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"It's like I have stopped trusting my brain." The Impact of AI Use on Student Thinking, Writing, and Academic Confidence: Findings from Semi-Structured Interviews in a Qualitative Descriptive Study

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Abstract

Background: Artificial intelligence (AI) is increasingly shaping higher education, influencing how students think, write, and build academic confidence. While AI provides opportunities for personalized learning and technical support, it also raises concerns about reduced critical thinking, originality, and overreliance.

Purpose: This study explored the experiences of undergraduate students at the University of Ghana regarding how AI use affects their academic writing, critical thinking, and confidence.

Methods: A qualitative descriptive design was employed. Twenty undergraduate students were purposively recruited through WhatsApp groups and peer networks. Data were collected through semi-structured interviews, conducted both face-to-face and online, and analyzed inductively using Braun and Clarke's six-step thematic framework. Ethical approval was obtained, and all participants provided informed consent.

Results: Three major themes with nine subthemes emerged. Students reported (1) a decline in confidence and cognitive engagement due to passive reliance on AI, undervaluing of personal ideas, and preference for quick answers; (2) perceived academic benefits, including judgment-free learning spaces and improved grammar and structure; and (3) anxiety about overdependence, with fears of losing autonomy in academic and professional tasks.

Conclusions: The findings highlight both benefits and risks of AI use in higher education. While AI tools can enhance comprehension, technical writing, and confidence, they may also undermine critical thinking, originality, and academic identity. The study underscores the need for universities to balance AI integration with intentional strategies that promote independent learning, critical thinking, and ethical use.

Keywords: Artificial intelligence; higher education; academic confidence; critical thinking; student learning; Ghana

What is already known about this topic

- Students increasingly use AI for comprehension, drafting, and feedback.
- A.I use Ethical concerns among undergraduate students (authorship, integrity, privacy).
- Fears of AI replacing human skills.

What this paper adds

- This paper draws a link between A.I use impact on students' cognitive abilities viewing it as a mechanism of cognitive disengagement
- Shows erosion of academic self-authorship as students discount their ideas and adopt AI's voice.
- Documents affective costs and dependency fears in AI-restricted contexts (exams, workplaces).
- It identifies countervailing benefits by viewing A.I as psychologically safe, non-judgmental medium of learning.

Implications for practice and/or policy

- Findings will help advance educator understanding of how AI affects academic identity and performance, informing responsive pedagogy
- It will inform train faculty to integrate AI responsibly and to mentor students toward independent thinking.
- Findings highlight the need to intentionally integrate AI literacy into curricula while safeguarding academic self-efficacy
- Universities should establish policies that clarify the ethical use of AI, particularly around authorship, plagiarism, and academic integrity

Introduction

In the past decade, the rise of artificial intelligence (AI) has begun to transform many aspects of human life, from health care and business to communication and entertainment. One of the most striking areas where AI is rapidly making its mark is education, particularly higher education. Universities and colleges across the world are grappling with the promise and perils of integrating AI into teaching, learning, and assessment. For students, tools such as ChatGPT and other large language models have become almost inseparable companions in their daily academic lives. Whether used to generate essay outlines, summarize lecture notes, correct grammar, or

provide quick explanations of complex theories, these technologies are redefining the way students learn, think, and engage with knowledge.

While AI offers clear opportunities, it also raises pressing concerns that require careful attention. On one hand, advocates highlight its potential to promote personalized learning, provide real-time feedback, and ease academic workloads (Namjoo et al., 2023). On the other hand, scholars caution that overreliance on AI may gradually erode students' ability to think critically and creatively on their own, weakening their academic confidence and intellectual autonomy (Altınay et al., 2024; Quinde et al., 2024). This tension between opportunity and risk lies at the heart of current debates about AI in higher education.

AI in Higher Education

Supporters of AI in education often emphasize its potential to make learning more inclusive, efficient, and adaptive. For instance, AI tools can simplify complex texts into more digestible explanations, helping students who struggle with academic language. They can also assist second-language learners by correcting grammar and improving sentence structure, thereby boosting confidence in writing assignments. By acting like a "personal tutor," AI has the potential to democratize access to support that may otherwise be limited due to resource constraints or large class sizes. In contexts where students may feel shy to ask questions in class or lack one-on-one access to lecturers, AI can serve as a non-judgmental learning partner.

Namjoo et al. (2023) suggest that students increasingly turn to AI because it provides personalized and instant guidance, something that traditional educational systems often fail to offer. Quinde et al. (2024) add that AI tools can motivate learners by offering quick answers and structured explanations that save time and reduce stress. From this perspective, AI can be understood as an empowering tool that enhances learning efficiency and levels the playing field for students with diverse needs.

