CHALLENGES AND ETHICAL CONSIDERATIONS IN UTILIZING ARTIFICIAL INTELLIGENCE FOR RESEARCH AMONG BUSINESS EDUCATION POSTGRADUATE STUDENTS

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Abstract

Artificial Intelligence (AI) has emerged as a transformative tool in academic research, influencing the way postgraduate students in business education access, analyze, and interpret data. Hence, the study investigated the challenges and ethical considerations in utilizing AI-powered research tools among postgraduate students of business education in Kwara State. The study had two specific purposes: research questions and null hypotheses. Relevant literature was reviewed, and the research adopted a descriptive survey design. The primary instrument for data collection was a structured questionnaire titled Challenges and Ethical Considerations in Utilizing Artificial Intelligence for Research Among Business Education Postgraduate Students (CEUAIPSQ), consisting of 20 items. The instrument was pilot-tested at Ekiti State University, Ado-Ekiti. The questionnaire's reliability was confirmed through Cronbach Alpha reliability test which yielded a reliability coefficient of 0.75. Demographic data were analyzed using frequency and percentages, while the research questions were analyzed using mean ratings and standard deviations. The null hypotheses were tested using independent samples t-test at 0.05 level of significance. The findings indicated that challenges such as the high cost of AI tools (=2.60; SD = 1.01), lack of institutional support (=2.62; SD = 0.60), and limited internet access (=2.52; SD = 0.95) hinder postgraduate students' use of AI-powered research tools. Ethical implications identified include plagiarism (=3.04; SD = 0.57), infringement of intellectual property (=3.18; SD = 0.63), and devaluation of critical thinking (=3.12; SD = 0.59). The null hypotheses revealed that there was no significant difference between PhD and master's students in their responses on both the challenges (t48 = -0.59, P > 0.05) and ethical implications (t48 = -0.43, P > 0.05). Therefore, the study concluded that both PhD and master's students face similar challenges and ethical issues in the utilization of AI for research. It was recommended, among others, that universities should provide AI training programs, subsidize access to AI tools, and establish clear ethical guidelines to ensure responsible and equitable AI adoption among postgraduate students.

Introduction

Artificial Intelligence (AI) has become an indispensable tool in modern research, transforming the way postgraduate students' access, analyze, and interpret data. AI-powered tools, such as machine learning algorithms, natural language processing, and automated research assistants, offer unprecedented efficiency in data collection, literature review, and content generation. In the field of business education, where postgraduate students engage in complex research requiring extensive data analysis and decision-making, AI presents significant opportunities for innovation and enhanced academic performance (Dwivedi et al., 2021). However, despite its potential

benefits, the adoption of AI in academic research presents critical challenges and ethical concerns, particularly in developing regions such as North Central Nigeria.

Among postgraduate students in business education at the master's and PhD levels, the accessibility and affordability of AI-driven research tools remain significant barriers. Many sophisticated AI applications require high computational power, expensive subscriptions, and stable internet connectivity resources that may not be readily available in Nigerian academic institutions (Okonkwo & Adegbite, 2022). The digital divide between students who can afford AI tools and those who cannot exacerbate educational inequalities, limiting AI's benefits to a privileged few. Furthermore, PhD students, who are expected to conduct in-depth and original research, may struggle with the high cost of AI tools that could aid data analysis, predictive modeling, and systematic reviews. Master's students, on the other hand, who may be less experienced in independent research, could face even greater difficulties in navigating AI tools effectively, leading to their underutilization or improper application.

Another major challenge is the gap in AI literacy among postgraduate students. While AI holds the potential to revolutionize academic research, many PhD and master's students lack adequate training and technical knowledge, often leading to misuse, over-reliance, or underutilization of AI tools (Alm & Mavrikis, 2020). PhD students, who are expected to conduct original, cutting-edge research, may find it difficult to integrate AI into their methodology due to a lack of formal AI education in their academic programs. Master's students, who are still in the early stages of academic research development, may struggle even more with understanding AI algorithms, ethical usage, and data interpretation. Without structured AI training, both PhD and master's students may produce research that is methodologically weak, overly dependent on AI-generated content, or lacking in originality.

