

**ARTIFICIAL INTELLIGENCE USAGE AND PERCEIVED
NEGATIVE IMPACT ON PROJECT WRITING
SKILLS EVIDENCE FROM BUSINESS EDUCATION
IN NIGERIAN UNIVERSITIES**

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Abstract

The study assessed the extent of Artificial Intelligence Usage and its Perceived Negative Impact on Project Writing Skills Evidenced from Business Education Students in Nigerian Universities. Four purpose of the study and four research questions guided the study. The study was anchored on Cognitive Load Theory, descriptive survey research design with a correlational approach was used as design for the study. The population of the study consisted of Business Education Students drawn from Federal University of Education Pankshin from which a sample of 242 undergraduate Business Education students were selected through proportionate stratified random sampling. Data were collected using a self-made questionnaire titled Artificial Intelligence Usage and Academic Skills Questionnaire (AIUASQ), which was validated by experts and found to be reliable. Mean and

standard deviation were used to answer the research questions, while the Pearson Product-Moment Correlation Coefficient (PPMC) was used to test the hypotheses at the 0.05 level of significance. Findings from the study reveals that students made frequent use of AI tools and most of them rely on AI tools for their project writing. The study also indicated that a positive relationship between AI usage and digital overreliance among students, while significant negative relationships were found between AI usage and independent and project writing skills. It was concluded that AI provides valuable guide to students on academic activities, over dependence on these tools reduce students' opportunities to develop independent thinking, research competence, and academic writing skills. It is therefore recommended that educational institutions should promote responsible use of AI by strengthening AI literacy to encourage understanding and research abilities.

Keywords: Artificial Intelligence, Digital Overdependence, Independent Reasoning, Project Writing Skills, Business Education.

Introduction

Project writing as one of the fundamental aspect of higher education because it enables students to communicate scholarly ideas, contribute to knowledge development, and solve societal problems through systematic inquiry. Project writing are among the academic activities most affected by the growing use of AI. In most universities, students demonstrate their academic ability through projects that require them to evaluate information, compare different viewpoints, and develop original arguments. Effective project writing requires critical thinking, clarity of expression, originality, citation accuracy, and adherence to academic standards. According to (Adiguzel, Kaya, & Cansu, 2023), most Nigerian universities, project writing constitutes a major requirement for undergraduate projects, postgraduate dissertations, theses, journal publications, and seminar presentations. Despite the importance of project writing, many university students experience difficulties in project writing tasks such as literature review development, citation management,

paraphrasing, grammar correction, plagiarism avoidance, and organization of ideas. These problems often result in poor-quality project reports, delays in project completion. The growing difficulty of research has therefore increased the demand for technological tools capable of supporting students in the project writing process. The advancement of digital technologies has transformed academic learning and scholarly communication globally. Among these technological innovations is Artificial Intelligence (AI), which refers to computer systems designed to simulate human intelligence in performing tasks such as language processing, reasoning, problem-solving, content generation, and decision-making. Artificial intelligence tools have become increasingly integrated into higher education because they assist students in improving writing quality, correcting grammatical errors, organizing academic content (Katsamakos et al., 2024).

In recent years, AI-powered tools such as ChatGPT, Grammarly, QuillBot, Turnitin, Gemini, Claude AI, and Perplexity AI have gained significant attention in academic environments. ChatGPT supports idea generation, academic explanations, and content development. Grammarly enhances grammar, spelling, and sentence structure. QuillBot assists students in paraphrasing and summarization. Turnitin promotes academic integrity through plagiarism detection. Gemini and Perplexity AI support information retrieval, content synthesis, and academic assistance. The utilization of artificial intelligence tools has the potential to improve students' research writing skills significantly. However, disparities exist in the level of technological exposure, internet accessibility, digital literacy, institutional funding, and ICT infrastructure across Nigerian universities. Federal universities are generally perceived to possess better technological facilities and digital resources than many state universities. These differences may influence the extent to which students utilize artificial intelligence tools and develop effective research writing skills. Although artificial intelligence is becoming increasingly popular in academic environments, there is still limited empirical evidence comparing artificial intelligence utilization and research writing skills between students in federal and state

universities in Nigeria.

