IMFLUENCE OF ARTIFICIAL INTELLIGENCE ON ESSAY WRITING SKILLS AMONG STUDENTS OF COLLEGES OF EDUCATION IN KATSINA STATE

By

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Abstract

This study examined the perceptions of students of colleges of education in Katsina State towards the use of Artificial Intelligence (AI) tools in essay writing, using the Technology Acceptance Model (TAM) as its theoretical framework. It was prompted by the growing use of tools such as ChatGPT, Grammarly, and QuillBot in academic writing and by the scarcity of empirical evidence on how students in Nigerian colleges of education perceive and accept them. Four objectives guided the study: to determine students' perceived usefulness, perceived ease of use, attitude toward use, and behavioral intention to use AI tools in essay writing. A quantitative survey design was adopted. A structured questionnaire built on the TAM constructs was administered to 100 students selected through stratified random sampling across colleges of education in the State, and the data were analyzed using frequencies, percentages, means, and standard deviations. The findings showed highly positive perceptions on all four constructs: students regard AI tools as useful for improving grammar, organization, and writing efficiency; find them easy to use; hold favorable attitudes toward them; and intend to keep using them. The study concludes that AI tools are firmly established in students' writing practice and recommends institutional policies, AI literacy programs, and teacher training to promote their responsible and ethical use.

Keywords: Artificial Intelligence, essay writing, writing skills, Technology Acceptance Model, colleges of education

Introduction

Artificial Intelligence (AI) is one of the most transformative technological advancements of the twenty-first century, reshaping nearly every aspect of human life, including education. In academic contexts, AI has changed conventional approaches to learning and writing through intelligent systems that can generate, edit, and evaluate texts with remarkable efficiency. Essay writing, a central component of academic literacy that reflects students_ critical thinking, creativity, and linguistic competence, has been particularly influenced by AI-powered tools such as Grammarly, ChatGPT, and Quill Bot. These applications help students organize ideas, improve grammatical accuracy, and enhance stylistic quality, while providing instant feedback that promotes self-directed learning.

Despite these pedagogical advantages, AI tools also pose challenges related to plagiarism, reduced originality, and growing dependence on automated systems. The influence of AI on essay writing is therefore multifaceted: it creates opportunities for improved writing proficiency while simultaneously threatening creativity and academic integrity. As Russell and Norvig (2020) explain, AI replicates human cognitive functions such as reasoning and language understanding through adaptive, data-driven mechanisms. In education, AI supports personalized learning and automated assessment (Holmes et al., 2022), yet scholars caution that excessive reliance on it may diminish students_ creative and analytical abilities, resulting in superficial writing that lacks originality and depth (Siau & Yang, 2021; Baker & Smith, 2019).

M0reover, the integration of AI in academic writing also raises ethical concerns regarding authorship, originality, and plagiarism. Many students remain unaware of institutional policies governing AI-assisted writing, leading to unintentional breaches of academic integrity (Aljanabi, 2023). This calls for a balanced approach

that maximizes AI_s instructional benefits while safeguarding authentic learning. The issue is particularly pertinent in developing contexts such as Nigeria, where access to AI technologies is expanding rapidly among students in higher education. In colleges of education, where essay writing is central to teacher training and literacy development, some students use AI tools as legitimate learning aids while others use them as shortcuts that undermine independent thought and intellectual growth. Guided by the Technology

Acceptance Model (TAM) developed by Davis (1989), this study examines students_ acceptance of AI tools in essay writing through four constructs: perceived usefulness, perceived ease of use, attitude toward use, and behavioral intention to use.

Statement of the Problem

Essay writing is a core academic task for students of colleges of education, who are being prepared to teach language and literacy and whose own writing competence is therefore a professional requirement as well as an academic one. AI tools such as ChatGPT, Grammarly, and Quill Bot can now generate, paraphrase, and correct essays within seconds. Whether these tools function as aids that strengthen students_ writing or as shortcuts that replace it depends largely on how students perceive them and why they choose to use them. The existing literature points in two directions. On one hand, AI tools are reported to improve accuracy, coherence, and revision efficiency, and to build students_ confidence where teacher feedback is limited (Afolabi & Adediran, 2023; Li, 2023; O_Neill & Russell, 2019). On the other hand, scholars warn that overreliance on generative AI encourages plagiarism and weakens creativity, ownership, and analytical reasoning (Cotton et al., 2023; Kasneci et al., 2023; Lo, 2023). Compounding the concern, many students are unaware of institutional policies on AI-assisted writing and may breach academic integrity unintentionally (Aljanabi, 2023).

