



Assessment of Artificial Intelligence: Types and Research Output amongst Postgraduate Students in Library and Information Science at the University of Uyo, Uyo. Akwa Ibom State

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Abstract

Original Research

The revolution of Artificial Intelligence offers various benefits in the educational sector, including the library and information science discipline. The integration of AI technology has significantly improved the academic performance of postgraduate students across various dimensions, particularly in terms of research output. This article assesses the types of AI available for research output to enhance the research productivity of postgraduate students in library and information science at the University of Uyo. Research questions were raised to guide the study. A survey research design was adopted for the study. The population comprised 55 postgraduate students of Library and information science in the 2023/2024 academic session. The total enumeration sampling technique was employed. The researcher developed a structured online questionnaire titled: "Assessing Artificial Intelligence and Research Output Questionnaire" (AAIROQ) on a four-point Likert rating scale was used for data collection. The data obtained were analysed using mean and standard deviation to answer the research questions. The findings of the study indicated a notable improvement in the research output of postgraduate students in Library and Information Science (LIS) due to the types of Artificial Intelligence (AI) utilized. To enhance this positive trend, it was recommended that the department host workshops and seminars focused on AI applications. Additionally, providing the necessary infrastructure to tackle challenges related to the effective utilization and accessibility of AI tools will be essential. By doing so, the department can foster an even greater enhancement in research productivity within the library and information science discipline at the University of Uyo.

Keywords: Artificial Intelligence, Research output, Library and Information Science.

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Introduction

The academic world is gradually changing. Artificial Intelligence tools are gaining ground in every sphere of life, especially teaching,

learning, and research. The introduction of AI in the academic world is a lifeline that catapulted academic activities into the world of innovative tools for efficiency, accuracy, and scalability of



research and data collection processes. According to Asongo and Akuse (2024), AI is defined as machines that mimic some of the characteristics of human intelligence, such as perception, learning, reasoning, problem-solving, language interaction, and creative work scores. Nathan et al. (2025) assert that the integration of Artificial Intelligence (AI) in research activities has redefined the boundaries of human capabilities, bridging gaps and improving accessibility and availability of information and datasets. AI tools empower researchers by providing capabilities that enhance various aspects of the research process. They can efficiently summarize literature reviews, making it easier for researchers to capture key findings and insights from multiple sources. Additionally, these tools assist in academic writing and editing by offering suggestions for grammar improvements and enhancing clarity, allowing researchers to present their ideas more effectively. This integration of AI not only streamlines the writing process but also contributes to improved overall research quality and productivity.

Research output refers to the scholarly works and intellectual products developed, sponsored, managed, and disseminated by academic institutions, which often directly involve the research activities. It has been regarded as one of the most complex and challenging activities among researchers and educators, which is why artificial intelligence has been incorporated to encourage research activities. Research is one of the major activities of academics within the university, research centres, colleges, and polytechnics. (Idris & Umar 2024). According to Offor et al (2024), it is the output of the capability of the students to write within the educational process, which indicates the extent to which the students have achieved the educational goals as specified within the curriculum, which is largely affected by internal and external factors within the classroom. Research writing refers to the systematic and formal writing style used to present the process, findings, and interpretation of the research study based on the evidence and scholarly sources.

However, a structured presentation of

original or existing knowledge through critical analysis, data collection, and interpretation, following established scholarly conventions. Steiger (2024) noted that AI usage helps students perform academic work faster as they engage with the tools and may also improve their writing abilities and the skills to find results in academic activities. Research output reflects a learner's knowledge, skills, competencies and attitudes as assessed through formal evaluation methods. Inyang and Ekeng (2023). Information can be functional if obtained from various sources for the purpose of making decisions, solving educational problems, and achieving specific objectives.

The field of Library and Information Science (LIS) has developed to adapt to the changing technology and information management. It began as a traditional library science. It has incorporated AI information technology, digital archives, and knowledge management. This is in response to the growing complexities in managing physical and digital information. The application of AI and research output has elevated the quality of academic writing, especially for enhancing postgraduate students' research writing at the University of Uyo.

Objective of the study

1. To assess the types of artificial intelligence that can be used on academic research output of postgraduate students of Library and Information Science at Uniuyo.