Most previous studies focused on individual AI tools or specific disciplines without examining institutional differences. Peter and Meri (2025) reported that students who relied heavily on AI writing tools were less confident in producing original academic work. Despite this finding, little is known about how the level of AI usage relates to different aspects of students' project writing skills. It is therefore important to investigate this relationship using empirical evidence instead of assuming that AI has only positive or only negative effects. Therefore, this study examines the relationship between artificial intelligence usage and project writing skills among Business Education students at the Federal University of Education, Pankshin.

Statement of the Problem

The high rate of Artificial Intelligence (AI) tools has changed the way undergraduate students in most Universities carry out and project writing. Many students use AI tools to search for information and work on different sections of their research projects. It is evident that most students rely on AI-generated responses, as a result, there is concern that some students may complete research projects without fully developing the competencies expected from higher education. As one of requirement for graduation, students are expected to identify research problems, review relevant literature, analyze data, interpret findings, and present conclusions. However, when AI tools are used without proper guidance or academic regulation, there are chances that students may depend on the technology to perform tasks that should normally strengthen their own research and writing abilities. However, there are limited empirical evidence on whether increasing dependence on AI affects students' ability to think independently to develop effective project writing skills. It is against this background that this study seeks to examine the relationship between the use of Artificial Intelligence and selected academic competencies among Business Education students at the Federal University of Education, Pankshin.

Aim and Objectives

The broad aim of the study was to examine the relationship between artificial intelligence usage and its perceived negative effects on project writing skills among Business Education students at the Federal University of Education Pankshin, Plateau State.

To achieve this aim, the study will fulfill the following specific objectives:

1. To ascertain the relationship between the extent of artificial intelligence usage and overdependence on AI tools among Business Education students.
2. To find out the relationship between the extent of artificial intelligence usage and students' capacity for independent reasoning.
3. To assess the relationship between the extent of artificial intelligence usage and students' confidence in generating original academic content.
4. To examine the relationship between the extent of artificial intelligence usage and self-reported project writing skills among Business Education students.

Research Questions

1. What is the relationship between the extent of artificial intelligence usage and overdependence on AI tools among Business Education students?
2. What is the relationship between the extent of artificial intelligence usage and students' capacity for independent reasoning?
3. What is the relationship between the extent of artificial intelligence usage and students' confidence in generating original academic content?
4. What is the relationship between the extent of artificial intelligence usage and self-reported project writing skills among Business Education students?

Hypotheses

The following hypotheses were tested at 0.05 level of significance.

- HO₁:** There is no statistically significant relationship between the extent of artificial intelligence usage and overdependence on digital tools among Business Education students.
- HO₂:** There is no statistically significant relationship between the extent of artificial intelligence usage and students' capacity for independent reasoning.
- HO₃:** There is no statistically significant relationship between the extent of artificial intelligence usage and students' confidence in generating original academic content.
- HO₄:** There is no statistically significant relationship between the extent of artificial intelligence usage and self-reported project writing skills among Business Education students.

Literature Review

Artificial Intelligence (AI)

Artificial Intelligence (AI) has become an important part of higher education across the world. What was viewed as an emerging educational technology is now widely used to support teaching, learning, research, and administrative activities (Hoar, 2026; Lachheb et al., 2025). Recently, the number of university students using AI tools has increased as these technologies become more accessible and easier to use (Alotaibi, 2024; Hoar, 2026). Tools based on generative Large Language Models (LLMs) and other intelligent systems now assist students with searching for information, generating ideas, summarizing academic materials, analyzing data, improving writing, and receiving personalized feedback during the learning process (Alotaibi, 2024; Mojolou et al., 2024).

