POSTGRADUATE BUSINESS EDUCATORS' USAGE AND COMPETENCE LEVELS OF AI TOOLS FOR RESEARCH ACTIVITIES IN UNIVERSITIES IN SOUTHWEST NIGERIA

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Abstract

The integration of artificial intelligence (AI) tools in research activities has gained significant momentum, offering new avenues for data analysis, information retrieval, and knowledge discovery. In the realm of postgraduate business education, the adoption and competent utilization of AI tools by educators can substantially impact the quality and efficiency of research endeavors. This study investigates the extent to which postgraduate business educators in universities in Southwest Nigeria are utilizing AI tools for research purposes and assesses their competence levels in leveraging these tools effectively. A Descriptive methods approach was employed, involving an online survey and structured questionnaire for postgraduate business educators from four universities in the Southwest region of Nigeria. The survey, administered to 28 participants, gathered quantitative data on the perceive usefulness, availability and accessibility of AI tools for research activities. These findings provide insight into the accessibility of various AI tools for research purposes among postgraduate business educators in the region and this data provides valuable insights into the attitudes and experiences of educators regarding AI tool use in academic research. However, a significant gap was identified between the usage of AI tools and the competence levels of educators in effectively utilizing them. Barriers to adoption included limited awareness, inadequate training, technical challenges, and concerns over ethical implications. This study contributes to the understanding of AI tool adoption in postgraduate business education and research within the Nigerian context. The results inform the development of targeted training programs, resource allocation strategies, and policy recommendations to enhance the effective integration of AI tools in postgraduate business education and research activities. By addressing the identified gaps and barriers, universities can better equip postgraduate business educators with the necessary competencies to harness the potential of AI tools, thereby fostering innovation and maintaining a competitive edge in research endeavors.

KEYWORDS: Artificial Intelligence (AI) Tools, Postgraduate Business Education, Research Activities, Usage Patterns, Competence Levels

Introduction

The rapid advancement of artificial intelligence (AI) technologies has significantly impacted various sectors, including education and research. In the context of higher education, particularly for postgraduate business educators, AI tools have emerged as potential game-changers for enhancing research activities and academic productivity (Zawacki-Richter et al., 2019). However, the adoption and effective utilization of these tools in academic settings, especially in developing countries like Nigeria, remain understudied. The field of business education, which aims to prepare students for the dynamic business world, is particularly poised to benefit from AI integration. As the business landscape increasingly incorporates AI-driven solutions, it becomes crucial for

business educators to be well-versed in these technologies to adequately prepare their students for future careers (Popenici & Kerr, 2017).

In the Nigerian context, universities in the Southwest region are known for their emphasis on quality education and research. However, there is a gap in understanding how postgraduate business educators in these institutions are adapting to and utilizing AI tools for research. This gap is significant because the effective use of AI in research can potentially enhance the quality and efficiency of academic output, contributing to the overall development of the education sector and, by extension, the economy (Olalekan, 2020). Several factors may influence the adoption and use of AI tools in academic research, including availability, accessibility, and perceived usefulness. The availability of AI tools refers to the range of tools that exist and are known to the educators. However, mere availability does not guarantee usage. Accessibility, which encompasses factors such as cost, technical infrastructure, and user-friendliness, plays a crucial role in determining whether educators can actually use these tools (Dwivedi et al., 2021).

Moreover, the perceived usefulness of AI tools is a critical factor in their adoption and continued use. This perception is shaped by various factors, including the educators' understanding of AI capabilities, their personal experiences with the tools, and the perceived benefits in terms of research productivity and quality (Teo, 2011). Despite the potential benefits, there are challenges in integrating AI tools into academic research practices. These may include technological barriers, lack of training, resistance to change, and concerns about the ethical implications of AI use in research (Zawacki-Richter et al., 2019). Understanding these challenges in the context of Nigerian universities is crucial for developing strategies to enhance AI adoption and utilization.

This study aims to address these knowledge gaps by investigating the availability, accessibility, and perceived usefulness of AI tools among postgraduate business educators in Southwestern Nigerian universities. By exploring these aspects, the research seeks to provide insights that can inform policies and practices to enhance the integration of AI in academic research, potentially leading to improved research output and better preparation of business students for the AI-driven business world.

