



UNDERSTANDING NON-UTILIZATION OF AI TOOLS FOR RESEARCH AND ACADEMIC WRITING AMONG ACADEMIC STAFF IN NIGERIAN UNIVERSITIES: A PARADIGM SHIFT.

By

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Abstract

This study investigates the non-utilization of artificial intelligence (AI) tools for research and academic writing among academic staff at Kaduna State University (KASU), Nigeria, employing the Perceived Attributes of Innovation Theory as a theoretical framework. Despite the acknowledged benefits of AI in enhancing research productivity and efficiency, a significant gap remains in the adoption of these tools within academic settings. Through qualitative methodology, a semi-structured interview with 20 purposively selected participants, the research identifies key barriers to AI tool utilization. Findings reveal that academic staff face challenges such as lack of awareness, limited access to technology, high subscription costs, fear of plagiarism, and a preference for traditional methodologies. Moreover, concerns around the complexity of AI tools, their compatibility with existing practices, and the lack of visible benefits contribute to the reluctance to integrate AI into academic workflows. The study recommended the need for targeted training, institutional support, and awareness campaigns to address these perceptions and encourage the adoption of AI tools, ultimately aiming to enhance academic writing and research outputs in Nigerian universities.

Keywords: *Artificial Intelligence, Academic Staff, Academic Writing, Research, Utilization.*

1.0 Introduction

Research and academic writing would benefit immensely from artificial intelligence (AI) in this technologically advanced world. Technology has made research and academic writing easy using AI. According to Thorp (2023) indicated that using AI tools for research and academic writing can save researchers so much time, they can reduce the amount of work required to locate relevant information and choose appropriate readings. He further explained that, the productivity of a researcher can be improved by a more efficient writing and research process supported by AI. For instance, an AI-generated summary of material can make the researcher realize that the key conclusions require more precise formulation (Kakrash 2023). Despite the benefits, importance and advantages of using AI tools for research and academic writing, the problem of low or non-use still persist (Ahmed, 2021; Agrawal, 2018). Although studies were conducted aimed at having a better understanding of using AI tools from different perspectives, such as social, economic and business by generative artificial intelligence (AI) describes algorithms (such as Chat GPT) that can be used to create new content, including audio, code,



images, text, simulations, and videos (Elbasi, 2021; Esmaeilzadeh, 2020; ACPR, 2020; Blackrock, 2020; Ching, 2019; Elbasi, 2021). The problem of using AI tools for research and academic writing still remain (Kakrash, 2023).

Despite the growing global adoption of artificial intelligence (AI) tools to enhance research and academic writing, their utilization remains limited among academic staff in Nigerian universities. This non-utilization persists even as AI tools offer potential benefits such as increased efficiency, improved accuracy, and enhanced productivity. For innovative services to be diffused, adopted, and utilized, it must conform to the attributes of innovation theory (Rogers, 2003). Several studies have identified the process of enhancing the acceptance of products and services (Almobarraz, 2007; Eljiz, 2010; Stachewicz, 2011; Neo & Calvert, 2012; Ntemana & Olatokun, 2012). They have advocated that, for innovations to be adopted and used, it must conform to the attribute of innovation theory (Rogers, 2003), hence the need to consider AI tools for research and academic writing as an innovation. Existing literature highlights the transformative impact of AI in academia, yet little is known about the specific factors hindering its adoption in the Nigerian context. This study seeks to address this gap by exploring the barriers to the use of AI tools for research and academic writing among academic staff in Nigerian universities. Drawing on Rogers' (2003) Perceived Attributes of Innovation Theory, the research investigates how constructs such as relative advantage, compatibility, complexity, and observability influence the decision to adopt or reject AI tools. By identifying these barriers, the study aims to provide actionable insights that can inform strategies to promote the integration of AI technologies in Nigerian academia, fostering a paradigm shift toward more innovative and efficient research practices.

To address the problem and to achieve the objectives of this study, the central research question guiding this study will be:

1. What are the reasons for Non-utilization of AI tools for research and academic writing among academic staff in Kaduna State University?
2. What are the perception of academic staff on AI tools for research and academic writing?
3. How does the four construct of perceived attribute of innovation theory explain non-use of AI tools for research and academic writing among academic staff in Kaduna State University?

