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AWARENESS AND UTILIZATION OF ARTIFICIAL INTELLIGENCE TOOLS FOR ACADEMIC RESEARCH WRITING AMONG LECTURERS IN PUBIC UNIVERSITIES IN DELTA STATE

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Abstract

The increasing demand for high-quality and globally relevant research outputs among lecturers in Nigerian universities has highlighted the importance of Artificial Intelligence (AI) tools in enhancing academic research writing. This study examined the awareness and utilization of AI tools for academic research writing among lecturers in public universities in Delta State. The study adopted a descriptive survey research design. The population of the study comprised 3,500 lecturers in public universities in Delta State, while a sample of 600 lecturers was selected using a multistage sampling procedure. Data were collected using a structured questionnaire titled *Awareness and Utilization of AI Tools for Academic Research Writing Questionnaire (AUAITARWQ)*. The instrument was validated by experts. The reliability of the *AUAITARWQ* was established using the Cronbach Alpha method, which yielded a reliability coefficient of 0.82, indicating adequate internal consistency. Out of the 600 copies of the questionnaire distributed, 570 were correctly completed and returned, representing a high response rate. Data collected were analyzed using mean and standard deviation. Findings revealed that lecturers possessed a high level of awareness of AI tools for academic research writing; however, the extent of utilization of these tools remained low, with lecturers mostly utilizing AI tools for basic academic writing functions such as grammar checking, proofreading, and plagiarism detection. The study concluded that although lecturers are aware of AI technologies and their relevance to academic research writing, effective utilization remains limited. Based on the findings, the study recommended among others that universities in Delta State should organize regular practical training programmes for lecturers on the effective utilization of AI tools for academic research writing.

Keywords: Artificial intelligence, academic research writing, awareness, utilization.

Introduction

The advancement of Artificial Intelligence (AI) has significantly reshaped various aspects of human endeavour, including education and research. Artificial Intelligence (AI) refers to the capability of computer systems to perform tasks that typically require human intelligence, such as reasoning, problem-solving, learning, and language processing (Bound et al, 2022; Russell & Norvig, 2022). In the educational context, AI encompasses technologies that simulate human cognitive processes to support teaching, learning and research. AI systems analyze large datasets, detect patterns, and generate predictions, thereby facilitating evidence-based decision-making and efficiency in academic work (Haung, 2023, Ameen et al., 2024).

In higher education, AI technologies are increasingly being applied to enhance teaching, learning and research productivity. Particularly, AI-driven tools such as ChatGPT, Grammarly, QuillBot, Elicit, Research Rabbit, Turnitin and ChatPDF have transformed the landscape of academic research and scholarly writing. AI tools for academic research writing are software applications that employ machine-learning algorithms and natural-language processing to assist users in various stages

of scholarly writing (Jisc, 2021). Common AI tools include **ChatGPT** (text generation and idea development), **Grammarly** (grammar and style enhancement), **QuillBot** (paraphrasing and rewriting), **Turnitin** (plagiarism detection), **Elicit** (AI-assisted literature review), **Research Rabbit** (citation and network visualization) and **ChatPDF** (summarizing and interacting with PDF articles) (Chen et al, 2021, Jiang &Li, 2022; Smith et al, 2023).The aforementioned artificial intelligence tools assist researchers in idea generation, literature review synthesis, plagiarism detection, language enhancement, data analysis, and citation management (Ameen, Adeniran, & Bamidele, 2024). Their effective utilization has the potential to improve the efficiency, accuracy and quality of academic writing while reducing the time and effort required in the research process.

Globally, scholars have embraced AI tools to facilitate various stages of research writing, from data gathering to manuscript preparation and editing. According to Kallinikos and Tempini (2023), AI applications have become essential in research because they enable automation of repetitive academic tasks and support the generation of new knowledge through intelligent data processing. However, despite the rapid global diffusion of these tools, their adoption in developing countries such as Nigeria appears uneven and relatively low (Adeleke & Odu, 2024; Crawford & Carlo, 2016). The digital divide, coupled with inadequate institutional support, poor internet infrastructure and limited digital literacy among academic staff, continues to hinder the effective integration of AI into the research ecosystem (Ezeani & Okafor, 2023; Holmes et al, 2021). Another factor that has contributed to low level of adoption is awareness.