Beyond technical and accessibility issues, ethical considerations loom large in the adoption of AI for academic research. One of the most pressing concerns is academic integrity and plagiarism. AI-powered content generation tools, such as ChatGPT and Jasper AI, can produce high-quality text that may blur the line between original research and automated output. Among postgraduate students in business education, PhD candidates are held to higher standards of originality, yet the temptation to use AI-generated content may compromise research authenticity. Master's students, who are still developing their academic writing and critical analysis skills, may unknowingly engage in AI-assisted plagiarism, creating a serious ethical dilemma for institutions. The increasing dependence on AI-generated content threatens the fundamental purpose of postgraduate education: intellectual inquiry, originality, and critical thinking (Floridi & Chiriatti, 2020).

Another ethical dilemma involves data privacy and security, particularly in AI-assisted research. Many AI applications require access to large datasets, some of which may contain sensitive business or economic information. PhD students, who often work with large-scale data and industry partnerships, may face higher risks of data breaches or improper handling of proprietary information. Master's students who may not fully understand data protection protocols could unintentionally violate confidentiality agreements or ethical research standards (Nwankwo & Chukwu, 2023). In a region where data protection laws are still evolving, the unregulated use of AI in research raises critical concerns about compliance with ethical guidelines and the potential for data exploitation.

Furthermore, AI's inherent biases and limitations challenge research credibility. AI models are trained on datasets that may not always reflect Nigeria's diverse socio-economic and cultural contexts. As a result, AI-generated insights may reinforce Western-centric narratives or fail to capture the unique business environment of North Central Nigeria. This bias affects the relevance of research findings and raises questions about the inclusivity and fairness of AI-driven academic work (Bender et al., 2021). PhD students, who are expected to make original contributions to

knowledge, may struggle with AI bias in predictive models, while master's students, who rely heavily on AI for research assistance, may unknowingly produce culturally misaligned findings.

This study examines the utilization of AI tools, perceived ethical hazards, and research quality among postgraduate students, with the degree of postgraduate education (master's vs. PhD) acting as a moderating variable. Comprehending AI utilization, perception, and ethical governance among postgraduate Business Education students in Kwara State would provide significant insights for optimal practices and policy formulation about responsible AI integration in academic research.

Statement of the Problems

The adoption of Artificial Intelligence (AI) in academic research is transforming postgraduate studies globally, offering advanced tools for data analysis, literature review, and content generation. However, its implementation among postgraduate students of business education in universities remains largely underexplored. Through observations and interactions with postgraduate students, it has become evident that several challenges hinder the effective utilization of AI in research. Limited access to AI tools, inadequate AI literacy, and ethical concerns are among the most pressing issues. Many students struggle with high costs, poor digital infrastructure, and the absence of formal AI training, leading to either the underutilization or misuse of AI tools in their research. Ethical concerns further complicate AI utilization. Academic integrity, plagiarism risks, and data security vulnerabilities are significant issues that postgraduate students encounter. The increasing reliance on AI-generated content blurs the line between original intellectual effort and automated output, raising questions about research authenticity and the erosion of critical thinking skills. Furthermore, the absence of clear regulations on AI use in academic research poses a serious risk, particularly regarding data privacy and confidentiality, as many AI tools require access to sensitive research data without established institutional guidelines for ethical AI usage. This study is novel because it draws from real-world observations and direct interactions with postgraduate students in business education, focusing on their lived experiences with AI adoption in research. While existing studies have broadly explored AI in higher education, they have largely overlooked the specific challenges and ethical dilemmas faced by postgraduate students of business education in Kwara State. By addressing this gap, the study provides empirical insights, policy recommendations, and ethical guidelines to help students leverage AI's benefits while maintaining research integrity, originality, and compliance with ethical standards.

Research Questions

1. What are the challenges of utilizing Artificial Intelligence for research among postgraduate students of business education in universities in Kwara State?
2. What are the ethical implications of utilizing Artificial Intelligence for research among postgraduate students of business education in universities in Kwara State?