2.0 Literature Review:

2.0.1 The Concept of Non- Use of AI Tools

Non-use is having the knowledge about something and not using it. However, non-use is difficult to define without answering the question-non-use of what? In the context of the present study, non- use of AI tools is defined as a concept. Non-use of AI tools is having the right to use the AI tools but not doing so. AI tools is an application software which allows scholars to solve a specific problem in research and academic writing remotely. Non-use of AI tools has been less explored; however, researchers have studied non-use of technology generally ranging from facebook, Human Computer Interaction, Internet etc. (Baumer, Adams, Khovanskaya, Liao, Smith, Sosik & Williams, 2013; Birnholtz, 2010; Satchel& Dourish, 2009; Kline, 2003; Wyatt, 2003). These scholars have similar opinions about non-use having different forms. Satchel and Dourish (2009) identified six forms of non-use. They are: lagging adoption, active resistance, disenchantment, disenfranchisement, displacement and disinterest. Lagging behind is defined with respect to some expected pattern of technology adoption and diffusion i.e., the individual innovativeness theory (Rogers, 2003) where non-use can easily be defined as the adoption wave-front moving from the left to right across the adoption bell curve, the users are on the left side of the wave-front and the non-users on the right. Active resistance non-use is



the die-hard within the laggards who steadfastly refuse to adopt a technology in active ways. Disenchantment is a form of reluctant or partial use associated particularly with nostalgic wistfulness for a world passing out of existence. Disenfranchisement form of non-use is the situation where a particular social group is not granted the right to use a particular kind of technology. Displacement which is broadly a secondhand use (when the primary use of a technology becomes a service) and disinterest is when a technology that is expected to be relevant turn out not to be of significant relevance (Satchel et al, 2009).

In spite of the variety form of non-use, Satchel and Dourish, (2009) sees every-one as a non-user. They posited that until a technology has been developed and deployed, every-one is a non-user (or perhaps a potential user). Wyatt (2003) clusters typologies of non-user into four categories: resisters, rejectors, the excluded, and the expelled. Rejectors and expelled are those who have joined and are now non-users while resisters and the excluded are those who never used the technology. Another typology of non-user is identified by Sridhar (1994). He categorized non-user into absolute and marginal user. Absolute non-users are those who do not use the library or its collection or services at all. A substantial number of users who make marginal use of a library are called marginal users. The result of absolute non-users and marginal users makes the library underused. This is important in the study of non-use and non-user.

2.0.2 AI Tools for Research and Academic Writing

Scholars in many scientific disciplines, including the health sciences and social science (Adams, 2013; Tsafnat, 2014), science and education (King, 2009), management (Johnson, 2019), encouraged and promote the use of AI tools for research and academic writing. However, Kakarash (2023) listed over 15 AI tools for research and academic writing and encourage academic staff and scholars to make use of it, he further explained that, it save researchers so much time, they can reduce the amount of work required to locate relevant information. Some of the AI tools listed include: Sci Space, Schoarley, Jenni A, Chat PDF, Paperpal, Casper, Grammarly, QuillBot, Elicit, Consensus AI, Mendeley, semantic scholar, paper digest, connected papers, elicit.org, citing generative AI, Bing AI, research rabbit etc.

In another study conducted by Sibeko (2023), he emphasized on the use of AI tools and explained that, in our modern age, academic writing has changed dramatically. Artificial intelligence (AI) now rules the globe, replacing quills and parchment. AI in academia has transformed knowledge acquisition and scholarship. With AI, researchers and scholars have strong tools to improve their talents

2.1 Theoretical Framework

This section discusses the perceived attribute of innovation theory, which focuses on how individual perceptions of innovation attributes, rather than objectively classified attributes by experts, affect its adoption rate. The theory, which includes relative advantage, compatibility, complexity, trialability, and observability, is used in DOI research to understand the non-use of AI tools on research and academic writing.

