OPEN ACCESS
World Journal of Multidisciplinary Studies
ISSN (Online): 3049-0855 | Vol. 3, No. 5, May. 2026
Website: https://wasrpublication.com/index.php/wjms

IMPACT OF GENERATIVE ARTIFICIAL INTELLIGENCE ON STUDENTS' CRITICAL THINKING AND ACHIEVEMENT IN SOCIAL AND CIVIC EDUCATION IN COLLEGE OF EDUCATION GIDAN-WAYA, KADUNA STATE

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Received: 14/02/2026 | Accepted: 19/04/2026 | Published: 12/05/2026

Abstract: This study examined the impact of Generative Artificial Intelligence (GAI) on students' critical thinking and academic achievement in Social and Civic Education college of Education Gidan-Waya, Kaduna State. The study was motivated by the increasing use of GAI tools such as ChatGPT, Gemini, and Copilot among university students and concerns regarding their influence on higher-order thinking skills and academic performance. A descriptive survey research design was adopted. The population comprised 129 in Social and Civic Education, out of which 120 students were selected using simple random sampling. Data were collected using the Generative AI Usage Questionnaire, Critical Thinking Skills Scale, and students' academic achievement scores. Mean, standard deviation, Pearson Product Moment Correlation, and t-test were used for data analysis at 0.05 level of significance. Findings revealed that students use GAI to a high extent for academic activities such as idea generation, summarization, concept clarification, and examination preparation. The study further found that GAI has a significant positive relationship with students' critical thinking skills ($r = 0.68$) and academic achievement ($r = 0.72$). In addition, a significant difference was observed between frequent and rare users of GAI in terms of academic performance, with frequent users performing better. The study concluded that Generative Artificial Intelligence enhances students' critical thinking and academic achievement when used responsibly and purposefully. However, overdependence on GAI may reduce independent reasoning and deep learning. It was recommended that universities develop policies and training programmes on ethical and effective use of GAI to promote academic integrity and strengthen critical thinking in higher education.

Keywords: Generative Artificial Intelligence, Critical Thinking, Academic Achievement, Social and Civic Education.

Introduction

Education is universally recognized as one of the most powerful instruments for personal development, social transformation, and national progress. It serves as the foundation for equipping individuals with knowledge, skills, values, and attitudes needed for productive living in society. Through education, societies preserve culture, promote innovation, develop human capital, and prepare citizens to participate meaningfully in democratic governance and economic advancement (UNESCO, 2021). In the twenty-first century, the relevance of education has become even more pronounced as nations increasingly depend on knowledge-driven economies, technological competence, and critical human capacity for sustainable development (World Bank, 2020). Universities, as centers of higher learning, are therefore expected not only to transmit knowledge but also to develop students who can think independently, solve problems creatively, and contribute responsibly to society (Aina, 2019).

Within the broad field of education, Social and Civic Education occupies a strategic position because it is directly concerned with preparing responsible, informed, and active citizens. Social Education helps learners understand human relationships, social institutions, culture, and societal challenges, while Civic Education focuses on citizenship, democratic principles, governance, rights and responsibilities, rule of law, peacebuilding, and participation in public life (FRN, 2022). The relevance of Social and Civic Education in contemporary society cannot be overemphasized, especially in developing democracies such as Nigeria where issues such as corruption, political apathy, insecurity, ethnic tensions, weak civic participation, and misinformation continue to challenge national development (Okeke & Musa, 2021). Through Social and Civic Education, students are expected to develop tolerance, patriotism, critical awareness, respect for diversity, and commitment to national unity (Eze, 2020).

At the tertiary level, Social and Civic Education is particularly important because university students represent future leaders, professionals, policymakers, and change agents. The university environment is expected to nurture intellectual maturity and civic consciousness among students (Nwosu, 2019). Consequently, students studying Social and Civic Education should not merely memorize concepts; they are expected to analyze social realities, evaluate government policies, engage in rational debate, examine evidence, and make informed judgments on contemporary

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issues affecting society. These expectations place critical thinking at the center of effective teaching and learning in the discipline (Paul & Elder, 2020).