Concerns about Overreliance and Cognitive Decline

Despite these benefits, many educators and researchers are concerned about the unintended consequences of heavy reliance on AI. The concept of cognitive offloading is particularly relevant here. Cognitive offloading refers to the process of shifting mental tasks onto external tools or systems, thereby reducing the need for individuals to engage deeply with the material themselves (Hamilton & Yao, 2018). While this may be efficient in the short term, over time it can weaken students' capacity for independent problem-solving, reflection, and critical thinking.

Altınay et al. (2024) warn that students who routinely depend on AI for academic work may begin to undervalue their own ideas, preferring the polished and authoritative-sounding responses generated by technology. This can lead to diminished self-confidence and even a loss of academic identity. In addition, ethical dilemmas around authorship, plagiarism, and the originality of student work complicate the picture. If students increasingly rely on AI-generated text, to what extent can the final product still be considered their own intellectual contribution? These concerns are not only academic but also moral, as they touch on issues of honesty, responsibility, and the purpose of education itself.

Emotional and Motivational Dimensions

Another area of concern relates to the emotional and motivational aspects of learning. Education is not just about acquiring information; it is also about building resilience, persistence, and a sense of self-efficacy. AI can

sometimes short-circuit these developmental processes. For example, when students face difficult assignments, the struggle to understand and produce knowledge can foster growth and confidence. However, if AI is used as a shortcut to bypass these struggles, students may miss out on the emotional rewards of learning through effort.

Quinde et al. (2024) note that self-efficacy students' belief in their own ability to succeed is a crucial mediator of learning outcomes. Overreliance on AI may undermine this belief by creating dependency and anxiety about performing without technological support. Some students already report feeling uneasy about exams or professional situations where AI use is restricted, fearing that they will not be able to cope independently. In this way, AI may provide immediate relief but foster long-term insecurity.

The Dual Role of AI: Threat and Opportunity

This dual role of AI as both a potential threat and a valuable opportunity reflects the complexity of its impact on higher education. On one hand, it is a powerful learning aid that can democratize access to knowledge, reduce barriers, and improve academic outcomes. On the other hand, it risks eroding the very qualities that higher education seeks to cultivate: critical thinking, originality, resilience, and academic integrity.

Cai, Msafiri & Kangwa (2025) argue that the impact of AI largely depends on how it is integrated into teaching and learning. When used strategically as scaffolding, AI can support students' development by providing timely feedback and structured guidance. Similarly, Ruzieva (2025) suggests that AI can actually stimulate critical thinking when embedded in problem-based learning frameworks. However, when students use AI as a substitute for effort or as a shortcut to avoid intellectual struggle, it undermines genuine learning. The difference, therefore, lies not only in the technology itself but also in the intentions, contexts, and strategies surrounding its use.

The Research Gap: Voices from Low-Resource Contexts

Although there is now a growing body of literature on AI in higher education, most of this research comes from high-income countries in Europe, North America, and parts of Asia. These studies often assume access to stable internet, advanced infrastructure, and supportive institutional frameworks. Yet, the realities of students in low-resource settings, such as Ghana, are quite different.

African universities often face challenges such as limited digital infrastructure, unequal access to devices and connectivity, and larger class sizes that constrain one-on-one interaction between students and lecturers. These factors may shape how AI is used and perceived by students in ways that differ significantly from the global North. For example, in contexts where access to academic support services is limited, AI may serve as an essential substitute rather than an optional supplement. Conversely, infrastructural limitations may prevent students from fully leveraging AI's potential, leaving them in a position of partial dependence or frustration.

Despite these unique realities, there is still limited research exploring how Ghanaian undergraduates experience AI in their learning practices. This lack of context-specific knowledge leaves a significant gap in both academic understanding and policy development. Without insights from low-resource contexts, efforts to design responsible AI integration strategies risk being incomplete or even ineffective.

The Significance of this Study

This study is motivated by the need to fill this gap. By exploring the lived experiences of undergraduate students at the University of Ghana, it seeks to understand how AI tools are shaping students' thinking, writing, and

academic confidence. The study provides an opportunity to capture the voices of students who are often absent from global debates on AI and education. Their perspectives are critical for building a more inclusive understanding of AI's impact and for designing interventions that are relevant to African contexts.