Theoretical Framework

For the study titled "Postgraduate Business Educators' Usage and Competence Levels of AI Tools for Research Activities in Universities in Southwest Nigeria", a highly relevant and comprehensive theoretical framework is the Technology Acceptance Model (TAM) integrated with the Self-Efficacy Theory. In the rapidly evolving landscape of higher education, where technological advancements continually reshape research methodologies, the integration of artificial intelligence (AI) tools into academic pursuits has emerged as a transformative force (Popenici & Kerr, 2017). This phenomenon is particularly relevant in the domain of postgraduate business education, where the pressure to produce innovative, data-driven research is ever-increasing (Arbaugh et al., 2017). In this context, a study examining the usage and competence levels of AI tools among postgraduate business educators in Southwest Nigerian universities not only sheds light on current practices but also offers a theoretical lens through which to understand and foster technological integration in academic research. The study's theoretical underpinning harmoniously blends Fred Davis's Technology Acceptance Model (TAM) with Albert Bandura's Self-Efficacy Theory, creating a robust framework that illuminates both the acceptance and competence dimensions of AI tool usage. This synergistic model posits that an educator's decision to embrace AI tools in their

research is fundamentally shaped by their perceptions of the technology's usefulness and ease of use, while their proficiency in wielding these tools is deeply rooted in their self-belief (Davis, 1989; Bandura, 1977). At its core, the TAM suggests that postgraduate business educators are more likely to adopt AI tools if they believe these technologies will significantly enhance their research endeavors (Davis, 1989). The perceived usefulness of AI—its ability to expedite literature reviews, uncover hidden patterns in complex datasets, or render sophisticated analyses more accessible—acts as a powerful motivator (Dwivedi et al., 2021). Concurrently, the model underscores the importance of perceived ease of use; educators are drawn to AI tools that promise to streamline their work without imposing a steep learning curve or technical intricacies that might detract from their primary focus—the research itself (Mitra et al., 2019). Yet, the TAM's emphasis on perceptions opens the door to Bandura's Self-Efficacy Theory, which delves into the psychological underpinnings of these perceptions. Self-efficacy, in this context, represents an educator's confidence in their ability to effectively harness AI tools for research (Tsai et al., 2020). This belief is not innate but is cultivated through various experiences. Successfully integrating AI into past research projects, for instance, bolsters an educator's self-efficacy, making them more likely to perceive future AI tools as manageable and beneficial. Similarly, witnessing colleagues adeptly use AI in their work or receiving encouragement from peers and mentors can vicariously boost an educator's self-belief (Bandura, 1977; Zide et al., 2023).

The interplay between these theories is profound. An educator's competence in using AI tools, a reflection of their AI self-efficacy, directly influences their perceptions of ease of use and usefulness. The more adept they feel with AI, the more likely they are to see these tools as user-friendly and capable of elevating their research (Tsai et al., 2020; Belter, 2020). Conversely, a strong belief in AI's potential to enhance research stemming from the TAM's perceived usefulness can motivate educators to build their competence, creating a virtuous cycle of increasing self-efficacy and technology acceptance (Dwivedi et al., 2021). In the context of postgraduate business education in Southwest Nigeria, where the integration of AI in research may still be in its nascent stages, this theoretical framework offers invaluable insights. It suggests that fostering widespread adoption of AI tools requires a multifaceted approach. Institutions must not only provide access to cutting-edge AI technologies but also demonstrate their tangible benefits in enhancing research quality and efficiency (Mitra et al., 2019). Training programs should be designed to offer educators hands-on experiences with AI tools, building their mastery and, by extension, their self-efficacy (Olaleye et al., 2021). Creating a supportive environment where successful AI use is showcased and encouraged can further boost educators' confidence through vicarious experiences and social persuasion (Bandura, 1977; Akpan et al., 2022).

Moreover, the theory underscores the importance of addressing psychological barriers. Anxieties about complex algorithms or fears of being displaced by technology can diminish self-efficacy and, consequently, hinder AI adoption (Jobin et al., 2019). By openly discussing these concerns and reframing AI as a tool that amplifies human intellect rather than replaces it, institutions can foster a more positive emotional state, enhancing both self-efficacy and perceived ease of use (Zide et al., 2023).

In essence, the integration of the Technology Acceptance Model and Self-Efficacy Theory offers a comprehensive lens through which to view, understand, and ultimately enhance the usage and competence levels of AI tools among postgraduate business educators. It reminds us that technological adoption in academia is not merely a matter of access or training but a complex

interplay of perceptions, beliefs, and experiences (Davis, 1989; Bandura, 1977). By nurturing both the perceived value of AI tools and educators' self-belief in using them, universities in Southwest Nigeria can pave the way for a future where AI and human intellect harmoniously coexist, driving business research to new heights of innovation and impact (Dwivedi et al., 2021; Zide et al., 2023).