Despite the rapid uptake of AI in educational writing, empirical studies on students_ perceptions, attitudes, and intentions in developing regions remain scarce. Research has been concentrated in technologically advanced settings and has often relied on

smallscale surveys focused on grammar improvement (Adegboye & Yusuf, 2024; Zou & Xie, 2023). As a result, little is known about how students in colleges of education in Katsina State perceive the usefulness and ease of use of AI writing tools, how they feel about using them, and whether they intend to continue. Without such evidence, institutions risk designing writing instruction, assessment practices, and AI policies that do not reflect how students actually think about and use these tools. This study was designed to address that gap.

Objectives of the Study

The main objective of the study was to describe students_ perceptions of the use of AI tools in essay writing in colleges of education in Katsina State, based on the constructs of the Technology Acceptance Model. The specific objectives were to:

1. determine students_ perceived usefulness of AI tools in essay writing;
2. examine students_ perceived ease of use of AI tools in essay writing;
3. assess students_ attitude toward the use of AI tools in essay writing; and
4. establish students_ behavioral intention to use AI tools in essay writing in the future.

Research Questions

The following research questions guided the study:

1. To what extent do students in colleges of education in Katsina State perceive AI tools as useful for essay writing?
2. To what extent do they perceive AI tools as easy to use for essay writing?
3. What is their attitude toward the use of AI tools in essay writing?
4. To what extent do they intend to use AI tools for essay writing in the future?

Literature Review

The rapid adoption of AI-powered writing tools such as Grammarly, Quill Bot, and ChatGPT has transformed how students plan, draft, and revise essays. Recent studies highlight three main areas of impact: improvements in writing quality,

concerns about originality and cognitive engagement, and evolving pedagogical and policy responses.

Writing Quality and Learning Affordances

AI tools have been shown to enhance students_ writing accuracy, coherence, and revision efficiency (Afolabi & Adediran, 2023; Li, 2023). Automated feedback systems improve grammar, vocabulary, and structure while increasing students_ confidence and productivity (O_Neill & Russell, 2019; Karyotaki et al., 2022). Large language models such as ChatGPT also assist in idea generation and organization, supporting selfregulated learning and reflective writing (Zawacki-Richter et al., 2023; Lund et al., 2024). Overall, AI offers valuable support in contexts where teacher feedback is limited.

Risks to Originality and Higher-Order Thinking

Despite these benefits, scholars caution that excessive AI reliance may reduce originality and critical engagement. Generative AI enables fluent text generation, which can encourage plagiarism and hinder authentic learning (Cotton et al., 2023; Dawson et al., 2023). Overdependence on AI may weaken creativity and analytical reasoning (Kasneci et al., 2023; Bai & Thurman, 2024), and educators have observed reduced ownership of AI-assisted writing (Lo, 2023). These concerns underscore the need for ethical awareness and responsible integration of AI into writing instruction (Aljanabi, 2023).

Pedagogical and Policy Responses

Global education bodies such as UNESCO and the OECD advocate balanced approaches that integrate AI literacy while upholding academic integrity (UNESCO, 2023; OECD, 2023). Recommended strategies include clear institutional policies, teacher training, and processoriented assessments such as reflective writing and oral defense (Holmes et al., 2022; Siau & Yang, 2021). Scholars also emphasize equity, warning that unequal access to AI may deepen educational gaps unless it is implemented responsibly (Luckin et al., 2022).

Methodological and Contextual Gaps

Most current studies rely on small-scale surveys or short-term experiments focused on grammar improvement (Zou & Xie, 2023), and few longitudinal studies test whether AIassisted gains persist independently (Dwivedi et al., 2023). Research remains concentrated in technologically advanced contexts, with limited attention to developing countries (Adegboye & Yusuf, 2024). More context-sensitive studies are needed in African and Asian education systems to explore how institutional and linguistic factors shape the impact of AI.

