



UTILISATION OF ARTIFICIAL INTELLIGENCE TOOLS FOR RESEARCH BY LIBRARY AND INFORMATION SCIENCE (LIS) LECTURERS IN UNIVERSITY OF PORT HARCOURT

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Abstract

This study investigated the utilisation of Artificial Intelligence (AI) tools for research by Library and Information Science (LIS) lecturers in the University of Port Harcourt. The study adopted a descriptive survey research design. The population comprised Library and Information Science lecturers in University of Port Harcourt. A census sampling technique was adopted for the study. Data were collected using a self-structured questionnaire, 12 copies of the instrument were found valid for analysis. The data collected were analyzed using mean and standard deviation. The findings revealed that ChatGPT, Google Gemini, Grammarly, QuillBot, and Semantic Scholar are Artificial Intelligence (AI) tools utilized by LIS lecturers. The study further revealed that the overall extent of utilisation of AI tools for research was low. The findings also showed that digital literacy, ethical concerns, cost of premium AI tools, availability of electricity and ICT infrastructure, and awareness of AI tools significantly influenced the utilisation of AI tools for research. The study recommended regular AI training programmes, improved ICT infrastructure, subscription to premium AI platforms, and the development of institutional policies to promote the ethical and effective utilisation of Artificial Intelligence tools for research.

Keywords: Artificial Intelligence tools, utilization, research, Library and Information Science lecturers.

Introduction

Research remains one of the core responsibilities of university lecturers, serving as a means of generating new knowledge, solving societal problems, and contributing to national development. Universities are established not only to impart knowledge but also to promote innovation through quality research. Consequently, lecturers are expected to engage in continuous research activities, publish scholarly articles in reputable journals, supervise students' research projects, and attract research grants. However, conducting quality research often requires considerable time, technical expertise, and access to relevant information



resources. The emergence of AI tools has significantly altered this traditional research process by providing intelligent systems capable of supporting various stages of scholarly research, thereby improving efficiency, accuracy, and productivity (Kshetri et al., 2023). Artificial Intelligence tools have become valuable companions for researchers due to their ability to automate repetitive tasks, organize vast amounts of scholarly information, summarize academic literature, generate research ideas, identify knowledge gaps, assist with data visualization, and improve the quality of academic writing. For instance, AI-powered literature discovery tools such as Semantic Scholar, Elicit, and ResearchRabbit enable researchers to locate relevant studies more efficiently than conventional database searching. Similarly, language-enhancement applications such as Grammarly and QuillBot assist in improving grammar, clarity, coherence, and readability of scholarly manuscripts. Generative AI applications such as ChatGPT and Google Gemini further support researchers by generating outlines, explaining complex concepts, drafting sections of manuscripts, and assisting in coding and statistical interpretation when used responsibly (Kasneci et al., 2023).

Within the field of Library and Information Science (LIS), Artificial Intelligence has become increasingly relevant because the profession itself revolves around information organization, retrieval, management, dissemination, and knowledge creation. Library and Information Science lecturers are expected to remain abreast of emerging technologies in order to effectively teach students, conduct innovative research, and contribute to the advancement of the profession. AI technologies have expanded the scope of information retrieval, digital library services, metadata generation, bibliometric analysis, knowledge management, and scholarly communication, thereby making AI literacy an essential competency for LIS educators (Cox et al., 2019). Consequently, the integration of AI into research practices among LIS lecturers has the potential to improve research quality, enhance publication output, and foster interdisciplinary collaboration. The increasing adoption of Artificial Intelligence in higher education has generated considerable interest among researchers worldwide. Several studies have reported that AI tools enhance research productivity by reducing the time spent on literature review, data organization, manuscript preparation, citation management, and editing (Kshetri et al., 2023). AI-powered citation assistants and reference managers have simplified referencing processes, while machine learning algorithms have improved systematic literature reviews through automated screening and classification of scholarly publications. Furthermore, predictive analytics and natural language processing technologies have enabled researchers to analyze large datasets more efficiently than traditional manual methods.