- **Relative advantage:** Relative advantage measures the perceived superiority of an innovation over existing practices, influencing user adoption of IT tools. It is often linked to perceived utility and is measured by job completion, work quality, productivity, efficiency, ease of use, and rewards.
- **Compatibility:** This study assessed compatibility with socio-cultural values, previous ideas, and needs to determine the adoption rate of an innovation, considering factors such as work style and current situation/need.

- Complexity: is the degree to which an innovation is perceived as difficult to use and understand. Meaning of complexity, which gauges factors such as cumbersome to use, understandability, performs as desired, and easy to learn, was deemed consistent with the purpose of this study.
- Trialability: Trialability is the limited experience of an innovation, promoting its adoptability. Rogers's definition of trialability focuses on the opportunity for experimentation, knowledge of where to try, ability to try, and empowerment.
- Observability: Observability refers to the visibility and ease of viewing the results of an innovation, which can influence its adoption. This study uses Rogers's (2003) definition to examine other firms' and internal uses.

3.0 Methodology

The study adopts interpretive epistemology using social constructionism research philosophical paradigm. In line with social constructionism epistemology the research adopted a qualitative methodological approach. Qualitative methodology is a method of inquiry employed to gather an in depth understanding of phenomenon and human behavior especially feelings or experience and the reason that governs behavior (Myers 2009). Qualitative research is suitable for this study because it provides deeper understanding of human information behavior in social phenomena (Silverman, 2005) the purpose of this study is to understand and explain the non-use of AI tools for research and academic writing among academic staff in their own settings.

However, in this research, case study research design was adopted for the study. A case study research design relies on multiple forms of data in order to build an in-depth case and usually select limited number of people as the focus of study. Therefore, a case study research design is well-known to be best suited for this type of study. This is because the purpose of this is to select limited number of respondents as a focus of the study. A total number of 20 participants were selected through purposive sampling technique.

3.1 Data Collection

The data from this study is collected using semi-structure interview. According to Cutler (2013), semi-structure interview permits the scholar and study participant to reconstruct the past, explain the present and envision the future. The interview session began with administration of informed consent form. The consent form solicited participants' permission to voluntarily participate in the interview and it sought authorization to record the conversations. More so, respondents were assured of privacy and confidentiality concerning their responses. The interviews were conducted in KASU with a total duration amounting to about 12 hours of conversation.

3.2 Data Analysis

In this study, the analysis of interview transcripts is based on inductive approach process through identifying patterns in the data by means of thematic codes. To accomplish these tasks, the researcher followed the three-phase procedure in thematic analysis as described by Miles and Huberman (1994) which includes: (a) data reduction, (b) data display, and (c) conclusion drawing and verification. Using these coding steps, the narratives were read and re-read thoroughly to identify variance and relationships.



4.0 Findings

4.1 The Reasons for the Non-Utilization of AI Tools for Research and Academic Writing:

The responses from academic staff of Kaduna State University regarding the reasons for the non-utilization of AI tools for research and academic writing are presented below:

1. Lack of Awareness
2. Limited Access to Technology
3. High Cost of Subscription
4. Fear of Plagiarism
5. Lack of Training
6. Preference for Traditional Methods
7. Skepticism About Accuracy
8. Resistance to Change
9. Limited Institutional Support
10. Concerns About Job Security
11. Lack of Time to Learn
12. Cultural and Language Barriers
13. Fear of Dependency
14. Inadequate Infrastructure
15. Ethical Concerns
16. Lack of Peer Adoption
17. Perceived Complexity
18. Limited Relevance to Field
19. Data Privacy Concerns
20. Negative Perception of AI

These responses reflect a mix of practical, cultural, and psychological barriers that could explain the non-utilization of AI tools among academic staff of Kaduna State University.

4.2 The Perceptions of AI Tools for Research and Academic Writing:

The responses from academic staff at Kaduna State University regarding their perceptions of AI tools for research and academic writing are presented below.

