



**THE INFLUENCE OF AI ON ACADEMIC WRITING PROFICIENCY OF  
STUDENTS AT FEDERAL UNIVERSITY OF EDUCATION, PANKSHIN**

**BY**

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**Abstract**

*This study examined the influence of Artificial Intelligence (AI) on the academic writing proficiency of students of Federal University of Education, Pankshin. The study specifically focused on examining the influence of AI tools usage on students' writing quality and writing originality. It adopted a quantitative approach and survey research design. A random sampling technique was used to select 200 students across all the departments in the College of Arts and Social Sciences in the university. Frequency count and mean, and linear regression were used to answer the research questions and test the research hypotheses respectively. Findings revealed that AI tools usage have significant influence on students' writing quality and originality. Thus, it concludes that the use of AI writing tools improves students' spelling, text translation, idea generation, plagiarism check. However, it tends to inhibit critical thinking and creative ability of the students.*

**Keywords:** Artificial Intelligence, writing proficiency, academic writing, writing quality, writing originality.

## **Introduction**

The pervasive integration of Artificial Intelligence (AI) in various facets of education has sparked significant discussions and concerns regarding its impact on academic writing. Academic writing encompasses a wide range of activities such as; research writing, article writing, answering questions, writing review of textbooks, and proposal writing among others. This makes proficiency in writing a necessity for all members of the academic community. To this end, the advent of Artificial Intelligence (AI) tools is a major development to improve writing skills. From spell-checking to grammar-checking, writing prompts to plagiarism-checkers, there are multitude of tools that help improve proficiency in academic writing (Amyatun & Kholis, 2023). They include ChatGPT, Grammarly, QuillBot, Gemini, Grok, Perplexity and DeepSeek among others. These are known as Large Language Models (LLMs). Essentially, these AI tools were invented to make writing easier (Gintin et al., 2023; Selim, 2024) through various built-in algorithms such as text generation, sourcing for information, spell check, plagiarism check, summarizing and so on.

As technology continues to evolve, the omnipresence of AI tools, such as automated writing assistants and content generation algorithms, raises questions about how these technologies may be shaping, enhancing, or potentially hindering the development of academic writing proficiency among undergraduate students. In light of this, there is need to assess how the use of AI tools affects the originality of academic writing among undergraduate students and the extent to which AI tools contribute to or detract from the quality of the undergraduate students' academic writing. While the field of Artificial Intelligence and its pervasive influence have been the preoccupation of scholars (Gintin et al., 2023; Malik et al., 2023; Dergaa et al., 2023; Farhi et al., 2023; Selim, 2024; Ya'u & Mohammed, 2025), there is a paucity of literature on the study of its influence on writing quality and originality. This creates a study gap which this study seeks to bridge.

It is against this background that it becomes significant to conduct studies into how AI technology could aid or impede the process of developing a critical academic writing proficiency among students, particularly their writing quality and originality, within the context of undergraduates at Federal University of Education, Pankshin, Nigeria.

This study seeks to:

1. Assess the influence of AI tools usage on writing quality of students at Federal University of Education, Pankshin
2. Examine the influence of AI tools usage on writing originality of students at Federal University of Education, Pankshin.

### **Research Questions**

1. How does the use of AI tools influence the writing quality of students at Federal University of Education, Pankshin?
2. In what ways does AI tools usage influence the writing originality of students at Federal University of Education, Pankshin?

### **Research Hypotheses**

H<sub>01</sub>: AI tools usage has no significant influence on the writing quality of students at Federal University of Education, Pankshin.

H<sub>02</sub>: AI tools usage has no significant influence on the writing originality of students at Federal University of Education, Pankshin.

### **Literature Review**

#### **Evolution of Artificial Intelligence (AI)**

After the invention of the computer in the 1940s, it was realized that its capability is not limited to numerical calculation alone, but that it can be used to carry out many intellectual tasks that are usually considered as demanding human intelligence. The research field known as AI today was mainly founded by McCarthy, Minsky, Newell, and Simon (Wang, 2019).