Artificial Intelligence tools in academic research has also raised several concerns. Issues relating to the accuracy and reliability of AI-generated information, ethical use, plagiarism, copyright infringement, data privacy, algorithmic bias, and academic integrity continue to attract scholarly attention (UNESCO, 2023). AI-generated content may contain fabricated references, inaccurate interpretations, or biased outputs if not critically evaluated by researchers. Consequently, lecturers are encouraged to use AI as an assistive technology rather than a replacement for human intellectual effort, ensuring that research outputs maintain originality, credibility, and ethical standards. In developing countries, including Nigeria, the adoption of Artificial Intelligence technologies within higher education is gradually increasing. Nigerian universities are witnessing growing awareness of AI-powered research tools among academic staff due to improved internet access, increased digital literacy, and the global popularity of generative AI applications. Nevertheless, challenges such as inadequate ICT infrastructure, unstable electricity supply, limited institutional policies on AI usage, insufficient training opportunities, subscription costs for premium AI applications, and concerns regarding data security may affect the effective utilization of these technologies among university lecturers (Aina, 2004). The University of Port Harcourt, one of Nigeria's leading federal universities, places strong emphasis on research excellence as part of its mandate for teaching, research, and community service. Lecturers in the Department of Library and Information Science are expected to conduct quality research, publish in high-impact journals, supervise postgraduate research, and contribute to professional knowledge development. As Artificial Intelligence continues to reshape scholarly research globally, it becomes important to examine the extent to which LIS lecturers at the University of Port Harcourt utilize AI tools in carrying out their research activities.

Statement of the Problem

Library and Information Science (LIS) lecturers occupy a strategic position in higher education because they are responsible for teaching information literacy, conducting research, supervising students' research projects, and promoting the effective use of information resources and emerging technologies. As professionals in the field of information organization and retrieval, LIS lecturers are expected to be among the early adopters of innovative technologies such as Artificial Intelligence in carrying out their research activities. The effective utilization of AI tools can assist them in identifying relevant scholarly literature, synthesizing research findings, analyzing data, improving manuscript quality, managing



citations, and increasing research productivity. Despite the increasing availability and growing awareness of Artificial Intelligence tools, it is uncertain whether LIS lecturers in Nigerian universities are utilizing these technologies effectively for research purposes. Comparatively, there is limited empirical evidence on the utilization of AI tools specifically for research among Library and Information Science lecturers, particularly in the University of Port Harcourt. As a result, there is inadequate information regarding the extent to which these lecturers use AI tools in conducting research, the specific AI tools they utilize, the purposes for which they employ these tools, and the factors that influence or hinder their utilization. It is against this background that this study seeks to investigate the utilization of Artificial Intelligence tools for research by Library and Information Science lecturers in the University of Port Harcourt.

Objectives of the Study

1. To identify the types of Artificial Intelligence (AI) tools utilized by Library and Information Science lecturers in the University of Port Harcourt.
2. To determine the extent of utilisation of Artificial Intelligence (AI) tools for research by Library and Information Science lecturers in the University of Port Harcourt.
3. To identify the factors influencing the utilisation of Artificial Intelligence (AI) tools for research by Library and Information Science lecturers in the University of Port Harcourt.

Research Questions

1. What are the types of Artificial Intelligence (AI) tools utilized for research by Library and Information Science lecturers in the University of Port Harcourt?
2. What is the extent of utilisation of Artificial Intelligence (AI) tools for research by Library and Information Science lecturers in the University of Port Harcourt?
3. What are the factors influencing the utilisation of Artificial Intelligence (AI) tools for research by Library and Information Science lecturers in the University of Port Harcourt?

Literature Review

Artificial Intelligence (AI) is one of the most significant technological innovations of the twenty-first century, revolutionizing various sectors including education, healthcare, business,



manufacturing, and scientific research. AI refers to the capability of computer systems to simulate human intelligence by performing tasks such as learning, reasoning, problem-solving, language understanding, pattern recognition, and decision-making (Russell & Norvig, 2020). Unlike conventional computer programs that operate strictly on predefined instructions, AI systems can learn from data, recognize patterns, generate predictions, and improve their performance over time through machine learning and other computational techniques.