Pedagogical Innovations and Future Directions

Recent models advocate treating AI as a reflective coach rather than a text generator, promoting metacognition and responsible tool use (Tackett et al., 2024; Zhai, 2023). Embedding AI literacy, ethics, and prompt design in writing curricula helps students develop critical awareness, and scaffolding methods such as drafts, revision logs, and reflective essays can balance integrity with innovation (Dwivedi et al., 2023). Scaling these practices will require professional development and institutional support (Holmes et al., 2022).

Theoretical Framework

This study is grounded in the Technology Acceptance Model (TAM) developed by Davis (1989), which explains how individuals come to accept and use new technologies. The model identifies two key determinants, Perceived Usefulness (PU) and Perceived Ease of Use (PEOU), as the main influences on users_ Attitude Toward Use (ATU) and Behavioral Intention to Use (BI) a particular technology. These constructs collectively shape actual usage of the technology in practice.

Within this study, TAM provides a framework for understanding how students in colleges of education in Katsina State adopt AI-assisted writing tools such as ChatGPT, Grammarly, and QuillBot in their essay writing. PU reflects the extent to which students believe AI enhances their writing quality, accuracy, and coherence,

while PEOU captures the ease and convenience they experience when using these tools. When students perceive AI tools as useful and easy to operate, they tend to develop positive attitudes and stronger intentions to use them for academic writing tasks. The four constructs correspond directly to the four objectives and research questions of the study.

TAM also offers a basis for interpreting the balance between students_ recognition of AI_s benefits, such as efficiency, feedback accuracy, and time-saving, and the risks identified in the literature, including overreliance, reduced creativity, and academic integrity concerns. In this way, the model supports the development of institutional policies and digital literacy programs that foster ethical and effective integration of AI in academic writing.

Methodology

Research Design

The study employed a quantitative survey research design based on the Technology Acceptance Model (Davis, 1989) to examine students_ perceptions, attitudes, and behavioral intentions toward the use of AI tools in essay writing. The design allowed the four TAM constructs (PU, PEOU, ATU, and BI) to be measured and described across a sample of students.

Population and Sampling

The population comprised students of colleges of education in Katsina State who were taking academic writing courses. Three colleges were selected from different parts of the State, and 100 senior students familiar with AI tools such as Grammarly, ChatGPT, and Quill Bot were selected through stratified random sampling to ensure representative participation across the colleges.

Instrument

Data were collected with a validated, structured questionnaire consisting of six sections rated on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly

Agree). The items measuring PU, PEOU, ATU, and BI were drawn from the TAM constructs.

Reliability

A pilot test with 30 students confirmed the reliability of the instrument, with Cronbach_s alpha values above 0.70 (Nunnally & Bernstein, 1994).

Data Collection and Analysis

Following ethical approval, data were collected both in person and online under conditions of voluntary participation and confidentiality, and all procedures adhered to institutional research ethics. The data were analyzed using descriptive statistics (frequencies, percentages, means, and standard deviations), and the results are presented in tables according to the research questions.

Data Presentation

Research Question 1: To what extent do students perceive AI tools as useful for essay writing?

Table 1: *Perception based on Perceived Usefulness (PU)*

S/N	Item	Mean	Std. Dev.	SD	D	N	A	SA
1.	AI tools help me improve the overall quality of my essays	4.32	0.68	2 (2%)	4 (4%)	10 (10%)	52 (52%)	32 (32%)
2.	AI tools enhance my grammar, spelling, and sentence structure	4.41	0.70	1 (1%)	3 (3%)	10 (10%)	50 (50%)	36 (36%)
3.	AI feedback helps me organize my ideas more clearly	4.25	0.72	3 (3%)	4 (4%)	15 (15%)	48 (48%)	30 (30%)

4.	AI tools assist me in generating relevant content for essay writing	4.18	0.75	4 (4%)	6 (6%)	13 (13%)	47 (47%)	30 (30%)
5.	AI-assisted feedback improves my academic writing performance	4.29	0.66	2 (2%)	5 (5%)	12 (12%)	51 (51%)	30 (30%)
6.	AI tools make the essay writing process faster and more efficient	4.37	0.63	1 (1%)	3 (3%)	11 (11%)	49 (49%)	36 (36%)

Note: Values are frequency (%), N = 100. SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree.