The term, Artificial Intelligence (AI), is a fluid concept. However, a starting point is to look at the terms, *Artificial* and *Intelligence*. An object described as *artificial* is that which is made or produced by human beings rather than occurring naturally (Sharma, 2009). *Intelligence* usually means the ability to solve hard problems such as understanding physical and social world, parallel coordination, and applying accumulated knowledge (Minsky, 1985). By implication, since only human beings have the innate intellectual ability to think and solve hard problems, AI is aimed at creating machines that behave like human beings. Hence, AI literally means thinking or behaving like human beings. This is a traditional definition of AI with the goal of developing a machine that behaves as though they were intelligent

(McCarthy, 2007). Ertel (2011) critiqued this definition to be inadequate and too narrow to capture the nature of AI. According to him, McCarthy's definition describes the following scenario as intelligent;

“Fifteen or so small robotic vehicles are moving on an enclosed four by four-meter square surface. One can observe various behaviour patterns. Some vehicles form small groups with relatively little movement. Others move peacefully through the space and gracefully avoid any collision. Still others appear to follow a leader. Aggressive behaviours are also observable.” (p. 1)

Buttressing the inadequacy of McCarthy's definition, he asserted that this seemingly intelligent behaviour portrayed in the scenario by the Braitenberg Vehicles can be produced by simple electrical circuits. AI goes beyond robotic development or simply building machines that behave like man. AI is not only to make devices through programs that behave like human but also to make programs that does it the way humans do it (Sharma, 2009). It also includes software development. Akin to this vantage point, Ertel (2011) acceded to the definition of AI by Elaine Rich that it is the study of how to make computers do things at which, at the moment, people are better.

Technically, it is the science and engineering of creating intelligent computers that tackle many types of issues using natural language processing, neural networks, and machine learning (Mondal, 2020). AI has evolved into a novel multidisciplinary and interdisciplinary science that integrates various knowledge and technologies such as computer science, statistics, information theory and mathematics (Mata et al., 2018). Hence, according to Lu (2019), AI is any theory, methodology or technique that facilitates the analysis, simulation, exploitation and exploration of human thinking processes and behaviours by machines, particularly computers. The associated technologies embedded in AI include intelligent robotics, natural language processing, language recognition, advanced image recognition, intelligent expert systems, neural network and machine learning (Mondal, 2020).

Today, there are varieties of Artificial Intelligence (AI) tools serving general purposes (known as General, Broad or Strong AI) and narrow purposes (known as Narrow or Weak AI). A general AI has an enhanced capabilities for skill acquisition and problem solving while a narrow AI focuses on specific tasks (Hochreiter, 2022) such as natural language processing, language translation, speech recognition, face recognition, and so on.

Generative AI is a subset of Narrow AI that can produce new texts, images, videos, or computer code (Fleckenstein et al., 2024). Based on massive amounts of training data, generative AI can use prompts written in natural language to generate new output. Large

language models (LLM), such as the Generative Pre-trained Transformer, can generate human-like text and complete other language-related tasks such as translation, question answering, and coding. (Fleckenstein et al., 2024). AI applications in academic writings include ChatGPT, Grammarly, Perplexity, Quillbot, DeepSeek, Grok, Hemmingwayapp, Duden-Mentor, DeepL, and Plot Generator, among others.

### **Dimensions of Writing Proficiency: Quality and Originality**

Proficiency in writing is a fundamental requirement for the presentation of authentic thoughts with clarity and in an appropriate manner (Amyatun & Kholis, 2023, Zergollern-Miletic & Horvath, 2008). Writing quality reflects the ability to convey information or express ideas in easily fathomable, readable, error-free and unambiguous manner. As a necessary skill in the academic community, it encompasses various aspects such as correctness, syntactic structure, vocabulary usage, grammar, idea development and idea organization. It is crucial for academic success and professional advancement (Boyask, 2021). Achieving good writing quality involves a combination of skills, creativity, and continuous improvement efforts, emphasizing the significance of staying updated with latest approaches and techniques of writing.

