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# ASSESSMENT OF DATA LITERACY PROGRAMMES ON AI ETHICS AWARENESS AMONG LECTURERS IN HIGHER EDUCATION INSTITUTIONS (HEIS) IN SOUTH-WESTERN NIGERIA

**BY**

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## Abstract

*The increase in the adoption of artificial intelligence (AI) in higher education has heightened the need for lecturers to possess adequate data literacy and AI ethics awareness to ensure the responsible use of emerging technologies. This study assessed the influence of data literacy programmes on AI ethics awareness among lecturers in Higher Education Institutions (HEIs) in South-western Nigeria. The study adopted a descriptive survey research design. The population comprised 5,290 lecturers from federal universities in the region, while a sample of 500 lecturers was selected through a multi-stage sampling procedure. Data were collected using a structured questionnaire with a Cronbach's alpha reliability coefficient of 0.91. Two research hypotheses were tested at the 0.05 level of significance using the Pearson Product Moment Correlation (PPMC) statistic. The findings revealed a significant positive relationship between participation in data literacy programmes and AI ethics awareness among lecturers ($r = 0.774$, $p < 0.05$). The study also found a significant variation in AI ethics awareness between lecturers who had participated in data literacy programmes and those who had not ($r = 0.692$, $p < 0.05$). These findings suggest that data literacy training significantly enhances lecturers' understanding of ethical issues relating to AI, including privacy, accountability, transparency, and algorithmic bias. The study concludes that strengthening data literacy initiatives is essential for promoting the ethical adoption and responsible application of AI technologies in Nigerian higher education institutions. It recommends the integration of AI ethics into compulsory professional development programmes, the development of a national AI ethics and data literacy framework, continuous evaluation of data literacy programmes, interdisciplinary collaboration, and improved investment in digital infrastructure to enhance lecturers' AI competencies.*

***Keywords: Data literacy, Artificial intelligence, AI ethics awareness, Higher education institutions, Lecturers and Technology acceptance model***

## Introduction

The rapid growth of artificial intelligence (AI) technologies has changed various sectors, including education. As higher education institutions increasingly use AI tools for teaching, research, and administration, it becomes important to address the ethical issues related to these technologies. Key ethical concerns, such as algorithmic bias, data privacy, transparency, accountability, and inclusivity, have sparked a global conversation about the need for AI ethics literacy. This is especially important for educators who prepare future professionals. In Nigeria, where efforts to advance digital education are gaining traction, lecturers are essential in implementing and evaluating AI tools. However, many educators do not have enough training in the ethical aspects of data and AI usage. Some institutions are introducing data literacy programs to help educators understand data handling, analysis, interpretation, and the ethical use of AI. Nevertheless, there is a lack of studies that evaluate how effective these programs are in raising AI ethics awareness among Nigerian lecturers (Olaogun and Oyediran 2023).

AI is described in so many ways. Non-professionals conceptualize AI as technology, a clever machine, computer software, etc., simulating human intelligence or an embodied system that can perform bodily actions

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(Ding et al., 2023). Professionals, however, conceptualize AI as algorithms and programming tools (Chubb et al., 2022). A widely used definition of AI is the engineering and science behind developing smart machines that can tackle issues using algorithms such as machine learning, natural language processing, and reinforcement learning (Mondal, 2020). AI will eventually affect the majority of human life through shared technologies and not merely as a buzzword in computer bytes and everyone from laypeople ought to learn about AI (Ng et al., 2021). AI literacy was, as per recent scholars, a suggested term that would encompass people's awareness and knowledge about AI and not the technology itself of AI. Literacy is the capability to read and write (McBride, 2015). AI literacy can be defined generally as the ability to understand and use AI-enhanced systems responsibly and well. It's not merely familiarizing oneself with AI; it allows a person to evaluate AI-related information critically, make informed decisions, and contribute positively to AI advancement.