Awareness in this context refers to the degree to which lecturers possess knowledge about the existence, purpose and functions of AI tools used in academic research writing. According to Nwosu and Adesina (2023), awareness is a prerequisite for adoption, as individuals are unlikely to utilize technologies they are unaware of. Awareness may stem from training, peer learning, workshops, institutional exposure or personal exploration. Studies in Nigerian higher institutions reveal that lecturers are moderately aware of basic AI tools such as Grammarly and Turnitin but less familiar with advanced tools like Elicit or Research Rabbit (Ajayi & Ojo, 2023). Awareness levels also vary by discipline, age, and years of teaching experience (Akarah et al, 2025). The level of awareness also influence the utilization of AI tools for research writing.

Utilization refers to the actual application of AI tools in performing academic research writing tasks. According to Ajayi and Ojo (2023), utilization involves frequency of use, type of task, and the depth of engagement with AI applications. Utilization can range from occasional grammar checks to comprehensive use of AI for idea generation, data analysis, and referencing. Empirical evidence shows that utilization of AI tools among Nigerian lecturers remains relatively low (Ajayi & Ojo, 2023). Ogunyemi and Usman (2024) reported that most lecturers use AI tools mainly for plagiarism detection and grammar correction rather than advanced analytical or literature-synthesis tasks. The degree of utilization is often influenced by factors such as digital literacy, access to technology and institutional support.

Furthermore, existing studies have shown that many lecturers are aware of the existence of AI tools but demonstrate minimal utilization for academic purposes ((Akarah et al, 2025; Onwuagboke et al, 2024). Most reported use cases are confined to plagiarism-detection tools such as Turnitin and grammar checkers like Grammarly, while more advanced AI-driven research aids such as Elicit, Research Rabbit and ChatGPT remain underutilized (Ogunyemi & Usman, 2024). A study conducted at the Delta State College of Education, Mosogar, revealed that lecturers possessed moderate awareness of AI applications but displayed low levels of utilization, particularly for academic research and writing (Akarah, Azika & Onanore, 2025). This finding aligns with observations in other Nigerian institutions, where infrastructural deficiencies, lack of training, ethical concerns, and institutional policy gaps limit the effective use of AI in academic contexts (Ajayi & Ojo, 2023).

Despite the increasing emphasis on research productivity and publication among academic staff in Delta State tertiary institutions, there is limited empirical evidence on how lecturers engage with AI tools to support their research writing. Awareness of AI tools does not necessarily translate into meaningful utilization; some lecturers may know of their existence but lack the requisite competence, confidence, or motivation to integrate them into their research processes (Nwosu & Adesina, 2023). Furthermore, ethical apprehensions about the originality and authenticity of AI-generated content, coupled with unclear institutional policies regarding AI-assisted writing, may further discourage adoption.

A study conducted at the Delta State College of Education, Mosogar, revealed that lecturers possessed moderate awareness of AI applications but displayed low levels of utilization, particularly for academic research and writing (Akarah, et al, 2025). Although the study provided useful insights into lecturers' interaction with AI tools, it was limited to a single institution and therefore could not provide a comprehensive picture of the situation across tertiary institutions in Delta State. In addition, the study did not extensively examine the challenges influencing lecturers' utilization of AI tools for academic research writing. Consequently, there remains an empirical gap regarding the level of awareness, extent of utilization, and challenges associated with the use of AI tools for academic research writing among lecturers in Delta State. Therefore, this study seeks to fill this gap by investigating the awareness and utilization of AI tools for academic research writing among lecturers in Delta State.

Statement of the Problem

The demand for high-quality and globally relevant research outputs among academic staff in Nigeria is increasing. Lecturers are expected to publish in reputable journals, contribute to knowledge advancement, and secure research funding. However, many academics continue to face challenges such as inadequate research support, poor academic writing skills, time constraints, and limited access to current scholarly information. In recent years, Artificial Intelligence (AI) tools have emerged as potential solutions to these challenges by providing support for drafting, paraphrasing, referencing, plagiarism detection, literature search and data analysis in academic research writing.

Despite the numerous benefits associated with AI tools, there appears to be a disparity between awareness and actual utilization among lecturers in Nigerian tertiary institutions. Existing studies indicate that although many lecturers are aware of AI-related applications such as Grammarly and Turnitin, only a few effectively utilize more advanced AI-driven tools such as ChatGPT, Elicit and Research Rabbit for academic research writing. This situation raises concerns about the extent to which lecturers are adopting AI technologies to improve research productivity and scholarly output.

In Delta State, particularly among lecturers in public universities, there is limited empirical evidence regarding the level of awareness and extent of utilization of AI tools for academic research writing. It is unclear whether lecturers possess adequate knowledge of these tools and the extent to which they utilize them in academic research writing. Furthermore, the absence of comprehensive data on lecturers' awareness and utilization of AI tools for academic research writing in public universities in Delta State represents a significant knowledge gap. Without such information, university administrators and policymakers may be unable to develop effective policies, training programmes, and capacity-building initiatives to promote responsible and productive AI integration in academic research.

