

AI Technology Adoption and Sustainable Academic Writing Practices in the Nigerian Higher Education: A Systematic Literature Review

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Abstract

Advanced generative artificial intelligence (AI) tools are reshaping academic writing in global higher education institutions (HEIs) and are attracting strong interest from researchers to study their implications. This study assesses the impact and adoption of AI tools in Nigerian HEIs on sustainable writing, academic writing skills, literacy and ethics. Using the PRISMA 2020 framework and reviewing AI tools in the databases of the Web of Science, Google Scholar, ERC, and ResearchGate, the author reviewed 13 studies across four thematic dimensions. Literature shows an increase in students' use of ChatGPT, Quill Bot, and Grammarly for AI-assisted writing, with the most common uses including summarising literature, checking grammar, and paraphrasing. Research suggests that these artificial intelligence tools are lacking in advanced writing and synthesis. Higher education sectors in many countries, including Nigeria, are faced with the reality of accepting AI-assisted writing, and several of the reviewed studies report a considerable lack of institutional support for such writing. Researchers argue that AI writing tools undermine academic integrity and may facilitate plagiarism, with 47% of students surveyed reporting that they encourage academic dishonesty. AI has improved the writing and language skills of many, including non-native English speakers, but independent critical thinking remains a vital skill. The findings indicate that while these tools may assist in low-level writing tasks, they may also impair users' critical thinking skills and undermine academic integrity. The study, therefore, recommends institutional-level policy frameworks, specially designed digital literacy curricula and a comprehensive curriculum overhaul to integrate AI technologies in Nigerian HEIs ethically and sustainably.

Keywords: Academic integrity, Artificial intelligence technologies, Academic literacy, Academic writing skills, Ethical implications, Nigerian higher education, Plagiarism

1. Introduction

The integration of AI in all areas of higher education has transformed how knowledge is developed, evaluated, and disseminated (Ruano-Borbalan, 2025; Youvan, 2025; Tasnim, Ahmed & Rahman, 2024). The growing prominence of generative AI technologies, especially conversational platforms such as ChatGPT, has enhanced the integration of AI into scholarly workflows, reconfiguring writing and research practices (Hamet & Tremblay, 2017). Notably, the automation of data processing, combined with literature

synthesis and AI-assisted writing, all contribute to changing the established methods of academic practice. Globally, studies show that these technologies are improving research efficiency and scope. They enable researchers to streamline repetitive tasks such as literature search and citation management, and assist with manuscript development, large-scale data analysis and theme recognition (Khalifa & Albadawy, 2024; Rind, Qudah & Aliyev, 2024; Razia, Awwad & Taqi, 2023). Therefore, scholars are free to concentrate on conceptual and analytical aspects of the investigation (Macdonald et al., 2023). Beyond research, AI tools are used for teaching and learning purposes, providing more adaptive and personalized learning experiences and increasing access to knowledge (Crawford Cowling & Allen, 2023; Lund et al., 2023). The increasing adoption of these technologies has created ethical and academic challenges. Concerns about authorship, academic integrity, transparency, and reliability of AI output remain a major concern (Kooli, 2023; Májovský et al., 2023). The bias of AI systems implies that they may generate false results; consequently, these systems can only achieve academic rigour with human supervision (Ariyaratne et al., 2023; Borger et al., 2023). Additionally, the growing ambiguity in the distinction between human and machine-generated text challenges the conventional ideas of authenticity and originality (Georgiou, 2026). Undoubtedly, these technologies aid users in writing and assist, especially non-native English speakers, in improving grammar, coherence and generating ideas. However, there are risks of overdependence on these tools, in the process, undermining independent writing and critical thinking skills (Deep & Chen, 2025; Ani et al., 2024; Qaffas, 2024). Finally, sustainable academic writing practice should be about a balanced integration of AI, with technological assistance complementing, rather than replacing, human intellectual involvement.

The remaining sections of this study are organized as follows: the rationale, which maps out the reasons why the study is needed, creating its background within different contexts; the literature review examines the empirical and theoretical aspects of the adoption of AI tools in Nigerian higher education institutions (HEIs). The methodology section describes the research framework, data sources, search strategy, inclusion and exclusion criteria, and data analysis used to synthesize the literature. Relying on existing studies, the findings and discussion section present findings concerning sustainable academic writing practices in Nigerian universities. Additionally, the section analyses each of the three research questions on AI adoption in academic writing practices, academic integrity, and digital literacy within Nigerian universities. The conclusion section briefly outlines the study's aim of a critical and systematic review of the adoption of AI tools to support writing practices in Nigerian HEIs, together with its three guiding objectives and directions for future research and policy.

For the first time in Africa, AI tools are integrated into higher education, especially in Nigeria (Mahuta & Abubakar, 2025). Over time, Nigerian universities began to explore the potential of AI tools to enhance research, teaching, and administrative functions (Tumburku et al., 2025; Luwoye et al., 2024; Nwile & Edo, 2023). Nonetheless, the adoption of AI in Nigerian higher education is still in its infancy due to digital literacy gaps, infrastructural constraints, and a lack of institutional policies governing AI use (Peters & Olojede, 2025). Research analyzing the adoption of AI in Nigerian universities indicates that the use of generative AI tools can increase academic productivity and assist academic writing processes. Notably, AI technologies assist lecturers and students in writing research papers, summarising literature, managing references, and generating search ideas (Floris & Renandya, 2025; Osuji, 2025; Akinyele, Joshua & Olusegun, 2024). Undoubtedly, these academic tasks are time-consuming. As such, the use of AI tools can increase the productivity of academics and, more broadly, the research output of Nigerian universities (Asuquo & Tseguy, 2025; Peters & Olojede, 2025).