AI literacy is a multifaceted knowledge of the key principles, applications, and moral dimensions of AI (Muraina et al., 2020; Ng et al., 2021). While AI literacy in the past was only required of individuals with a technical background, with increasing popularity and developments in AI technology this ability has been scaled up to encompass non-technical individuals over the past few years (Long and Magerko, 2020). AI-literate non-specialists do not need to be engineers or computer programmers but need to be blessed with the knowledge to make rational decisions about AI-facilitated products and services, have an understanding of the ethical aspects of AI technologies, comprehend AI-related news and debate, and be capable of interacting sufficiently with AI-based systems (Muraina et al., 2020; Oyadeyi & Muraina, 2017).

Artificial intelligence (AI) has been a transformative power in classrooms in recent time, transforming pedagogical practices and raising pressing ethical question. From around the globe, educators and institutions are calling for ethics modules in computing and AI courses, recognizing that formal training will make practitioners ready to handle privacy, bias, and accountability problems in AI systems (Madu and Abubakar, 2024). This global call has found resonance in Nigeria. Nonetheless, empirical data on data literacy and ethics training performance in Nigeria, particularly among university lecturers, remains in its infancy. Existing literatures in South-western Nigeria indicate that although lecturers show a sense of familiarity with AI tools, their utilization is low due to infrastructural requirements, limited training experiences as well as institutional barriers (Muraina et al., 2022; Muraina et al., 2025). However, adoption was slow due to inadequate infrastructure, rapid tech development, and resistance to change.

The participants who received education on data literacy showed more awareness of AI ethics, as found by Park and Chung in 2021. This result is backed by research claiming that teaching AI ethics helps develop the relevant ethical awareness. For this reason, AI-related data literacy programs need to be designed and their awareness promoted. However, From Jeong and Lee's study in 2019, it is crystal clear that there is a significant statistical relationship between the level of digital literacy and AI ethics awareness (Muraina et al., 2020). Also, other studies had established strong relationships between information competence and information ethics awareness. Supporting this finding, it can therefore be concluded that individuals well versed with digital devices tend to exhibit greater AI ethics aware knowledge (Muraina et al., 2022; Muraina et al., 2025). Therefore, providing education on data literacy informs more critical engagement and cultivation of social value-fostering for nearness in AI technology.

Similarly, at the University of Calabar, lecturers showed awareness and incorporation of AI in research teaching, though actual use was rated poor due to technical issues, access constraints, and skills deficiencies as significant hindrances (Idika et al, 2025). Concurrently, institutional efforts are trying to codify AI ethics into curricula. University of Lagos is developing policies on regulating student and academic engagement with AI tools with a focus on the importance ofsafeguarding academic integrity, accountability, and active ethics protocols. Internationally, stakeholders converged at Nigeria's inaugural AI Awareness Day on February 17, 2025, calling for AI policy and strategic deployment in higher education on a collective level. This study therefore examines whether

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taking part in data literacy programs improves lecturers' awareness and understanding of AI ethics principles within Nigerian higher education institutions.

This study is based on the Technology Acceptance Model (TAM), developed by Davis in 1989. The TAM is one of the most important theories for understanding how people accept and use technology. It suggests that two main factors influence users' acceptance of new technologies: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). Perceived Usefulness (PU), according to Davis, is the extent to which a person believes that using a specific technology will improve their job performance. Perceived Ease of Use (PEOU) is the extent to which a person believes that using the technology will require little effort. In this study, the TAM helps explain lecturers' willingness and ability to adopt artificial intelligence tools in their work. A lecturer who sees AI as useful for teaching, research, mentoring, and administrative tasks, and who finds AI tools easy to use, is more likely to incorporate them into their daily routines. However, lecturers with low digital literacy may find AI difficult to use, which could hinder their acceptance of these technologies.

