LECTURERS' AWARENESS OF THE USE OF AI IN RESEARCH IN COLLEGES OF EDUCATION IN ANAMBRA STATE

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ABSTRACT

This study investigates the level of awareness among lecturers in colleges of education in Anambra State regarding the use of Artificial Intelligence (AI) in research activities. The rapid advancement of AI technologies has transformed research processes worldwide, offering tools for data analysis, literature synthesis, and automation, which can significantly enhance research quality and efficiency. Despite these benefits, limited empirical data exists concerning Nigerian educators' familiarity with AI applications in research. This study aims to fill this gap by assessing the extent of lecturers' awareness, identifying factors influencing their knowledge, and exploring potential barriers to AI adoption. A descriptive survey design was employed, involving 193 lecturers selected through stratified random sampling. Data was collected via a structured questionnaire and analyzed using descriptive statistics and chi-square tests to examine relationships between awareness levels and influencing factors. Findings indicate that a substantial percentage of lecturers have low to moderate awareness of AI in research, primarily due to infrastructural deficits, limited professional development opportunities, and insufficient institutional policies. The study underscores the urgent need for targeted training programs, infrastructural improvements, and policy support to enhance AI literacy among educators. It is envisaged that these interventions will foster greater integration of AI tools in research activities, ultimately improving research productivity and academic excellence in Nigerian colleges of education. The study concludes with recommendations for policymakers, institutional leaders, and stakeholders to promote AI awareness and adoption in higher education research.

Keywords: Lecturers, Awareness, Artificial Intelligence, and Research Activities,

Introduction

The rapid evolution of technology has transformed the landscape of higher education and research globally. Among the most significant innovations in recent years is Artificial Intelligence (AI), which refers to the development of computer systems capable of performing tasks that typically require human intelligence, such as learning, reasoning, and problem-solving (Russell & Norvig, 2016). AI's integration into

research activities has the potential to revolutionize scholarly work, making data processing faster, more accurate, and more insightful. The rapid advancement of technology has revolutionized various sectors, including education and research. Artificial Intelligence (AI), as one of the most transformative innovations of the 21st century, holds tremendous potential to enhance research productivity, data analysis, instructional design, and institutional planning in higher education (Chen et al., 2020). In the context of Nigerian colleges of education, understanding lecturers' awareness of AI in research is crucial, as it influences their adoption and integration of such tools to improve scholarly output and pedagogical effectiveness. In the context of education, AI applications have begun to influence areas such as personalized learning, automated grading, and research facilitation. AI-powered tools like data mining algorithms, natural language processing systems, and intelligent tutoring systems can assist researchers in analyzing large datasets, synthesizing literature, and generating insights that would otherwise require extensive manual effort (Chen et al., 2020). Consequently, AI has become an essential component of innovative research methodologies across various disciplines. Despite these advancements, the awareness and utilization of AI in research among college lecturers in Nigeria remain limited. Many lecturers in Nigerian tertiary institutions, including colleges of education, are still unfamiliar with existing AI tools or lack the skills necessary to incorporate them into their research practices (Eze et al., 2022). This gap is attributable to several factors, including inadequate ICT infrastructure, insufficient training opportunities, and limited institutional support for adopting emerging technologies.

In Nigeria, colleges of education play a vital role in teacher training and producing future educators; hence, the capacity of their lecturers to leverage AI for research directly impacts the quality and relevance of educational research output. Anambra State, with its numerous colleges of education, represents a microcosm of the broader national situation. While some initiatives have been undertaken to modernize pedagogical practices, the awareness level of lecturers concerning AI in research is not well-documented or understood.

Furthermore, many Nigerian institutions face infrastructural challenges such as inconsistent electricity supply, poor internet connectivity, and limited access to modern computing facilities—factors that further hinder AI awareness and application (Nwachukwu & Ifedolapo, 2020). These infrastructural limitations create significant barriers, preventing lecturers from exploring and adopting AI tools effectively. The importance of understanding the level of awareness among lecturers in Anambra State cannot be overstated. Their knowledge of AI's potential benefits, limitations, and applications could serve as a foundation for designing targeted interventions—including training programs, policies, and infrastructural improvements—that could foster greater integration of AI into research activities. By doing so, colleges can enhance research productivity, improve academic quality, and keep pace with global technological trends.