Artificial Intelligence and Academic Research Output

AI is not something that rains from the sky but utilises technology as a tool for its operation, especially with the collaboration of human effort in its programming. AI is defined as the ability of machines or computer systems to perform tasks that normally require human intelligence. The goal of AI is to enhance computer abilities related to human understanding, including language intelligence, learning, reasoning, and problem-solving

(Akpan & Clark, 2024). As noted by Nathan *et al.* (2025). AI is a technological tool that revolutionized the processes and services of the library in recent times, intending to improve search and discovery of materials, personalize library services, digitalization and preservation of library materials, supporting inclusiveness in accessibility of resources, perception, logic, learning, decision-making, and language processing in the library

According to Lion and Ekefre (2024), the term artificial intelligence AI describes computer programs that can carry out sophisticated operations that were previously limited to human performance, such as problem solving, thinking and decision making. In the same way, Udo-Okon and Akpan (2024) noted that AI enables machines to sense, comprehend, act and perform several functions matching those of humans. Major components of the AI bucket are machine learning, big data, natural language processing, decision logic, data visualization, and data analytics. It analysis data faster and more accurately without mistakes. Edikan and Etimbuk (2024) averred that AI has a maximum impact on academic, in terms of teaching, research and learning, most especially offering enormous potential for robotisation, machine learning and natural language processing in current resources for effective utilisation. AI is gradually penetrating the academic environment, thereby impacting teaching, learning and research.

Edwin (2024) mentioned that AI tools help students relate to library usage, information trends, and user behaviour. They provide accessibility to features for students with disabilities, such as text-to-speech, speech-to-text and real-time translation. Also, it fosters collaboration and networking with other institutions for information dissemination and learning among students by connecting them with other students and experts in their field of study. This collaborative environment fosters interaction and knowledge sharing, enhancing the overall learning experience. Consequently, it promotes partnerships between university libraries and technology companies, facilitating the exchange of information and resources within the discipline. By leveraging these connections, students can access a broader range

of materials and expertise, significantly enriching their educational journey and research endeavours. Similarly, Adeleke *et al.* (2024) inform that AI holds the promise of transforming inclusive education by offering tailored support, flexible content and groundbreaking tools that address diverse learning requirements. Anamd (2024) pointedly noted that Artificial Intelligence is rapidly reshaping industries globally, including the library and information science discipline. Access to information and digital literacy are indeed essential. Access to information and digital literacy are indeed crucial for the development of Nigeria. As the world increasingly shifts towards a knowledge-based economy, the ability to access, evaluate, and utilize information effectively becomes essential.

Digital literacy empowers individuals with the skills needed to navigate the internet and various digital platforms, enabling them to find and use information efficiently. This is particularly important in Nigeria, where there is a diverse population with varying levels of access to technology and educational resources. Improved digital literacy can enhance citizens' participation in various sectors, including education, healthcare, and the economy.

Furthermore, increased access to information fosters informed decision-making and encourages civic engagement. When individuals are equipped with the necessary skills to access reliable information, they are better positioned to contribute to societal development and advocate for their rights. To support this development, initiatives aimed at enhancing digital literacy and providing equitable access to information resources are vital. These initiatives can range from community training programs to improved infrastructure, ensuring that information is accessible to all, regardless of their background. By bridging the digital divide, Nigeria can leverage technology to drive social and economic progress. There are challenges and opportunities in the inclusion of Artificial Intelligence in the study of library and information science. According to Lainjo and Tmouche (2023). AI is a branch of study in which computer systems are meant to do tasks

that are generally associated with humans. It offers the potential to revolutionize how academic institutions function and how information professionals operate.

Moreover, Jackson (2022). Assert that the exploitation of AI has the potential to significantly impact the academic performance of postgraduate students of library and information science in universities. Students' use of AI applications in education has been on the rise. Artificial intelligence enhances research capabilities because it is a tool that assists with literature reviews, identifying relevant research papers, and even analysing large datasets, leading to more comprehensive and efficient research work in an academic environment. Anamd and Girish (2025) noted that factors beyond a student's control, such as socioeconomic background, access to resources, and learning disabilities, can influence academic performance. It improved information retrieval and powered search engines, a discovery tool that helps students quickly find the information they need, saving valuable time and effort. Hence, Asongo and Akuse (2024) explained how AI is realised in academic libraries in terms of a chatbot that helps users answer simple questions during library facility use.