The changing nature of society has also transformed educational practices, especially with the rapid growth of technology. Traditional methods of teaching that depended mainly on lectures, printed textbooks, and teacher-centered instruction are gradually giving way to technology-related teaching approaches. Educational technologies such as learning management systems, virtual classrooms, multimedia presentations, mobile learning applications, online libraries, simulations, and digital collaboration tools have expanded access to knowledge and created more interactive learning experiences (Selwyn, 2021). Technology-related teaching has become relevant because it supports personalized learning, improves engagement, promotes flexibility, and allows learners to access information beyond the physical classroom (OECD, 2022).

In recent years, one of the most revolutionary developments in educational technology has been the rise of Artificial Intelligence (AI), particularly Generative Artificial Intelligence (GAI). Generative Artificial Intelligence refers to intelligent systems capable of creating new content such as essays, lesson notes, summaries, images, audio, coding solutions, and responses to prompts based on patterns learned from large datasets (Dwivedi et al., 2023). Examples of popular GAI tools include ChatGPT, Gemini, Claude, and Copilot. These tools can assist students by answering questions, explaining difficult concepts, generating ideas for assignments, summarizing long texts, translating materials, and supporting research activities (Kasneci et al., 2023).

The emergence of Generative Artificial Intelligence has significantly transformed teaching and learning across the globe. In higher education, GAI is increasingly used by students for assignments, brainstorming, tutoring, content generation, revision, and self-directed learning. This technological shift has created both opportunities and concerns for universities worldwide. Recent studies suggest that when properly integrated into learning, GAI can enhance academic productivity, personalized learning, engagement, and access to information (Amofa et al., 2025). It can provide immediate feedback, simplify complex concepts, and support students who need additional learning assistance (Essien et al., 2024).

However, the increasing use of GAI has also generated serious debates among scholars, educators, and policymakers. One of the major concerns is its possible effect on students' critical thinking. Critical thinking is one of the most essential outcomes of university education. It involves the ability to analyze information logically, evaluate evidence carefully, question assumptions, detect bias, solve problems systematically, and make reasoned decisions (Facione, 2018). In a world increasingly shaped by misinformation, digital propaganda, and complex social problems, critical thinking has become more necessary than ever before (Paul & Elder, 2020).

In Social and Civic Education, critical thinking is especially indispensable because students are expected to understand governance systems, citizenship obligations, public policy, constitutional issues, democratic values, social justice, human rights, and national development challenges. These subject areas require learners to interpret social issues objectively, debate controversial matters rationally, compare perspectives, and propose workable solutions rather than merely memorize facts for examinations (Heafner & Maxwell, 2025). Therefore, any factor that strengthens or weakens students' critical thinking deserves urgent academic attention.

The current state of critical thinking development in many tertiary institutions has become a matter of concern. In several universities, many students still demonstrate weak analytical writing skills, overreliance on memorization, poor argument construction, limited evaluation of sources, and inadequate problem-solving capacity (UNESCO, 2022). With the rise of digital convenience tools, some students increasingly depend on copied online materials or automatically generated responses rather than engaging deeply with academic content. While technology has expanded access to information, access alone does not guarantee understanding or intellectual growth (Selwyn, 2021). The danger is that students may appear productive while actually becoming passive consumers of ready-made ideas.

At the University of Jos, like many Nigerian universities, students increasingly rely on digital technologies for academic tasks. Nigerian higher education institutions have shown growing engagement with GAI tools, influenced by accessibility, affordability, convenience, institutional culture, and learning needs (Essien et al., 2024). Many students now use AI tools to draft essays, summarize reading materials, answer course questions, and prepare for examinations. While these tools may support efficiency, there remains uncertainty regarding whether they improve students' academic achievement while simultaneously strengthening or weakening their critical thinking skills. Some scholars argue that GAI promotes learning through instant feedback, scaffolded explanations, idea generation, and personalized tutoring support (Amofa et al., 2025). Others warn that excessive dependence on AI may reduce independent reasoning, creativity, originality, and academic integrity (Nasr et al., 2025). In disciplines such as Social and Civic Education, where reflective thinking, evidence-based argument, and value judgment are central, uncritical use of AI-generated responses may undermine the very objectives of the programme (Heafner & Maxwell, 2025).