Artificial intelligence tools such as ChatGPT, Grammarly, QuillBot, Turnitin, Gemini, Claude AI, and Perplexity AI has assisted many students in generating ideas, correcting grammatical errors, paraphrasing academic content, organizing research materials, detecting plagiarism, and improving overall writing quality. ChatGPT supports conversational interaction and content

generation, while Grammarly improves grammar and sentence structure. QuillBot is widely used for paraphrasing and summarization, whereas Turnitin promotes originality through plagiarism detection. The integration of AI-powered tools into higher education has transformed research writing processes by improving efficiency, accuracy, and academic productivity. However, effective utilization depends on accessibility, awareness, digital literacy, institutional support, and ethical usage.

AI Usage and Project Writing Skills

Artificial intelligence tools change how people write research and school projects. They help with brainstorming ideas, outlining chapters, checking grammar, and organizing notes. However, relying too much on AI can hurt critical thinking, lower original creativity, and cause serious academic integrity issues. In today's society, artificial intelligence (AI) tools have become a part of many people's everyday lives Muradyan; Sargsyan, & Editors, (2024). It is evident that these tools are powerful applications designed to help generate, edit, and improve written content. They use natural language processing (NLP) models, like Open AI's GPT or Google's BERT, to analyze and generate human-like text. The applications “learn” from massive amounts of text data found on the internet and through other sources. They can understand context, syntax, and tone, enabling them to create coherent sentences and paragraphs in various styles. However, as these tools have advanced, they are increasingly becoming essential for content creation in multiple fields because they offer efficiency and scalability for businesses, educators and students, and other creative writing professionals.

AI writing tools have advanced to the point where they can perform many different tasks, from drafting blog posts and emails to creating marketing copies and even writing complicated research papers. What is impressive is that they can quickly produce polished, grammatically correct, stylish, and engaging content in a fraction of the time it would take a human. Some advanced AI tools can even conduct sentiment analysis and tailor content to specific audiences

and/or industries. With additional machine learning algorithms, these tools can also adapt over time and learn from user feedback to improve their output. This level of adaptability makes them an invaluable resource for individuals and organizations looking to simplify and enhance their workflow Gawlik-Kobylińska (2024).

Theoretical Framework

Cognitive Load Theory (CLT)

This paper adopted Cognitive Load Theory (CLT), which was developed by John Sweller (1988). The theory explains how people process information during learning and why the amount of mental effort required for a task influences learning outcomes. According to Sweller, working memory has a limited capacity when dealing with new information, whereas long-term memory has a much greater capacity for storing knowledge and skills. Learning is more effective when instructional activities are designed in ways that help learners manage their mental workload and gradually develop useful knowledge structures, commonly referred to as schemas.

Sweller (1988) identified three types of cognitive load. Intrinsic cognitive load refers to the level of difficulty that is naturally associated with a learning task. Extraneous cognitive load results from the way information is presented or how learning activities are organized. Germane cognitive load is the mental effort that learners invest in understanding information, connecting ideas, and developing new knowledge. Active learning occurs when needless mental demands are reduced while learners are encouraged to engage in meaningful thinking and problem-solving.

In project writing, literature review, data analysis, and interpretation of findings, students constantly rely on their working memory to organize ideas, evaluate evidence, and construct logical arguments. It is worthy to mention that these tasks become too demanding without adequate guidance or support, students may experience cognitive overload.

Methodology

The study adopted a descriptive survey research design with a correlational approach to assess the relationship between Artificial Intelligence (AI) usage and selected academic competencies among undergraduate Business Education students. The population use covers undergraduate Business Education students in Federal University of Education Pankshin where 242 students, including 108 males and 134 females from were drawn using proportionate stratified random sampling. Data was collected using a self-made questionnaire. The instrument was validated by three experts in the field of Business Education and Measurement and Evaluation in the University. The reliability of the instrument was determined using Cronbach's alpha, which gave a reliability coefficients of 0.86. Data collected were analyzed using descriptive and inferential statistics. Mean and standard deviation were used to answer the research questions, while the four null hypotheses were tested using the Pearson Product-Moment Correlation Coefficient (PPMC) at the 0.05 level of significance.