Nevertheless, researchers contend that there are significant systemic barriers to the sustainable integration of AI tools in Nigerian HEIs (Mahuta & Abubakar, 2025; Alli, 2024; Luwoye et al., 2024). Inadequate use of AI tools in several universities is due to a combination of factors, mainly insufficient technological infrastructure, limited access to reliable internet connections, and inadequate digital literacy among academics (Bali et al., 2024; Omenka et al., 2024). Moreover, the lack of institutional policies guiding AI use creates ambiguity concerning what acceptable practices in academic writing are and the use of AI in research. Nigeria's unique academic environment presents certain barriers concerning the ethical governance of AI tools and academic integrity. Some studies suggest that the use of generative AI tools, in the absence of institutional regulation, is likely to increase the risk of academic misconduct, plagiarism, and misuse of AI-enabled systems (Akinbobola, Omojuwa & Olorunfemi, 2025; Ebiringa et al., 2025; Nwozor, 2025; Cotton et al., 2024). The possibility that students using AI tools to generate or paraphrase academic texts without any critical engagement with the content may undermine the necessary independent writing and critical thinking skills.

Simultaneously, scholars acknowledge the potential of AI tools to support Nigerian universities in developing academic literacy. Due to the ongoing challenges of large class size and limited personalized writing feedback, it becomes impossible for lecturers to provide students with one-on-one feedback. As such, AI-based writing tools can provide additional academic support, allowing students to receive instant feedback on issues such as coherence, grammar, and vocabulary (Jegede, 2024; Rajeena & Quraishi, 2024). Although interest in AI-assisted academic writing is growing globally (Liu et al., 2025; Prakash et al., 2025), the understanding of how AI tools support sustainable academic writing practices in Nigerian HEIs is still unexplored. The bulk of available literature is centred on the general adoption of AI in education or language learning applications rather than academic writing practices. This paper anchors its aim, objectives, and questions as follows:

1.1 Research Aim & Objectives

To critically and systematically investigate the adoption of AI tools in supporting sustainable academic writing practices in the Nigerian HEIs. The objectives of the study are to:

1. Assess the degree of AI technology adoption in Nigerian universities for academic writing and research activities.
2. Analyze the influence of AI-enabled writing tools on academic writing and literacy practices.
3. Examine ethical issues, including plagiarism and academic integrity, linked to AI-assisted academic writing.

1.2 Novelty

Unlike past research focused on the adoption of AI or its use in language learning, this review provides a systematic synthesis of the interplay between AI-enabled academic writing, academic integrity, and digital literacy in the particular socio-technological setting of higher education in Nigeria. Hence, the research offers a unique contribution to the literature on sustainable AI-enabled scholarly practices in under-resourced HEIs.

2. Literature Review

2.1 Integration of Artificial Intelligence in Nigerian Universities

In recent years, the adoption of AI technologies in HEIs has increased exponentially. Globally, scholars show that AI tools are increasingly employed for academic writing, research support, and educational analytics (Macdonald et al., 2023). However, in Nigerian universities, the integration of AI technologies

has merely started, but the adoption among lecturers and students is increasing as they realize the emerging benefits of these tools (Luwoye et al., 2024; Ebiringa et al., 2025). Many scholars reported uneven adoption of AI tools in Nigerian HEIs, in most cases, due to infrastructural and institutional constraints (Alabi et al., 2025; Sambo-Magaji et al., 2025; Adeoye, Alabi & Oladipo, 2023). For instance, Peters and Olojede (2025) point out that while AI tools can increase research output and continued personalized learning, several Nigerian universities still face challenges, including inadequate digital infrastructures, epileptic power supply, and limited internet connectivity. These institutional barriers shape the adoption and effective integration of AI technologies in academic practices.

Nonetheless, studies show that many students and educators are embracing AI tools for diverse functions, including literature searches, citation tracking, grammar checks, and research ideation (Shabir, 2025; Aljuaid, 2024). Tools such as ChatGPT, Quill Bot, and Grammarly help users draft academic writings, organize research materials, and enhance language accuracy (Anis & Khalid, 2024; Raheem, Anjum & Ghafar, 2023; Ibrahim, 2023). The Technology Acceptance Model (TAM) posits that individuals are more likely to adopt digital technologies if they find them useful and user-friendly (Davis et al., 1989). Hence, in Nigerian universities, the usefulness and the ease of access to technologies are largely correlated with the trend towards AI adoption.

2.2 AI-Assisted Academic Writing and Literacy

AI-assisted writing technologies are rapidly changing the academic literacy landscape of HEIs (Baldrich, Pérez-García & Santamarina-Sancho, 2025). These tools are built on sophisticated natural language processing systems trained on corpus texts to be used at various stages of the writing process (Nazari et al., 2021). The reviewed literature demonstrates that the use of AI-based writing tools improves vocabulary, enhances writing efficacy and speed, and supports grammatical precision (Tang, Zhang & Zhao, 2023).