Purpose of the Study

The main purpose of this study is to examine the awareness and utilization of AI tools for academic research writing among lecturers in public universities in Delta State**.** Specifically, the study seeks to:

1. Determine the level of awareness of AI tools for academic research writing among lecturers in public universities in Delta State.
2. Examine the extent to which lecturers utilize AI tools for academic research writing in public universities in Delta State.

Research Questions

1. What is the level of awareness of AI tools for academic research writing among lecturers in Delta State?
2. To what extent do lecturers utilize AI tools for academic research writing?

Methods

This study adopted a descriptive survey research design. The descriptive survey method is suitable for studies that seek to collect data on the attitudes, opinions, and behaviours of respondents regarding a particular phenomenon at a specific point in time (Creswell & Creswell, 2023). It was appropriate for this study because it enabled the researchers to obtain detailed information on lecturers' level of awareness and extent of utilization of Artificial Intelligence (AI) tools for academic research writing in public universities in Delta State.

The population of the study comprised all lecturers in public universities in Delta State, Nigeria. As of the 2025 academic year, the estimated number of lecturers across these institutions was approximately 3,500 (Delta State Ministry of Higher Education, 2025). This population encompassed lecturers from different faculties, academic ranks, and years of teaching and research experience. A sample of 600 lecturers was drawn from four public universities in the state using a multistage sampling procedure.

At the first stage, purposive sampling technique was used to select the four public universities in Delta State because they are government-owned universities with a large population of lecturers actively involved in teaching and research. In the second stage, faculties within the selected universities were stratified according to disciplines such as Sciences, Social Sciences, Education, Arts, and Management Sciences to ensure adequate representation. In the third stage, simple random sampling technique was used to select departments from each faculty. Finally, proportionate random sampling technique was employed to select lecturers from the sampled departments based on the population size of lecturers in each university, resulting in a total sample of 600 lecturers.

Data for the study were collected using a structured questionnaire titled *Awareness and Utilization of AI Tools for Academic Research Writing Questionnaire (AUAITARWQ)* developed by the researchers. The questionnaire consisted of two sections. Section A elicited demographic information of respondents, while Section B contained items on lecturers' awareness and utilization of AI tools for academic research writing.

To ensure face validity, the draft questionnaire was submitted to three experts: one in Educational Technology, one in Measurement and Evaluation, and one in Library and Information Science at the University of Delta, Agbor. Their observations and suggestions were used to refine ambiguous items and ensure alignment with the objectives of the study. The validation process ensured that the instrument adequately measured lecturers' awareness and utilization of AI tools for academic research writing.

The reliability of the *Awareness and Utilization of AI Tools for Academic Research Writing Questionnaire (AUAITARWQ)* was established using the Cronbach Alpha reliability method. A reliability coefficient of 0.82 was obtained, indicating that the instrument possessed adequate internal consistency for the study (Creswell & Creswell, 2023).

The researchers, with the assistance of trained research assistants, personally administered the questionnaires to respondents in their respective institutions. This approach helped to minimize low response rates and ensured accurate retrieval of the instruments. Respondents were informed that participation was voluntary and that their responses would be treated with confidentiality. The completed questionnaires were collected immediately after completion or within an agreed time frame. A total of 600 copies of the questionnaire were distributed, out of which 570 were correctly completed and returned, representing a 95% response rate considered adequate for analysis.

Data collected were coded and analyzed using mean and standard deviation. The mean was used to answer the research questions, while the standard deviation was used to determine the degree of homogeneity or variability in the respondents' opinions. Interpretation of the mean scores was based on the following criteria: 3.50 – 4.00 = Very High Awareness/Utilization; 2.50 – 3.49 = High Awareness/Utilization; 1.50 – 2.49 = Low Awareness/Utilization; and 1.00 – 1.49 = Very Low Awareness/Utilization.

For the standard deviation, values between 0.00 and 1.00 indicated low variability (high homogeneity) in respondents' opinions, while values above 1.00 indicated high variability (low homogeneity) in respondents' opinions.

Results

Research Question 1

What is the level of awareness of AI tools for academic research writing among lecturers in public universities in Delta State?