Results

Demographic Characteristics of the Respondents

Table 1: Demographic Characteristics of Respondents (N=242)

Variable	Category	Frequency (f)	Percentage (%)
Gender	Male	108	44.6%
	Female	134	55.4%
	Total	242	100.0%
Level of Study	Year 2	76	31.4%
	Year 3	89	36.8%
	Year 4	77	31.8%
	Total	242	100.0%

Results in table 1 presents the information on the demographic variable of the respondents which reveals that that 242 Business Education students were involve in the study. Out of which 108

respondents representing (44.6%) were male, while 134 respondents representing (55.4%) were female. Year Three students constituted the largest group with 89 respondents (36.8%), followed by Year Four students with 77 respondents (31.8%) and Year Two students with 76 respondents (31.4%).

Analysis of Research Questions

Research Question 1

What is the relationship between the extent of artificial intelligence usage and overdependence on digital tools among Business Education students?

Table 2: Mean and Standard Deviation Scores on Extent of AI Usage and Digital Overdependence

S/N	Item Statement	Mean ($\bar{X}$)	SD	Decision
1.	I use AI tools to generate ideas or outlines when starting an assignment.	3.42	0.68	High Extent
2.	I rely on AI to proofread, edit, or rephrase my written academic work.	3.55	0.54	Very High Extent
3.	I use AI platforms to explain complex business education concepts.	3.12	0.74	High Extent
4.	I delegate long-form text generation or summary writing to AI tools.	2.88	0.85	High Extent

Findings in table 2 reveals that Business Education students use AI tools in their academic activities. The highest mean score was recorded for the use of AI to proofread and edit academic work ($\bar{X}$ = 3.55, SD = 0.54), indicating a very high level of use. The respondents also reveals a high levels of AI use for generating ideas and assignment outlines ($\bar{X}$ = 3.42, SD = 0.68), explaining difficult Business Education concepts ($\bar{X}$ = 3.12, SD = 0.74), and preparing summaries or long pieces of text ($\bar{X}$ = 2.88, SD = 0.85).

Research Question 2

What is the relationship between the extent of artificial intelligence usage and students' perceived capacity for independent reasoning and coherent argument development?

Table 3: Mean and Standard Deviation Scores on Perceived Capacity for Independent Reasoning

S/N	Item	Mean ($\bar{X}$)	SD	Decision
5.	I can independently evaluate conflicting views without AI.	2.31	0.82	Disagreed
6.	I find it easy to build a logical argument using only my own critical thinking.	2.24	0.85	Disagreed
7.	Heavy reliance on AI has weakened my ability to solve problems alone.	3.15	0.70	Agreed
8.	I can successfully defend my opinions in debates without quick AI points.	2.42	0.89	Disagreed

Findings from Table 3 reveals that many students were uncertain about their ability to perform some academic tasks without AI assistance. Respondents disagreed that they could independently evaluate different academic opinions ($\bar{X}$ = 2.31, SD = 0.82), develop logical arguments using only their own reasoning ($\bar{X}$ = 2.24, SD = 0.85), or defend their opinions without AI support ($\bar{X}$ = 2.42, SD = 0.89). At the same time, they agreed that heavy reliance on AI had weakened their ability to solve problems independently ($\bar{X}$ = 3.15, SD = 0.70).

Research Question 3

What is the relationship between extents of artificial intelligence usage and students confidence in generating original academic content?

Table 4: Mean and Standard Deviation Scores of respondents on Confidence in Original Content Generation

S/N	Item	Mean (X̄)	SD	Decision
9.	I feel highly confident drafting a research paper completely from scratch.	2.11	0.89	Disagreed
10.	I experience anxiety unless I have an AI paragraph to build upon.	3.28	0.66	Agreed
11.	I feel a strong sense of personal authorship when reading my unassisted work.	2.65	0.78	Agreed
12.	I doubt my ability to produce articulate academic writing without an AI editor.	3.02	0.73	Agreed

Findings from table 5 presents the respondents' opinion on their project writing skills. The findings indicated that students generally believed they could write a project introduction ($\bar{X}=2.62$, $SD=0.74$) and select an appropriate research methodology ($\bar{X}=2.55$, $SD=0.71$). They however disagreed that they could effectively produce literature from different sources ($\bar{X}=2.18$, $SD=0.83$) or interpret statistical results without AI assistance ($\bar{X}=1.94$, $SD=0.86$).