Scholars show that AI writing tools can aid students with basic writing problems, especially in contexts where English serves as a second language (ESL). By offering automated feedback on sentence structure, grammar, and coherence, these tools enable students to identify errors and refine their work more efficiently (Teng & Wang, 2023). In this context, AI technologies can serve as supportive tools that foster academic writing skills.

Despite these benefits, however, there is increasing academic literature warning about potential epistemological effects from the use of AI-supported writing technology. For example, cognitive offloading theory (Risko & Gilbert, 2016) implies that using external scaffolds can undermine the ability to develop internal cognitive schema required for higher-level thinking and developing unique arguments (Perkins, 2023). This problem is especially relevant when formative assessment does not involve students' independent analytical skills. In light of this issue, academics recommend employing critically scaffolded approaches to AI technology, rather than an unrestricted approach, whereby AI technology complements, but does not substitute, independent intellectual work (Malik et al., 2023; Ziar, 2025; Deep & Chen, 2025).

2.3 Academic Integrity and Plagiarism

The confluence of AI-assisted writing and scholarly practice has precipitated profound epistemological and ethical questions concerning academic integrity, authorship, and the authenticity of knowledge production. Given that generative AI technologies can produce sophisticated academic texts, researchers argue that it will become increasingly difficult to distinguish between human-authored and machine-generated text (Májovský et al., 2023). This development problematizes traditional assumptions concerning authorship attribution and scholarly authenticity. Empirical evidence also suggests that

students can use AI writing tools to generate assignments or paraphrase without engaging deeply with the essential academic material. Such behaviour may lead to academic misconduct and compromise the ethical standards of academic writing (Cotton et al., 2024). Consequently, universities need to establish specific policies governing the use of AI within academic contexts.

The development of AI tools has presented new challenges for academic integrity, while simultaneously providing solutions for maintaining it. Notably, AI tools such as plagiarism detection tools can quickly identify previously undiscovered instances of academic misconduct through comparative textual analysis more than conventional methods. Thus, new challenges are being countered by AI tools that enable academic integrity to be maintained.

2.4 Digital Literacy and Technological Support for Sustainable Academic Writing

Users' digital literacy (DL) is one of the most important factors for the sustainable use of AI tools for academic writing. DL is the ability to use digital technologies efficiently, critically assess online information, and responsibly use more technologically sophisticated systems. Researchers found that the adoption of AI in higher education depends on users' digital skills and technological support systems (Ouyang & Jiao, 2021).

Digital literacy skills are also unequally distributed among institutions, regions, and populations in Nigerian higher education institutions due to the structural disparities that exist within the country's education sector (Adeleke, 2022; Omenka et al., 2024). Effective use of AI technology-based writing tools is limited by poor technological infrastructure, unreliable internet access, and a lack of AI literacy programmes in universities. It is important to note that the problem of ineffective use of AI tools not only affects their utilization but also perpetuates academic inequality, particularly among students from poorly resourced universities who lack the necessary skills and means to harness AI benefits effectively. Therefore, universities should invest in AI literacy programmes designed in consultation with industry partners in line with UNESCO's AI Competency Framework for Teachers (2021).

2.5 Overview of Existing Literature and Identified Research Gaps

Existing literature shows that AI tools significantly impact academic writing practices, research output, and educational processes in higher education. Researchers found that AI technologies enhance writing efficiency, knowledge development, and support language development (Razia et al., 2023; Salvagno, Taccone & Gerli, 2023). Moreover, scholars also identify critical issues that may arise concerning academic integrity, ethical governance, and excessive reliance on automated technologies.

Despite the growing global research on AI in education, only a few studies explore the link between AI adoption and sustainable academic writing practices in Nigerian HEIs. The bulk of previous studies focuses either on general AI adoption or language learning applications rather than on academic writing sustainability. This research gap necessitates a systematic literature review that synthesizes previous studies and identifies trends in AI-assisted academic writing practices, academic integrity, and digital literacy within Nigerian universities.

3. Methodology

This paper adopted a systematic literature review (SLR) methodology to identify, analyze, and synthesize extant literature on the adoption of AI technology and sustainable academic writing practices in Nigerian HEIs. This approach was adopted in studies on AI and HEIs (Aljuaid, 2024; Castilo-Martínez et al., 2024). Data from a variety of academic databases, including Springer, Web of Science, Wiley Online Library, ERIC, ResearchGate, and Google Scholar, have been collated across disciplines spanning linguistics,

education, applied linguistics, and information technology to reduce publication bias (Moher et al., 2009). A structured keyword search, employing Boolean operators (AND, OR), facilitated the retrieval process (Aromataris & Riitano, 2014), with key terms such as “AI use in higher education,” ChatGPT in Nigerian universities,” and “artificial intelligence and academic writing.” The predefined inclusion criteria limited the eligible studies to peer-reviewed, English-language papers on AI in higher education, published between January 2020 and January 2026, excluding books, opinion papers, non-English publications and studies not situated within the higher education context, thus aligning with PRISMA 2020 guidelines (Page et al., 2021). A quality assessment was performed using the Critical Appraisal Skills Programme (CASP) checklist and the PRISMA flow chart to ensure transparency and consistency across identification, screening, eligibility and integration phases (Cumpston et al., 2022; Page et al., 2021). Of the 92 records retrieved, 43 duplicates were removed, and the remaining 49 were screened; 13 articles met all the eligibility requirements and formed the final corpus after careful review of the titles, abstracts, and full texts. These studies were subject to a qualitative thematic synthesis, which involves an iterative process consisting of the formulation of a coding framework, a thorough reading and codification of each article, a gradual refinement of the code and selection of themes: yielding four broad themes: (1) AI and conventional academic writing practices, (2) students' and lecturers' perceptions of AI tools, (3) pedagogical issues with AI integration, and (4) ethics of AI, in line with the recommendation for a systematic and transparent qualitative synthesis by Manterola et al. (2013).