Furthermore, the study is significant because it contributes to ongoing conversations about the future of higher education in a digital age. Universities worldwide are under pressure to adopt digital technologies, but the question is not just whether to adopt AI but how to do so responsibly. Findings from this study can inform educators and policymakers about the balance needed between leveraging AI's strengths and safeguarding students' independence, creativity, and intellectual growth.

Although AI tools are rapidly becoming integral to higher education globally, their impact on students' writing, critical thinking, and academic confidence remains underexplored in the Ghanaian context. This creates uncertainty about how universities can integrate AI in ways that enhance learning while protecting students' autonomy and academic identity. By addressing this gap, the study aims to provide a conceptual and empirical foundation for ethically responsible AI integration in higher education.

Purpose of the Study

The purpose of this study was to explore how undergraduate students experience and perceive the use of artificial intelligence (AI) tools in their academic work. Specifically, the study sought to understand how AI influences students' writing practices, their ability to think critically, and their overall confidence in their academic abilities. By focusing on students in Ghana, the study aimed to give voice to perspectives that are often missing in global conversations about AI and education, especially in low-resource contexts.

Research Objectives

The study was guided by the following objectives:

1. To examine students' experiences with AI tools in completing academic tasks such as writing assignments, comprehension, and studying.
2. To explore the impact of AI on students' critical thinking, originality, and engagement in the learning process.
3. To investigate how AI use shapes students' academic confidence and their sense of independence in academic work.
4. To identify both the benefits and challenges of AI integration from the perspectives of undergraduate students.
5. To contribute context-specific insights from Ghana to the broader global discourse on AI in higher education.

Methods

Research Approach and Design

The purpose of this study is to examine how AI tools in this case, text-based platforms such as ChatGPT are impacting undergraduate students' writing abilities and skills as critical thinkers. A qualitative methodological approach was chosen to explore in detail students' experiences and perspectives of AI influence on academic practices and learning trajectories. We used a qualitative descriptive study design that describes the basics of a

phenomenon for studies that aim to comprehend patients' lived experiences. This design enabled exploring the ways in which students themselves experience and interpret the integration of AI in academic writing and learning practices.

Setting and Context

The study was carried out at the University of Ghana (UG), Legon, the oldest and the largest public university in Ghana. UG is now one of the leading universities in West Africa. With more than 60000 students, the university draws students from all over Ghana and other parts of Africa, thus providing a rich blend of cultural and ethnic backgrounds. It is constantly ranked one of the top universities in Africa for research output, as well as the overall academic performance of its students, and its schools have been accredited worldwide.

Inclusion and Exclusion Criteria

Eligible participants were undergraduate students registered at UG and actively taking courses that included regular writing exercises such as essays, term papers, project work or reports. This condition was crucial, as the study explored the effect of AI on students' academic writing practice as well as learning practice.

Exclusion criteria were current postgraduates and those who were not in UG as their academic and AI use could be vastly different. This intentional emphasis on undergraduates facilitated the development of a more homogeneous and comparable dataset. Furthermore, participants who responded to their interest, but failed to be available for an interview were not included in the final sample.

Participants and Sampling Method

The study involved 20 undergraduate students from the University of Ghana who were purposively selected to reflect actual engagement with AI tools for academic purposes such as essay writing, assignments, and study-related work. Recruitment was carried out through flyers distributed in departmental WhatsApp groups, supplemented by peer referrals. Out of 28 students who expressed interest, 24 consented, but four later withdrew due to discomfort with audio recording. Data collection continued until saturation was achieved with 20 participants.

The sample was balanced in terms of gender (10 males and 10 females) and included students across different academic levels (five each from Levels 100, 200, 300, and 400). The majority (17) were between the ages of 20 and 30 years, while three were between 31 and 40 years. Participants also reflected religious diversity**,** with fifteen identifying as Christians and five as Muslims. This spread ensured variation in experiences and perspectives. To protect privacy, pseudonyms were assigned during transcription and reporting.

Data Collection Instruments and Technologies

Data for this study were collected using a semi-structured interview guide that was developed based on existing literature on AI in education and refined through discussions with qualitative research experts. The guide contained seven broad, open-ended questions, with follow-up probes that encouraged participants to elaborate on their experiences with AI use in academic work. The flexibility of the guide allowed the interviewer to explore new issues raised during the conversation, while still ensuring consistency across interviews. The instrument remained largely unchanged during the study, although minor wording adjustments were made after the first two interviews to improve clarity. To capture participants' responses accurately, two forms of technology were used.