Research Question 4

What is the relationship between the overall extent of artificial intelligence usage and self-reported project writing skills among Business Education students?

Table 5: Mean and Standard Deviation Scores on Self-Reported Project Writing Skills

S/N	Item	Mean (X̄)	SD	Decision
13.	I have the necessary skills to write a project introduction independently.	2.62	0.74	Agreed
14.	I independently create literature from different sources well.	2.18	0.83	Disagreed
15.	I have the capability of correctly choosing and justifying a research methodology alone.	2.55	0.71	Agreed
16.	I can interpret statistical data analysis outputs without AI help.	1.94	0.86	Disagreed

Results in table 5 presents the respondents' opinion on their project writing skills. The findings reveals that students generally could write a project introduction ($\bar{X}=2.62$, $SD=0.74$) and select an appropriate research methodology ($\bar{X}=2.55$, $SD=0.71$). Although they disagreed that they could effectively create literature from different sources ($\bar{X}=2.18$, $SD=0.83$) or interpret statistical results without AI assistance ($\bar{X}=1.94$, $SD=0.86$).

Testing the Null Hypotheses

Hypothesis One

There is no significant relationship between the extent of artificial intelligence usage and overdependence on AI tools among Business Education students.

Table 6: Pearson Correlation Analysis of AI Usage and Digital Overdependence among students

Variable	Mean	SD	N	Pearson Correlation (r)	Sig. (2-tailed)	Decision
Extent of AI Usage	3.12	0.74	242	0.641	0.000	Rejected
Digital	2.85	0.79	242			

The findings in Table 6 above shows a strong positive relationship between AI usage and digital overdependence ($r = 0.641$, $p < 0.05$). Since the probability value of 0.000 is less than the 0.05 level of significance, the null hypothesis is rejected. This means that there is a significant relationship between the extent of artificial intelligence usage and overdependence on AI tools among Business Education students

Hypothesis Two

There is no significant relationship between the artificial intelligence usage and students' capacity for reasoning and clear argument development.

Table 7: Pearson Correlation Analysis of AI Usage and Perceived Independent Reasoning Among Students

Variable	Mean	SD	N	Pearson Correlation (r)	Sig. (2-tailed)	Decision
Extent of AI Usage	3.12	0.74	242	-0.483	0.000	Rejected
Independent Reasoning	2.29	0.81	242			

The findings in Table 7 above reveals a reasonable negative relationship between AI usage and independent reasoning ($r = -0.483$, $p < 0.05$). Since the probability value is less than the 0.05 level of significance, the null hypothesis is therefore rejected. This means that higher AI usage is connected with lower levels of perceived independent reasoning among the respondents.

Hypothesis Three

There is no significant relationship between the extent of artificial intelligence usage and students' confidence in generating original academic content.

Table 8: Pearson Correlation Analysis of AI Usage and Original Content Confidence

Variable	Mean	SD	N	Pearson Correlation (r)	Sig. (2-tailed)	Decision
Extent of AI Usage	3.12	0.74	242	-0.512	0.000	Rejected
Content Confidence	2.34	0.81	242			

Table 8 shows a significant negative relationship between AI usage and confidence in generating original academic content ($r = -0.512$, $p < 0.05$). Since the probability value is below the 0.05 level of significance, the null hypothesis is rejected. This finding implies that students who rely more on AI tend to report lower confidence in producing original academic work without technological assistance.

Hypothesis Four

There is no statistically significant relationship between the overall extent of artificial intelligence usage and self-reported project writing skills among Business Education students.