**Statement of the Problem**

Despite the increasing push for ethical AI use in education, there is little empirical evidence on how well lecturers in Nigerian higher institutions grasp and apply AI ethics principles. Although some institutions have started implementing data literacy programs, it remains unclear how much these initiatives actually improve lecturers' awareness and skills on AI ethics. This gap could threaten responsible AI use, leading to potential technology misuse, data breaches, algorithmic discrimination, and a loss of trust in digital learning environments. Without a clear understanding of how this literacy programme impact awareness, policymakers and educational leaders might find it challenging to create effective interventions that fit global ethical standards and local needs.

**Purpose of the Study**

The main purpose of this study is to Assess Data Literacy Programmes on AI Ethics Awareness among Lecturers in Nigerian Higher Institutions. Specifically, the research objectives are to:

1. To investigate the effect of data literacy training on AI ethics awareness among lecturers in Higher Education Institutions in South-western Nigeria.
2. To examine the variation in AI ethics awareness between lecturers who receive data literacy training and those who do not.

**Research Hypotheses**

**$H_{01}$:** There is no significant effect of data literacy training on AI ethics awareness among lecturers in Higher Education Institutions in South-western Nigeria.

**$H_{02}$:** There is no variation in AI ethics awareness between lecturers who receive data literacy training and those who do not.

**Methodology**

The design is descriptive of the survey type. It was considered appropriate because the study does not require manipulation of variables, but seeks Lecturers response to a questionnaire on Assessment of Data Literacy Programs on AI Ethics Awareness among Lecturers in Nigerian Higher Institutions. The population for this was 5,290 federal university lecturers in 10universities in South-western Nigeria. The sample of this study consisted of 500 Federal University lecturers across the area who were chosen through a multi-stage sampling procedure. The first stage involved the use of simple random sampling techniques to select 10 universities in the Region. The second stage involved the use of simple random sampling techniques to select 8out of the federal universities in the area. The third stage involved the use of a simple random sampling technique to select 83lecturers from each university selected. Five hundred (500) questionnaires distributed were all retrieved and used for data analysis. The instrument used for the study was a structured research questionnaire. The instrument was validated and a Cronbach's alpha value of 0.91 was obtained. Two research hypotheses were generated and tested at 0.05 level of significance. Data were analyzed using Pearson Product Moment Correlation (PPMC) statistics.

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**Results**

**Research Hypothesis One: There is no significant effect of data literacy on AI ethics awareness among lecturers in Higher Education Institutions in Southwestern Nigeria**

*Table 1: Significant relationship between date literacy Programme and lecturers Ai ethics awareness.*

| Data Literacy Programme | Mean | SD | DF | N | R | P | Remark |
|---|---|---|---|---|---|---|---|
| Lecturer Ai Ethic Awareness | 35.67 | 18.52 | | | | | |
| | 63.16 | 21.23 | 498 | 500 | .774 | .000 | Significant |

The table 1 above showed that there was a significant correlation between data literacy training on AI ethics awareness among lecturers in Higher Education Institutions in South western, Nigeria. The implication of this showed that data literacy programme had significant influence on lecturers Ai ethic awareness in South western, Nigeria.

**Research Hypothesis Two: There is no variation in AI ethics awareness between lecturers who receive data literacy training and those who do not.**

*Table 1: Significant relationship between variation in AI ethics awareness among lecturers who receive data literacy training and those who do not.*

| Data Literacy Programme | Mean | SD | DF | N | R | P | Remark |
|---|---|---|---|---|---|---|---|
| Variation in lecturer Ai Ethic Awareness | 31.89 | 16.13 | 498 | 500 | .692 | .000 | Significant |
| | 56.24 | 20.82 | | | | | |

The table 2 above showed that there was significant variations between data literacy programme on AI ethics awareness among lecturers in Higher Education Institutions in South-western Nigeria. This implication of this is that attitude of lecturers who received data literacy programme varies from those who did not.

