2.80348            |                 | .411 | 8  |         |          |

Source: Fieldwork, 2026

Table 4 shows the difference between male and female lecturers' level of awareness of Artificial Intelligence tools in the National Open University of Nigeria using the independent samples t-test analysis. The result indicates that there is no significant difference between male and female lecturers' level of awareness of Artificial Intelligence tools in the National Open University of Nigeria ( $t = -.411$ ;  $df=148$ ;  $p>0.05$ ). This implies that gender did not cause a variance in lecturers' level of awareness of Artificial Intelligence tools in the National Open University of Nigeria.

What is the significant difference between male and female lecturers' level of utilisation of Artificial Intelligence tools in the National Open University of Nigeria

**Table 5: Difference between male and female lecturers' level of utilisation of Artificial Intelligence tools in the National Open University of Nigeria**

| Group  | N   | Mean    | Standard Deviation | Mean Difference | T    | Df  | p-value | Remarks  |
|--------|-----|---------|--------------------|-----------------|------|-----|---------|----------|
| Male   | 46  | 51.5652 | 2.72969            | .21906          | .414 | 148 | .680    | Not sig. |
| Female | 104 | 51.3462 | 3.09641            |                 |      |     |         |          |

Source: Fieldwork, 2026

Table 5 shows the difference between male and female lecturers' level of utilisation of Artificial Intelligence tools in the National Open University of Nigeria using the independent samples t-test analysis. The result indicates that there is no significant difference between male and female lecturers' level of utilisation of Artificial Intelligence tools in the National Open University of Nigeria ( $t = .414$ ;  $df=148$ ;  $p>0.05$ ). This implies that gender did not cause a variance in lecturers' level of utilisation of Artificial Intelligence tools in the National Open University of Nigeria.

### **Discussion of Findings**

The findings of this study revealed that lecturers in the National Open University of Nigeria (NOUN) demonstrated a high level of awareness of Artificial Intelligence (AI) tools. This indicates that lecturers are knowledgeable about AI technologies and their potential applications in teaching, learning, assessment, and research. The high level of awareness may be attributed to the rapid global diffusion of generative AI tools, such as ChatGPT, Microsoft Copilot, and Google Gemini, as well as the increasing emphasis on digital transformation in higher education. Within Open and Distance Learning (ODL), where technology-mediated instruction is fundamental, lecturers are continually exposed to digital innovations that facilitate awareness of emerging technologies. This finding is consistent with UNESCO (2023), which observed that educators worldwide have become increasingly aware of AI due to its growing visibility in educational, professional, and public domains. Similarly, Kasneci et al. (2023) reported that the unprecedented adoption of generative AI has substantially increased educators' familiarity with AI applications in teaching, assessment, and research. In Ghana, Ofosu-Ampong (2024) likewise found that university lecturers generally possessed a good understanding of AI technologies and recognised their potential to enhance instructional practices, although concerns regarding ethical use and institutional readiness remained. Comparable findings have also been reported in China, where Zhai et al. (2021) observed that increasing institutional investment in educational technology has significantly enhanced university lecturers' awareness of AI-supported instructional innovations. Collectively, these studies suggest that growing global exposure to AI technologies has substantially improved educators' awareness across diverse higher education contexts.

The study further revealed that lecturers exhibited a high level of utilisation of Artificial Intelligence tools. This finding suggests that AI is gradually becoming embedded in lecturers' professional activities, including lesson preparation, content development, assessment, research, and academic writing. The increasing accessibility of generative AI platforms and their ability to automate routine academic tasks may explain this relatively high level of utilisation. The finding corroborates Kasneci et al. (2023), who argued that generative AI is increasingly being employed by educators to support instructional design, feedback generation, assessment development, and scholarly writing. In a Ghanaian study, Ofori-Ampong (2024) also reported that many faculty members had begun incorporating AI tools into their teaching practices, particularly for lesson preparation, content generation, and student engagement.

Despite the generally high level of utilisation, the findings indicate that lecturers' utilisation remained slightly lower than their level of awareness. This suggests that awareness alone does not automatically translate into consistent and effective pedagogical integration of AI. Such a disparity reflects what has been described in the literature as the awareness–utilisation gap, whereby educators recognise the potential of technological innovations but face challenges in translating knowledge into sustained instructional practice. This finding is consistent with UNESCO (2023), which emphasised that although awareness of AI has expanded rapidly among educators globally, effective classroom implementation remains constrained by limited AI competencies, inadequate institutional support, and ethical concerns. Similarly, Kasneci et al. (2023) observed that many educators remain cautious in their use of generative AI because of concerns relating to academic integrity, data privacy, algorithmic bias, and the reliability of AI-generated outputs. In Europe, Zawacki-Richter et al. (2019) similarly concluded that while AI offers substantial opportunities for enhancing higher education, widespread pedagogical adoption requires deliberate institutional investment, staff development, and governance frameworks.

From the perspective of the UTAUT model, the observed difference between awareness and utilisation can be explained by variations in facilitating conditions, effort expectancy, performance expectancy, and social influence. Although lecturers may perceive AI as useful for improving teaching effectiveness and research productivity (performance expectancy), actual utilisation depends on the availability of institutional resources, technical support, infrastructure, and training (facilitating conditions). Likewise, lecturers who perceive AI

tools as difficult to learn or integrate into instructional practice (effort expectancy) may be less inclined to utilise them extensively despite being aware of their benefits. Social influence also plays a significant role, as institutional leadership, peer collaboration, and organisational culture can either encourage or discourage AI adoption within higher education institutions.

