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EXTENT OF UTILIZATION OF ARTIFICIAL INTELLIGENCE TOOLS FOR RESEARCH BY POSTGRADUATE STUDENTS OF EDUCATIONAL MANAGEMENT IN PUBLIC UNIVERSITIES IN ANAMBRA STATE

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ABSTRACT

The main purpose of the study was to determine the extent of utilization of artificial intelligence tools for research by postgraduate students of educational management in public universities in Anambra State. Two research questions guided the study and the descriptive survey research design was adopted for the study. The population of the study comprised 112 postgraduate educational management students in two public universities in the 2024/2025 academic session in Anambra State. The instrument for data collection was a structured validated questionnaire. The reliability of the instrument was determined through a pilot test. Mean and standard deviation was used to analyse data for the study. The findings of the study revealed that postgraduate educational management students utilize academic writing and editing AI tools for research in public universities in Anambra State to a high extent. Also, the findings of the study revealed that postgraduate educational management students utilize citation management AI tools for research in public universities in Anambra State to a high extent. The researcher therefore concluded that postgraduate educational management students in public universities in Anambra State make use of artificial intelligence tools for research to a high extent. Based on these findings, the researcher concluded among others that postgraduate educational management students should be introduced to the efficient use of reference management software like Mendeley and EndNote through workshops and training sessions organized by the university administration in collaboration with the administrators of the Department of Educational Management and Policy.

Keywords: Utilization, Artificial Intelligence (AI), Tools, Research, Postgraduate Students

Introduction

Universities are formal training institutes where students can learn research skills and earn degrees or certifications. According to Adeyi et al (2024), colleges play an important role in building a nation's workforce by providing both highly trained and intermediate-level workers to drive the country's social, economic, and political advancement. Goetze (2019) described a university as a higher education institution that offers teaching in a variety of areas and has the ability to grant degrees at both the undergraduate and graduate levels. Postgraduate students are individuals pursuing a higher degree certificate. A postgraduate is someone who has finished an undergraduate degree at a college or university and is now continuing their studies at a higher level. According to Flick (2018), postgraduate students participate in academic activities such as research, which is a systematic and reflective process that involves collecting, analyzing, and interpreting data to answer specific questions or solve problems, thereby contributing to the body of knowledge in a specific field.

Education research is described as the systematic collecting and analysis of evidence relevant to the topic of education. This approach investigates numerous elements of education, including as learning processes, teaching techniques, and educational results, with the goal of improving educational practices and better understanding how education works in diverse contexts. Research activities may include conducting original studies, writing a dissertation, or participating in collaborative projects that require critical thinking and advanced analytical skills. The emphasis on research prepares students for professional roles or further academic pursuits, equipping them with the necessary tools to contribute effectively in their chosen areas. Postgraduate students in educational management are typically expected to conduct research that not only contributes to their field of study but also addresses practical challenges faced in educational environments. Postgraduate students engage in research activities by authoring and publishing works in journals, presenting at conferences, and participating in seminars. These efforts aim to contribute to the body of knowledge in their field and develop specialised skills. Yusuf (2019) highlighted concerns about the poor quality of research produced by postgraduate students in Northern Nigeria. Similarly, in Benue State, numerous postgraduate students encounter significant difficulties with writing, retrieving information, and producing original work. These challenges have adversely impacted their research progress, often resulting in extended programme durations and difficulties in publishing articles. Consequently, the integration of ICT has become vital for facilitating research activities, as it offers quicker and more efficient access to diverse and up-to-date information. Nonetheless, there is limited understanding of extent of postgraduate educational management students' use of artificial intelligence (AI) technologies for academic research.

Artificial intelligence (AI) is described as a machine's capacity to accomplish activities that previously required human intelligence. Bartneck et al. (2021)

defined AI as the development of systems capable of producing intelligent agents who play critical roles in attaining certain goals. Furthermore, AI is frequently viewed as a machine learning process that allows humans to gain new information. Artificial intelligence (AI) is a broad term that encompasses a variety of analytical methodologies such as machine learning, neural networks, and deep learning. AI technologies in academics generate both acclaim and criticism, yet their beneficial contributions are substantial (Ventura & Lopez, 2024). Ventura and Lopez further stated that are several AI tools for education, however for postgraduate students, these AI tools may be classified based on their use. These tools include tools for academic writing and editing and citation management.