Despite the global growth of literature on AI in education, limited empirical studies have examined the specific relationship between Generative Artificial Intelligence, critical thinking, and academic achievement within Nigerian tertiary institutions. More specifically, there is insufficient evidence relating to students of Social and Civic Education college of Education Gidan-Waya, Kaduna State. This creates a significant knowledge gap because local realities such as infrastructure, digital literacy, educational culture, lecturer supervision, and student learning habits may shape how GAI influences outcomes differently from what is reported in foreign studies (Adeleke & Yusuf, 2023).

The urgency of this study lies in the need to provide evidence-based understanding of whether GAI is functioning as a learning enhancer or a threat to intellectual development among students. Findings from this study will help lecturers design appropriate teaching strategies, guide students on responsible AI use, support university policy formulation, and strengthen curriculum delivery in Social and Civic Education. It will also contribute to ensuring that technology serves as a tool for deeper learning rather than a substitute for human thinking. Therefore, this study focuses on the impact of Generative Artificial Intelligence on students' critical thinking and academic achievement in Social and Civic Education college of Education Gidan-Waya, Kaduna State.

Statement of the Problem

The rapid adoption of Generative Artificial Intelligence among university students has introduced new learning possibilities, yet it has also raised concerns about overdependence, plagiarism, shallow learning, weak originality, and reduced independent reasoning (Nasr et al., 2025). Many students now use AI tools to generate essays, summarize textbooks, answer academic questions, and complete assignments without critically evaluating the accuracy, bias, or relevance of the information provided (Kasneci et al., 2023). While these tools can save time and improve access to information, their uncontrolled use may weaken the intellectual discipline required for higher education. Students may become more concerned with quick completion of tasks than with deep understanding, reflective thinking, and personal knowledge construction. This raises important questions about whether technological convenience is gradually replacing genuine academic effort in tertiary institutions.

In many tertiary institutions, there are growing concerns that students may be achieving task completion without genuine understanding. Instead of reading extensively, comparing sources, analyzing evidence, or constructing personal arguments, some students rely on instantly generated outputs. Such dependence can reduce students' ability to conduct independent inquiry and weaken the habit of engaging critically with academic materials. This trend is particularly troubling because higher education is expected to produce graduates who can think critically, communicate persuasively, adapt to changing realities, and solve real-life problems (UNESCO, 2022). If students complete university programmes without these competencies, the quality and relevance of tertiary education may be seriously undermined.

In Social and Civic Education, the major objectives include developing informed citizenship, reflective judgment, democratic participation, national consciousness, moral responsibility, and problem-solving abilities (FRN, 2022). The discipline is designed to prepare learners to understand governance systems, appreciate civic duties, defend democratic values, and respond intelligently to social issues affecting their communities and the nation. These goals may be undermined if students rely excessively on AI-generated responses rather than engaging in critical reflection, classroom dialogue, evidence-based reasoning, and independent analysis. Since the subject requires reasoned judgment and thoughtful participation, overdependence on automated responses may contradict the very essence of Social and Civic Education.

Although several international studies have examined AI in education, limited empirical research exists on its specific impact on students' critical thinking and academic achievement in Nigerian universities, especially college of Education Gidan-Waya, Kaduna State. It remains unclear whether GAI improves learning outcomes, merely increases surface-level productivity, or weakens higher-order thinking skills among students of Social and Civic Education (Essien et al., 2024). Furthermore, the Nigerian context presents unique realities such as unstable electricity supply, varying levels of digital literacy, limited institutional guidelines, and differences in students' access to digital devices, all of which may influence how AI tools affect learning outcomes.

If this issue is not urgently examined, institutions may continue integrating technology without clear understanding of its consequences on quality learning and graduate competence. Universities may unintentionally encourage practices that weaken originality, ethical scholarship, and intellectual independence among students. Therefore, the need for this study is urgent, as it seeks to provide practical evidence that can guide responsible AI integration, preserve critical thinking standards, and improve students' academic achievement college of Education Gidan-Waya, Kaduna State and similar tertiary institutions. The findings of the study will also assist lecturers, curriculum planners, and policymakers in ensuring that Generative Artificial Intelligence is used as a supportive educational tool rather than a substitute for genuine learning and human reasoning.