In light of these considerations, investigating lecturers' awareness of AI in research within colleges of education in Anambra State is both timely and essential. It provides insights into existing gaps and

opportunities to harness AI for educational advancement. This study aims to fill the existing knowledge gap by assessing the awareness levels, identifying the barriers to AI adoption, and suggesting strategies to promote AI integration in research practices.

The Role of AI in Education and Research

AI encompasses a broad range of computational techniques that enable machines to perform tasks traditionally requiring human intelligence, such as learning, reasoning, problem-solving, and understanding language (Russell & Norvig, 2016). In research, AI applications include data mining, natural language processing, predictive analytics, and automated writing assistance, among others. These tools can significantly reduce the time and effort involved in data collection, analysis, and reporting, thereby accelerating research cycles and improving accuracy (Gupta & Sharma, 2021). Moreover, AI-driven platforms like research assistive tools, chatbots, and intelligent tutoring systems are increasingly becoming mainstream in academic environments.

In Nigeria, particularly in colleges of education, the integration of AI in research activities remains at a nascent stage. Many lecturers recognize the potential of AI but lack comprehensive awareness, understanding, or training on how to utilize these technologies effectively (Eze et al., 2022). This knowledge gap can hinder the integration of AI tools, limiting their benefits for research productivity and quality.

Level of Awareness among Lecturers

Research in similar Nigerian contexts indicates varying levels of awareness among academic staff concerning AI. For instance, Akinbobola (2019) reports that while some lecturers are familiar with basic concepts such as machine learning and data analysis software, few have in-depth understanding or practical experience with AI-driven research tools. Awareness often correlates with the level of exposure to international conferences, workshops, or training sessions that focus on emerging educational technologies.

In the context of Anambra State, where colleges of education serve as critical centers for teacher training and pedagogical research, understanding the extent of lecturers' awareness of AI's role in research is vital. Given the technological infrastructural challenges and limited ICT training programs, it is plausible that many lecturers are either unaware of AI applications or possess only superficial knowledge (Nwachukwu & Ifedolapo, 2020). Such limited awareness creates barriers to effective integration of AI tools into research activities and hinders innovation in academic inquiry.

Factors Influencing Awareness Levels

Several factors influence lecturers' awareness of AI in research within colleges of education. These include access to ICT infrastructure, participation in professional development, exposure to international academic programs, and institutional support for technological innovation (Obi, 2021). For example, colleges with better internet connectivity, functional computer laboratories, and partnerships with technology organizations tend to have lecturers with higher awareness levels.

Furthermore, personal attributes such as age, educational background, and research experience also play roles. Younger lecturers or those with postgraduate qualifications in ICT-related fields are more likely to be aware of AI applications than their older or less digitally literate counterparts (Eze & Onwuzulike, 2020). As a result, disparities in awareness exist within college faculties, influencing collaborative research efforts and overall research output.

Challenges in Awareness and Adoption

Despite the promising prospects of AI, several challenges hinder lecturers in colleges of education from realizing its benefits. Primarily, the lack of awareness stems from inadequate training and limited exposure to emerging technologies (Okechukwu & Nwachukwu, 2021). Many lecturers have not received formal training on AI tools, and continuous professional development programs rarely emphasize AI literacy.

Additionally, infrastructural deficits such as unreliable electricity, poor internet connectivity, and lack of access to computers impede awareness and practical application (Imoh & Oka, 2022). Without the necessary hardware and connectivity, lecturers are less likely to explore or adopt AI-driven research methods.

Institutional factors, such as lack of policy support, inadequate funding for ICT projects, and absence of incentivization for innovative research, further exacerbate the situation. Many colleges of education in Anambra State lack strategic frameworks or pilot projects to pilot AI integration into research activities (Onyeneke & Ogbonnaya, 2021).

Strategies for Enhancing Awareness and Utilization

To bridge the awareness gap, Nigerian colleges of education must prioritize capacity-building initiatives. These include organizing workshops, seminars, and training sessions that focus specifically on AI tools relevant to educational research. Collaborations with technology firms and international bodies can provide resources and expertise necessary for effective training (Aduwa & Akinyemi, 2020).