For the 12 face-to-face interviews conducted at the University of Ghana campus, a digital audio recorder was employed. For the 8 online interviews, the built-in recording function in Zoom was used. In both modes, only the participant and interviewer were present to safeguard privacy. Alongside audio recordings, the researcher also kept field notes to document nonverbal cues and contextual details, as well as reflexive notes to capture assumptions and reflections during the data collection process. These instruments and technologies ensured that data were gathered in a rich, reliable, and ethically sound manner, while also giving participants the freedom to express themselves openly in their preferred mode of participation.

Researcher Characteristics and Reflexivity

The first author, who led data collection, is a senior lecturer with a doctoral degree in education and many years of experience in qualitative research. His background in higher education, along with his familiarity with artificial intelligence, gave him useful insights into the study topic. At the same time, this experience could have introduced certain biases about the benefits and risks of AI. To manage this, he kept a reflexive journal throughout the research process to record his assumptions, thoughts, and possible influences on the study.

Importantly, the researcher did not have any prior personal or professional relationship with the participants. This helped to reduce the risk of power imbalances or preconceived expectations shaping the interviews. Still, since he works in the same university, there was a chance that his position as a lecturer could influence how students responded. To minimize this, he made a conscious effort to remain neutral by asking open-ended questions, listening carefully, and allowing participants to share their views freely and in their own words.

To build trust and ensure transparency, the researcher kept detailed notes during and after interviews, paying attention to both verbal and non-verbal cues. These notes were combined with reflexive observations to create an audit trail. In addition, peer debriefing sessions were held with co-authors and external colleagues. These sessions helped refine the interview guide, review the analysis process, and check that the findings were not shaped by a single researcher's perspective.

Overall, reflexivity was central to this study. The research team remained aware of their own positions and experiences with AI in higher education, and they took deliberate steps to prevent these from overshadowing participants' voices. By prioritizing transparency, diversity in the sample, and honest reflection, the study aimed to present findings that genuinely reflected the perspectives and experiences of the students themselves.

Ethical Considerations

Ethical approval for this study was obtained from the Ethical Committee for the Humanities, University of Ghana. All ethical guidelines for research involving human participants were strictly followed. Participation in the study was entirely voluntary. Before each interview, students were given detailed information about the purpose of the study, the procedures involved, and their rights as participants. Written informed consent was obtained from all participants, and they were reminded that they had the right to withdraw at any point without penalty or loss of benefits.

To protect confidentiality, pseudonyms were used in place of real names during transcription and reporting. Identifying details such as academic programs or specific personal information were removed to prevent recognition. Audio recordings and transcripts were stored securely on password-protected devices accessible only to the research team. Data will be retained for research purposes only and destroyed after the required retention period in line with University of Ghana policies.

Throughout the study, care was taken to ensure that participants felt comfortable and respected. Interviews were conducted in private and safe environments either in designated rooms on campus or via secured online platforms to guarantee privacy and openness. By adhering to these measures, the research team safeguarded the rights, dignity, and well-being of all participants.

Data Processing

All interviews were audio-recorded (using a digital recorder for face-to-face sessions and Zoom's built-in recorder for online sessions) and transcribed verbatim by the research team. Transcripts were double-checked against recordings to ensure accuracy. Identifiable information was removed, and pseudonyms were used to anonymize the data. Field notes capturing non-verbal cues and contextual observations were typed and stored alongside transcripts.

Data were managed using password-protected files accessible only to the research team. Integrity was maintained by creating an audit trail that documented transcription dates, file versions, and coding updates. Reflexive journals were also kept to track researcher assumptions and decisions, which helped maintain transparency throughout the analysis process.

Data Analysis

The interviews were transcribed verbatim and analyzed using Braun and Clarke's (2006) six-step framework for thematic content analysis: familiarization with the data, coding, theme development, review, definition, and final reporting. An inductive approach was adopted, allowing themes to emerge directly from participants' accounts. The first two authors led the analysis, with all authors reviewing and approving the process during several Zoom meetings to resolve minor coding variations. Each transcript was read multiple times to identify recurring ideas, emotional tones, and patterns. To ensure reliability, two researchers independently coded the data, then compared and merged their frameworks, resulting in three main themes and six subthemes that captured the essence of students' experiences with AI in their academic work. Final themes were refined and approved by all authors with minor structural revisions.

Techniques to Enhance Trustworthiness

Several strategies were used to ensure the trustworthiness of the findings. Credibility was enhanced through prolonged engagement with participants, data triangulation (interviews, field notes, reflexive journals), and peer debriefing with co-authors and external experts who reviewed the interview guide, coding framework, and emerging themes. Dependability was supported by maintaining an audit trail of decisions, coding revisions, and methodological notes. Transferability was strengthened by recruiting participants from different academic levels and faculties, capturing a wide range of experiences. Confirmability was assured by the use of reflexive journals, which helped the researchers monitor and manage their assumptions.

