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USE OF ARTIFICIAL INTELLIGENCE TOOLS FOR RESEARCH AMONG MASTER IN INFORMATION MANAGEMENT STUDENTS OF AHMADU BELLO UNIVERSITY, ZARIA

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ABSTRACT

The main purpose of the study was to 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.

Keywords: Use, Artificial intelligence, Research tools, Master in Information Management

Introduction

Globally, Nigerian university libraries are seriously experimenting with various Artificial Intelligence (AI) tools to create smarter and more responsive systems. For example, AI tools can facilitate more effective information retrieval through Natural Language Processing (NLP), allowing users to search for information using conversational queries rather than keyword-based searches. This does not only improve user satisfaction but also makes information more accessible to those who may not be familiar with terminology. Moreover, AI's ability to learn and adapt over time means that library systems can continuously improve, providing ever-more accurate and relevant results to users (Ali, Naeem, & Bhatti, 2020; Collins, Dennehy, Conboy, & Mikalef, 2021).

AI tools are software applications that automate operations that normally need human intelligence. In other words, AI tools refer to the development of computer systems that can perform tasks that typically required human intelligence, such as learning, problem solving and decision-making. *ChatGPT* is designed to interpret and generate human-like prose, allowing for interesting conversations and instructive responses on a variety of themes (Atlas, 2023). AI tools have transformed how researchers conduct, analyse, and evaluate studies in several domains. By using AI tools, postgraduate students can effectively manage tasks by creating concise titles, developing abstracts, literature reviews and uphold academic dignity by citing accurately and referencing sources. These AI-driven resources have played an important role in several research domains; encompass descriptive, correlational, quasi-experimental, and experimental research with their institutional significance as identified by Alharbi (2023) and Dale and Viethen (2021).

The motive of every postgraduate (PG) student is to conduct research that is relevant to the demands of the 21st century. However, the importance of research products from Nigerian universities has raised major concern. Major challenges in Nigerian universities comprises of low motivation, inadequate funding, poor research facilities, and insufficient number of competent research workers, a general lack of research emphasis, poor connection between researchers and the industrial sector (Yusuf, 2012). According to Enamudu and Akonedo (2021) observed that Research in Nigerian institutions is hampered by duplication of research materials, a high incidence of plagiarism, and a relatively low level of awareness, accessibility, and use of Internet resources.

These factors posed a lot of challenges to the research capacity and capabilities of postgraduates/researchers in Nigerian institutions. As a result, there is a need to address this problem, specifically the postgraduate students who played a major role in university research. In addition, PG students are identified as set of students who formally enrolled in a university with the aim of obtaining a Master, Doctorate or PG Diploma (PGD).The most important areaof PG studies is academic research. Nigeria's PG education programmes require research (Federal Ministry of Information, 2012). The major requirement for receiving a PG degree or diploma is to submit original essays which are known as a project, thesis, or dissertation.

Statement of the Problem

The use of AI tools in research offers significant benefits for developing knowledge. Not only that, in education, massive global systems have embraced digital technology-based approaches such as e-learning, distance education, e-assessment, artificial intelligence, cloud computing, and ramification for instructional delivery and assessment (Ukeh & Nwankwo, 2023; Anih & Ukeh, 2023; Okechukwu & Ukeh, 2022; Ukeh *et al*. 2020).

From preliminary investigation, the researcher observed that the MIM students in Department of Library and Information Science, Faculty of Education, ABU, Zaria faced difficulties in using the AI tools extensively for their research. This prompted the researcher to raise this question that could it be because of lack of digital literacy, accessibility issues, lack of creativity and critical thinking, ethical issues, poor originality of research work among others. To support this assertion, Ukeh and Anih (2024) found out in their study that there is low use of AI. The study therefore attempts to find out the challenges in the use of AI tools for research among MIM students in Department of Library and Information Science, Faculty of Education, Ahmadu Bello University, Zaria.

Research Questions

The study was guided by the following research questions:

1. What type of artificial intelligence tools are used by MIM students in the Department of Library and Information Science, Faculty of Education, Ahmadu Bello University, Zaria?
2. What are the challenges faced with the utilisation of artificial intelligence tools for academic research among MIM students in the Department of Library and Information Science, Faculty of Education, Ahmadu Bello University, Zaria?
3. What are the strategies for enhancing effective use of Artificial intelligence tools for research among MIM students in the Department of Library and Information Science, Faculty of Education, Ahmadu Bello University, Zaria?