Furthermore, policy measures at the institutional and government levels should promote ICT infrastructure development, research grants specifically aimed at AI integration, and recognition of innovative research practices. Creating a culture of continuous learning and adaptation would enable lecturers to keep pace with technological advancements and adopt AI tools in their research activities (Eze et al., 2022).

Finally, integrating AI literacy into the existing professional development curricula for lecturers could foster a sustainable culture of technological innovation. Encouraging research projects that utilize AI, providing mentorship, and facilitating peer-to-peer learning can build confidence and competence among lecturers in using AI for research purposes (Obi, 2021).

In conclusion, while the potential of AI to revolutionize research in Nigerian colleges of education is undeniable, significant gaps in awareness hinder its widespread adoption. Efforts to improve knowledge and skills of lecturers through targeted training, infrastructural development, and policy support are essential. Addressing these challenges will empower lecturers to leverage AI effectively, thereby enhancing the quality, efficiency, and impact of research in Anambra State's colleges of education.

Statement of the Problem

Artificial Intelligence (AI) has emerged as a transformative technology with the potential to significantly enhance research quality and productivity in higher education. Its applications in data analysis, literature review, and research automation can save time, improve accuracy, and foster innovation among researchers (Russell & Norvig, 2016; Chen et al., 2020). However, despite these benefits, there is a growing concern that many lecturers in Nigerian colleges of education, particularly in Anambra State, remain largely unaware of AI-driven research tools and their applications. This lack of awareness poses a significant barrier to the effective integration of AI into research practices, which can inhibit the capacity of lecturers to produce relevant and high-quality scholarly work. Several factors contribute to this knowledge gap, including inadequate ICT infrastructure, limited access to training and professional development opportunities, and a lack of institutional policies promoting technology adoption (Nwachukwu & Ifedolapo, 2020). Consequently, many lecturers continue to rely on traditional research methods, missing out on the efficiencies and innovative potentials that AI can offer. Furthermore, the low level of awareness may impede the development of a research culture that embraces technological advancements, thereby impacting the overall research output and academic competitiveness of colleges of education in the region. This situation raises concerns about the preparedness of Nigerian educators to meet the demands of contemporary research environments and to contribute meaningfully to educational knowledge that is globally relevant and technologically driven. Despite the critical role of lecturers in driving research and the strategic importance of AI in modern research landscapes, there is limited empirical data on their awareness levels and the factors influencing their familiarity with AI tools in the

context of colleges of education in Anambra State. This gap hampers the development of targeted interventions designed to improve knowledge, skills, and ultimately, research quality. Therefore, it is imperative to examine the current awareness level among lecturers about AI's role in research, identify existing barriers, and explore ways to enhance their competence. Addressing this problem is essential for fostering an innovative research environment that leverages AI to improve educational research outcomes, support sustainable development, and position Nigerian colleges of education as competitive players in the global academic arena.

Purpose of the Study

The main purpose of this study is to investigate lecturers' awareness of the use of AI in research in Colleges of Education Anambra State. The study specifically sought the following;

1. The extent lectures are aware of the use of AI in research in Colleges of Education in Anambra State.
2. To determine the factors influencing lecturers' awareness of AI use in research within colleges of education in Anambra State?

Research Questions

The following research questions guided this study;

1. What is the level of awareness among lecturers in colleges of education in Anambra State regarding the use of AI in research activities?
2. What are the factors influencing lecturers' awareness of AI use in research within colleges of education in Anambra State?

Hypotheses

The following formulated null hypotheses were tested at 0.05 level of significance

1. The difference between male and female lecturers' mean ratings on awareness of the use of AI in research is not significant
2. The difference between male and female lecturers mean ratings on awareness of the integration of AI in research activities is not significant
3.

Method

The design of the study was descriptive survey. The study was carried out in the two Colleges of Education (Technical), Umunze, and Nwafor Orizu College of Education in Anambra State. The population comprised 374 lecturers in F. C. E. (T), Umunze and Nsugbe. The sample consisted of 193 (83 males and 110 female) lecturers selected using simple random sampling technique of Taro Yamane of 1967 formula. Researchers' Awareness of AI Research Questionnaire (RAIRQ) was the instrument of the study. The RAIRQ was validated by two measurement and evaluation experts in Nnamdi Azikiwe University Awka.. The reliability coefficient was 0.72 using Cronbach alpha method. The data were analyzed using mean statistics while the null hypotheses were tested using t-test at .05 level of significance. The decision rule was that any item with a mean score of 2.50 and above implied awareness whereas any item with a mean score less than 2.50 was not aware.