Together, these strategies reinforced the reliability of the study while ensuring that the findings authentically represented the voices of the participants.

RESULTS

Table 1. Demographic Variables of Research Participants.

Background Characteristics	Frequency	Percentage (%)
Sex		
Males	**10**	**50**
Females	**10**	**50**
Age		
20 – 30	**17**	**85**
31 - 40	**3**	**15**
Level of Study		
100	**5**	**25**
200	**5**	**25**
300	**5**	**25**
400	**5**	**25**
Religion		
Christianity	**15**	**75**
Muslim	**5**	**25**
Department Adult Education & Human Resource Studies	**8**	**40**
Teacher Education	**7**	**35**
Distance Education	**5**	**25**

The study involved a total of 20 participants, with an equal number of males and females. This means there were 10 males and 10 females, making up 50% each. This balance in gender distribution suggests that both male and female perspectives were equally represented in the study.

In terms of age, many participants were young adults. Seventeen (17) participants, representing 85%, were between the ages of 20 and 30 years. Only three participants, making up 15%, were between the ages of 31 and 40 years. This shows that most of the participants were relatively young, likely in the early stages of their academic or professional journeys.

When it comes to the level of study, the participants were evenly distributed across all four academic levels. Five participants each were from Level 100, 200, 300, and 400, representing 25% for each level. This even spread shows that the study captured views from students at different stages of their education, which helps in giving a broader understanding of the topic.

Regarding religious background, the majority of the participants were Christians. Fifteen out of the 20 participants (75%) identified as Christians, while the remaining five (25%) were Muslims. This indicates that Christian participants formed the dominant religious group in the study. The participants in this study were diverse in

gender and level of study, with a majority being young adults and Christians. This diversity helps in providing a wide range of views and experiences relevant to the research.

Most participants were from Adult Education & HR Studies 8 (40%), followed by Teacher Education 7 (35%) and Distance Education 5 (25%). This mix shows diverse experiences with AI across different academic fields.

Organization of the Themes

Three (3) main themes with nine (9) subthemes emerged from the data. The collected data was systematically coded and later analyzed. Table 2 shows the themes and sub-themes.

THEMES	SUB-THEMES
1. Perceived Decline in Confidence and Cognitive Engagement Due to AI Use	1. Passive Engagement and Reduced Learning Effort 2. Choosing Quick Answers from A.I Over Critical Thinking 3. Undervaluing One's Original Ideas and Academic Voice
2. Perceived Academic Benefits of AI Integration	1. Perceived Value of AI as a Learning Aid 2. Safe and Non-Judgmental Learning with AI 3. Technical Improvement in Grammar and Structure
3. Uncertainty Around Appropriate Use of AI for Learning	1. Letting AI Do the Work Instead of Learning 2. Anxiety About Over-Reliance on A.I 3. Worried about future Loss of Academic Autonomy Without AI

Theme 1: Perceived Decline in Confidence and Cognitive Engagement Due to AI Use

The first theme captures students' growing awareness that reliance on AI may be eroding their intellectual engagement and self-confidence. While AI was recognized as convenient and efficient, many participants described how it reduced their willingness to think critically, reflect deeply, or trust their own ideas. Three subthemes passive engagement, quick fixes, and undervaluing one's academic voice emerged as key concerns.

Passive Engagement and Reduced Learning Effort

Several students reported that AI had changed the way they approached learning. Rather than grappling with readings, drafting their own outlines, or working through problems independently, they increasingly outsourced these tasks to AI. As one student explained:

"*These days, I don't really sit down to understand things for myself. Once I know the topic, I just let AI do the rest. It's like I'm learning less but still getting the work done." (Participant 12)*

Another reflected on how the efficiency of AI came at the cost of critical engagement:

"AI makes things faster, but I've noticed I don't challenge myself anymore. I just go with whatever it gives me instead of thinking things through on my own." (Participant 19)

These reflections resonate with the concept of cognitive offloading the tendency to shift mental effort onto technology rather than engaging with material deeply (Cahyani et al., 2024; Cela et al., 2024).

Choosing Quick Answers Over Critical Thinking

Many students admitted that AI had become their "shortcut" when deadlines loomed or when they felt tired. Instead of thinking carefully about content, they used AI to generate quick solutions.