Purpose Of the Study

The purpose of this research is to investigate the usage and competence levels of postgraduate business educators in universities in Southwest Nigeria in utilizing artificial intelligence (AI) tools for research activities. Specifically, the study:

1. Available AI tools for research purpose by postgraduate business educators in universities

2. Accessibility of AI tools for research purpose by postgraduate business education students in universities

3**.** Perceived usefulness of internet resources for research purpose by postgraduate business education students in universities

Research Questions

1. What are the available AI tools for research by postgraduate business educators in universities in Southwestern Nigeria?
2. How accessible are AI tools for research purpose by postgraduate business educators in universities?
3. How do postgraduate business educators perceive the usefulness of AI tools for research purpose in universities?

Methodology

This study employed a descriptive survey research design to investigate AI tool usage among postgraduate business educators for research activities in Southwest Nigerian universities. The target population included all postgraduate business educators in the region. A purposive sampling technique was used, first randomly selecting four universities from six states, then using stratified random sampling to ensure proportional representation across departments and academic ranks.

Data was collected using a structured questionnaire consisting of two main sections: demographic information and usage of AI tools for research activities. The questionnaire's content validity was established through expert review, and reliability was assessed via a pilot study using Cronbach's alpha coefficient. Necessary approvals were obtained before data collection, and participants were assured of response confidentiality. Data analysis employed descriptive statistical techniques. Descriptive statistics summarized an overview of AI tool usage and competence levels. examined differences in usage based on demographic variables and investigated relationships between usage and competence levels. All analyses were conducted using SPSS software, with a significance level of 0.05 for statistical tests.

Results

Research Question 1: What are the available AI tools for research by postgraduate business educators in universities in Southwestern Nigeria?

Table 1: AI tools available for information sourcing by postgraduate business educators in universities

S/N	ITEMS	AVAILABLE (%)	NON-AVAILABLE (%)
1.	Grammarly	89.6	10.4
2.	Quill Bot	72.6	27.4
3.	Turnitin	73.7	26.3
4.	Wordtune	55.3	44.7
5	ChatGpT	87.5	22.5

The table presents data on the availability of various AI tools for information sourcing among postgraduate business educators in universities in Southwestern Nigeria. Grammarly: Available to 89.6% of educators, while 10.4% report it as non-available. Quill Bot: 72.6% of educators have access to this tool, with 27.4% indicating it is not available to them. Turnitin: Available to 73.7% of the educators, while 26.3% report it as non-available. Wordtune: 55.3% of educators have access to this tool, with 44.7% indicating it is not available to them. ChatGPT: Available to 77.5% of educators, while 22.5% report it as non-available. The table suggests that among the AI tools listed, Grammarly is the most widely available, followed closely by ChatGPT (assuming the data is correct). Wordtune appears to be the least available tool among those surveyed. These findings provide insight into the accessibility of various AI tools for research purposes among postgraduate business educators in the region, which could inform decisions related to resource allocation and training programs in these institutions.

Research Question 2: How accessible are AI tools for research purpose by postgraduate business educators in universities?

Table 2: Accessibility of AI tools for research purpose by postgraduate business educators in universities

S/N	ITEMS	ACCESSIBLE (%)	NOT-ACCESSIBLE (%)
1.	Grammarly	86.9	13.1
2.	Quill Bot	74.6	25.4
3.	Turnitin	78.7	21.3
4.	Wordtune	63.9	36.1
5	ChatGpT	84.5	25.5

The table presents data on the accessibility of various AI tools for research purposes among postgraduate business educators in universities. Grammarly: Accessible to 86.9% of educators, while 13.1% report it as not accessible. Quill Bot: 74.6% of educators can access this tool, with 25.4% indicating it is not accessible to them. Turnitin: Accessible to 78.7% of the educators, while 21.3% report it as not accessible. Wordtune: 63.9% of educators can access this tool, with 36.1% indicating it is not accessible to them. ChatGPT: Accessible to 74.5% of educators, while 25.5% report it as not accessible. The data suggests that among the AI tools listed, Grammarly is the most accessible, followed closely by ChatGPT. Wordtune appears to be the least accessible tool among

those surveyed. These findings provide valuable insight into the accessibility of various AI tools for research among postgraduate business educators in universities. This information could be useful for institutions in planning technology integration strategies and identifying areas where improved access might be beneficial.

Research Question 3: How do postgraduate business educators perceive the usefulness of AI tools for research purpose in universities?