Review of Related Literature

With the advent of this advanced technology and the huge investments in the educational sector have increased rapidly, with AI tools that are now globally explored to ease various research and other similar areas. However, the AI tools are used to advance motivation, engagement and satisfaction. These AI tools offer functionalities such as real-time feedback, collaborative editing, and plagiarism checks. Such features not only enhance the writing research acumen of academics or postgraduate students but also inspire them to think critically and have independent reasoning (Nykyporets, 2023).

Types of Artificial Intelligence Tools for Academic Research

In this present era, various AI tools are made available online and they can be purchased online. The AI tools have their major roles to play by helping individuals to upgrade their research writing capabilities. In recent times, the AI tools have become increasingly advanced thereby providing new ways for postgraduate students to improve their research writing ability. The use of AI tools in academic writing are divided into two general groups such as those that help postgraduate students in the process and those that help in assessing the quality of research work (Golan *et al*, 2023). They particularly identified the following semantic scholar, penelopei. ai, elicit, writefull, CoSchedule headline analyzer, quillbut, wordtune, cohere, and many others, as the types of AI tools used for the various area of research writing (Bhutoria, 2022; Golan *et al*, 2023).

In another study, Laxmi, Devi, Thanjavur, and Buddolla (2024) also itemised some popular AI powered research tools such as *ChatGPT*, *ChatPDF*, *Consensus, Scite, QuillBot, Bit AI, Litmaps, Jenni, Paperpal, Research Rabbit, Wordvice AI, Typeset.io, Scholarcy, ProofHub, Trinka, and Elicit*, among others. Bankar and Lihitkar, (2023) also identified the following below as types of Artificial Intelligence tools used for academic research available for postgraduate students.

1. *Humata AI*: this allows users to upload their pdf articles to generate scrapped custom data about the documents. The tool allows users to ask a question about the given document, and it describes all the things in formal language.
2. *TypeSetIO*: is an online platform that offers a range of tools for authors and researchers to easily create and format their manuscripts in required editorial formats for submission.
3. *Elicit*: is also another AI efficiently find and organise relevant information for their research projects. The platform uses natural language processing (NLP) algorithms to understand the user's query and provide personalized search results from various sources, including academic databases, research papers, and websites.
4. *ChatGPT***:** is a newly released AI language model that can be useful in several ways for research and technical writing.
5. *QuillBot***:** is an AI tool processing (NLP) technique to generate alternative versions of the text. The tool is designed to help users improve the quality and clarity of their writing, as well as save time by automating the process of rewording text.

Utilisation of Artificial Intelligence Tools for Research

Utilisation refers to the ease of use, effectiveness and satisfaction experienced by users when

interacting with a technology or system. The utilisation of AI tools in research work was gaining progress. PG students are expected to be conversant with the AI tools to review their literature, check the importance of research thesis, summarize research findings in few lines and flag plagiarism (Idris & Umar, 2024). It is noteworthy that AI has played a role widely in research writing context by continually creating prompt unforeseen outcomes, learning, changing the modes of interaction and writing. However, Asongo, Akuse and Aza (2024) found that there was a high extent of utilisation of ChatGPT and QuillBot AI tools among PG students for enhanced research. Tambunan *et. al*. (2022) observed that Grammarly helps to improve academic grammar and punctuation. Generally, PG students can immensely increase productivity and efficiency by employing AI-driven tools for research. Srivastava and Agarwal (2024) opined that AI research tools could automate laborious processes such as summarising, organising research materials into documents, and optimising the process. According to Lam and Moorhouse (2022) found that worldtune effectively assists PG students know their research writing weaknesses, thereby showcasing self-evaluation and learning. This tool goes beyond easy grammar corrections and delves into refined ways of writing research. Similarly, Livberber (2023) points out the use of AI tools such as ChatGPT in all aspects of study such as academic research, education, and access to knowledge has also been focus of studies.