"Before, I used to write outlines and try different ideas… now I just let the AI do the thinking. I just clean it up a bit and within a day or two it will be ready for submission." (Participant 9)

"Sometimes I feel like I'm skipping the learning part just to meet deadlines. AI gives quick results, so I depend on it more than I should." (Participant 18)

These accounts show how academic pressure interacts with technology use, sometimes leading students to sacrifice depth of learning for efficiency.

Undervaluing Original Ideas and Academic Voice

Perhaps most concerning, several participants felt their own ideas and writing style were inferior to what AI produced. They described comparing their work to AI outputs and, often, discarding their contributions altogether.

"Sometimes I write something from my mind, but when I compare it with what the AI gives me, I feel mine is not smart. So, I just delete mine and use the AI one instead." (Participant 7)

"I always second-guess myself. Even if I know the answer, I still ask AI to check. It's like I've stopped trusting my brain." (Participant 11)

Such admissions highlight a broader danger: students may internalize a belief that their creativity and intellect are inadequate compared to machines. This undermines the development of academic identity and originality, key goals of higher education.

Theme 2: Perceived Academic Benefits of AI Integration

Despite these risks, students also emphasized how AI supported their learning and improved their academic outcomes. Many saw AI as an accessible, supportive, and non-judgmental tool that clarified complex concepts and strengthened their technical writing. Three subthemes highlight these benefits: AI as a learning aid, a safe learning environment, and a technical writing assistant.

Perceived Value of AI as a Learning Aid

Students frequently described AI as a "virtual tutor" that supplemented or even replaced other forms of academic support. It was particularly valued for breaking down complex topics into simpler explanations.

"Sometimes AI explains things better than my textbooks. It breaks it down in a way that makes sense to me." (Participant 15)

"I learn a lot of things with AI. Before, I would email my tutors with questions, but now AI serves as my virtual tutor there's no need to go to my lecturers for further explanations." (Participant 13)

These insights align with prior work showing AI's potential to democratize access to learning support and provide personalized feedback (Namjoo et al., 2023; Quinde et al., 2024).

Safe and Non-Judgmental Learning with AI

For many students, AI created a safe space to learn without fear of embarrassment. Some admitted they were too shy to ask questions in class, but felt comfortable turning to AI for clarification.

"I'm shy to ask questions in class, but with AI, I can ask anything. It doesn't judge me, and I learn at my own pace." (Participant 5)

"When a topic confuses me, I ask ChatGPT, and it explains things in a simple way sometimes even better than my lecture notes." (Participant 10)

This aspect of AI's role providing emotional comfort and reducing anxiety highlights how technology is not only a cognitive tool but also a socio-emotional support system for students.

Technical Improvement in Grammar and Structure

Another major benefit was AI's ability to strengthen students' technical writing. For those who struggled with grammar, spelling, or academic organization, AI offered immediate improvements.

"My essays used to be full of grammar errors. Now I run them through AI and it fixes everything. I feel more confident submitting them." (Participant 8)

"Even when I have good ideas, I don't know how to organize them. AI helps me put them in the right order and makes my work sound more professional." (Participant 1)

These findings suggest that AI may act as a form of academic equalizer, supporting students who lack strong language or writing skills and enabling them to participate more fully in academic life.

Theme 3: Uncertainty Around Appropriate Use of AI for Learning

The third theme highlights students' ambivalence. While they valued AI for its efficiency and support, they also worried about becoming overly dependent on it. Many feared that in future situations such as exams, research projects, or jobs they would lack the confidence and skills to perform without AI.

Anxiety About Over-Reliance on AI

Some students admitted to a growing sense of dependency, describing how they now used AI even for simple tasks. This dependency created worry about their long-term academic capabilities.

"I rely on AI so much that I'm scared I'll forget how to do things on my own. What if I can't perform well in an exam or a job where AI isn't allowed because I've become too dependent on it?" (Participant 20)

"I'm afraid that if AI disappears today, I won't know how to write a full essay on my own. I've gotten used to the help." (Participant 6)

These reflections mirror existing literature on self-efficacy, which emphasizes the importance of confidence in one's own abilities as a predictor of success (Quinde et al., 2024).

Worried About Future Loss of Academic Autonomy

Looking further ahead, students worried that reliance on AI might undermine their ability to succeed independently in advanced academic or professional settings.

"I'm starting to worry. I have to do my final year project soon. I don't know if I can do it alone." (Participant 3)

"We're depending on AI so much. What happens when we go into jobs where we can't use it or are expected to think independently?" (Participant 14)

Such concerns underscore the need for universities to help students strike a balance between leveraging technology and nurturing their own intellectual autonomy.