Artificial Intelligence encompasses several branches, including machine learning, deep learning, natural language processing, computer vision, robotics, and expert systems. Among these, natural language processing (NLP) has become particularly relevant in academic research because it enables AI systems to understand, generate, summarize, and translate human language. Recent developments in generative AI, especially Large Language Models (LLMs), have expanded the capacity of AI systems to assist researchers in writing, information retrieval, literature synthesis, coding, and data interpretation (Kshetri et al., 2023). The emergence of AI has significantly transformed scholarly communication and research practices. Researchers now rely on AI-powered systems to search large databases, summarize research articles, organize references, detect plagiarism, edit manuscripts, and identify emerging research trends. These capabilities have reduced the time and effort required to conduct research while improving efficiency and productivity. Consequently, AI is increasingly viewed as an intelligent research assistant rather than merely a technological innovation. The rapid advancement of AI has resulted in the development of numerous research-support applications. Some commonly used AI tools include: ChatGPT, Google Gemini, Microsoft Copilot, Semantic Scholar, ResearchRabbit, Elicit, Scite, Perplexity AI, Grammarly, QuillBot, etc.

The utilisation of Artificial Intelligence tools for research refers to the extent to which researchers employ AI-powered applications to facilitate different stages of the research process. It involves integrating AI technologies into research activities such as topic selection, literature review, research design, data collection, data analysis, interpretation of findings, academic writing, referencing, editing, and publication. The use of AI tools has transformed research workflows by enabling researchers to automate repetitive tasks while concentrating on intellectual and analytical aspects of research. AI tools assist in identifying research gaps, summarizing journal articles, generating keywords, suggesting research questions, checking grammar, formatting citations, and improving manuscript quality. (Amadi. 2024).



Consequently, AI contributes significantly to research productivity and efficiency. For LIS lecturers, the utilisation of AI tools extends beyond personal research activities to include curriculum development, supervision of undergraduate and postgraduate research, scholarly collaboration, and dissemination of research findings. Effective utilisation depends on awareness, accessibility, digital competence, institutional support, ethical considerations, and researchers' willingness to adopt emerging technologies.

Several factors determine whether lecturers effectively utilize AI tools in research. According to Zawacki-Richter et al., (2019) some of these factors include: Lecturers with strong ICT and digital competencies are more likely to adopt AI tools effectively, knowledge of available AI tools and their capabilities significantly influences utilization, availability of internet connectivity, computers, and subscriptions to premium AI platforms encourages usage, universities that provide ICT infrastructure, workshops, and AI policies create an enabling environment for AI adoption, issues relating to plagiarism, copyright, privacy, authorship, and reliability influence researchers' willingness to use AI responsibly and subscription fees for premium AI tools may discourage frequent utilization, especially in developing countries.

Theoretical Review

This study is anchored on the Unified Theory of Acceptance and Use of Technology (UTAUT). The Unified Theory of Acceptance and Use of Technology (UTAUT) was developed by Venkatesh, Morris, Davis, and Davis (2003) to explain the factors influencing the adoption and use of technology. The theory integrates concepts from eight earlier technology acceptance models, including the Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB), and Innovation Diffusion Theory (IDT). UTAUT identifies four key determinants of technology adoption: performance expectancy, effort expectancy, social influence, and facilitating conditions. Performance expectancy refers to the belief that using a technology will improve job performance. In this study, it relates to LIS lecturers' perception that Artificial Intelligence (AI) tools can enhance research quality, improve academic writing, and increase research productivity. Effort expectancy refers to the ease of using AI tools, while social influence concerns the extent to which colleagues, institutions, and professional bodies encourage their use. Facilitating conditions refer to the availability of resources such as internet connectivity, electricity, ICT infrastructure, technical support, and training that enable the effective use of AI tools. The UTAUT model also recognizes that factors such as age, gender, and experience may influence technology adoption.



The theory is relevant to this study because it explains how individual perceptions and institutional support influence the utilisation of Artificial Intelligence tools for research by Library and Information Science lecturers. It provides an appropriate framework for understanding the AI tools utilized, the extent of their utilisation, and the factors influencing their adoption in the University of Port Harcourt.