Null Hypotheses

$H_0$1: There is no significant difference between the mean responses of PhD and master's students regarding the challenges of utilizing Artificial Intelligence for research among postgraduate students of business education in universities in Kwara State.

$H_0$2: There is no significant difference between the mean responses of PhD and master's students regarding the ethical implications of utilizing Artificial Intelligence for research among postgraduate students of business education in universities in Kwara State.

Methodology

The study adopted a descriptive survey of research design. The population consisted of 52 postgraduate students of business education who registered for the 2024/2025 academic

session, out of which 35 were from Kwara State University Malete, while 17 of them were from Al-Hikmah University, Ilorin. The selection of these two universities was because they are the only institutions offering a business education programme at the postgraduate level in the whole of universities in Kwara. Furthermore, the study utilized census sampling techniques due to the manageable size of the population. Data were collected using a researcher-designed questionnaire titled "Challenges and Ethical Considerations in Utilizing Artificial Intelligence for Research Among Business Education Postgraduate Students (CEUAIPSQ)." The instrument underwent face and content validation by an expert in of Test Measurement and Evaluation at Kwara State University Malete to ensure its accuracy in measuring what it was intended to measure. Subsequently, the constructive feedback and recommendations from the expert were incorporated to refine and enhance the final version of the instrument. To assess the internal consistency of the questionnaire items, a pilot test was conducted at Ekiti State University, Ado-Ekiti, involving 15 postgraduate students, comprising 10 master's students and five PhD students of business education. The reliability of the instrument was determined using Cronbach's alpha reliability test, which yielded a coefficient of 0.75, indicating an acceptable level of internal consistency. The demographic data of respondents were analyzed using frequency and percentage, while mean and standard deviation were used to answer the research questions. Similarly, the two null hypotheses were tested using an independent sample t-test at a 0.05 level of significance. The decision rule for the research questions was as follows: Strongly Agree (SA) = 3. 25–4. 00, Agree (A) = 2. 50–3. 24, Disagree (D) = 1. 75–2. 49, and Strongly Disagree (SD) = 1. 00–1. 74. For hypothesis testing, the null hypothesis was rejected when the observed p-value was less than the fixed significance level of 0. 05. Conversely, when the observed p-value was greater than or equal to 0.05, the null hypothesis was not rejected.

Results

Research Question One

What are the challenges of utilizing Artificial Intelligence for research among postgraduate students of business education in universities in Kwara State?

Table 1: Mean responses of respondents on Challenges of Utilizing AI-powered Research Tools among postgraduate students in business education

S/N	Items	Mean	SD	Remarks
1	The lack of sufficient knowledge about AI-powered research tools hinders my ability to utilize them effectively in my research.	2.16	0.93	**Disagreed**
2	The high cost of AI-powered research tools is a major barrier to their use among postgraduate students in my institution.	2.60	1.01	**Agreed**
3	Limited internet access in my region prevents me from fully utilizing AI-powered research tools for academic purposes.	2.52	0.95	**Agreed**
4	The complexity of AI-powered research tools makes it difficult for me to understand how to use them properly.	2.24	0.74	**Disagreed**
5	The lack of institutional support in the form of training or workshops on AI-powered research tools is a significant challenge.	2.62	0.60	**Agreed**
6	AI-powered research tools are not well integrated into the curriculum of my postgraduate program, which limits their application.	2.54	0.81	**Disagreed**
7	I feel that AI-powered research tools do not provide accurate or reliable results for my academic work.	2.12	0.59	**Disagreed**
8	Concerns about data privacy and security when using AI-	2.36	0.69	**Disagreed**

	powered research tools deter me from fully adopting them.			
9	I do not have sufficient time to learn how to effectively use AI-powered research tools due to my other academic commitments.	2.08	0.67	**Disagreed**
10	The limited availability of AI-powered research tools in local languages affects my ability to use them effectively.	1.84	0.65	**Disagreed**
	Grand Weighted Mean	**2.31**		**Disagreed**