Taken together, the findings reveal that AI's role in higher education is not simply positive or negative but highly nuanced. Students use AI in ways that both empower and limit them. On one hand, AI enhances comprehension, reduces barriers to learning, and improves academic writing. On the other, it risks reducing critical engagement, undermining confidence, and creating long-term dependency.

This spectrum of experiences highlights the dual role of AI in higher education: it can act as both a scaffold for learning and a crutch that weakens independence. Importantly, students themselves are aware of this ambivalence. Many described feeling caught between appreciation for the benefits of AI and anxiety about its consequences.

These findings contribute to ongoing debates about AI in education by grounding them in the lived experiences of students in Ghana. They suggest that while AI holds promise as a supportive learning tool, universities must implement strategies that guide students toward responsible and balanced use. This includes embedding AI literacy into curricula, encouraging critical reflection, and designing policies that protect academic integrity while nurturing self-efficacy and independence.

Discussion

This study investigated how undergraduate students perceive the influence of artificial intelligence (AI) on their writing, critical thinking, and academic confidence. The findings reveal a paradox: while students value AI for its supportive role in comprehension and writing assistance, they also express deep concerns about dependency, declining trust in their own ideas, and the erosion of originality. These insights both corroborate and challenge existing scholarship, extending debates on AI's role in higher education. The results affirm earlier studies on the risks of cognitive offloading, where technology replaces rather than supplements mental effort. Participants' descriptions of "learning less" and "trusting AI over their own brain" resonate with Cahyani et al. (2024) and Cela et al. (2024), who warn that excessive reliance on AI reduces higher-order thinking and independent problem solving. This supports the claim that AI, when used uncritically, can discourage intellectual struggle a necessary ingredient for deep learning.

At the same time, the findings contrast with perspectives from Liu and Wang (2024) and Zhang (2025), who found that AI could structure critical thinking when embedded in problem-based learning frameworks. Unlike these controlled contexts, students in this study often employed AI as a shortcut rather than a scaffold. This divergence highlights the importance of context: while structured integration may foster critical inquiry, unsupervised or habitual use may undermine cognitive engagement.

The study also extends literature by emphasizing students' emotional experiences. While Namjoo et al. (2023) and Quinde et al. (2024) explored the link between AI use, motivation, and performance, our participants highlighted the affective safety of AI: its judgment-free nature that encouraged shy students to ask questions and reduced anxiety around academic work. Although Nazari et al. (2021) briefly noted this emotional dimension, our findings underscore its centrality, especially in contexts where classroom hierarchies or peer judgment limit participation.

Finally, the study corroborates Ferhataj et al. (2025) on the need for ethical frameworks, as students voiced fears about overreliance and readiness for future environments where AI use may be restricted. These anxieties echo Nikitina and Ishchenko (2024). who stress that AI should complement rather than replace teacher guidance.

Implications and Transferability

The implications of these findings are significant for educators, institutions, and policymakers.

For educators, the study emphasizes the need to integrate AI literacy into curricula while safeguarding academic self-efficacy. Teachers must explicitly guide students in using AI responsibly demonstrating how it can support idea generation, grammar, or organization without replacing independent reasoning. Assignments that encourage reflection, critical debate, and originality can help balance AI's benefits with the development of intellectual autonomy.

For institutions, the results highlight the need for robust policies clarifying the ethical boundaries of AI use. Universities should design faculty training programs that equip instructors to model responsible AI use, develop assessments that limit overdependence, and create safe spaces where students can critically discuss their experiences with AI.

For policymakers, this study underscores the urgency of national and regional frameworks to regulate AI adoption in higher education. Clear guidelines on authorship, plagiarism, and data privacy are necessary to protect academic integrity while ensuring equitable access.

The transferability of these findings lies in their relevance beyond Ghana. While the context is a low-resource African university, the tensions students describe empowerment versus dependency, support versus erosion of autonomy are global concerns. Institutions in both high- and low-income contexts can learn from these insights, tailoring interventions to their cultural and infrastructural realities.

Limitations

As with all qualitative research, this study has limitations that should be acknowledged. The sample was relatively small (20 students) and purposively selected, which limits the generalizability of the findings. However, purposive sampling was appropriate for exploring rich, diverse experiences of students who actively engage with AI.

The first author's dual role as both researcher and university lecturer may have introduced potential bias, although measures such as reflexive journaling, peer debriefing, and open-ended interviewing were employed to enhance trustworthiness. Additionally, while themes were supported with rich participant quotes, reliance on self-reported data means findings reflect perceptions rather than observed behaviors.