Empirical Review

Fasola, (2024) investigates the awareness, perception, and utilization of AI tools by LIS lecturers in Nigerian higher institutions. Data were collected using questionnaires and analysed with the Statistical Product and Service Solution (SPSS), with hypotheses tested via Pearson Product Moment Correlation (PPMC). The findings reveal a high degree of awareness and positive perception towards AI tools among LIS lecturers. Commonly used tools for teaching include ChatGPT, Socrative, ChatPDF, Turnitin, and Gamma. Despite recognizing AI's potential benefits for improving information retrieval, data management, and personalized learning, actual usage remains limited due to challenges such as rapid technological advancement, lack of infrastructure, and resistance to change. All hypotheses were rejected, indicating a significant relationship between awareness, perception, and the use of AI tools in teaching. If measures such as having enhanced AI literacy and training programs for LIS educators, integration of AI into the LIS curriculum, development of institutional policies on AI adoption, and incentives for AI integration, then the challenges observed could be mitigated.

Asagar and Naaz (2025) utilized a qualitative approach, employing a structured questionnaire to assess the participants' understanding of AI tools, their frequency of use, their benefits, challenges, and ethical considerations. The preferences reveal that there is a low level of the participants' knowledge about the AI tools, the most popular and commonly used of which are the PLG tools such as Grammarly and ChatGPT. Participants showed poor recognition and adoption of other tools used for data analysis, literature review, and predictive modeling. The participants stated the usefulness of AI tools in drafting and conducting the literature review, as they cut down on time and improve efficiency. However, this study identified other issues that hindering the optimal use of the technology, such as inadequate end-user training, technical difficulties, ethical concerns about technology use, privacy concerns, and algorithmic discrimination. Ethical considerations, including plagiarism risks, ownership of AI-generated content, and over-reliance on AI reducing critical thinking, were highlighted, underscoring the need for guidelines and educational interventions to address these issues. Recommendations



include offering targeted workshops, integrating AI literacy into academic curricula, and establishing institutional frameworks to guide ethical AI usage.

Oyetola, et al., (2024) delved into the knowledge and views of Library and Information Science (LIS) educators regarding the use of AI in library schools in Rivers State. The study employed a survey approach, combining qualitative and quantitative methods. A total of 44 LIS educators from various institutions in Rivers State participated, selected through random sampling, and data were collected using an online survey. The study found that while many LIS educators are aware of AI and have integrated it into their teaching and research, there remains a considerable gap in formal training and professional development in this area. Despite this, there is a clear understanding among educators of the value of AI in library and information science education, in line with broader trends in education and industry. The research also identified positive attitudes towards AI as a tool to enhance education quality and prepare students for careers in librarianship and information science. However, several barriers hinder the integration of AI into curricula and practices, including lecturer attitudes, credibility of information sources, internet connectivity, negative institutional perceptions, and low lecturer competency in AI. To address these challenges, the study recommends that Nigerian library schools fully implement AI technologies like chatbots, barcodes, RFIDs, and robotics to enhance teaching activities. It also suggests that higher education institutions develop specialized training programs and workshops on AI for library schools, covering both basic and advanced concepts. This would enable educators to effectively integrate AI into their teaching and research practices.

Hashim et al., (2025) determine the challenges in the use of artificial intelligence tools for research among Master in Information Management (MIM) students in Department of Library and Information Science, Faculty of Education, Ahmadu Bello University, Zaria. The objectives of the study are to identify the type of artificial intelligence tools used for research; to find out the challenges faced with the use of the AI tools for research and the strategies for enhancing the effective use of AI tools for research. Quantitative research methodology and descriptive survey research were adopted for the study; the population of the study comprises of year 2023/2024 MIM students in the Department of Library and Information Science, Faculty of Education, A.B.U., Zaria. The subjects of the study were drawn using a total enumeration sampling. Data collected was analysed using descriptive statistics such as table, frequency and mean. The study found out that only ChatGPT and Poor power supply, poor Internet connectivity, lack of knowledge of the technology, insufficient funding and high cost of AI tools are the major challenges to effective use of AI tools faced by MIM students and



consistent training and retraining, creating awareness, organising seminars and workshops regularly, adequate funding, employment of AI experts, developing effective artificial intelligence policy, and consultations. The study concluded that MIM students in the department for research are faced with various challenges in the use of AI tools for their research. The study therefore recommends that the department's management should organise regular workshops, seminars and training by creating awareness on the importance of AI-tools and enhance efficient and effective use for research among postgraduate students.#

Methodology

This study adopted the descriptive survey design. The population for this study comprised all lecturers in the Department of Library and Information Science (LIS) in University of Port Harcourt. The census sampling technique was used for the study. The instrument for data collection was a self-structured questionnaire. 12 copies of the questionnaire were found valid for analysis. The data collected from the respondents was properly organized in tables, coded and analyzed using Mean and standard deviation to answer the research questions.