Source: Field Survey, 2025

The data presented in Table 1 reveals the mean responses of the respondents regarding the challenges of utilizing Artificial Intelligence for research among postgraduate students of business education in universities in Kwara State. One of the most significant challenges reported by students was the lack of institutional support and training (mean = 2.62; SD = 0.60), post graduate students agreed that the absence of resources like training sessions and workshops hampers their ability to effectively use AI tools. Another key barrier identified was the high cost of AI tools (mean = 2.60; SD = 1.01), which indicates that students perceive the cost of accessing AI-powered research tools as a major obstacle. Limited internet access also emerged as a significant challenge (mean = 2.52; SD = 0.95). Postgraduate students of business education in Kwara State expressed concerns that poor internet infrastructure in the universities limits their ability to access and use AI-powered research tools efficiently. The integration of AI tools into the curriculum of postgraduate programs also emerged as a point of contention (mean = 2.54; SD = 0.81), postgraduate students agreed that AI tools are not adequately incorporated into the curriculum. Similarly, their responses indicated that lack of knowledge and the complexity of the tools were not considered major hindrances (mean = 2.16; SD = 0.93) and (2.24; SD = 0.74). In terms of accuracy concerns and data privacy, the respondents were not particularly worried (mean= 2.12; SD = 0.59) and (mean = 2.36; SD = 0.69) suggest that students generally trust the AI tools available to them and are not overly concerned with the accuracy or security of the data they handle. Lastly, time constraints and language barriers were the least concerning challenges (mean = 2.08; SD = 0.67) and (mean = 1.84; SD = 0.65), respectively; students did not find these factors to be significant barriers to adopting AI tools. In summary, postgraduate business education students in universities in Kwara State identified the challenges of utilizing AI for research as the high cost of the tools, lack of institutional support, limited internet access, among others (grand weighted mean = 2.31)

Research Question Two

To identify the ethical implications of utilizing Artificial Intelligence for research among postgraduate students of business education in universities in Kwara State?

Table 2: Mean responses of respondents on the Ethical Implications of Utilizing AI-powered Research tools among postgraduate students in business education

S/N	Items	Mean	SD	Remarks
11	The use of AI-powered research tools raises concerns about plagiarism and academic dishonesty among postgraduate students.	3.04	0.57	**Agreed**
12	AI-powered research tools might lead to the unintentional use of biased data, which could affect the integrity of my research findings.	2.98	0.71	**Agreed**
13	The reliance on AI-powered research tools can lead to the devaluation of critical thinking and independent analysis in research.	3.12	0.59	**Agreed**
14	There is a risk that AI-powered research tools might infringe on intellectual property rights, especially when using publicly available content.	3.18	0.63	**Agreed**
15	I believe that the use of AI-powered research tools may contribute to a loss of privacy, particularly concerning personal data shared during the research process.	2.78	0.81	**Agreed**
16	AI-powered research tools can perpetuate existing societal and cultural biases, which may lead to ethical concerns in research outcomes.	2.78	0.74	**Agreed**
17	The use of AI-powered research tools without proper oversight can result in the spread of misinformation in academic research.	3.30	0.68	**Strongly Agreed**
18	I am concerned that AI-powered research tools might not be transparent enough, making it difficult to understand how conclusions are drawn in my research.	2.74	0.75	**Agreed**
19	There should be more ethical guidelines and policies governing the use of AI-powered research tools in academic institutions.	3.38	0.70	**Strongly Agreed**
20	The increasing use of AI-powered research tools in academic research may lead to overreliance on technology, reducing the role of human judgment and ethical decision-making.	3.36	0.69	**Strongly Agreed**
	Grand Weighted Mean	**3.07**		**Agreed**