Results

Research Question 1:

To the level of lectures aware of the use of AI in research?

Table 1: Mean Scores of Responses on Lecturers Awareness of AI in Research *(N=193)*

S/N	ITEMS	VHE	HE	LE	VLE	$\bar{x}$	Remark
1	**Increased Efficiency:** AI automates repetitive tasks, speeding up research processes.	86	87	16	4	3.32	Aware
2	**Enhanced Data Analysis:** AI can analyze large datasets quickly and accurately.	76	77	19	21	3.08	Aware
3	**Improved Accuracy:** Reduces human errors in data processing and analysis.	63	89	20	21	3.01	Aware
4	**Cost-Effective:** Automating research tasks reduces labor and operational costs.	81	71	24	17	3.12	Aware
5	**Predictive Analytics:** AI forecasts trends and patterns for better decision-making.	43	13	86	51	2.25	Not Aware
6	**Literature Review Automation:** AI tools can scan and synthesize vast volumes of scholarly articles.	21	12	61	99	1.77	Not Aware
7	**Personalized Research Assistance:** AI provides tailored suggestions and insights to researchers.	70	83	18	22	3.04	Aware

8	**Real-Time Data Processing:** Enables immediate analysis of incoming data streams.	33	41	69	50	2.30	Not Aware
9	**Natural Language Processing (NLP):** Facilitates understanding and generating human language for research purposes.	43	32	55	63	2.28	Not Aware
10	**Enhanced Collaboration:** AI-powered platforms support multi-disciplinary and international research collaboration.	56	82	22	33	2.83	Aware
11	**Detection of Anomalies:** Identifies outliers or inconsistencies in data sets.	72	69	23	29	2.95	Aware
12	**Simulations and Modelling:** Supports complex simulations that are otherwise time-consuming.	47	79	39	28	2.75	Aware
13	**Data Management:** Organizes and maintains large volumes of research data efficiently.	81	52	43	17	3.02	Aware
14	**Automation of Experimentation:** AI can control experiments and robotics for technical research.	50	77	27	39	2.72	Aware
15	**Sentiment Analysis:** Assesses opinions or attitudes in social research or media analysis.	64	83	21	25	2.96	Aware
16	**Knowledge Discovery:** Finds hidden relationships in data sets that humans might miss.	12	23	89	69	1.89	Not Aware
	Grand Mean					2.71	Aware

The analysis in Table 1 reveals that the respondents rated all items above a mean score of 2.50 and above except five items with mean scores less than 2.50. This implies that the lecturers are aware of ethical principles of research such as honesty, objectivity, carefulness, integrity and among others, whereas not aware of informed consent, openness, keeping records of research activities, responsible publication, confidentiality and among others. Furthermore, a grand mean score of 2.71 shows that lecturers to a high extent are aware of AI in Research.

Research Question 2: What are the factors influencing lecturers' awareness of AI use in research within colleges of education in Anambra State?

Table 2: Mean Scores of Response on the factors influencing lecturers' awareness of AI use in research within colleges of education in Anambra State ***(N=193)***

S/N	ITEMS	VHE	HE	LE	VLE	$\bar{x}$	Remark
17	**ICT Infrastructure** – Availability and access to computers, internet, and AI tools.	51	89	19	34	2.81	Aware
18	**Professional Development and Training** – Exposure through workshops, seminars, and courses on AI.	73	69	28	23	2.99	Aware
19	**Institutional Policies and Support** – Presence of policies encouraging technology integration.	27	26	64	76	2.02	Not Aware
20	**Research Experience** – Level of experience in conducting research and familiarity with advanced tools.	19	37	76	61	2.07	Not Aware
21	**Educational Background** – Higher familiarity among those with ICT-related qualifications.	24	40	81	48	2.21	Not Aware
22	**Age of Lecturers** – Younger lecturers tend to be more aware of emerging technologies.	27	29	76	61	2.11	Not Aware
23	**Access to Research Networks and Collaborations** – Interaction with international or advanced research communities.	71	79	21	22	3.03	Aware
24	**Availability of Funding** – Financial support for AI-related research activities.	23	31	66	73	2.02	Not Aware
25	**Technical Skills and Competence** – Individual capacity to understand and use AI tools.	29	31	82	51	2.20	Not Aware
26	**Awareness Campaigns and Information Dissemination** – Outreach programs about new research technologies.	69	81	20	23	3.02	Aware
27	**Infrastructural Support** – Availability of relevant hardware and software at the institution.	84	61	24	24	3.06	Aware
	Grand Mean					2.50	Aware