Table 1: Summary Table of Included Studies (n=13)

S/N	Authors (Year)	Methodology	Key Findings
1	Abubakar & Onasanya (2026)	Quantitative survey (n=320 lecturers)	Moderate behavioural intent to adopt AI (mean=3.43); lack of institutional support is the primary barrier
2	Adam (2025)	Mixed-methods	ChatGPT bypasses conventional plagiarism detection; weak integrity frameworks increase misuse.
3	Agada (2024)	Descriptive survey	AI-enabled ITS improves instructional delivery (cluster means 2.72–2.63); adaptive learning benefits.
4	Ifedayo & Akinrinola (2025)	Cross-sectional survey	Students use AI primarily for low-level writing tasks; limited use for critical thinking/argumentation.
5	Nnaemeka & Ogunbadejo (2024)	Descriptive survey	84.3% familiar with ChatGPT; 63.24% had no formal AI training; 83.79% reported positive academic impact
6	Nwagbara (2025)	Qualitative interviews	Over-reliance on AI undermines deep learning; mixed student experiences based on digital literacy.
7	Nwokorie & Onichakwe (2024)	Survey (n=350)	72.5% reported a positive impact on reading engagement; 64% used AI for exam preparation
8	Nzekwe & Ofuonye (2025)	Descriptive survey	Overall AI usage mean=4.096; time efficiency (4.32) and writing quality (4.20) as top drivers

9	Osuji (2025)	Exploratory study	IBM Watson automates thematic coding; human judgment remains essential for critical synthesis
10	Owolabi et al. (2025)	Survey	68% believe AI compromises originality; 50% use AI for abstracts/literature reviews; 36.2% for data analysis
11	Peters & Olojede (2025)	Conceptual review	Infrastructure deficits and lack of policies constrain AI integration; personalized learning as key opportunity.
12	Ya'u (2025)	Comparative analysis	75% use AI tools; 47% believe AI encourages plagiarism; grammar checking highest use (85%)
13	Tsenongu, Okwu & Obande (2024)	Qualitative analysis	Identifies mosaic and paraphrasing plagiarism as novel AI-facilitated forms; challenges authorship definition

The discussion below attempts to synthesize these findings within the larger discourse surrounding sustainable integration of AI in higher education, using existing theoretical approaches to understand trends in adoption, literacy, ethics, and pedagogy.

4. Result

4.1 Search and Selection Process

This section provides an overview of the findings from the systematic search and selection process performed according to the guidelines set out in the PRISMA 2020. In total, ninety-two items were obtained in the preliminary database search on Springer, Web of Science, Wiley Online Library, ERIC, ResearchGate, and Google Scholar. Forty-three items were identified as duplicates, leaving a total of forty-nine records available for further screening based on their titles and abstracts. Finally, only thirteen studies met the established criteria and were synthesized in this paper.

The selected studies were evaluated and synthesized in relation to the research aim, objectives, and research questions. Four broad themes were identified as follows: (1) the use of AI in conjunction with traditional academic writing, (2) perceptions of AI among students and lecturers, (3) educational challenges posed by the integration of AI, and (4) ethical issues connected with plagiarism and academic integrity.

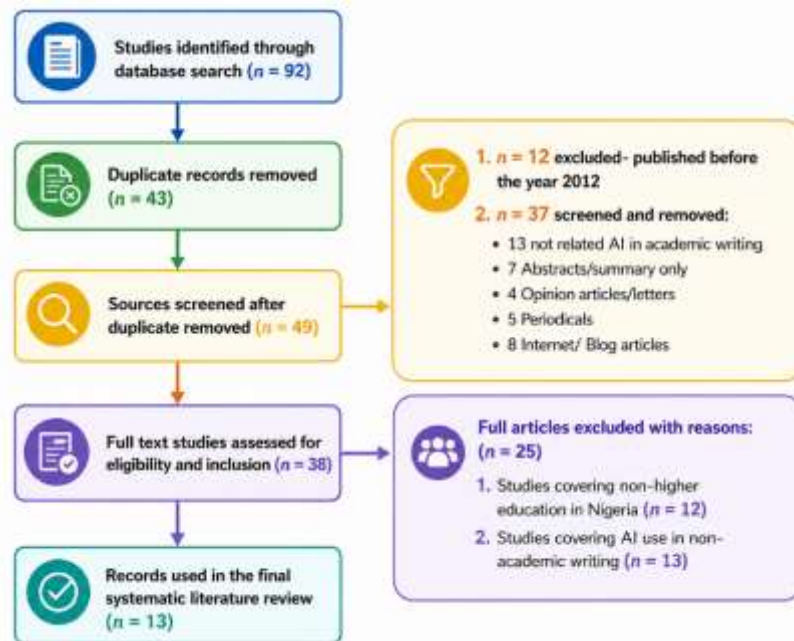


Figure 1: PRISMA flowchart of the article selection process

4.2 Characteristics of Included Studies

The reviewed studies suggest an increased use of AI technology in Nigerian universities, especially within academic writing, research, and teaching processes. Most of the studies investigated the use of AI-based tools in academic writing by students, their perception of the usefulness of AI, ethical issues related to AI use, and infrastructure issues hindering sustainable use. Table 2 summarizes the features of the thirteen studies analyzed in the present systematic literature review. Different methodologies have been used in analyzing various aspects of AI adoption and academic writing in Nigerian universities.