Table 9: Pearson Correlation Analysis of AI Usage and Project Writing Skills

Variable	Mean	SD	N	Pearson Correlation (R)	Sig. (2-tailed)	Decision
Extent of AI Usage	3.12	0.74	242	-0.395	0.000	Rejected
Project Writing Skills	2.26	0.80	242			

The findings in table 9 indicates a moderate negative relationship between AI usage and project writing skills ($r = -0.395$, $p < 0.05$). The null hypothesis is therefore rejected because the probability value is less than the 0.05 level of significance. The finding suggests that higher levels of AI usage are related with lower self-reported project writing skills, particularly in areas that require critical analysis and interpretation of research findings.

Discussion of Findings

The findings of the study reveals useful evidence on the relationship between Artificial Intelligence (AI) usage and selected academic competencies among Business Education students. The finding revealed a positive relationship between AI usage and digital overdependence among the respondents. Students reported frequent use of AI tools, particularly for proofreading, editing, generating ideas, and preparing outlines for academic work. This finding is consistent with Cognitive Load Theory, which explains that learners naturally seek ways to reduce mental effort when performing demanding tasks (Sweller, 1988). Although AI can make academic work easier and more efficient, excessive dependence may gradually reduce students' willingness to complete similar tasks independently.

However, this relationship does not apply the same for every student. Factors such as previous academic ability, digital literacy, and students' understanding of responsible AI use may influence the extent to which AI becomes a support tool or a source of overdependence.

The findings also reveals a negative relationship between AI usage and independent reasoning among students in the University. Students who reported higher levels of AI use also indicated lower confidence in handling academic problems without digital assistance. This means that frequent dependence on AI may reduce opportunities for students to practice the critical thinking and reasoning skills expected during higher education. The finding is in line with the submission of with Tian and Zhang (2025), who asserted

that heavy reliance on generative AI was associated with lower levels of critical thinking and metacognitive skills among university students.

Although, the result does not mean that AI always weakens independent reasoning. As several recent studies suggest that AI can also support critical thinking when students use it to generate ideas, compare different viewpoints, rather than simply copying AI-generated responses.

The findings also reveals a negative relationship between AI usage and confidence in generating original academic content. The findings reveals that many students experienced producing academic work without AI support. This finding implies that frequent dependence on AI may reduce students' confidence in their own writing ability over time. This findings is in line with the scholarly submission of Shaw and Nave (2026) who observed that continuous reliance on AI may reduce students' confidence in expressing their own academic ideas.

The problem, therefore, is not the existence and application of AI itself but ensuring that students continue to develop their own writing skills while using AI as a learning support rather than as a replacement for independent work.

The finding of the study also negative relationship between AI usage and project writing skills. Although most of respondents reveals a high confidence in completing project writing with difficulty with more demanding tasks, including reviewing literature, analysis and interpreting statistical findings, and integrating evidence from different academic sources without AI assistance. This finding agrees with the submission of Barrot (2023) who found out that while AI can improve the speed and presentation of academic writing, it cannot replace the analytical and research skills developed through independent practice.

Conclusion

From the findings it can be concluded that AI has become an important academic support tool for many students, particularly in research work. However, the study also found that over reliance on AI is results to increased digital overdependence and weakening project writing skills. The findings aligns with the Cognitive Load Theory assumptions, which suggests that meaningful learning occurs when students actively engage in thinking, problem-solving, and knowledge construction. Although AI has proven reduce the time and effort required to complete academic tasks, students still need to practice research, analysis, and academic writing independently if they are to develop the competencies expected of university graduates. This then implies that AI should be used as a learning support tool rather than as a substitute for students' own intellectual effort.

Recommendations

1. Universities should integrate artificial intelligence literacy into research methodology and academic writing courses.
2. Universities should provide and improve ICT infrastructure and internet accessibility to enhance student's exposure to artificial intelligence technologies.
3. Universities should make frantic efforts to organize regular workshops and seminars on the ethical and effective use of AI tools in academic writing.
4. Supervisors should guide students on the responsible use of artificial intelligence tools to prevent plagiarism and overdependence on AI-generated contents.
5. Institutions should provide access to premium academic writing tools such as Grammarly and Turnitin to improve research quality.

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