AI tools for academic writing and editing greatly enhance efficiency in research and writing processes, enabling students and researchers to work faster and more effectively. Postgraduate students often grapple with the challenges of academic writing and editing, as their research demands precision, clarity, and adherence to strict scholarly standards (Lund, 2023). AI tools such as Thesify, ProWritingAid, QuillBot, Writefull, Scholarcy, and Trinka offer tailored solutions to address these needs. Thesify provides pre-submission feedback, helping students refine manuscripts by highlighting strengths and weaknesses while offering reference management and summarization features. ProWritingAid, on the other hand, enhances writing quality with detailed grammar checks, readability insights, and seamless integration with platforms like Google Docs. Similarly, QuillBot supports paraphrasing and summarization, ensuring originality and facilitating comprehension of complex texts, while Writefull excels in automated proofreading, abstract generation, and language feedback, all tailored to meet academic standards (Clark, 2020). Dwivedi et al. (2023) stated that collectively these academic writing and editing these AI tools empower postgraduate students to navigate the intricacies of academic writing more efficiently, improving the quality of their manuscripts and increasing their likelihood of publication success. Similarly, postgraduate students can employ citation management AI systems.

Citation management systems are valuable resources for postgraduate students and researchers. Citation management software may be used to effectively organize, manage, and format references. Zotero stands out for its free, user-friendly design, which offers capabilities like as web browser integration, PDF management, and collaborative group libraries, making it a good choice for people new to citation management (Chen et al., 2020). Similarly, Mendeley combines reference management with an academic social network, allowing users to connect with colleagues, exchange libraries, and collaborate across different platforms (Lund, 2023). Its compatibility with Microsoft Word and sophisticated search capability increase its usefulness in academic study. It appears that postgraduate students of Educational Management in universities in Anambra State, Nigeria, do not extensively utilise AI tools for their academic work. Some postgraduate students in this discipline encounter difficulties in

accessing information online, which hampers their research process. This challenge is particularly evident when students spend a significant amount of time travelling between universities and other tertiary institutions in search of relevant materials needed to complete their research (Thomas et al., 2024). As a result, many postgraduate students take several years to finalise their research after completing their coursework. Olateju (2019) noted that although most students engage in internet browsing, many lack effective search strategies, despite the fact that internet usage plays a crucial role in their academic activities. Given these concerns, this study sought to examine the extent of utilisation of artificial intelligence for research by postgraduate students of Educational Management in public universities in Anambra State.

Statement of the Problem

Research is a fundamental component of postgraduate programmes in universities, with students required to undertake multiple research projects, culminating in the completion of a dissertation. This dissertation serves as a critical milestone in their academic journey. However, many postgraduate students, including those in Educational Management, face significant challenges in completing their research work. These difficulties often lead to prolonged study durations, resulting in financial burdens due to accumulating tuition and departmental fees. In some cases, postgraduate schools in universities report a high number of students abandoning their programmes due to their inability to complete research projects. Observations suggest that lecturers express concerns about the poor quality of manuscripts submitted for proofreading, often describing them as inadequate. This issue appears to stem from postgraduate students' limited ability to effectively source and utilise online resources. Some students do not prioritise internet-based research, which negatively affects the quality of their academic work. However, the extent to which postgraduate students in Anambra State universities utilise AI tools for academic research remains unclear. The recurring problem of students exceeding the expected duration of their programmes and, in some cases, abandoning them altogether raises concerns about the underutilisation of available digital resources. Considering the vast opportunities presented by artificial intelligence in academic research, this study seeks to examine the extent to which postgraduate students of Educational Management in public universities in Anambra State utilise AI tools for research.

Aim and Objectives of the Study

The aim of this study was to determine the extent of utilization of artificial intelligence tools for research by postgraduate students of educational management in public universities in Anambra State. Specifically, the study investigated:

1. the extent of utilization of academic writing and editing AI tools by post-graduate students of educational management for research in public universities in Anambra State.
2. the extent of utilization of citation management AI tools by post-

graduate students of educational management for research in public universities in Anambra State.

Research Questions

The following research questions guided the study.

1. To what extent are academic writing and editing AI tools utilized by post-graduate students of educational management for research in public universities in Anambra State?
2. To what extent are citation management AI tools utilized by post-graduate students of educational management for research in public universities in Anambra State?