Table 2: Characteristics of Included Studies

Study	Methodology	Sample/Context	Main Focus	Key Findings
Abubakar & Onasanya (2026)	Quantitative survey	320 lecturers	AI adoption readiness	Moderate adoption intent; institutional support lacking
Adam (2025)	Mixed-methods	Nigerian university students	AI and plagiarism	AI bypasses conventional plagiarism detection
Agada (2024)	Descriptive survey	Public universities	AI instructional delivery	AI improves adaptive learning and instructional delivery
Ifedayo & Akinrinola (2025)	Cross-sectional survey	University students	AI research tool adoption	AI is mainly used for low-level writing tasks
Nnaemeka & Ogunbadejo (2024)	Descriptive survey	Undergraduate students	Awareness of ChatGPT	High awareness but limited formal AI training

Nwagbara (2025)	Qualitative interviews	Nigerian students	AI dependency	Overreliance affects deep learning
Nwokorie & Onichakwe (2024)	Survey	University students	AI and academic outcomes	Positive effect on reading engagement
Nzekwe & Ofuonye (2025)	Descriptive survey	Business education students	AI in project writing	AI improves writing quality and efficiency
Osuji (2025)	Exploratory study	Academic staff	AI and research productivity	AI assists thematic coding and literature synthesis
Owolabi et al. (2025)	Survey	Undergraduate students	AI and originality	AI is perceived to compromise originality
Peters & Olojede (2025)	Conceptual review	Nigerian HEIs	AI integration challenges	Infrastructure and policy gaps remain significant
Ya'u (2025)	Comparative analysis	Adult learners/students	AI writing use	75% use AI tools; grammar checking most common
Tsenongu et al. (2024)	Qualitative analysis	Postgraduate students	AI-facilitated plagiarism	Mosaic and paraphrasing plagiarism identified

4.3 AI and Conventional Academic Writing Practices

It is evident from the reviewed literature that AI tools are gaining momentum in terms of academic writing applications among Nigerian higher learning institutions. The review reveals that students regularly employ the use of AI-assisted tools in the process of writing, including grammatical correction, paraphrasing, summarization of literature, and text structuring. The results suggest that students mainly employ the use of AI for basic levels of writing tasks concerned with efficiency and effectiveness of language. Grammatical checks, paraphrasing, organization of sentences, and summarization were found to be the most prevalent writing tasks using AI. Studies also show the increased application of AI tools such as ChatGPT, Grammarly, Turnitin, Claude AI, and IBM Watson for the purposes of research.

In addition, it has been observed from the literature that students' preference for AI is mainly related to reducing the amount of time required for writing academic papers and minimizing the cognitive effort needed. However, the application of AI in the completion of high-level tasks in academic writing is relatively low. Many researchers have shown that students rely more on their human judgment in evaluating and analyzing academic papers.

Table 3: AI Functions and Writing Practices Identified in the Reviewed Studies

AI Function	Evidence from Studies	Key Trend
Grammar checking	Ya'u (2025)	Most common use
Literature summarisation	Osuji (2025)	Increasing adoption
Paraphrasing	Owolabi et al. (2025)	Widely used
Structural organisation	Ya'u (2025)	Frequently utilised

Data coding and thematic analysis	Osuji (2025)	Emerging research application
Critical reasoning support	Ifedayo & Akinrinola (2025)	Limited AI effectiveness

4.4 Students' and Lecturers' Perceptions of AI Tools

The findings of the literature review clearly show that both students and lecturers are aware of the benefits of adopting AI technologies in educational settings. Nevertheless, there are differences between perceptions of these three aspects among lecturers and students. Students have shown positive attitudes towards the role of AI technologies in increasing the effectiveness of studying, conducting research, and writing. In some cases, the literature has indicated high rates of familiarity of university students with the use of ChatGPT and other AI systems.

However, compared to their students, lecturers tend to be more cautious about using technology. Lecturers acknowledge that AI technology is useful but point out concerns connected with academic dishonesty, lack of a policy framework, and other issues. Another critical factor in terms of perceptions of responsible AI use is low AI literacy levels.

Table 4: Comparative Perceptions of AI Tools Among Students and Lecturers

Dimension	Students	Lecturers
Perceived usefulness	High	Moderate
Trust in AI tools	Generally positive	Cautious
Institutional concerns	Limited awareness	Strong concern
Ethical concerns	Lower	Higher
Readiness for adoption	High	Conditional on institutional support

4.5 Pedagogical Issues with AI Integration

Opportunities and challenges of incorporating artificial intelligence technology in learning and teaching processes in Nigeria's higher education institutions have been highlighted by relevant literature. Relevant literature shows that AI-based learning technologies have numerous pedagogical benefits, such as personalized learning, automated feedback, assistance in preparing for examinations, and better access to learning materials. In addition, it was found that learning technologies incorporating artificial intelligence had positive impacts on the process of instruction and personalization of learning experiences.