Inyang, et al (2025) inferred that current state of AI in the LIS curriculum will help library and information science in automating basic tasks and improving access and retrieval of information. It also enables writing and communication capabilities and navigates plagiarism and academic dishonesty in research papers. Fashola (2025) studied awareness, perception and use of Artificial Intelligence tools by LIS educators in Nigerian Higher institutions and arrived at the result, which reveals a high degree of awareness and positive perception towards AI tools among LIS lecturers. Some of the tools used in teaching include ChatGPT, Secretive, ChatPDF, Turnitin, and Gamma. Despite the potential benefits of AI, the use of AI tools in teaching is limited due to challenges such

as rapid change in technology, lack of infrastructure, and change aversion. All the hypotheses were rejected, showing there was a significant relationship between awareness, perception, and AI tool use in teaching. However, should the recommendations of having enhanced AI literacy, training of LIS educators, integration of AI into the LIS curriculum, development of institutional policies on AI, and incentives for AI integration be implemented, the challenges noted in the research could be addressed. Ajani *et al.* (2022) investigated librarians' perception of academic libraries in Nigeria's awareness of and readiness for adopting artificial intelligence (AI) in their processes and offerings. The study discovered that there are significant issues that academic libraries in Nigeria encounter, some of which are finance, shortage of expertise, unstable power supply and constrained employee training and acquisition budgets. The report suggested allocating enough funds for acquiring AI technology and employing librarians with the necessary skills to work with the technology.

Abdalkader *et al* (2022), and Ortsa and Nguhunden (2025). streamline how AI tools can improve students' writing skills by offering real feedback and personalized suggestions. Similarly, Adeleke *et al.* (2024) inferred that AI holds the promise of transforming inclusive education by offering tailored support, flexible content and groundbreaking tools that address diverse learning requirements. Nevertheless, the related literature confirmed the importance of AI in the academic performance of students in the university environment. Similarly, Okai *et al.* (2025) listed AI tools used in carrying out research or writing to include ChatGPT, Gemini, Deep Seek, DALL-E, Meta AI, Grammarly, Propensity AI and Consensus AI. For this purpose, based on the above literature, there is a gap that this article on assessment of AI types and research output of Postgraduate students' at the University of Uyo intends to fill.

Types of Artificial Intelligence useful for Academic research output

Types of AI tools	Usage
Semantic, Scholar, Elicit, Scite AI	To Summarize Research and Literature Review Map, Scholarly Sources
ChatGPT, Grammarly, Write full.	Improves Writing and Editing to Enhance Quality and Grammar Structure
Turnitin, Ithenticate	Detection and Integrity, Originality, and AI-Generated Content
Data Analysis & Statistics	Detection and Integrity, Originality, and AI-Generated Content
Intelligence Tutoring Systems, adaptive LMS	To Analyze Research Data Using Tools Like SPSS, AI Features, NVivo, Orange, and Data Mining
Grade scope, Exam soft, LMS AI plugins	Adaptive LMS Teaching & Learning: It Helps in Personalizing Instruction
AI search tools, chatbots, and recommendation systems	Library and information management, discover resources, assist users, and manage library analytics.
Predictive analytics, AI schedulers	Academic Administration, predicting performance, scheduling, and institutional planning.
Deepl, Google Translate, speech-to-text	Language & translation. Translate content, support multilingual communication.
Microsoft Copilot, Notion AI	Collaboration & productivity, facilitate teamwork and improve workflow efficiency.
Perplexity AI	Research assistance summarizes information from the web. and give sources of information.
Nova AI	Conversional AI and personal Assistant. It answers questions and explains concepts. Proofread and edit text.
Narrow AI	Used for specific tasks like voice assistance
AI Academic Databases with smart citations	Used in citation, and shows references
AI Reference checking and integrity tools	Used in checking academic authenticity and detecting unsupported claims
AI Citation Generators	Used for automatically formatting references in styles, APA, MLA, and Chicago

Methodology

The survey research design was employed, the populations of 32 para-professional and professional librarians were the respondents. The questionnaire titled: "Assessing the types of Artificial Intelligence and Research Output Questionnaire (UAIROQ)" of postgraduate students of Library and Information Science. A four-point Likert rating scale was used to collect the data. On Strongly Disagree (4 points), Disagree (3 points), Strongly Agree (2 points), and Agree (1 point), the result revealed that the

Mean and standard deviation were used to ascertain the types of AI available for academic research output of postgraduate students at the University of Uyo. Below are the findings.