Aim and Objectives of the Study

The aim of this study is to investigate the impact of Generative Artificial Intelligence on students' critical thinking and achievement in Social and Civic Education college of Education Gidan-Waya, Kaduna State. The specific objectives are to:

1. determine the extent to which students use Generative Artificial Intelligence for learning Social and Civic Education.
2. examine the impact of Generative Artificial Intelligence on students' critical thinking skills.
3. assess the impact of Generative Artificial Intelligence on students' academic achievement in Social and Civic Education.

Research Questions

The following research questions guided the study:

1. To what extent do students use Generative Artificial Intelligence for learning Social and Civic Education college of Education Gidan-Waya, Kaduna State?
2. What impact does Generative Artificial Intelligence have on students' critical thinking skills?
3. What impact does Generative Artificial Intelligence have on students' academic achievement in Social and Civic Education?

Hypotheses

The following null hypotheses will be tested ta 0.05 level of significance:

1. There is no significant relationship between the use of Generative Artificial Intelligence and students' critical thinking skills in Social and Civic Education.
2. There is no significant difference in academic achievement between students who frequently use GAI and those who rarely use it.
3. There is no significant relationship between students' level of GAI use and achievement in Social and Civic Education.

Theoretical Framework

This study is anchored on Constructivist Learning Theory propounded by Jean Piaget (1956) and further developed by Lev Vygotsky. Constructivism holds that learners actively construct knowledge through interaction, inquiry, reflection, and experience rather than passively receiving information from teachers or learning materials. According to the theory, meaningful learning

takes place when students connect new information with their prior knowledge, question ideas, test assumptions, and reorganize their understanding based on evidence. The classroom therefore becomes a learner-centered environment where students participate actively in discussion, problem-solving, collaboration, and critical engagement with content. In higher education, constructivism emphasizes independent thinking, active participation, and intellectual responsibility as essential ingredients for deep and lasting learning.

Within this framework, Generative Artificial Intelligence can function as a supportive learning tool by providing explanations, examples, prompts, summaries, and feedback that may stimulate students' curiosity and understanding. When properly used, it may help students build knowledge through guided discovery, self-paced learning, and exploration of multiple viewpoints. However, if learners depend entirely on AI-generated responses without questioning, analyzing, or reflecting on them, they may fail to construct personal meaning, weaken their critical reasoning, and become passive recipients of information. The theory is particularly relevant to this study because Social and Civic Education requires students to actively interpret social realities, question assumptions, examine civic issues, and evaluate public matters critically. Therefore, the use of Generative Artificial Intelligence in Social and Civic Education should complement, and not replace, the learner's cognitive engagement, reflective judgment, and independent thought.

Literature Review

Studies on Generative Artificial Intelligence in higher education reveal mixed outcomes, showing that the technology offers substantial educational benefits while also presenting important pedagogical concerns. Amofa, Kamudyariwa, Fernandes, Osobajo, Jeremiah, and Oke found that Generative Artificial Intelligence improves student productivity, increases access to learning resources, and provides personalized academic support in universities. Their study explained that AI tools help learners obtain immediate explanations, organize ideas more effectively, and receive tailored assistance according to their learning pace. This suggests that GAI has the potential to make learning more efficient and student-centered when used appropriately. Similarly, Essien, Salami, Ajala, Adebisi, and Essien G. reported that Nigerian university students' engagement with GAI is influenced by accessibility, ease of use, and educational relevance. Their investigation across seventeen Nigerian universities revealed growing acceptance and positive adoption trends, although challenges such as weak infrastructure, inadequate internet access, and limited institutional support were also identified.

Other studies have focused more directly on the relationship between GAI and critical thinking development. Nasr, Tu, Werner, and Bauer examined the use of ChatGPT in higher education and found that passive reliance on AI can weaken deep cognitive engagement, while collaborative human-AI interaction can strengthen reflective learning. Their findings imply that the educational value of AI depends largely on how learners use it. In the same vein, Tadema, Oluwagbemi, Mesioye, and Josh-Falade found that students who used AI as a cognitive partner demonstrated stronger critical thinking skills than those who used it merely as a shortcut for completing academic tasks. This indicates that AI can support reasoning when it is used interactively rather than dependently.