At the same time, some pedagogical challenges can be seen in the literature. It was found that a significant share of learners did not receive any formal education on AI applications in learning. There were also issues related to over-reliance on AI-generated outputs, lack of curricular integration, and lack of critical analysis skills among learners.

Table 5: Pedagogical Benefits and Challenges of AI Integration

Pedagogical Benefit	Supporting Study	Challenge Identified
Adaptive learning	Agada (2024)	Lack of formal AI training
Instant feedback	Nwokorie & Onichakwe (2024)	Overreliance on AI
Examination preparation	Ya'u (2025)	Passive learning risks
Personalised learning	Azare & Garba (2026)	Weak curriculum integration

Automated administrative Agada (2024)
support

Limited institutional guidance

4.6 Ethical Concerns and Academic Integrity

The literature reviewed highlights issues such as plagiarism, originality, authorship, and academic integrity in AI-supported writing. The literature indicates that plagiarism and originality issues are common problems in Nigerian universities. Students believe that AI technology may be used to contribute to academic work through plagiarism. Literature also shows that generative AI technologies create text that evades plagiarism detection techniques.

Moreover, the reviewed literature highlights new cases of plagiarism related to AI-supported writing, like mosaic plagiarism and paraphrasing plagiarism. Lack of regulations, lack of ethical frameworks, and poor knowledge of AI technologies are some factors mentioned as causes for the unethical use of AI tools in academic work.

Table 6: Ethical Concerns Associated with AI-Assisted Academic Writing

Ethical Concern	Evidence
AI encourages plagiarism	47% students (Ya'u, 2025)
Weak originality in academic work	68% students (Owolabi et al., 2025)
AI bypasses plagiarism detection.	Adam (2025)
Mosaic and paraphrasing plagiarism	Tsenongu et al. (2024)
Weak institutional ethical frameworks	Adam (2025)

5. Discussion

5.1 AI Adoption and Technology Acceptance

The results obtained in the course of conducting this literature review suggest that there is an increase in the use of AI in Nigerian higher education institutions among students and lecturers in connection with academic writing, research, and teaching processes. The extensive application of tools like ChatGPT, Grammarly, QuillBot, Claude AI, and IBM Watson reveals the tendency towards AI-assisted academic practices becoming an integral part of the modern educational reality. The results presented above can be analyzed from the standpoint of the Technology Acceptance Model (TAM) introduced by Davis in 1989. According to TAM, people are more likely to adopt technologies when they find them beneficial and easy to operate. In regard to the situation described in this paper, students' active involvement in AI-related activities seems to be determined mainly by the usefulness of technology, which is related to saving time, improving grammar, paraphrasing, and acquiring necessary information about academic writing and research.

Ease of use perception is another important component of AI implementation. In the context of generative AI, promptness of response, automation of feedback, and easy writing are some key characteristics that make AI technologies appealing for learners in resource-limited settings of higher education. This partially explains why the use of AI-enabled writing software has proliferated rapidly in spite of a lack of institutional regulatory structures. Nevertheless, the research findings point out that usefulness perception alone does not lead to responsible adoption. While students generally have positive perceptions regarding AI technologies, lecturers are much more cautious because of issues related to academic integrity and quality. Therefore, the acceptance of technology in higher education institutions goes beyond functional

benefits and involves aspects of institutional validity and ethical responsibility.

Moreover, according to the reviewed literature, AI adoption occurs predominantly within lower-order writing processes (i.e., grammar correction, paraphrasing, and summarizing). This underuse of AI for critical thinking, theoretical reasoning, and synthesis implies that learners perceive AI technologies primarily as tools for increased efficiency. The use of AI in Nigerian HEIs seems to be operational, and not epistemic, by nature. This situation stands in stark contrast with what is happening in higher-income educational ecosystems, which seem to have embraced the power of generative AI to aid scholars in tasks such as concept generation, ideation across disciplines, methodology support, and research innovation. Differences between the two situations can be accounted for by looking at factors such as differences in institutional readiness, digital infrastructure, and pedagogical culture. In less developed environments, for example, adoption of AI technologies tends to be driven mainly by practical considerations, while more advanced ecosystems may be capable of integrating AI into their academic and research processes.

5.2 Cognitive Offloading and Critical Thinking

It should be noted that the results obtained from the research have raised serious concerns about the dependence on artificial intelligence and critical thinking. Most of the studies reveal that students use AI systems to complete simple writing tasks, such as sentence structuring, grammatical checking, paraphrasing, and summarization. Although using these functions increases students' productivity, they may face various dangers related to cognitive offloading. In particular, these research results correlate with the Cognitive Offloading Theory suggested by Risko and Gilbert in 2016. This theory states that nowadays people tend to transfer cognitive processes to technological devices. In the case of AI-assisted academic writing, students outsource simple cognitive tasks to technological devices but keep some of them responsible for themselves. Such an approach likely helps students become more productive, but it also poses dangers to developing critical thinking skills independently.

Notably, the analyzed literature demonstrates some level of theoretical disagreement when it comes to the educational outcomes associated with writing with the help of artificial intelligence technologies. Specifically, while several scholars regard AI technologies as facilitators in terms of democratization of academic assistance as well as enhancing accessibility to learning opportunities, especially for students who do not speak English natively, others argue that AI technologies can negatively affect critical thinking and intellectual freedom. As such, this issue demonstrates the broader global discussion around whether or not generative AI is to be considered as a tool for cognitive enhancement or cognitive substitution. According to the findings of the current review, the effects of AI technologies in an educational setting are neither wholly good nor bad; they depend on various factors, including digital literacy.