Beyond the structural and technical aspects that inform writing proficiency, originality in writing is another key dimension. Writing originality refers to the ownness of the writing content and the acknowledgement of sources informing the ideas presented by a written piece. It presupposes that the writers' idea aligns with the writers' role so that it becomes personal (Utami et al., 2023). A written text is authentic when it is the writer's own formulation and reformulation of theme (Zergollern-Miletic & Horvath, 2008). This implies that ideas do not emerge on a tabula rasa, they are products of interaction with extant ideas. To this end, writers' formulation and reformulation of ideas are based on a number of primordial factors and their interaction with a number of accumulated knowledge and ideas of the past. The ideas generated thence is the centrality of originality in writing. It is however imperative that the writer acknowledges the sources from which ideas are adapted through proper citation and referencing. Writing originality is achieved through proper referencing, which demonstrates thoroughness, knowledge, and respect for intellectual contributions, while also avoiding plagiarism (Kumar, 2022).

### **Influence of AI Tools Usage on Writing Quality and Originality**

Empirical studies have shown that the influence of AI tools usage on students' writing quality has a positive implication as it helps them in paraphrasing, spelling correction, vocabulary development, translation and grammatical error correction, among others. However, few disadvantages have been identified, prominent of which is susceptibility to cyber security threats such phishing, hacking and password protection. According to Gintin et al. (2023), the use of AI motivates to improve their writing quality. Their study revealed students' high level of motivation to expedite the completion of their final assignment due to the assistance provided by this AI system, which facilitated paraphrasing, grammar correction, and overall enhancement of their work. In addition, the study revealed that AI facilitated the process of paraphrasing and accurately determining grammatical correctness, hence contributing to the production of high-quality work. However, the study expresses concern about few disadvantages, prominent of which is their susceptibility to cyber security threats, which include phishing, hacking and password protection.

According to Malik et al. (2023), the use of AI technologies in essay writing has a positive impact on students' writing proficiency which include: assistance in identifying and correcting errors and improvement in comprehension of complex research articles. AI-driven language translation technologies have introduced them to a wide range of academic information, while the context-specific word and phrase choices have helped broaden their vocabulary repertoire and enhance the quality of their writing. Analysing the transformative power of AI in academic writing, Selim (2024), found that AI has positive influence on students' writing quality. The study revealed that using AI tools helped them improve their academic writing by identifying and correcting grammar and spelling errors.

Empirical studies have also proven that the influence AI tools usage on writing originality is double-edged. For Dergaa et al. (2023), in their study examining the prospects and potential threats of ChatGPT in academic writing, the use of ChatGPT can help in generating summary of academic papers which makes such summary objective and unbiased as they are generated by machine and not human. This implies that AI tools are advantageous for providing credit and unbiased summary of academic papers.

However, Niloy et al. (2023) found that ChatGPT negatively affects content accuracy. The study indicates that creativity is more likely to be compromised when ChatGPT is utilized, leading to lower scores in measures of creativity for human write-ups aided by ChatGPT. The study's outcome underscores the potential threat that ChatGPT poses to students' creative writing proficiency by potentially reducing their critical thinking and creative abilities.

In Nigerian context, the study by Ya'u and Mohammed (2025) revealed that students expressed concerns regarding its potential impact on plagiarism, originality in writing and academic integrity. Some concerns posed by the use of AI writing tools include bias, plagiarism, ethics, copyright, transparency, legal issues, and inaccurate content leading to false educational and professional narratives, limited knowledge, incorrect citations, and the risk of spreading misinformation (Farhi et al., 2023). Their findings show that respondents have a concern that AI can bridle their creative thinking capabilities.

### **Research Methodology**

The survey research design was used in this study. A quantitative approach was used to assess the influence of AI tools usage on students writing quality and originality. The population of this study comprises all the students of Federal University of Education, Pankshin while a sample size of 200 respondents was randomly picked via a simple random sampling technique from the College of Arts and Social Sciences which allows for an in-depth exploration of the students in the college.