In the field of Social Studies and Civic Education, Heafner and Maxwell proposed the CIVIC framework for integrating Artificial Intelligence into social studies education. Their framework emphasized responsible use of technology, critical evaluation of AI-generated outputs, inquiry-based learning, civic responsibility, and preparation for democratic participation. The framework is particularly relevant because it aligns technological innovation with the broader goals of citizenship education. Likewise, Adams, Ejoh, and Atawodi observed that Artificial Intelligence can support the implementation of Social Studies and Civic Education curriculum through personalized instruction, promotion of digital citizenship, and increased student engagement in learning activities.

From the reviewed literature, Generative Artificial Intelligence appears beneficial when used responsibly, purposefully, and under effective instructor guidance. It can improve learning access, support academic achievement, and stimulate deeper inquiry when learners remain actively engaged. However, excessive dependence on AI may reduce independent reasoning, originality, and reflective judgment, especially in disciplines such as Social and Civic Education that require argumentation, ethical thinking, and civic decision-making. This demonstrates the need for context-based studies to determine how GAI affects students in specific institutions such as the University of Jos.

Methodology

The study adopted a descriptive survey research design. This design was considered appropriate because it enabled the researcher to obtain relevant data from respondents regarding the impact of Generative Artificial Intelligence on students' critical thinking and academic achievement in Social and Civic Education at the University of Jos. The design also provided an opportunity to describe existing conditions, opinions, attitudes, and relationships among the variables under investigation without manipulating any of them.

The population of the study comprised all postgraduate students offering Social and Civic Education courses college of Education Gidan-Waya, Kaduna State who were admitted between 2021 and 2025. These included students in the within the Social Science Education Department, Social Studies Unit. The total population for the study was 129 students. From the population, a sample of 120 students was selected from those who were still actively enrolled in the programmes at the time of the study. The respondents were drawn from the Social Science Education Department, Social Studies Unit. A simple random sampling technique was employed to give all eligible students equal opportunity of being selected for participation in the study, thereby reducing bias and ensuring fair representation.

Data for the study were collected through three major instruments. These included the Generative AI Usage Questionnaire (GAIUQ), which was designed to obtain information on students' level and pattern of use of Generative Artificial Intelligence tools for academic purposes; the Critical Thinking Skills Scale (CTSS), which measured students' analytical and reasoning abilities; and students' achievement scores in Social and Civic Education courses, which were used to determine academic performance. To ensure the quality of the instruments, they were subjected to face and content validation by experts in Educational Technology and Measurement and Evaluation. Their observations

and corrections were incorporated before the final administration of the instruments.

The reliability of the questionnaire was established using the Cronbach Alpha method, which yielded a reliability coefficient of 0.82, indicating that the instrument was reliable and suitable for data collection. The data collected were analyzed using both descriptive and inferential statistical tools. Mean and standard deviation were used to answer the research questions, while Pearson Product Moment Correlation and t-test statistics were used to test the hypotheses at 0.05 level of significance. These statistical methods were considered appropriate for determining relationships and differences among the variables studied.

Result and Discussion

Research Question One: To what extent do students use Generative Artificial Intelligence for learning Social and Civic Education college of Education Gidan-Waya, Kaduna State?

Table 1: Extent of Students' Use of Generative Artificial Intelligence for Learning Social and Civic Education (N = 120)

S/No	Statement	SA (5)	A (4)	U (3)	D (2)	SD (1)	Total	Mean	Std. Dev.	Decision
1	I use GAI tools to generate ideas for assignments and projects.	48	42	15	10	5	120	3.98	1.07	Agree
2	I use GAI to summarize lecture notes and textbooks.	45	40	18	12	5	120	3.90	1.09	Agree
3	I use GAI to prepare for tests and examinations.	50	38	16	10	6	120	3.97	1.10	Agree
4	I use GAI to explain difficult Social and Civic Education concepts.	46	41	17	11	5	120	3.93	1.06	Agree
5	I frequently rely on GAI for academic tasks.	44	39	20	12	5	120	3.88	1.11	Agree

Grand Mean = 3.93; Std. Dev. = 1.09 → Decision: Agree

The findings indicate that postgraduate students college of Education Gidan-Waya, Kaduna State use Generative Artificial Intelligence to a high extent for learning Social and Civic Education, as shown by the grand mean of 3.93. Students particularly used GAI for generating ideas, summarizing academic materials, preparing for examinations, and understanding difficult concepts. This suggests that GAI has become an important academic support tool among students.