Overreliance on AI technologies may lead to the occurrence of epistemic dependency, especially amongst those learners who lack academic writing competence or possess low digital literacy. In some cases, students use AI output uncritically, failing to check its reliability and consistency or even assess whether it is plagiarized. As a result, there is an assumption that reflective intellectual activities can be substituted by AI systems gradually. Moreover, research shows that AI-assisted writing will impact existing conceptions about intellectual independence in higher education settings. Sustained academic writing presupposes the creation of analytical skills, arguments, theoretical knowledge, and new academic contributions. However, when AI technologies are used not only to facilitate the process but also to substitute all intellectual activities, there is a high probability that academic study becomes procedural. This review proves that students should not use AI systems blindly but think critically and independently. AI will increase academic productivity. Still, to have sustained educational results, teachers should

maintain students' reasoning abilities and independence.

5.3 Socio-Technical and Institutional Dimensions

From the findings obtained from the review, it becomes evident that the incorporation of AI within Nigerian higher education institutions is not determined solely by personal attitudes, but also by larger structural, infrastructural, socio-technical, and institutional dynamics that influence AI integration. This finding is consistent with the principles of Socio-Technical Systems Theory, according to which the adoption of technology is driven by the interactions between technological systems, institutional contexts, social practice, and human behaviour. This means that for the successful application of AI technologies at Nigerian HEIs, the institutional context in which they operate plays a crucial role alongside the technologies themselves.

According to the reviewed literature, poor internet connectivity, inadequate digital infrastructure, unreliable electricity supply, and limited access to technology hinder equal AI incorporation within the institution. Thus, AI assistance in academic writing may prove to be unequal in its impact. The role of institutional readiness was equally important in ensuring the success of sustainable AI integration. It is observed that there were no institutional policies governing the use of AI in academic writing, evaluation, and research in most of the examined studies. Lack of regulation makes it difficult for institutions to develop responsible frameworks for adopting new technology.

Moreover, the level of digital literacy in Nigeria seems to be another challenge faced by Nigerian higher education institutions. The majority of the studied papers noted that neither students nor lecturers have undergone formal AI training, even though AI technologies are widely used. Inadequate digital literacy skills may make it hard for users to assess AI outputs and comprehend the implications of using AI in academia. Therefore, it can be seen that the process of sustainable integration of AI in academia is an institutional change process that requires institutional readiness in terms of infrastructural development, regulatory policy formulation, AI literacy programs, and pedagogy change.

The other insight gleaned from the findings is that the socio-technical processes of adopting AI technologies in Nigerian HEIs have significant differences compared to those seen in many Global North institutions. Within advanced educational systems, conversations center around topics such as algorithmic transparency, assessment transformation, and responsible governance of innovation. The reality at most Nigerian universities still involves basic infrastructure challenges, including power outages, internet connectivity problems, and a lack of AI literacy within institutions. The theoretical significance here is the demonstration that AI governance cannot be treated as monolithic globally. Rather, each context demands a customized form of AI governance due to differing levels of technological progress around the world.

5.4 Ethical Governance and Academic Integrity

Ethical issues related to the phenomenon of plagiarism, authorship, originality, and integrity represent one of the key themes identified during this systematic analysis. According to the results of the review, the problem of AI-assisted writing technologies raises questions about how these tools influence the understanding of scientific authenticity and originality in the field of academia. It should be noted that due to the ability of AI technologies to generate complex academic text, the phenomenon of an authorship crisis can be observed within the context of higher education institutions. In particular, it becomes increasingly hard to distinguish between human-written texts and AI-generated papers, which leads to difficulties in applying existing mechanisms of assessing originality and contribution to scholarship. Moreover, the reviewed literature demonstrates that some AI tools can generate text that is not detected

as plagiarism when submitted to academic integrity checking systems.

From the results of the review, it is also possible to conclude that ethical issues related to AI technology use become more prominent as the frequency of technology use grows. Namely, users who utilize AI tools often are less likely to raise ethical concerns than lecturers and other infrequent users of such technology. With the introduction of mosaic plagiarism, paraphrasing plagiarism, and AI-driven text manipulation, it becomes increasingly difficult to define traditional concepts of plagiarism and authorship. Ethical use of AI in academics is hindered by the fact that many Nigerian universities had their academic integrity policies formulated before the emergence of generative AI technologies.

Based on the review, the incorporation of AI into scholarship ethically calls for robust governance models, which can manage the balance between technological progress and academic responsibility. An effective governance model will involve AI policies within institutions, disclosure of AI use, digital ethics education, and alternative assessment strategies that place greater emphasis on critical thinking. In conclusion, an ethical adoption of AI in academia does not depend only on technological regulation. Instead, it necessitates the creation of ethical institutional cultures that encourage transparency and responsible use of AI, intellectual integrity, and scholarly activity.

5.5 Implications for Sustainable Academic Writing Theory

Contributions of this review include a contribution towards the emerging literature on the sustainability of AI integration in higher education institutions. The current study has illustrated that the sustainable practice of academic writing cannot be effectively addressed solely through technology adoption theories. It is clear that the interactions between technology, cognition, institution, ethics, and pedagogy altogether determine the sustainability of AI-based academic writing.