Source: Field Survey, 2025

The data presented in Table 2 reveals the mean responses of the respondents regarding the ethical implications of utilizing AI for research among postgraduate students in business education in universities in Kwara State, Nigeria. Analysis of the data highlights a range of ethical issues that could affect academic integrity and the quality of research outcomes. The primary ethical concerns identified include plagiarism and academic dishonesty (mean = 3.04, SD = 0.57), biased data affecting research integrity (mean = 2.98, SD = 0.71), the devaluation of critical thinking and independent analysis (mean = 3.12, SD = 0.59), and the infringement of intellectual property rights (mean = 3.18, SD = 0.63). Additionally, students raised concerns about privacy issues (mean = 2.78, SD = 0.81), the potential for AI to perpetuate societal and cultural biases (mean = 2.78, SD = 0.74), and the spread of misinformation due to inadequate oversight (mean = 3.30, SD = 0.68). The students also strongly agreed on the need for ethical guidelines and policies (mean = 3.38, SD = 0.70) to govern the use of AI tools, as well as concerns about the

over-reliance on technology diminishing the role of human judgment and ethical decision-making (mean = 3.36, SD = 0.69). The standard deviation is low, ranging from 0.81 to 0.57, indicating that their responses are not far from the mean. The findings indicated that ethical issues such as plagiarism, academic dishonesty, devaluation of critical thinking, infringement of intellectual property, among others, are the ethical implications of utilizing AI for research among postgraduate students of business education in universities in Kwara State (grand weighted mean =3.07).

Testing of the Null Hypotheses

The result of the null hypotheses were tested at 0.05, which is significant in Tables 3-4

$H_0$1: There is no significant difference between the mean responses of PhD and master's students regarding the challenges of utilizing Artificial Intelligence for research among postgraduate students of business education in universities in Kwara State.

Table 3: Independent Sample t-test of the mean response of master's and PhD respondents regarding the challenges of utilizing Artificial Intelligence for research among postgraduate students of business education in universities

Source: Field Survey, 2025

Group	N	Mean	SD	t-cal	DF	P-value	Decision
Masters	33	2.28	0.42				
				-.591	48	0.557	**$H_0$1**
PhD	17	2.36	0.47				**Not Rejected**

Analysis of data in Table 4 reveals the result of independent samples t-test conducted to compare the mean responses of master's and PhD students regarding the challenges utilizing AI research tools among postgraduate students in business education. The Table reveals that there was no significant difference between the mean responses of master's and PhD students regarding the challenges of utilizing AI research tools for research among postgraduate students in business education. t(48) = -0.59, p = 0.557. Thus, based on these results, the null hypothesis (H_0), positing no significant difference between the mean responses of master's and PhD students, is not rejected. This suggests that both groups perceive the challenges related to the utilization of AI for research tools in a similar manner, with no significant difference in their responses.

$H_0$2: There is no significant difference between the mean responses of PhD and master's students regarding the ethical implications of utilizing Artificial Intelligence for research among postgraduate students of business education in universities in Kwara State.

Table 4: Independent Sample t-test of the mean response of Master's and PhD respondents regarding the Ethical Implications of Utilizing Artificial Intelligence for Research among postgraduate students of business education

Group	N	Mean	SD	t-cal	DF	P-value	Decision
Masters	33	3.04	0.57				
				-.426	48	0.672	**$H_0$2**
PhD	17	3.11	0.49				**Not Rejected**

Source: Field Survey, 2025

Analysis of data in Table 4 reveals the result of independent samples t-test conducted to compare the mean responses of master's and PD students regarding the ethical implications of utilizing AI research tools for research among postgraduate students in business education. The results indicated that there was no significant difference between the mean responses of master's and PhD students regarding the ethical implications of utilizing AI research tools for research among postgraduate students in business education t (48) = -0.43, p = 0.672). Therefore, the null hypothesis was not rejected, suggesting that master's and PhD students perceive the ethical implications of utilizing AI for research tools similarly.