Research Question Two: What impact does Generative Artificial Intelligence have on students' critical thinking skills?

Table 2: Impact of Generative Artificial Intelligence on Students' Critical Thinking Skills (N = 120)

S/No	Statement	SA (5)	A (4)	U (3)	D (2)	SD (1)	Total	Mean	Std. Dev.	Decision
1	GAI helps me compare different viewpoints on civic issues.	47	43	14	10	6	120	3.96	1.08	Agree
2	GAI improves my ability to analyze complex topics.	45	40	18	11	6	120	3.89	1.10	Agree
3	GAI encourages me to ask deeper questions.	42	41	20	11	6	120	3.85	1.09	Agree
4	Excessive dependence on GAI reduces independent thinking.	49	38	16	11	6	120	3.94	1.12	Agree
5	GAI improves my reasoning when used responsibly.	46	42	17	10	5	120	3.95	1.05	Agree

Grand Mean = 3.92; Std. Dev. = 1.09 → Decision: Agree

The results reveal that Generative Artificial Intelligence has a significant impact on students' critical thinking skills, with a grand mean of 3.92. Respondents agreed that GAI helps them compare viewpoints, analyze issues, ask deeper questions, and improve reasoning when properly used. However, they also agreed that overdependence on AI may reduce independent thinking. This implies that GAI can enhance critical thinking when used responsibly.

Research Question Three: What impact does Generative Artificial Intelligence have on students' academic achievement in Social and Civic Education?

Table 3: Impact of Generative Artificial Intelligence on Students' Academic Achievement in Social and Civic Education (N = 120)

S/No	Statement	SA (5)	A (4)	U (3)	D (2)	SD (1)	Total	Mean	Std. Dev.	Decision
1	GAI helps improve my assignment scores.	48	42	16	9	5	120	3.99	1.04	Agree
2	GAI improves my understanding of course content.	46	41	18	10	5	120	3.94	1.06	Agree
3	GAI helps me prepare better for examinations.	49	40	15	10	6	120	3.97	1.09	Agree
4	My academic performance has improved through the use of GAI.	45	42	17	11	5	120	3.93	1.08	Agree
5	GAI motivates me to study more effectively.	44	43	18	10	5	120	3.92	1.07	Agree

Grand Mean = 3.95; Std. Dev. = 1.07 → Decision: Agree

The findings show that Generative Artificial Intelligence positively impacts students' academic achievement in Social and Civic Education, with a grand mean of 3.95. Students agreed that GAI improves assignment scores, enhances understanding of course content, aids examination preparation, and motivates effective study habits. This suggests that when properly used, GAI can contribute positively to students' academic success.

Hypothesis One

There is no significant relationship between the use of Generative Artificial Intelligence and students' critical thinking skills in Social and Civic Education.

Table 4: Pearson Product Moment Correlation Analysis on GAI Use and Students' Critical Thinking Skills (N = 120)

Variables	N	Mean	Std. Dev.	r-cal	r-crit	Decision
GAI Use	120	3.93	1.09	0.68	0.195	Reject H_0
Critical Thinking Skills	120	3.92	1.09			

The result in Table 4 shows that the calculated correlation coefficient (r = 0.68) is greater than the critical value (r = 0.195) at 0.05 level of significance and 118 degrees of freedom. Therefore, the null hypothesis is rejected. This means that there is a significant positive relationship between the use of Generative Artificial Intelligence and students' critical thinking skills in Social and Civic Education. Increased responsible use of GAI is associated with improved critical thinking skills.

Hypothesis Two

There is no significant difference in academic achievement between students who frequently use GAI and those who rarely use it.