Results

Research Question One: What are the types of Artificial Intelligence (AI) tools utilized by Library and Information Science lecturers in the University of Port Harcourt?

Table 1: Showing mean and standard deviation on the types of Artificial Intelligence (AI) tools utilized by Library and Information Science lecturers in the University of Port Harcourt

Items	Mean	Std. Deviation	Remarks
ChatGPT	2.69	0.54	Accepted
Google Gemini	2.68	0.46	Accepted
Grammarly	2.65	0.89	Accepted
QuillBot	3.17	0.76	Accepted
Semantic Scholar	2.88	0.61	Accepted
Grand Mean	2.81	0.65	Accepted

The descriptive statistics indicate that the respondents utilize various Artificial Intelligence tools. Specifically, ChatGPT recorded a mean score of 2.69, Google Gemini had a mean score of 2.68, Grammarly recorded a mean score of 2.65, QuillBot had the highest mean score of 3.17, while Semantic Scholar recorded a mean score of 2.88. Since all the mean scores are



above the criterion mean of 2.50, all the listed Artificial Intelligence tools were rated as being utilized to a high extent by the respondents. The grand mean of 2.81, which is above the criterion mean of 2.50, indicates that Library and Information Science lecturers in the University of Port Harcourt utilize Artificial Intelligence tools.

Research Question Two: What is the extent of utilisation of Artificial Intelligence (AI) tools for research by Library and Information Science lecturers in the University of Port Harcourt?

Table 2: Showing mean and standard deviation on the extent of utilisation of Artificial Intelligence (AI) tools for research by Library and Information Science lecturers in the University of Port Harcourt

Items	Mean	Std. Deviation	Remarks
I regularly use AI tools when conducting literature searches for research	1.69	0.39	Low Extent
I utilize AI tools in organizing references and citations for research publications	1.67	0.61	Low Extent
I use AI tools in writing and editing research manuscripts	1.65	0.39	Low Extent
I use AI tools to improve the quality and accuracy of my academic writing	2.72	0.46	High Extent
I use AI tools for data analysis and interpretation of results	1.69	0.61	Low Extent
Grand Mean	1.88	0.49	Low Extent

The descriptive statistics indicate that the respondents utilize Artificial Intelligence tools to a low extent when conducting literature searches for research (Mean = 1.69), organizing references and citations for research publications (Mean = 1.67), writing and editing research manuscripts (Mean = 1.65), and carrying out data analysis and interpretation of research results (Mean = 1.69). However, the respondents utilize Artificial Intelligence tools to a high extent in improving the quality and accuracy of their academic writing (Mean = 2.72). The grand mean of 1.88, which is below the criterion mean of 2.50, indicates that the overall extent of utilisation of Artificial Intelligence tools for research by Library and Information Science lecturers in the University of Port Harcourt is low.

Research Question Three: What are the factors influencing the utilisation of Artificial Intelligence (AI) tools for research by Library and Information Science lecturers in the University of Port Harcourt?



Table 3: Showing mean and standard deviation on the factors influencing the utilisation of Artificial Intelligence tools for research by Library and Information Science lecturers in the University of Port Harcourt.

Items	Mean	Std. Deviation	Remarks
Digital literacy	2.77	0.87	Accepted
Ethical concerns	2.85	0.56	Accepted
Cost of premium AI tools	3.01	0.65	Accepted
Availability of electricity/ICT infrastructure	2.91	0.67	Accepted
Awareness of AI tools	2.72	0.49	Accepted
Grand Mean	2.85	0.64	Accepted