Table 1

Item-Level Mean Scores on Awareness of AI Tools for Academic Research Writing

S/N	Item statement	Mean	SD	Interpretation
1	I am aware of the existence of AI tools used for academic research writing.	4.21	1.24	High awareness
2	I have never heard of any AI tool for academic research purposes. (–)	2.14	1.76	Low awareness
3	I understand the purpose of AI tools in improving academic research writing.	3.89	1.68	High awareness
4	I am not familiar with the functions of AI tools in academic writing. (–)	2.07	1.95	Low awareness
5	I can identify different AI tools that are useful for research writing.	3.75	1.45	High awareness
6	I do not know any AI tools designed for academic research purposes. (–)	2.21	1.77	Low awareness

S/N	Item statement	Mean	SD	Interpretation
7	I am aware that AI tools can assist with literature review, referencing, and citation management.	3.92	1.80	High awareness
8	I believe AI tools are irrelevant for academic research writing. (–)	1.98	1.72	Low awareness
9	I am aware of the functions of AI technologies relevant to academic research writing.	3.84	1.78	High awareness
Weighted Mean		**3.36**	**1.68**	**High awareness**

The analysis presented in Table 1 reveals the item-level mean scores on lecturers' awareness of AI tools for academic research writing in public universities in Delta State. Awareness in this study was measured in terms of lecturers' knowledge of the existence, purpose, and functions of AI tools for academic research writing. The grand mean score of 3.36 with a standard deviation of 1.68 indicates that lecturers demonstrated a high level of awareness of AI tools for academic research writing, although their responses showed moderate variability.

Specifically, lecturers indicated high awareness regarding the existence and functions of AI tools for academic research writing. For instance, respondents agreed that they were aware of the existence of AI tools used for academic research writing (M = 4.21, SD = 1.24), understood the purpose of AI tools in improving research writing (M = 3.89, SD = 1.68), and were aware that AI tools could assist with literature review, referencing, and citation management (M = 3.92, SD = 1.80). The relatively low standard deviations for some of these items indicate a reasonable level of agreement among respondents.

The negatively worded items, which were reverse-coded, recorded low mean scores. For example, respondents disagreed with the statements that they had never heard of any AI tool for academic research purposes (M = 2.14, SD = 1.76), were not familiar with the functions of AI tools in academic writing (M = 2.07, SD = 1.95), and did not know any AI tools designed for academic research purposes (M = 2.21, SD = 1.77). This further supports the finding that lecturers possessed awareness of AI tools for academic research writing. In addition, the low mean score for the statement that AI tools are irrelevant for academic research writing (M = 1.98, SD = 1.72) suggests that lecturers generally acknowledged the relevance of AI tools in research activities.

Research Question 2: To what extent do lecturers utilize AI tools for academic research writing in public universities in Delta State?

Table 2

Item-Level Mean Scores on Utilization of AI Tools for Academic Research Writing

S/N	Item statement	Mean	SD	Remarks
1	I regularly use AI tools to assist in academic research writing.	2.61	1.22	High utilization
2	I rarely use AI tools for preparing research manuscripts. (–)	2.35	1.90	Low utilization
3	I use AI tools to check grammar and improve writing quality.	3.87	1.67	Very high utilization
4	I avoid using AI tools because I prefer traditional research writing methods. (–)	2.19	1.91	Low utilization

S/N	Item statement	Mean	SD	Remarks
5	I integrate AI tools into my research workflow to save time.	2.45	1.96	Low utilization
6	I do not find AI tools useful for writing academic papers. (–)	2.08	1.64	Low utilization
7	I rely on AI tools to generate ideas or outlines for research papers.	2.22	1.45	Low utilization
8	I have never tried using AI tools for academic writing tasks. (–)	1.95	1.92	Low utilization
9	I frequently explore AI tools to enhance my research writing efficiency.	2.38	1.78	Low utilization
Weighted Mean		**2.46**	**1.72**	**Low utilization**

The analysis presented in Table 2 addresses the extent to which lecturers utilize AI tools for academic research writing in public universities in Delta State. The grand mean score of 2.46 with a standard deviation of 1.72 indicates a low level of utilization of AI tools among lecturers. This implies that although lecturers may be aware of AI tools, their actual integration and usage in academic research writing remain limited. The standard deviation further suggests moderate variability in respondents' opinions regarding the utilization of AI tools.

The item-level analysis revealed that most of the items recorded low utilization scores. For example, lecturers reported low utilization in regularly using AI tools to assist in academic research writing (M = 2.61, SD = 1.22), integrating AI tools into their research workflow to save time (M = 2.45, SD = 1.96), relying on AI tools to generate ideas or outlines for research papers (M = 2.22, SD = 1.45), and frequently exploring AI tools to enhance research writing efficiency (M = 2.38, SD = 1.78). These findings indicate that lecturers do not extensively incorporate AI technologies into their research writing activities.