A structured questionnaire was administered to elicit responses on how the use of AI tools have influenced writing proficiency – quality and originality. The questionnaire “The influence of Artificial Intelligence on academic writing proficiency Questionnaire” contained two sections; Section A contained the demographic information of the respondents, while Section B elicited responses about how AI tools usage influence their writing quality and originality was quantified using Nworgu’s (2006) Modified 5-point Likert Scale as follows: Undecided (U), Strongly Disagreed (SD), Disagreed (D), Agreed (A) and Strongly Agreed (SA). In addition, data collected from respondents about their perception of AI-powered writing tools used a scale adapted from Burkhard (2022) and modified. To ascertain the validity of the instrument, the questionnaires were submitted to the supervisor for vetting, correction and approval before they were administered. The Cronbach’s alpha was used to determine the reliability of the research instrument. The reliability test results of Cronbach’s Alpha of 0.804 maintains that the questionnaire items have good internal consistency.

The distribution and collection of the questionnaire were done immediately to avoid loss or bias. All the administered instrument were collected without loss. The data collected was quantified and a descriptive statistical analysis (frequency count and mean) was used to answer the research question while linear regression analysis was used to test the research hypotheses.

**Findings**

**Research Question One:** How does the use of AI tools influence the writing quality of students at Federal University of Education, Pankshin?

**Table 1**

Item	U (%)	SD (%)	D (%)	A (%)	SA (%)	Mean
AI tools improve my use of vocabulary in writing.	7	4	23	147	19	3.83
AI tools help me to produce written piece without spelling errors.	5	3	7	168	17	3.95
Using AI tools helps to reduce redundancy in my writing.	4	54	42	70	30	3.34
AI helps me paraphrase and choose the right grammar.	4	4	2	85	105	4.42
AI helps me in producing error-free punctuation in my writing.	2	31	45	83	39	3.63
Using AI tools has increased the accuracy and precision in my writing.	40	6	24	114	16	3.30
<b>Overall Mean:</b>						<b>3.74</b>

Table 1 shows how AI tools influence writing quality of students at Federal University of Education, Pankshin. The overall mean score of 3.74 implies that the use of AI tools helps them improve their vocabulary, produce error-free spelling and punctuation, reduce redundancy, paraphrase and make right grammar choice, and increase accuracy and precision.

**Research Question Two:** In what ways does AI tools usage influence the writing originality of students at Federal University of Education, Pankshin?

**Table 2**

Item	U (%)	SD (%)	D (%)	A (%)	SA (%)	Mean
AI generated contents are reliable.	62	19	32	80	7	2.75
Relying on AI tools for my writing tasks hinders my creativity in writing.	3	14	34	141	8	3.68
Relying on AI tools may diminish my critical thinking ability in writing.	2	11	57	118	12	3.64

AI generated contents are plagiarism-free.	5	6	42	78	69	4.00
Using AI while writing makes my work unique.	23	5	39	101	32	3.57
Using AI tools has improved my ability to generate ideas in my writing.	5	3	61	117	14	3.66
<b>Overall Mean:</b>						<b>3.55</b>

The result in Table 2 shows the ways in which the use of AI tools influences the writing originality of students at Federal University of Education, Pankshin. The overall mean score of 3.55 shows that the use of AI tools contributes to the respondents' ability to generate plagiarism-free contents, produce unique work, and generate ideas. However, they expressed their concern about the reliability of AI-generated contents, its hinderance on their writing creativity, and its diminishing effect on their critical thinking ability.

**H<sub>01</sub>: AI tools usage has no significant influence on the writing quality of students at Federal University of Education, Pankshin.**

**Table 3**

R	R Square	F	p-value	Remark
.368	.136	31.056	.000	Significant

The result in Table 3 shows a moderate positive correlation between AI tools usage and writing quality (R = 0.368). The result indicates that as the use of AI tools increases, the writing quality of students tends to increase. By implication, as the usage of AI tools decreases, the writing quality of students tends to also decrease. However, the correlation is not strong suggesting that other factors also influence the writing quality of students. The R<sup>2</sup> value of 0.136 shows that 13.6% of the variation in writing quality of the students can be explained by variation in AI tools usage. The regression model was statistically significant (F = 31.056, p < 0.05). Given a p-value less than 0.05, the null hypothesis is rejected.