1. Positive and Innovative
2. Skeptical About Quality
3. Useful but Limited
4. Fear of Over-Reliance
5. Excited About Potential
6. Concerned About Ethics
7. Intimidating Technology
8. Time-Saving
9. Lack of Trust
10. Enhances Productivity
11. Not Tailored to Local Context
12. Worried About Job Security
13. Great for Collaboration
14. Overhyped Technology



15. Improves Accessibility
16. Concerned About Bias
17. Encourages Innovation
18. Requires Training
19. Enhances Accuracy
20. Mixed Feelings

These responses reflect a range of perceptions, from enthusiasm and optimism about the potential of AI tools to skepticism and concern about their limitations and ethical implications. The diversity of opinions highlights the need for awareness, training, and institutional support to address these perceptions effectively.

4.3 The Perceived Attributes of Innovation Theory

The Perceived Attributes of Innovation Theory (Rogers, 2003) identifies five constructs that influence the adoption of innovations: relative advantage, compatibility, complexity, trialability, and observability. Below are the responses from academic staff at Kaduna State University, explaining how four of these constructs (excluding trialability) might explain the non-use of AI tools for research and academic writing:

4.3.1. Relative Advantage (Perceived benefits of AI tools over existing methods)

1. AI tools are not better than my current research methods (old methods of research).
2. The benefits of AI tools aren't clear to me.
3. AI tools cannot provide any advantage over traditional library resources.
4. No significant improvement on the work of AI colleagues who use them.
5. The cost of subscribing to AI tools outweighs the benefits they offer.

4.3.2. Compatibility (Alignment with existing values, practices, and needs)

1. AI tools don't align with how I conduct research. They feel foreign to my academic style.
2. Our university culture doesn't encourage the use of technology in research.
3. AI tools are designed for Western academic systems, not our local context and needs.
4. I prefer to write and analyze data manually as it feels more authentic and aligned with my values
5. AI tools conflicts with belief in the importance of human creativity and originality in research.

4.3.3. Complexity (Perceived difficulty of using AI tools)

1. AI tools seem too complicated. Lack of technical skills to use them effectively.
2. I tried using an AI tool once, but the interface was confusing, and I gave up.
3. Without proper training, I find it hard to understand how these tools work.
4. The process of learning AI tools is a waste of time.
5. I'm not tech-savvy, so I avoid anything that requires advanced computer skills.

4.3.4. Observability (Visibility of results or benefits from using AI tools)

1. No motivation to try it because I haven't seen any of my colleagues achieve remarkable results
2. I need concrete evidence on how AI tools have improved research
3. No one in my department uses AI tools, so I don't have any evidence that they're effective
4. I've never attended a workshop or seminar where the benefits of AI tools were demonstrated.
5. Until I see tangible proof that AI tools can make a difference, I'll stick to my current methods.



4.4 Summary of Key Themes

1. **Relative Advantage:** Many staff do not perceive AI tools as offering significant benefits over traditional methods.
2. **Compatibility:** AI tools are often seen as incompatible with local academic practices, cultural values, and institutional norms.
3. **Complexity:** The perceived difficulty of using AI tools discourages adoption, especially among staff with limited technical skills.
4. **Observability:** The lack of visible success stories or demonstrations of AI tools in action reduces motivation to adopt them.

These responses highlight how the four constructs of the Perceived Attributes of Innovation Theory can explain the non-use of AI tools among academic staff at Kaduna State University. Addressing these barriers through training, awareness campaigns, and institutional support could encourage greater adoption.

5.0 Conclusion and Recommendation

The non-utilization of AI tools for research and academic writing among academic staff in Nigerian universities highlights a significant gap in the adoption of innovative technologies that could enhance academic productivity and research outcomes. Through the lens of Rogers' (2003) Perceived Attributes of Innovation Theory, this study identified key barriers, including the lack of perceived relative advantage, incompatibility with existing academic practices and cultural values, perceived complexity of AI tools, and insufficient observability of their benefits. These factors collectively contribute to the reluctance of academic staff to embrace AI technologies. Addressing these barriers requires a multifaceted approach, including targeted training programs, awareness campaigns to demonstrate the value of AI tools, and institutional support to create an enabling environment for adoption. By fostering a paradigm shift toward the integration of AI in academia, Nigerian universities can unlock the potential of these tools to drive innovation, improve research quality, and enhance global competitiveness. This study underscores the need for collaborative efforts among stakeholders to bridge the gap between technological advancements and their practical application in Nigerian higher education.

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