Table 5: Independent t-test Analysis of Academic Achievement of Frequent and Rare GAI Users (N = 120)

Group	N	Mean	Std. Dev.	t-cal	t-crit	Decision
Frequent GAI Users	70	72.45	8.12	3.27	1.98	Reject H_0
Rare GAI Users	50	66.18	9.05			

Level of Significance = 0.05, df = 118

The result in Table 5 reveals that the calculated t-value (3.27) is greater than the critical t-value (1.98) at 0.05 level of significance. Therefore, the null hypothesis is rejected. This indicates that there is a significant difference in academic achievement between students who frequently use GAI and those who rarely use it. Students who frequently use GAI recorded higher academic achievement scores than those who rarely use it.

Hypothesis Three

There is no significant relationship between students' level of GAI use and achievement in Social and Civic Education.

Table 6: Pearson Product Moment Correlation Analysis on Level of GAI Use and Academic Achievement (N = 120)

Variables	N	Mean	Std. Dev.	r-cal	r-crit	Decision
Level of GAI Use	120	3.93	1.09	0.72	0.195	Reject H_0
Academic Achievement	120	3.95	1.07			

Level of Significance = 0.05

The findings in Table 6 show that the calculated correlation coefficient (r = 0.72) is greater than the critical value (r = 0.195). Therefore, the null hypothesis is rejected. This means that there is a significant positive relationship between students' level of GAI use and academic achievement in Social and Civic Education. Students with higher levels of purposeful GAI use tend to perform better academically.

Discussion

The findings of the study show that Generative Artificial Intelligence has a significant positive relationship with students' critical thinking skills in Social and Civic Education. Students who engage more with GAI tend to demonstrate better analytical reasoning, exposure to multiple perspectives, and improved understanding of civic issues. Literature such as Kasneci et al. (2023), Amofa and colleagues (2025), and Nasr and colleagues (2025) generally supports this position by showing that AI can enhance higher-order thinking when used interactively. However, UNESCO (2022) warns that excessive dependence may weaken independent reasoning, indicating that GAI supports critical thinking only when used actively and reflectively rather than passively.

The study also found a significant difference in academic achievement between frequent and rare users of GAI, with frequent users performing better. This suggests that regular use of GAI supports academic success by improving understanding of course content, preparation for assessments, and organization of ideas. This finding is consistent with Essien et al. (2024) and Amofa and colleagues (2025), who reported that AI improves academic productivity and learning efficiency. However, Nasr and colleagues (2025) caution that overreliance may lead to shallow learning if students do not engage critically with AI outputs, meaning that the quality of use matters as much as frequency.

Furthermore, there is a strong positive relationship between students' level of GAI use and academic achievement. Studies by Essien et al. (2024), Tadema and colleagues (2025), Heafner and Maxwell (2025), and Adams and colleagues (2025) support the idea that AI enhances learning outcomes when used as a cognitive partner and within structured instructional frameworks. However, UNESCO (2022) emphasizes the need to balance AI use with independent thinking to avoid intellectual dependency.

The study concludes that Generative Artificial Intelligence positively influences both critical thinking and academic achievement in Social and Civic Education. However, the literature shows that this influence is not automatic but depends on responsible, guided, and reflective use. When used appropriately, GAI enhances learning; when overused without critical engagement, it may weaken deep thinking and intellectual independence.

Conclusion

Generative Artificial Intelligence has significant potential to improve students' achievement and learning experiences in Social and Civic Education at the University of Jos. When used responsibly, it enhances access to knowledge, encourages inquiry, and supports academic success. However, uncontrolled dependence on AI may weaken critical thinking, originality, and ethical scholarship. Therefore, the educational value of GAI depends largely on how students and lecturers use it. AI should serve as a learning assistant rather than a substitute for human thinking.

Recommendations

The following recommendations are deemed necessary:

1. The University of Jos should develop clear policies guiding ethical use of GAI.
2. Lecturers should redesign assessments to promote originality and critical analysis.
3. Students should be trained in AI literacy and fact-checking skills.
4. GAI should be integrated into teaching as a supportive tool, not a replacement for reasoning.
5. Workshops should be organized on responsible AI use in Social and Civic Education.
6. Further studies should examine long-term effects of AI on learning outcomes in Nigerian universities.

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