**H<sub>02</sub>: AI tools usage has no significant influence on the writing originality of students at Federal University of Education, Pankshin.**

**Table 4**

R	R Square	F	p-value	Remark
.238	.057	11.903	.001	Significant

Table 4 shows a weak positive correlation between AI tools usage and writing originality (R = 0.238). The result indicates that as the use of AI tools increases, the writing originality of

students tends to increase. By implication, as the usage of AI tools decreases, the writing originality of students tends to also decrease. However, the correlation is weak suggesting that other factors also influence the writing originality of students. The  $R^2$  value of 0.057 shows that 5.7% of the variation in writing originality of the students can be explained by variation in AI tools usage. The regression model was statistically significant ( $F = 11.903$ ,  $p < 0.05$ ). Given a p-value less than 0.05, the null hypothesis is rejected.

### **Discussion of Findings**

The study shows that the use of AI tools moderately influences the writing quality of students at Federal University of Education, Pankshin. The relationship between AI tools usage and writing quality is positive, suggesting that the use of AI tools can enhance the quality of students' academic writing. Descriptively, the usage of AI tools helps them improve their vocabulary, produce error-free spelling and punctuation, reduce redundancy, paraphrase and make right grammar choice, and increase accuracy and precision influences the academic writing quality of students. This finding is in consonance with the study by Gintin et al. (2023) which revealed that AI system facilitates the process of paraphrasing and accurately determining grammatical correctness, hence contributing to the production of high-quality academic work. Similarly, Malik (2023) found that AI technologies help in broadening vocabulary repertoire and enhancing the quality of writing. These findings signalled the transformative power of AI in improving students' writing quality.

This study also shows that AI tools usage weakly influenced the writing originality of students at Federal University of Education, Pankshin suggesting that other factors beyond the scope of this study could significantly influence their writing originality. Meanwhile, descriptive result indicated that using AI tools can improve the originality in the academic writing of the students. Students reported that the use of AI tools can contribute to their proficiency in generating plagiarism-free contents, producing unique work, and generating ideas. This finding is in contrast with the findings of Farhi et al. (2023) and Ya'u and Mohammed (2025) which revealed concerns related to plagiarism, copyright and inaccurate content. However, this study revealed concerns about the reliability of AI-generated contents, its potential limitation on their creativity in writing, and its diminishing effect on their critical thinking ability in writing. Corroborating this finding, Niloy et al (2023) reported the potential threat that ChatGPT poses to students' creative writing proficiency by potentially reducing their critical thinking and creative abilities. These findings implies that while AI

serve as an aid to writing process, it should not be a complete substitute for human creativity and ingenuity (Dergaa et al., 2023).

### **Conclusion**

The study concluded that AI tools is similitude to a double-edged sword which can savage the writing skills of students and at the same time damage their writing proficiency. The use of AI tools has the potential to enhance writing skills among undergraduate students of Federal University of Education, Pankshin but its usage is not without negative implications. In other words, the use of AI tools has the potential to arm and harm undergraduate students in the process of building their writing skills. This study highlights some of the areas in which the use of AI tools may be advantageous such as spelling, translation, idea generation, and checking for plagiarism, among others. On the contrary, the tools have been found to be an inhibiting factor to the critical thinking and creative ability of the students, among other defects of AI and its influence on writing skills. Therefore, it is germane to understand the dynamics of AI and strike a balance in the use of the tools in order to optimize its latent benefits and minimize its potential demerits.

### **Recommendations**

This study recommends that students should leverage on the benefits of AI tools to improve their overall writing proficiency. AI tools should also be used to improve vocabulary usage, spellings, punctuation, paraphrasing, usage of correct grammar, accuracy and precision, presenting ideas and reduced redundancy thus enhancing the overall writing quality of the students.

It also recommends that stakeholders, such as the university community and policy makers, should not ignore AI but proactively enlighten students to use it responsibly. Students should be encouraged to use AI for brainstorming ideas and editing while lecturers mandate submission of both initial drafts and AI prompts to ensure transparency. In addition, integrity check tools such as Turnitin should be introduced to students for assignment submission which helps in verifying AI-generated contents and intellectual ownership. This approach acknowledges the benefits of AI usage for writing quality while also preserving the originality of writing, consequently improving students' academic writing proficiency.

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