**Discussion of the Findings**

The first hypothesis showed that there was significant correlation between the data literacy program on AI ethics awareness among lecturers in Higher Education Institutions in South-western, Nigeria. The implication of this showed that the data literacy program had significant influence on lecturers Ai ethic awareness in South-Western, Nigeria. This is in agreement of Park and Chung (2021), who discovered that participants who received education on data literacy showed more awareness of AI ethics. This result is backed by research claiming that teaching AI ethics helps develop the relevant ethical awareness. For this reason, AI-related data literacy programs need to be designed and their awareness promoted (Muraina et al., 2022; Muraina et al., 2025). However, from Jeong and Lee's study in 2019, we understand that there is a significant statistical relationship between the level of digital literacy and AI ethics awareness. Also, other research has found strong relationships between information competences and information ethics awareness. Supporting this finding, it can therefore be concluded that individuals well versed with digital devices tend to exhibit greater AI ethics awareness. Therefore, providing education on data literacy informs more critical engagement and cultivation of social value-fostering for nearness in AI technology.

The second hypothesis portrayed that there were significant variations between data literacy programmes on AI ethics awareness among lecturers in Higher Education Institutions in South-western Nigeria. The implication of this is that the attitudes of lecturers who received the data literacy programme vary from those who did not. This result is supported by the Technology Acceptance Model (TAM) developed by Davis (1989). The model is one of the most important theories for understanding how people accept and use technology. It suggests that two main factors influence users' acceptance of new technologies, which are perceived usefulness and perceived ease of use. Perceived Usefulness (PU), according to Davis, is the extent to which a person believes that using a specific technology will improve their job performance. Perceived ease of use (PEOU) is the extent to which a person believes that using the technology will require little effort (Muraina et al., 2022; Muraina et al., 2025). In this study, the TAM helps explain lecturers' willingness and ability to adopt artificial intelligence tools in their work. A lecturer who attended data literacy program and sees AI as useful for teaching, research, mentoring, and administrative tasks, and who finds AI tools easy to use, is more likely to incorporate them into their daily routines. However, lecturers who do not attend data

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literacy and low digital literacy may find AI difficult to use, which could hinder their acceptance of these technologies (Davis, 1989).

**Conclusion**

This study looked at how data literacy programs affect AI ethics awareness among lecturers in higher education institutions in Southwestern Nigeria. The findings show a moderate level of AI ethics awareness among lecturers, with significant differences across disciplines and institutions. Many lecturers understand general ethical issues related to AI, such as privacy, bias, and accountability. However, their ability to apply these principles in teaching and research is often limited by a lack of training and support from their institutions. Data literacy programs, when available, have helped improve ethical awareness, but they are inconsistently implemented and do not focus on the unique ethical challenges posed by AI technologies. Additionally, structural and infrastructure issues, such as limited funding, poor curriculum integration, and a shortage of skilled trainers, make it hard to deliver and adopt these programs effectively. The study highlights the urgent need for targeted, well-funded, and context-specific efforts to improve both data literacy and AI ethics knowledge among academic staff in the region.

**Recommendations**

1. Higher education institutions should include AI ethics in mandatory professional development and faculty training programs. This should cover both general AI literacy and ethical frameworks that fit local and global standards.
2. The Federal Ministry of Education and the National Universities Commission (NUC) should create and promote a standardized data literacy and AI ethics framework designed for the Nigerian context, focusing on ethical, legal, and cultural aspects.
3. Regular evaluations of data literacy programs should be carried out to assess effectiveness, identify shortcomings, and guide policy decisions. Feedback from lecturers should directly influence program redesign and implementation strategies.
4. Encourage collaboration between faculties of computer science, social sciences, law, and philosophy to foster a comprehensive understanding of AI ethics. Interdisciplinary workshops and seminars can improve awareness and practical application.
5. Institutions need to invest in digital infrastructure, such as access to online courses, learning platforms, and AI tools, to support ongoing faculty development.

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