Challenges of Artificial Intelligence Tools Use for Research

The AI tool has significant importance to society, but some important issues that make its application and its use difficult in academic research writing, teaching and learning. Bankar and Lihitkar (2023) identified the challenges of using AI tools such as dependence on technology**,** Lack of context, Data bias, Ethical concerns. Similarly, Hervieux and Wheatly (2021) state the inability to rate AI tools is due to a lack of knowledge of these technologies. This means that the issue of incompetent skilled staff implementing the new techniques is quite worrying. In another study, according to Bello and Abdulsalam (2023) it pointed out that poor funding, lack of support from institutional management, lack of experts in AI and erratic power supply are the constraints in the utilisation of AI tools.

Whong (2024) identified the following challenges in the implementation and use of AI includes technological infrastructure, financial constraints, poor skilled personnel, poor data quality and availability, and cultural and social barriers. Yadav *et al*. (2024), who indicated major concerns about the reliability of AI systems and the potential forreduced human oversight. This presents a constraint militated with the use of AI-drivenresearch tools. However, Kasumu and Agbarakwe (2024) also observed that 60% ofpostgraduate students declared that a lack of contextual awareness was a limitation placed on AI systems in foreign language education.

Methodology

The study adopted a quantitative research methodology with a descriptive survey design. This design was found most suitable for the study, because it intends to explore the opinion and experiences of MIM students on the challenges in the use of AI tools for research in the Department of Library and Information Science, Faculty of Education, A.B.U., Zaria. The 84 MIM students of the department, for the year 2023/2024 academic session constituted the population of the study. Since the population was relatively small, total enumeration sampling technique was adopted. According to Bernard (2012), who asserts that if a population is relatively small, it can be used for the conduct of the study. Self-Structured questionnaire was used to collect data for this study and was rated using the four-point scale. A total of 60 respondents participated in filling out the questionnaire showing 71.4% return rate. Data collected for the study was analysed using frequency and mean. The benchmark used for the analysis was 2.50.

Data Analysis

The data was presented according to the research questions formulated for the study.

RQ 1: What type of artificial intelligence tools are used by MIM students in the Department of Library and Information Science, Faculty of Education, Ahmadu Bello University, Zaria?

Table 1: Respondents' Mean Ratings on Artificial Intelligence Tools used for Research

S/N	Types of AI Tools used	SA	A	D	SD	Total	Mean	Remark
1.	Humata AI	0	5	35	20	60	1.42	SD
2.	Typeset IO	0	3	11	46	60	1.29	SD
3.	ChatGPT	30	10	12	8	60	3.03	SA
4.	Elicit	0	0	17	43	60	1.27	SD
5.	Quillbot AI	3	3	14	40	60	1.2	SD
6.	Research Rabbit	0	0	18	42	60	1.3	SD
7.	ChatPDF	21	9	19	11	60	2.63	SA
8.	Grammarly	12	7	18	13	60	1.97	D
	Grand Mean						**1.76**	**D**

Field Survey, 2025

From Table 1, the results show that majority of the respondents indicated that they commonly used ChatGPT with the mean score of 3.03 and ChatPDF with the meanscore of 2.63, while, other AI tools outlined in the table such as Grammarly, Typeset IO, Humata AI, Elicit, Quillbot AI, and Research Rabbit score mean rating of 2.50. The grand mean score of 1.76 shows that the respondents do not use the AI tools that are available for them.

RQ 2: What are the challenges faced with the use of artificial intelligence tools for research among MIM students in the Department of Library and Information Science, Faculty of Education, Ahmadu Bello University, Zaria?

Table 2: Mean Ratings on the Challenges faced by the Respondents

S/N	Challenges	SA	A	D	SD	Total	Mean	Remarks
1.	Insufficient funding	10	30	15	5	60	2.75	A
2.	Data bias	6	7	17	30	60	1.80	SD
3.	Lack of Knowledge of the technology	13	37	8	2	60	3.01	A
4.	Poor computer literacy skills	0	1	20	39	60	1.36	SD
5.	Poor Internet connectivity	36	10	2	10	60	3.1	SA
6.	High cost of AI tools	13	36	9	2	60	3.0	SA
7.	Poor power supply	46	4	1	1	60	3.31	SA
8.	**Grand Mean**						**2.62**	**A**