The descriptive statistics indicate that all the identified factors influence the utilisation of Artificial Intelligence tools for research. Specifically, digital literacy recorded a mean score of 2.77, ethical concerns recorded a mean score of 2.85, cost of premium AI tools had the highest mean score of 3.01, availability of electricity/ICT infrastructure recorded a mean score of 2.91, while awareness of AI tools recorded a mean score of 2.72. Since all the mean scores are above the criterion mean of 2.50, all the identified factors were rated as influencing the utilisation of Artificial Intelligence tools for research. The grand mean of 2.85, which is above the criterion mean of 2.50, indicates that digital literacy, ethical concerns, cost of premium AI tools, availability of electricity/ICT infrastructure, and awareness of AI tools significantly influence the utilisation of Artificial Intelligence tools for research by Library and Information Science

Discussion of Findings

The first finding of the study revealed that Library and Information Science lecturers in the University of Port Harcourt utilize various Artificial Intelligence tools. The grand mean score of 2.81, which is above the criterion mean of 2.50, indicates that AI tools such as ChatGPT, Google Gemini, Grammarly, QuillBot, and Semantic Scholar are commonly utilized by LIS lecturers. This finding agrees with Fasola (2024), who found that ChatGPT and Grammarly were among the most frequently utilized AI tools by LIS educators in Nigerian higher institutions.

The second finding revealed that the overall extent of utilisation of Artificial Intelligence tools for research by Library and Information Science lecturers in the University of Port Harcourt is



low, with a grand mean score of 1.88, which is below the criterion mean of 2.50. Although lecturers are aware of and use a variety of AI tools, but the overall frequency and depth of utilization across different stages of the research process remains low for literature searching, reference and citation management, manuscript preparation, and data analysis. This finding is consistent with Asagar and Naaz (2025), who observed that although researchers acknowledged the usefulness of AI tools, their overall utilisation remained limited because of inadequate training, ethical concerns, and technical challenges. The finding also agrees with Hashim et al. (2025), who reported that inadequate knowledge of AI technologies, poor internet connectivity, insufficient funding, and limited access to AI applications constrained their effective utilisation for research.

The third finding revealed that digital literacy, ethical concerns, cost of premium AI tools, availability of electricity and ICT infrastructure, and awareness of AI tools significantly influence the utilisation of Artificial Intelligence tools for research by Library and Information Science lecturers in the University of Port Harcourt. The grand mean score of 2.85, which is above the criterion mean of 2.50, indicates that these factors influence AI utilisation to a high extent. This finding supports Oyetola et al. (2024), who identified lecturer competence, internet connectivity, institutional support, and awareness as major determinants of AI adoption in library schools. The finding also agrees with Hashim et al. (2025), who found that inadequate funding, poor electricity supply, internet challenges, and limited awareness significantly affected the effective utilisation of AI tools for research.

Conclusion

This study examined the utilisation of Artificial Intelligence (AI) tools for research by Library and Information Science lecturers in the University of Port Harcourt. Based on the findings of the study, it is concluded that Library and Information Science lecturers in the University of Port Harcourt utilize various Artificial Intelligence tools such as ChatGPT, Google Gemini, Grammarly, QuillBot, and Semantic Scholar. Although these tools are available and recognized by the lecturers but their overall utilisation for research process remains relatively low. Furthermore, digital literacy, ethical considerations, awareness of AI tools, availability of electricity and ICT infrastructure, and the cost of premium AI applications significantly influence the utilisation of Artificial Intelligence tools for research. Therefore, improving institutional support, digital competence, AI literacy, and access to affordable AI technologies would enhance the effective integration of Artificial Intelligence into research activities among Library and Information Science lecturers.



Recommendations

Based on the findings of this study, the following recommendations are made:

1. The management of the University of Port Harcourt and the Department of Library and Information Science should create greater awareness of the various Artificial Intelligence tools available for research by organizing regular seminars, workshops, and hands-on training programmes.
2. The University of Port Harcourt should provide adequate institutional support by ensuring reliable internet connectivity, stable electricity supply, and access to premium Artificial Intelligence platforms. This will enhance the extent to which Library and Information Science lecturers utilize AI tools throughout the research process, including literature searching, reference management, academic writing, and data analysis.
3. The university should strengthen lecturers' digital literacy through continuous professional development programmes and establish institutional policies that promote the ethical use of Artificial Intelligence in research. The policies should address issues relating to plagiarism, copyright, authorship, privacy, and the responsible use of AI-generated content while ensuring that lecturers are equipped with the skills needed to utilize AI tools effectively.

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