The contribution of this study towards TAM involves illustrating that perceived usefulness and ease of use account for only a portion of AI-based behaviour among Nigerian HEIs. In this context, efficiency and availability drive the adoption behaviour of AI, while institutionalist, ethics, and pedagogy greatly determine the sustainability of its adoption process. The review also informs Cognitive Offloading Theory by showing how AI systems have become tools for externalizing the cognitive writing functions. While cognitive offloading might result in increased productivity, an over-reliance on AI-driven writing might negatively affect one's ability to think independently and critically. Hence, integrating AI effectively requires a careful balance between efficiency and the maintenance of one's capacity to engage in independent scholarly thinking.

Socio-technically speaking, the research shows that the success of AI adoption in educational systems that lack resources depends significantly on infrastructural preparedness, institutional frameworks, and digital literacy skills. The situation in Nigeria has shown that technological innovation alone will not lead to educational transformation unless accompanied by effective institutional frameworks. In addition, the review also emphasizes the importance of developing new theories concerning academic integrity within AI-based writing practices. Given the extent to which generative AI technologies challenge traditional assumptions about plagiarism and authorship, academic writing theory needs to address more complex issues of transparency, co-authorship, and epistemic responsibility.

6. Conclusion

This study systematically reviewed the adoption of AI technologies in promoting sustainable academic writing in Nigerian HEIs. An analysis of 13 peer-reviewed studies shows that students rely on ChatGPT, QuillBot, and Grammarly for basic tasks such as grammar check, paraphrasing and summarising literature.

Critically, students showed a lack of trust in tools that could potentially support the development of critical thinking and argument development. Lack of trust in AI tools is also evident among lecturers, who rely more on AI for grammar checking and paraphrasing. A lack of institutional support mechanisms and digital literacy gaps. Ethically, close to 47% of the students surveyed admitted that AI encourages plagiarism, which undermines academic originality. Weak institutional policies amplify these threats. This paper shows that AI tools can be used for critical writing and literacy functions at higher levels, but that a lack of clearly defined and well-regulated institutional frameworks makes it highly unlikely that such functions will be implemented in Nigerian HEIs. The study advocates the development of institutional policy frameworks, broader curriculum overhaul, and targeted digital literacy curricula to ensure that AI is integrated ethically and sustainably, complementing, rather than replacing, independent intellectual engagement in academic writing.

6.1 Global Implications

However, the conclusions made in this paper have wider implications than just those that pertain to Nigeria. In developing nations located in Sub-Saharan Africa, South Asia, and Latin America, there is a parallel set of challenges in terms of the fast but uneven adoption of AI in higher educational institutions, characterized by infrastructure deficiencies, low levels of digital literacy, and a lack of policies. Therefore, the experience in Nigeria can be considered a case study that provides important theoretical insights into the dynamics of AI integration and the role played by structural factors in both its positive and negative impacts.

6.2 Future Research Directions

Some areas that require further investigation based on the limitations and results of this review include longitudinal studies to determine if the current patterns of AI use result in sustained improvement in writing quality or the loss of writing skills. Comparative analysis of AI integration practices at African higher education institutions could reveal the distinguishing factors between those that sustain integration of technology and those that fail. Investigation of discipline-specific patterns of AI use, especially within the science, technology, engineering, and mathematics disciplines compared to the humanities, will help to better understand the role of epistemology in the process.

6.3 Theoretical Contribution

The present paper explicitly contributes to current research that seeks to address the issue of the sustainability of AI integration in higher education. Through a rigorous analysis of the interplay between factors such as technology adoption (TAM), diffusion process, digital literacy, socio-technical systems perspective, and academic integrity frameworks in the particular socio-technical environment of Nigerian HEIs, the paper develops a conceptual framework that explains the preconditions for the successful and ethical application of AI in academic writing. This is especially important given the specific nature of institutions that operate in economically challenging environments, where the danger of AI reinforcing existing inequalities is greatest. The current research is an important contribution to the existing literature on AI in education because it shows that the sustainability of AI-enabled academic writing cannot be fully understood using models of technology adoption only. Rather, the case of Nigeria indicates that it is necessary to consider social-technical, pedagogical, ethical, and cognitive aspects together in order to form a comprehensive explanation of what happened.

7. Recommendations

1. Nigerian HEIs should introduce policy frameworks that control the legal and ethical use of AI tools in

academic writing, evaluation, and research to reduce plagiarism and academic misconduct.

2. AI tools should be used as an additional source of input for basic writing tasks (e.g. paraphrasing and grammar check), while maintaining the human judgment of critical and argumentative reasoning.
3. Institutions should redesign their curricula to accommodate AI more fully and ensure that creativity and critical thinking are not lost when using AI.
4. Institutions should provide structured and formal training on the ethics of AI technologies to ensure an informed balance in their adoption. Findings revealed that 63.24% students have not undertaken formal AI training.
5. Each University should establish a digital literacy policy that includes training students and academics on the ethical and responsible use of AI technologies.
6. The government and educational institutions must allocate resources to upgrade digital infrastructure, ensure a stable power supply, reliable internet connectivity, and access to hardware, to facilitate equitable and sustainable integration of AI technologies in Nigerian universities.

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