Field Survey, 2025

From Table 2, the result shows that the respondents strongly agreed to poor power supply and poor Internet connectivity with the mean score of 3.31 and 3.1, respectively, as the major challenges faced in the effective use of AI tools. They also agreed that lack of knowledge of technology (3.01), high cost of AI tools (3.1), and insufficient funding (2.75), among other challenges. However, they strongly disagreed with both poor computer literacy skills and data bias with the low mean score of 1.36 and 1.80 as challenges faced. The grand mean score of 2.62 shows that there are challenges to effective use of AI tools for research by MIM students in the studied area.

RQ 3: What are the strategies for enhancing effective use of Artificial intelligence tools for research among MIM students in the Department of Library and Information Science, Faculty of Education, Ahmadu Bello University, Zaria.

Table 3: Respondents Mean Ratings on the Strategies for Enhanced AI Tools' Usage

S/N	Strategies	SA	A	D	SD	Total	Mean	Remarks
1.	Adequate funding	33	13	4	10	60	3.2	SA
2.	Creating awareness	42	10	6	2	60	3.5	SA
3.	Employment of AI experts	18	30	5	7	60	2.98	A
4.	Consultations	11	29	12	8	60	2.7	A
5.	Developing effective artificial intelligence policy	10	36	8	6	60	2.8	A
6.	Consistent training and retraining	40	15	3	2	60	3.6	SA
7.	Organising seminars and workshops regularly	35	14	9	2	60	3.4	SA
8.	**Grand Mean**						**2.74**	**A**

Field Survey, 2025

From Table 3, the result shows consistent training and retraining (3.6); creating awareness (3.5), organising seminars and workshops regularly (3.4); adequate funding (3.2), employment of AI experts (2.98), developing effective AI policy (2.8), and consultations (2.7) are the strategies for enhancing the effective use of AI tools for research. From the grand mean score of 2.74 in the table, it shows that the respondents agreed to all the strategies provided for them.

Discussion of the Findings

The first finding showed that majority of the respondents commonly used ChatGPT and ChatPDF. This finding agreed with the study of Asongo and Akuse (2024) who discovered that there was low use of AI tools for enhanced research by postgraduate students. This further ascertained the fact that the choice of AI tools is directly dependent on their availability, accessibility and above all the information needs of the MIM students.

The second finding revealed that 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 for research by MIM. This finding is in line with the findings of Bello and Abdulsalam (2023), and Whong (2024), who also identified such constraints that militates against the use of artificial intelligence tools. These challenges may be attributed to the inability of the department or the university to invest fully online resources, inability to equip staff with the necessary facilities and it might also be poor attitude towards digital literacy by the MIM students.

The finding for research question three revealed that all the strategies for enhancing the effective use of AI tools for research such as consistent training and retraining, creating awareness, organising seminars and workshops regularly, adequate funding, employment of AI experts, developing effective artificial intelligence policy, and consultations were adopted by the students. This agreed with the study of Bello and Abdulsalam (2023), which highlighted the following as strategies for effective use of AI tools such as consistent training and retraining, creating awareness, adequate funding, employment of AI experts, developing effective AI policy and consultations.

Conclusion

Based on the findings of the study, it was concluded that the MIM students of the Department of Library and Information Science, Faculty of Education, ABU, Zaria under-unitized the artificial intelligence tools for their research work but are faced with a grossly setback by obvious challenges as stated in the table. However, these problems can be eradicated by a well prioritized policy by implementing the suggestions.

Recommendations

Based on the findings, the study recommends that:

1. There is need for the departmental management to organise extensive training and educate the postgraduate students on the types of AI and their importance in research. This will help the postgraduate students in introducing the postgraduate students to different types of AI tools that would complement their main functions.
2. The Departmental management should install inverter and standby generator in the library to ensure regular power supply. Also, provide adequate Internet facilities like superhighway bandwidth be put in place for effective use of the AI tools.
3. The Department of Library and Information Science management should organise workshops, seminars, conferences and training on regular basis by creating awareness on the essential benefits of artificial intelligence tools so as to improve their efficient and effective use for research among postgraduate students.

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