Result of the findings

To assess the types of artificial intelligence available for academic research output among postgraduate students of Library and Information Science at the University of Uyo

Item	Mean	SD	Decision
Intelligent Tutoring Systems and Adaptive LMS	3.00	0.69	Accepted
Data Analysis and Statistics AI	2.91	0.53	Accepted
Perplexity AI and Anova AI	2.64	0.79	Accepted
ChatGPT, Grammarly and Writefull	3.09	0.68	Accepted
Gradescope, ExamSoft and LMS AI Plugins	2.95	0.58	Accepted
AI Academic Databases with Smart Citations	3.36	0.73	Accepted
Predictive Analytics and AI Schedulers	3.00	0.53	Accepted
DeepL, Google Translate and Speech-to-Text Tools	3.05	0.79	Accepted
Microsoft Copilot and Notion AI	3.18	0.80	Accepted
Cumulative	3.02		Accepted

The grand mean of 3.02 shows that postgraduate students of Library and Information Science at the University of Uyo utilise a variety of AI technologies for academic research output. The most prominent AI tools identified were AI academic databases with smart citation features (Mean = 3.36), Microsoft Copilot and Notion AI (Mean = 3.18), and ChatGPT, Grammarly and Writefull (Mean = 3.09). This suggests that students primarily employ AI tools for literature searching, citation management, writing support, language enhancement, and research productivity.

Discussion of Findings

1. Postgraduate students of Library and Information Science at the University of Uyo generally use artificial intelligence tools for academic research output.
2. Frequently used AI applications include ChatGPT, Grammarly, Elicit, Scite AI, Perplexity AI, Microsoft Copilot, Notion AI, and AI-powered referencing tools.
3. Students do not generally submit AI-generated content without modification indicating a degree of responsible AI usage.
4. Several categories of AI technologies are available and utilised for research output, with AI academic databases with smart citations, Microsoft Copilot/Notion AI, and ChatGPT/Grammarly/Writefull

emerging as the most commonly used tools.

5. Types of Artificial Intelligence Used for Academic Research Output among Postgraduate Students
6. The most commonly used tools include AI academic databases with smart citations, Microsoft Copilot, Notion AI, ChatGPT, Grammarly, and Writefull. This finding corroborates the report of Okai et al. (2025), who identified ChatGPT, Grammarly, Meta AI, Consensus AI, Gemini, and other AI applications as important tools for research writing and academic activities. The finding also supports Asongo and Akuse (2024), who observed that AI tools enhance research productivity among postgraduate students by improving information retrieval, literature searching, and academic writing. Furthermore, the result agrees with Edikan and Etimbuk (2024), who maintained that AI has significant positive effects on teaching, learning, and research through machine learning, natural language processing, and data analytics applications.
7. The prominence of AI academic databases with smart citation features among the respondents further confirms the submission of Nathan et al. (2025) that AI technologies facilitate access to

information resources and datasets, thereby improving the quality and productivity of academic research. Therefore, the findings demonstrate that postgraduate students of Library and Information Science at the University of Uyo are increasingly embracing diverse AI technologies to enhance their research output and academic performance.

Conclusion

Artificial intelligence has become a prominent feature in modern age of academic settings, offering students a range of possibilities to enhance their learning experiences and to transform academic writing especially, postgraduate students of library and information science students, aiding them on usage of AI tools to achieve a tasks such as research assignments, term paper writing, seminar presentations as well as preparing the future professionals for the challenges and opportunities of 5th industrial revolution technology and providing faculty training, and fostering collaboration, Nigeria can effectively integrate AI into LIS education and empower future information professionals to thrive in the evolving information landscape

Recommendation

1. University management should implement AI tools for effective and efficient utilisation to foster the academic performance of our students.
2. The department should enforce and encourage students to integrate AI into their academic activities, most especially during seminar presentations and research papers.
3. Postgraduate students should be encouraged to focus on personal development in the use of AI for problem-solving.
4. University management should establish clear ethical guidelines for AI tool usage.

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