Methodology

The research design adopted in this study was be descriptive survey. The study was conducted in Anambra State, South East, Nigeria. The population of the study comprised 112 postgraduate educational management students from two public universities offering educational management in Anambra State as at 2024/2025 academic session. The entire population was used for the study because of its manageable size. Hence, the study adopted a census sample technique. The instrument for data collection is a structured questionnaire developed by the researcher. The instrument was titled **"**Questionnaire on Utilization of Artificial Intelligence Tools by Postgraduate Educational Management Students for Research **(**QUAITPEMSR)." It contains 19 items spread in two clusters; Cluster A and B. Cluster A contains 10 items on extent to which postgraduate educational management students use academic writing and editing AI tools for research and Cluster B contains 9 items on extent postgraduate educational management students utilize citation management AI tools for research. The questionnaire is structured on a 4- point rating scale of Very High Extent (VHE), High Extent (HE), Low Extent (LE) and Very Low Extent (VLE).

Two experts from the Department of Educational Management and Policy and one expert from the Measurement and Evaluation Unit in the Department of Educational Foundations, Faculty of Education, Nnamdi Azikiwe University, Awka, were asked to validate the instrument. These experts assessed the instruments in relation to the study's objectives and research questions. The reliability of the instrument was determined using the Cronbach Alpha method. Twenty copies of the questionnaires were administered to postgraduate educational management students in Enugu State. The reliability coefficients obtained were 0.88 and 0.85 for clusters A and B respectively with an overall reliability coefficient of 0.87. The questionnaires were distributed and retrieved by the researcher and three trained assistants using a direct delivery and retrieval method. Out of the 112 questionnaires distributed, 94 (84%) were properly completed and used for analysis. Data were analyzed in the study using mean and standard deviations. Mean was used to answer the research question while standard deviation was used to check the homogeneity or non-homogeneity of the respondents' opinions. The mean cut off mark of 2.50 or above was regarded as "high extent," while

items with a mean rating below 2.50 were regarded as "low extent."

Results

Research Question One

To what extent are academic writing and editing AI tools utilized by post-graduate students of educational management for research in public universities in Anambra State?

Table 1: Respondents Mean Ratings on the extent of Utilization of Academic Writing and editing AI tools by Post-Graduate Students of Educational Management for Research in Public Universities **(N=94)**

S/No.	Item Statements	Mean	SD	REMARK
1.	I use AI-powered writing tools (e.g., Grammarly, QuillBot) to improve grammar and clarity in my academic work.	3.42	0.68	High Extent
2.	I utilise plagiarism detection software (e.g., Turnitin, Copyscape) to ensure originality in my research.	3.58	0.72	High Extent
3.	I rely on AI-driven paraphrasing tools (e.g., QuillBot, Spinbot) to rephrase content effectively.	3.21	0.75	High Extent
4.	I use AI-powered summarisation tools to condense lengthy academic materials.	3.08	0.81	High Extent
5.	I employ academic spell-check and proofreading tools to refine my research work.	3.35	0.64	High Extent
6.	I make use of text readability analysis tools to assess the complexity of my writing.	3.02	0.79	High Extent
7.	I use AI-driven formatting tools to structure my research work according to required styles.	3.18	0.71	High Extent
8.	I utilise collaborative writing platforms with AI assistance for research paper development.	2.95	0.85	High Extent
9.	I use AI-based writing assistants to generate content ideas and improve coherence.	3.40	0.69	High Extent
10.	I engage with AI-supported translation tools to enhance language comprehension in my research.	3.10	0.74	High Extent
	Cluster Mean	**3.23**		**High Extent**

Data in Table 1 show that postgraduate educational management students utilize item 1-0 to a high extent with mean ratings ranging between 2.95 and 3.58. The standard deviation score of 0.64 and 0.85 indicate that the respondents' opinion was close. The cluster mean of 3.23 showed that postgraduate educational management students utilize academic writing and editing AI tools for research in public universities in Anambra State to a high extent.

Research Question Two: To what extent are citation management AI tools utilized by post-graduate students of educational management for research in public universities in Anambra State?