Discussion

Analysis of research question one, which sought to find out the challenges of utilizing AI for research tools among postgraduate students in business education in universities in Kwara State, reveal a significant challenge faced by postgraduate students of business education in utilizing AI for research include; high cost of the AI-powered research tools, lack of institutional support, and limited internet access, among others (grand weighted mean = 2.31). The findings imply that the high cost of these tools, lack of institutional support, and limited internet access are major challenges confronting the postgraduate students of business in utilizing AI-powered research tools for their research. The finding is consistent with the previous finding of Sweeney (2020), who found that the high cost of AI tools presents a considerable challenge for students in developing countries, preventing them from fully benefiting from advanced technological resources. Another significant barrier was the lack of institutional support, particularly in terms of training and workshops. As noted by Reddy and Bansal (2021), students without proper institutional backing struggle to adopt and use AI-powered tools effectively in their academic work. Additionally, limited internet access emerged as a major challenge, aligning with findings from Adamu et al. (2019), who noted that poor internet infrastructure in Nigeria hampers students' ability to utilize digital tools for academic purposes. In regions with unreliable internet access, students cannot fully leverage the potential of AI tools, limiting their research capabilities.

Regarding the corresponding null hypothesis (H_0), which revealed a no significant difference between the mean responses of master's and PhD students concerning the challenges hindering the utilization of AI for research ($t(48) = -0.59$, $p = 0.557$). This finding suggests that both master's and PhD students face similar barriers, regardless of their academic level. The findings are in line with those of Smith and Watson (2023), who found that both undergraduate and graduate students reported comparable difficulties in using AI for research due to technical limitations and a lack of adequate training. Furthermore, a study by Kwan et al. (2021) on AI utilization in research found that both novice and experienced researchers struggled with the practical integration of AI tools into their research process, highlighting issues such as insufficient support and a lack of AI literacy training.

Analysis of research question two sought to find out the ethical implications of utilizing AI for research among postgraduate students of business education in universities in Kwara state. Indicated that ethical issues such as plagiarism, academic dishonesty, devaluation of critical thinking, and infringement of intellectual property, among others, are the ethical implications of utilizing AI-powered research tools among postgraduate students in business education in universities in Kwara State (grand weighted mean =3.07). This suggests that while AI tools offer convenience and efficiency, they also pose ethical risks if not properly managed or understood. For instance, AI-generated content can be easily misrepresented as original work, raising concerns of plagiarism and academic dishonesty. The finding corroborates the earlier finding of Floridi and Chiriatti (2020) that AI-generated content blurs the boundaries of authorship and intellectual responsibility, complicating traditional academic integrity frameworks. The finding also coincides with Siau and Wang (2021) who found out that the misuse of AI in academic settings can undermine the integrity of the research process, calling for clearer policies and training to uphold ethical standards.

Similarly, the corresponding null hypothesis in Table 5 revealed that there was no significant difference between the mean responses of master's and PhD students regarding the ethical implications of utilizing AI research tools for research among postgraduate students in business education $t(48) = -0.43$, $p = 0.672$). This could imply that the ethical concerns surrounding AI are universally perceived among postgraduate students, regardless of their academic stage. Issues such as plagiarism, academic dishonesty, and the devaluation of critical thinking are likely seen as common challenges in the academic environment, affecting all postgraduate students. The

finding aligns with that of Hollis and Tan (2022), who found out that ethical considerations associated with AI tools may not vary significantly based on whether the student is pursuing a master's or PhD, as both groups are likely to be aware of the potential for AI to either enhance or compromise academic integrity.

Conclusion:

Based on the findings of the study, which revealed that postgraduate students of business education in universities in Kwara State, Nigeria, face a significant barrier in utilizing AI for research, primarily due to high costs, lack of institutional support, and limited internet access. The study concluded that the challenges indicated are prevalent across both master's and PhD students. This implied that the level of study does not significantly impact on the difficulties faced. Similarly, ethical concerns, including plagiarism, academic dishonesty, and the devaluation of critical thinking, are common across both academic levels.

Recommendations:

1. Universities should invest in AI training programs and workshops to equip postgraduate students with the necessary skills to use AI tools effectively. Collaborative partnerships with tech companies should be promoted to offer subsidized or affordable access to these tools.
2. Universities should create and enforce clear ethical guidelines to prevent plagiarism, academic dishonesty, and over-reliance on AI tools. Mandatory training on ethical AI use should be provided to ensure students understand the risks and responsibilities of utilizing these technologies.

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