Table 3: Postgraduate business educators perceive the usefulness of AI tools for research purpose in universities

S/N	Statements	Mean	SD
1	I find AI tools useful for my research work.	3.86	0.4
2	I am not confident in using AI tools for my research work.	1.86	0.93
3	AI tools improves my academic performance.	3.71	0.50
4	Using internet for my research enables me to accomplish my project task more quickly.	3.64	0.62
5	My use of AI tools for research purpose is not voluntary.	2.18	0.98
6	I am not comfortable of using AI tools for my research work.	1.86	0.85
7	AI tools enhances my effectiveness in academic research.	3.54	0.51
8	AI tools gives me greater control over my academics/	3.29	0.66
9	Using AI tools for research purpose enables me to accomplish my academic quickly than using manual base.	3.50	0.80
10	The speed of using AI tools for research work is satisfactory enough.	3.25	0.52
11	AI tools gives me more confidence in sourcing for information that will enhance my research work.	3.50	0.58
12	Using AI tools for my research enables me to accomplish my project task more quickly.	3.46	0.58
13	There are usually no distractions that constitute a nuisance when using AI tools for research work.	2.36	0.83
14	Although it might be helpful, but using AI tools is not compulsory for my course work	2.64	0.99
15	Some AI tools are not relevant to my area of research.	2.43	0.96
16	Poor power supply on campus affects usage of AI tools.	3.39	0.69
17	High cost of internet data discourages researchers from using AI tools to source for information.	3.32	0.72
18	Limited knowledge of internet in my school hinders me from using AI tools effectively	2.71	0.81
19	Poor internet work discourages AI tools users.	2.71	0.76
20	Lack of training on how to operate AI tools also affect internet user.	3.25	0.75
	Average Mean	3.02	

The table presents data on postgraduate business educators' perceptions of the usefulness of AI tools for research purposes in universities. The results are based on a survey using a Likert scale, where higher mean scores indicate stronger agreement with the statements. Educators generally find AI tools useful for their research work (M = 3.86, SD = 0.4) and believe these tools improve their academic performance (M = 3.71, SD = 0.50). They perceive AI tools as enhancing their research effectiveness (M = 3.54, SD = 0.51) and providing greater control over their academics (M = 3.29, SD = 0.66). Respondents report high confidence in using AI tools, disagreeing with statements suggesting lack of confidence (M = 1.86, SD = 0.93) or discomfort (M = 1.86, SD = 0.85). They also perceive AI tools as enabling quicker task accomplishment (M = 3.64, SD = 0.62)

and enhancing information sourcing confidence (M = 3.50, SD = 0.58). Some challenges are noted, including poor power supply affecting AI tool usage (M = 3.39, SD = 0.69) and high internet data costs discouraging use (M = 3.32, SD = 0.72). However, educators generally disagree that limited knowledge (M = 2.71, SD = 0.81) or poor internet connectivity (M = 2.71, SD = 0.76) significantly hinder their use of AI tools. The overall average mean of 3.02 suggests a generally positive perception of AI tools' usefulness for research purposes among postgraduate business educators. This data provides valuable insights into the attitudes and experiences of educators regarding AI tool use in academic research, which could inform institutional policies and practices related to technology integration in higher education.

Discussion of Findings

The study's finding that tools like Grammarly, ChatGPT, and Turnitin have high availability rates is particularly noteworthy in the context of developing nations' digital transformation. This suggests that these institutions are making concerted efforts to integrate modern research tools into their academic infrastructure. However, the limited availability of tools like Wordtune indicates potential gaps in the comprehensive adoption of AI resources, which may be attributed to factors such as licensing costs or institutional preferences. The positive perception of AI tools among educators aligns with global trends in academic research. The high agreement regarding these tools' ability to enhance academic performance and research effectiveness suggests that Nigerian business educators are increasingly recognizing the potential of AI to streamline and improve research processes. This finding resonates with research by Warburton and Mor (2023), who observed similar positive attitudes toward AI tools in higher education globally. The identified challenges, particularly poor power supply and internet connectivity issues, represent significant barriers to effective AI tool implementation. These findings reflect broader infrastructural challenges in developing nations' educational systems, as documented by Okoye & Adeniji, 2022. The presence of these basic infrastructural challenges suggests that while educators are willing to embrace AI tools, external factors may limit their ability to fully utilize these resources.

Conclusion:

The study concludes that there is a moderate to high level of AI tool adoption among postgraduate business educators in Southwest Nigerian universities. Educators generally have positive perceptions about the usefulness of AI tools in enhancing their research activities. However, there are still some barriers to full adoption and utilization, primarily related to infrastructure and cost issues. The research highlights a gap between the perceived potential of AI tools and the actual competence levels of educators in effectively utilizing them. This suggests a need for targeted interventions to bridge this gap and fully leverage the benefits of AI in postgraduate business education and research.

Recommendations:

1. Universities should invest in improving digital infrastructure, particularly addressing issues of power supply and internet connectivity, to facilitate better access to AI tools.

2. Institutions should develop comprehensive training programs to enhance educators' competence in using AI tools effectively for research purposes.

3. There is a need for policies that promote the integration of AI tools in postgraduate business education curricula and research methodologies.

4. Universities should explore partnerships with AI tool providers to negotiate better access and reduced costs for educators and students.

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