The awareness–utilisation gap also reflects broader systemic challenges that characterise many developing-country higher education systems. In Nigeria and many other African countries, inadequate digital infrastructure, unstable internet connectivity, limited institutional subscriptions to advanced AI platforms, insufficient professional development opportunities, and the absence of comprehensive institutional AI policies continue to constrain effective AI integration. Similar challenges have been reported across sub-Saharan Africa. For example, Ofosu-Ampong (2024) identified institutional preparedness, staff training, and governance issues as major barriers to AI implementation in Ghanaian universities. Likewise, UNESCO (2023) stressed that many institutions in low- and middle-income countries continue to experience infrastructural and policy constraints that limit the educational benefits of AI despite increasing awareness among educators.

The findings have important implications for policy and practice within Open and Distance Learning. As technology-mediated instruction constitutes the foundation of ODL, effective AI integration is essential for improving instructional quality, learner support, personalised learning, assessment practices, and research productivity. The findings suggest that institutional efforts should extend beyond awareness campaigns to comprehensive AI capacity-building initiatives that equip lecturers with practical competencies for pedagogical integration. Such initiatives should include structured professional development programmes, AI literacy training, hands-on workshops, mentoring schemes, and communities of practice that encourage collaborative learning among academic staff. In addition, institutions such as the National Open University of Nigeria should develop comprehensive AI governance frameworks that address ethical use, academic integrity, data privacy, intellectual property, and responsible AI deployment in teaching, learning, assessment, and research. Investment in reliable digital infrastructure, institutional subscriptions to advanced AI platforms, and sustained technical support will further strengthen facilitating conditions and enable lecturers to translate awareness into meaningful and sustained utilisation. These measures will position ODL institutions to

harness the transformative potential of AI in improving educational quality, learner engagement, and institutional effectiveness.

### **Conclusion**

This study examined lecturers' awareness and utilisation of AI tools in the National Open University of Nigeria. Based on the findings, it was concluded that lecturers demonstrated a high level of awareness of AI tools, indicating that they are familiar with AI technologies and their potential applications in teaching and learning. However, the extent of utilisation of these tools was relatively lower, showing that despite high awareness, the actual integration of AI into teaching, assessment, and research activities is not yet optimal. The study therefore concludes that there is a noticeable gap between lecturers' awareness and their practical utilisation of AI tools within the institution.

### **Recommendations**

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

1. Since lecturers demonstrated a high level of awareness of AI tools, the National Open University of Nigeria should sustain this awareness through regular professional development programmes, workshops, and seminars on emerging AI technologies and their educational applications.
2. Given the high level of AI utilisation among lecturers, the university should provide greater institutional support by expanding access to AI-enabled platforms, software subscriptions, and reliable internet facilities to enhance effective and continuous use.
3. The university should develop comprehensive policies and guidelines on the ethical and responsible use of AI in teaching, learning, assessment, and research to ensure appropriate utilisation of AI technologies.
4. To further strengthen lecturers' competence in AI integration, NOUN should establish continuous capacity-building programmes that focus on advanced applications of AI for instructional design, learner support, assessment, research, and academic administration.
5. Since lecturers already utilise AI tools in their professional activities, the university should encourage communities of practice, peer mentoring, and knowledge-sharing platforms

where lecturers can exchange experiences and innovative strategies for AI integration in Open and Distance Learning.

6. The university should invest in AI-driven educational infrastructure and technical support services to facilitate the effective integration of Artificial Intelligence into teaching, learning, and learner support systems across the institution.

7. Faculty administrators should periodically monitor and evaluate the utilisation of AI tools among lecturers to identify emerging needs, challenges, and opportunities for improving AI-supported teaching and learning practices.

### **Contributions to Knowledge**

This study contributes to existing knowledge by providing empirical evidence on lecturers' awareness and utilisation of AI tools within the National Open University of Nigeria. Specifically, it establishes the current level of awareness among lecturers in a Nigerian Open and Distance Learning context, and shows that while awareness is relatively high, utilisation remains comparatively lower. The study also contributes to understanding the awareness–utilisation gap in AI adoption among lecturers in ODL institutions, highlighting that awareness of AI does not automatically translate into classroom or research application. This adds context-specific evidence to ongoing discussions on technology adoption in developing higher education systems. Furthermore, the study offers institution-specific insights for NOUN, which may be useful for planning staff development programmes and strengthening policy frameworks on the integration of Artificial Intelligence in teaching and learning.

### **Limitations**

This study was conducted within certain methodological and contextual boundaries that should be considered when interpreting the findings. The study focused exclusively on lecturers in the Faculty of Education of the National Open University of Nigeria (NOUN); therefore, the findings are most applicable to this academic context and should be interpreted with caution when considering other faculties or higher education institutions with different organisational and technological environments. In addition, the study employed a descriptive survey design, which was appropriate for assessing lecturers'

awareness and utilisation of Artificial Intelligence at the time of the study. Consequently, the findings represent the prevailing situation during the period of data collection.

Furthermore, the study examined gender as the principal demographic variable in relation to lecturers' awareness and utilisation of AI. Other characteristics, such as age, academic rank, years of teaching experience, discipline, AI literacy, prior training, and institutional support, were beyond the scope of the present investigation. Future studies may therefore broaden the scope by incorporating these variables and extending the investigation to other faculties, institutions, and educational contexts. The use of complementary research approaches, such as mixed-methods or longitudinal designs, may also provide deeper insights into the evolving patterns of AI awareness and utilisation among university lecturers.

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