Table 2: Respondents Mean Ratings on the extent of Utilization of Citation Management AI tools by Post-Graduate Students of Educational Management for Research in Public Universities (N=94)

S/No.	Item Statements	Mean	SD	REMARK
11.	I use reference management software (e.g., Mendeley, EndNote) to organise citations.	2.18	0.72	Low Extent
12.	I utilise citation generators (e.g., Zotero, Cite This For Me) to format references accurately.	2.43	0.63	Low Extent
13.	I integrate citation tools with word processors for automatic bibliography creation.	2.22	0.68	Low Extent
14.	I use AI-powered citation tools to detect and correct referencing errors.	2.67	0.70	High Extent
15.	I store and manage research sources using cloud-based citation management tools.	2.47	0.65	Low Extent
16.	I use citation tools to automatically extract and store bibliographic information.	2.37	0.81	Low Extent
17.	I utilise citation managers to track and organise multiple research papers efficiently.	3.00	0.78	High Extent
18.	I apply citation tools to ensure consistency in referencing across different formats.	3.30	0.69	High Extent
19.	I use AI-based citation suggestions to verify and cross-check my references.	3.05	0.78	High Extent
	Cluster Mean	**2.63**		**High Extent**

Data in Table 2 showed that postgraduate educational management students utilize items, 14, 17, 18 and 19 to a high extent with mean ratings of 2.67, 3.00, 3.30 and 3.05 respectively. However, they utilize items, 11, 12, 13, 15 and 16 to a low extent with mean ratings of 2.18, 2.43, 2.22, 2.47 and 2.37. The standard deviation scores ranging between 0.63 and 0.81 showed that the respondents' opinions were close. The cluster mean of 2.63 indicated that postgraduate educational management students utilize citation management AI tools for research in public universities in Anambra State to a high extent.

Discussion

The finding of the study revealed that postgraduate educational management students utilize academic writing and editing AI tools for research in public universities in Anambra State to a high extent. This high level of usage can be attributed to increasing demand for precision, clarity, and adherence to scholarly writing standards in postgraduate research. AI tools for academic writing and editing not only improve the quality of manuscripts but also enable students to meet academic requirements with greater ease. The finding of the study is in agreement with Ventura and Lopez (2024) who reported that students frequently utilize AI tools for

writing academic research. The findings of Dwivedi et al. (2023) further support the argument that AI-powered academic writing and editing tools empower postgraduate students by making academic writing more efficient, structured, and of higher quality, thereby increasing the likelihood of manuscript acceptance and publication success. It is hardly unexpected that postgraduate students utilize these AI technologies so frequently given the demanding nature of academic study and the emphasis on intellectual quality.

The finding of the study revealed that postgraduate educational management students utilize citation management AI tools for research in public universities in Anambra State to a high extent. The finding of the study may have resulted because citation management tools are essential for postgraduate students and researchers as they streamline the referencing process, enhance research organisation, and improve collaboration. The high extent of utilization of citation management AI tools among postgraduate students in public universities in Anambra State suggests that they recognise the importance of these systems in improving the efficiency and accuracy of their research work. The finding is in line with Ismail (2024), who revealed that students frequently utilise AI tools for writing their research reports. This suggests that AI-powered academic tools have become an integral part of postgraduate research, helping students enhance the quality and efficiency of their academic writing. However, Thomas et al. (2024) found that lecturers rarely use AI tools, which may indicate a gap in AI adoption between students and academic staff. This disparity could be due to a lack of familiarity with AI tools among lecturers, concerns about academic integrity, or a preference for traditional research and writing methods. Addressing this gap through training and awareness programmes could enhance the overall integration of AI tools in higher education.

Conclusion

The researcher concludes that postgraduate educational management students in public universities in Anambra State make use of artificial intelligence tools for research to a high extent. Postgraduate educational management students utilise academic writing and editing AI tools as well as citation management tools to a high extent. However, their use of reference management software for accurate reference formatting, remains relatively low. Additionally, the integration of citation tools with word processors for automatic bibliography creation is also to a low extent. This indicates the need for greater awareness and training to enhance the effective use of these AI tools in research.

Recommendations

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

1. The Administrators of Educational Management and Policy's Department should make sure that instruction on AI-powered academic writing and editing tools are integrated in research methodologies courses. This will guarantee that postgraduate students become adept at utilizing these academic writing

and editing AI tools to improve the quality of their research.

2. Postgraduate educational management students should be introduced to the efficient use of reference management software like Mendeley and EndNote through workshops and training sessions organized by the university administration in collaboration with the administrators of the Department of Educational Management and Policy. Postgraduate educational management students will be able to simplify their research process and better arrange their citations.
3. Postgraduate students should be encouraged to use citation generators like Zotero and Cite This For Me to format references accurately. University libraries and research supervisors should provide guidance on selecting and using these tools effectively.

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