Table 1 shows that students rated AI tools as highly useful for essay writing, with item means between 4.18 and 4.41 and between 77% and 86% of respondents agreeing or strongly agreeing with each statement. The highest mean (M = 4.41, SD = 0.70) was for improvement in grammar, spelling, and sentence structure, followed by faster and more efficient writing (M = 4.37).

2: To what extent do students perceive AI tools as easy to use for essay writing?

Table 2: *Perception based on Perceived Ease of Use (PEOU)*

S/N	Item	Mean	Std. Dev.	SD	D	N	A	SA
1.	I find AI writing tools easy to learn and use	4.28	0.71	2 (2%)	5 (5%)	12 (12%)	48 (48%)	33 (33%)
2.	The interface of AI writing tools is user-friendly	4.35	0.67	1 (1%)	3 (3%)	14 (14%)	47 (47%)	35 (35%)
3.	I can use AI tools without much technical support	4.20	0.77	3 (3%)	6 (6%)	17 (17%)	46 (46%)	28 (28%)

4.	AI tools are convenient to use for essay writing tasks	4.31	0.68	1 (1%)	4 (4%)	11 (11%)	51 (51%)	33 (33%)
5.	I can easily interpret and apply AI-generated suggestions	4.10	0.80	4 (4%)	8 (8%)	15 (15%)	48 (48%)	25 (25%)

Note: Values are frequency (%), N = 100. SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree.

As Table 2 shows, students found AI tools easy and convenient to use, with item means between 4.10 and 4.35 and 73% to 84% agreement. The user-friendliness of the interface received the highest mean (M = 4.35, SD = 0.67), while interpreting and applying AIgenerated suggestions received the lowest (M = 4.10, SD = 0.80).

3: What is students' attitude toward the use of AI tools in essay

writing? **Table 3:** *Attitude Toward Use (ATU)*

S/N	Item	Mean	Std. Dev.	SD	D	N	A	SA
1.	I enjoy using AI tools to support my essay writing	4.22	0.77	3 (3%)	5 (5%)	12 (12%)	48 (48%)	32 (32%)
2.	I feel confident when using AI tools for academic writing	4.15	0.79	4 (4%)	7 (7%)	13 (13%)	49 (49%)	27 (27%)
3.	AI tools make writing more interesting and engaging	4.09	0.83	5 (5%)	9 (9%)	14 (14%)	46 (46%)	26 (26%)
4.	Using AI tools makes me feel more capable as a writer	4.25	0.71	2 (2%)	4 (4%)	14 (14%)	49 (49%)	31 (31%)
5.	I believe AI tools are an essential part of modern writing practices	4.40	0.66	1 (1%)	3 (3%)	9 (9%)	50 (50%)	37 (37%)

Note: Values are frequency (%), N = 100. SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree.

Table 3 indicates favorable attitudes toward AI tools (M = 4.09 to 4.40; 72% to 87% agreement). The highest mean (M = 4.40, SD = 0.66) was for the belief that AI tools are an essential part of modern writing practice, while the lowest (M = 4.09, SD = 0.83) was for the view that AI makes writing more interesting and engaging.

4: To what extent do students intend to use AI tools for essay writing in the future?

Table 4: *Behavioral Intention to Use (BI)*

S/N	Item	Mean	Std. Dev.	SD	D	N	A	SA
1.	I intend to continue using AI tools for essay writing in the future	4.36	0.64	1 (1%)	3 (3%)	9 (9%)	52 (52%)	35 (35%)
2.	I plan to explore new AI tools to improve my writing	4.33	0.66	1 (1%)	4 (4%)	11 (11%)	50 (50%)	34 (34%)
3.	I will recommend AI tools to my classmates or friends	4.30	0.70	2 (2%)	3 (3%)	13 (13%)	48 (48%)	34 (34%)
4.	I am likely to rely more on AI tools for future writing	4.22	0.75	3 (3%)	5 (5%)	14 (14%)	47 (47%)	31 (31%)
5.	I believe AI tools will play a major role in my future learning	4.39	0.68	1 (1%)	3 (3%)	9 (9%)	50 (50%)	37 (37%)

Note: Values are frequency (%), N = 100. SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree.