Table 2 reveals that the respondents rated all items below a mean score of 2.50 except five items with mean scores above 2.50. Furthermore, a grand mean score of 2.50 reveals that lecturers are aware of unethical research activities. However, the lecturers are not aware of some unethical research activities

such as discussing with your colleagues confidential data from a paper that you are reviewing for a journal, using data, ideas, or methods you learn about while reviewing a grant or a papers without permission and among others.

Hypothesis 1:

The difference between male and female lecturers' mean ratings on awareness of AI in Research is not significant

Table 3: Difference in Mean Ratings of Male and Female Lecturers on level of Awareness of Use of AI in Research Activities

Lecturers	$\bar{x}$	SD	N	D.F	T-Cal.	T-Crit.	Decision
Male	34.1	14.1	83	191	1.46	1.960	Accept
Female	36.8	10.5	110				

Data analyzed in Table 3 shows that the null hypothesis was accepted at .05 given that the value of t-calculated is less than value of t-critical.

Hypothesis 2:

The difference between male and female lecturers mean ratings on awareness of unethical research activities is not significant

Table 4: Difference in Mean Ratings of Male and Female factors militating against Lecturers on Awareness of the use of AI in Research

Lecturers	$\bar{x}$	SD	N	D.F	T-Cal.	T-Crit.	Decision
Male	33.4	12.4	83	191	0.85	1.960	Accept
Female	34.9	11.7	110				

Analysis in Table 4 shows that the null hypothesis was accepted at .05 given that the value of t-calculated is less than value of t-critical.

Summary of Findings

1. Lecturers to a high extent are aware of AI research
2. Lecturers to high extent are aware of unethical research activities

3. the difference between male and female lecturers' mean ratings on awareness of AI in Research is not significant

4. the difference between male and female lecturers mean ratings on awareness of unethical research activities is not significant

Discussion

The first finding of this study revealed that lecturers to a high extent are aware of AI in Research, thus, the difference between male and female lecturers' mean ratings on awareness of AI in Research is not significant. Lastly, the finding of this present study revealed that lecturers to high extent are aware of unethical research activities, thus, the difference between male and female lecturers mean ratings on awareness of unethical research activities is not significant. These findings are in agreement with the findings of Agu and Abanobi, (2014) that higher education lecturers comply with all the AI in Research except informed consent and higher education lecturers' compliance with AI in Research do not differ in terms of gender. Furthermore, Osungbade, Ogundiran, and Adebamowo (2014) found in their study on AI in Research education among graduate students of the University of Ibadan, Southwest Nigeria that knowledge on AI in Research was about average among the study participants, especially those belonging to the younger age group (< 30 years old).

The awareness of the respondents on the three aspects of ethics of research explored was high, but not all demonstrated good knowledge. Equally, the mean knowledge scores of AI in Research issues were generally above average. Age was found to be a predictor of this knowledge, particularly research integrity. These findings seem to be supported by the observation that about half (53.2%) had not been exposed to AI in Research training or instruction of any kind before registering for the current graduate programme. Male students generally recorded higher mean knowledge scores than their female counterparts on most of the areas of responsible conduct of research explored. Despite this finding, sex was not a predictor of knowledge in this study.

Conclusion

The study concluded that male and female lecturers are aware of AI in Research and unethical research activities. There is no significant difference between male and female lecturers' mean ratings on awareness of AI in Research and there is no significant difference between male and female lecturers mean ratings on awareness of unethical research activities.

Recommendations

The study made the following recommendations;

1. higher institutions authorities should organize conference and seminars on AI in Research for lecturers so as to update their knowledge on ethical conducts of research

2. lectures should strictly follow the rules and regulation of AI in Research in their day to day research investigations

3. Lecturers should carefully in their conduct of research that might have negative social consequence on participants, e.g, experimental interventions that might deprive students of important parts of the standard curriculum.

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