Similarly, the reverse-coded items also support the finding of low utilization. Respondents agreed to some extent that they rarely use AI tools for preparing research manuscripts (M = 2.35, SD = 1.90), avoid using AI tools because they prefer traditional research writing methods (M = 2.19, SD = 1.91), and have never tried using AI tools for academic writing tasks (M = 1.95, SD = 1.92). The relatively high standard deviation values for some items indicate variability in lecturers' utilization patterns.

However, a notable exception was observed in the use of AI tools for grammar checking and improving writing quality, which recorded a very high utilization score (M = 3.87, SD = 1.67). This suggests that lecturers are more inclined to utilize AI tools for basic writing assistance, such as proofreading and editing, than for more advanced academic research functions.

Discussion

Level of Awareness of AI Tools for Academic Research Writing among Lecturers in Public Universities in Delta State

The findings of the study revealed that lecturers in public universities in Delta State possessed a high level of awareness of AI tools for academic research writing. This suggests that lecturers are

increasingly exposed to AI technologies and understand their relevance in academic writing processes such as literature review, citation management, proofreading, and plagiarism detection.

The finding corroborates the studies of Ajayi and Ojo (2023) and Akarah, Azika and Onanore (2025), who reported that lecturers in Nigerian tertiary institutions demonstrated moderate to high awareness of AI tools used for academic purposes. Similarly, Holmes et al. (2021) observed that the growing integration of educational technologies in higher institutions has improved lecturers' awareness of AI applications globally.

However, the finding diverges from the study of Nwankwo and Salisu (2022), who found that many lecturers in some Nigerian tertiary institutions had low awareness of advanced AI research tools due to inadequate exposure and limited digital literacy. The difference between the present finding and the divergent study may be attributed to variations in institutional exposure to technology, geographical location, availability of internet facilities, and increasing global attention on AI technologies in recent years. It is possible that awareness has improved over time due to the rapid diffusion of AI applications such as ChatGPT, Grammarly, and other academic writing tools.

Extent of Utilization of AI Tools for Academic Research Writing among Lecturers in Public Universities in Delta State

The findings showed that lecturers utilized AI tools for academic research writing to a low extent. Although lecturers were generally aware of AI technologies, their practical application of these tools in academic writing activities remained limited. Most lecturers appeared to utilize AI mainly for grammar checking, editing, and plagiarism detection rather than for advanced research-related tasks.

The finding agrees with the studies of Ogunyemi and Usman (2024) and Ajayi and Ojo (2023), who reported low utilization of AI technologies among lecturers in Nigerian universities despite growing awareness levels. The finding also corroborates Akarah, Azika and Onanore (2025), who found that lecturers in Delta State tertiary institutions displayed minimal utilization of AI tools for academic research writing.

Nevertheless, the finding diverges from the study of Jiang and Li (2022), who reported a relatively high level of AI utilization among academics in technologically advanced institutions where AI tools were extensively integrated into research workflows. Similarly, Smith et al. (2023) found that lecturers in some developed countries frequently utilized AI tools for literature review, manuscript preparation, and data analysis.

The divergence may be attributed to differences in technological infrastructure, institutional support, digital literacy, availability of training opportunities, and economic conditions between developed and developing educational environments. Institutions in developed countries may provide better access to digital resources, stable internet facilities, and structured AI training programmes, thereby encouraging greater utilization of AI tools among lecturers.

Conclusion

Based on the findings of the study, it was concluded that lecturers in public universities in Delta State possess a high level of awareness of Artificial Intelligence (AI) tools for academic research writing; however, the extent of utilization of these tools remains low despite their perceived relevance and benefits in enhancing research productivity.

Recommendations

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

1. Universities in Delta State should organize regular workshops, seminars, and practical training programmes for lecturers on the effective utilization of AI tools for academic research writing in order to improve their competence and confidence in the use of such technologies.
2. University management and relevant educational stakeholders should provide adequate digital infrastructure, stable internet facilities, and access to relevant AI tools to enhance lecturers' utilization of AI technologies for research writing activities.
3. Institutions of higher learning should develop clear policies and ethical guidelines on the appropriate use of AI tools in academic research writing to address concerns relating to originality, reliability, and academic integrity.
4. Lecturers should be encouraged to move beyond the use of AI tools for basic functions such as grammar checking and plagiarism detection to more advanced applications including literature synthesis, idea generation, data analysis, and research workflow management.
5. Government and educational agencies should provide continuous professional development programmes aimed at improving lecturers' digital literacy and awareness of emerging AI technologies relevant to academic research writing.
6. Universities should establish technical support units or digital research centres that will assist lecturers in troubleshooting technical challenges associated with the use of AI tools for academic research and scholarly writing.

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