Table 4 shows strong intentions to continue using AI tools (M = 4.22 to 4.39; 78% to 87% agreement). The highest mean (M = 4.39, SD = 0.68) was for the belief that AI tools will play a major role in students_ future learning.

Discussion of Findings

The study examined students_ perceptions, attitudes, and behavioral intentions toward the use of AI tools in essay writing, based on the Technology Acceptance Model. Overall, perceptions were highly positive across all four constructs, indicating that students in colleges of education recognize AI as a valuable aid for improving writing quality and efficiency.

Perceived usefulness. In response to Research Question 1, students rated AI tools as highly useful, particularly for improving grammar, spelling, and sentence structure, and

for making writing faster and more efficient. This is consistent with Kasneci et al. (2023), Dwivedi et al. (2024), and Kohnke and Moorhouse (2022), who reported that tools such as Grammarly and ChatGPT improve clarity, coherence, and self-regulated writing. In line with TAM (Davis, 1989), high perceived usefulness predicts a stronger willingness to adopt the tools.

Perceived ease of use. In response to Research Question 2, students found AI tools easy and convenient to use, with the user-friendly interface rated highest. This supports Alharbi and Drew (2014) and Mohammed and Kasim (2023), who noted that ease of use strengthens users confidence and sustained engagement with educational technologies, and it is consistent with Venkatesh and Davis (2000), who identified usability as a key determinant of technology acceptance.

Attitude toward use. In response to Research Question 3, students showed positive attitudes, with the strongest agreement that AI is an essential part of modern writing. Students also viewed AI as engaging and empowering. This corroborates Bai and Guo (2022) and Zawacki-Richter et al. (2019), who found that positive attitudes arise when AI supports creativity and reduces writing anxiety. Overall, students appear to regard AI as a partner in learning rather than a threat to originality.

Behavioral intention. In response to Research Question 4, students demonstrated strong intentions to continue using AI tools, with the highest agreement on AI s role in their future learning. This reflects optimism about the long-term relevance of AI in academic writing and supports Teo (2011), Venkatesh et al. (2012), and Mhlongo (2023), who observed that perceived usefulness and ease of use significantly predict behavioral intentions toward technology adoption.

Taken together, the findings show that the conditions TAM associates with adoption (high usefulness, ease of use, and favorable attitudes) are all present among these students. Given the concerns about originality, overreliance, and academic integrity reported in the literature, this strong acceptance makes it all the more important for colleges of education to guide how AI tools are used.

Conclusion

This study found that students of colleges of education in Katsina State perceive AI tools as useful and easy to use, hold favorable attitudes toward them, and intend to keep using them in essay writing. AI tools are therefore firmly established in students_ writing practice. The task for institutions is not whether students will use these tools but how to ensure that their use supports, rather than replaces, the development of independent writing skills.

Recommendations

Based on the findings, the following recommendations are made to promote the effective and ethical use of AI tools in essay writing among students of colleges of education:

1. Integrate AI literacy into the writing curriculum. Writing courses should teach students how AI tools work, how to prompt them effectively, and how to evaluate and revise their output critically.
2. Provide training for teachers and students. Lecturers need professional development on AI-assisted writing so that they can guide, assess, and give feedback on students_ work with confidence.
3. Promote ethical use and academic integrity. Colleges should adopt clear, publicized policies on acceptable AI use, including guidance on acknowledging AI assistance.
4. Encourage balanced AI adoption. Students should be encouraged to use AI as a reflective coach for feedback and revision rather than as a substitute for their own ideas and drafting.
5. Support continuous innovation in assessment practices. Process-oriented assessments such as drafts, revision logs, reflective writing, and oral defense can help verify students_ authentic learning.

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