Despite these limitations, the study demonstrates rigour through triangulation, audit trails, reflexivity, and thematic saturation. Its findings should therefore be considered trustworthy within the scope of the context studied and transferable to similar educational environments.

Conflicts of Interest

The authors confirm that they have no conflicts of interest to declare. The study was carried out independently, and the findings reflect the genuine voices of participants as well as the authors' academic analysis. To guard against any possible bias, the team engaged in reflexive practices such as journaling, peer debriefing, and collaborative checks on coding throughout the research process.

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References

Altınay, Z., Altınay, F., Sharma, R. C., Dağlı, G., Shadiev, R., Yıkıcı, B., & Altınay, M. (2024). Capacity building for student teachers in learning, teaching artificial intelligence for quality of education. *Societies, 14*(8), 148. https://doi.org/10.3390/soc14080148

Arvin, N., Hoseinabady, M., Bayat, B., & Zahmatkesh, E. (2023). Teacher experiences with AI-based educational tools. *AI Technology, Behavior & Society (AITECHBESOSCI), 1*(2), 26–32. https://doi.org/10.61838/kman.aitech.1.2.5

Bobrytska, V. I., Krasylnykova, H., Beseda, N., Krasylnykov, S. R., & Skyrda, T. (2024). Artificial intelligence (AI) in Ukrainian higher education: A comprehensive study of stakeholder attitudes, expectations, and concerns. *International Journal of Learning, Teaching and Educational Research, 23*(1), 400–426. https://doi.org/10.26803/ijlter.23.1.20

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Cai, L., Msafiri, M. M., & Kangwa, D. (2025). Exploring the impact of integrating AI tools in higher education using the zone of proximal development. *Education and Information Technologies, 30*(6), 7191–7264.* https://doi.org/10.1007/s10639-024-13112-0* ACM Digital Library+1

Chai, C. S., Chiu, T. K. F., Wang, X., Jiang, F., & Lin, X. (2022). Modeling Chinese secondary school students' behavioral intentions to learn artificial intelligence with the theory of planned behavior and self-determination theory. *Sustainability, 15*(1), 605. https://doi.org/10.3390/su15010605

Chan, K. S., & Zary, N. (2019). Applications and challenges of implementing artificial intelligence in medical education: Integrative review. *JMIR Medical Education, 5*(1), e13930. https://doi.org/10.2196/13930

Chen, L. (2024). Unlocking the beat: How AI tools drive music students' motivation, engagement, creativity and learning success. *European Journal of Education, 60*(1), 63–79. https://doi.org/10.1111/ejed.12823

Dai, Y., Chai, C. S., Lin, P.-Y., Jong, M. S., Guo, Y., & Qin, J. (2020). Promoting students' well-being by developing their readiness for the artificial intelligence age. *Sustainability, 12*(16), 6597. https://doi.org/10.3390/su12166597

Ferhataj, A., Memaj, F., Sahatcija, R., Ora, A., & Koka, E. (2025). Ethical concerns in AI development: Analyzing students' perspectives on robotics and society. *Journal of Information, Communication and Ethics in Society, 23*(2), 165–187. https://doi.org/10.1108/JICES-08-2024-0111 DeepDyve+1

Hamilton, K. A., & Yao, M. Z. (2018). Cognitive offloading and the extended digital self. In *Proceedings of the International Conference on Human–Computer Interaction* (pp. 257–268). Springer International Publishing. https://doi.org/10.1007/978-3-319-91238-7_22 ACM Digital Library+1

Kim, S.-W. (2023). Change in attitude toward artificial intelligence through experiential learning in artificial intelligence education. *International Journal on Advanced Science, Engineering and Information Technology, 13*(5), 1953–1959. https://doi.org/10.18517/ijaseit.13.5.19039

Namjoo, F., Liaghat, E., Shabaziasl, S., Modabernejad, Z., & Morshedi, H. (2023). Students' experience on self-study through AI. *AI Technology, Behavior & Society (AITECHBESOSCI), 1*(3), 35–42. https://doi.org/10.61838/kman.aitech.1.3.6

Nazari, N., et al. (2021). Application of artificial intelligence powered digital writing assistant in higher education: Randomized controlled trial. *Heliyon, 7*, e07014. https://doi.org/10.1016/j.heliyon.2021.e07014

Nikitina, I., & Ishchenko, T. (2024). The impact of AI on teachers: Support or replacement? *Scientific Journal of Polonia University, 65*(4), 93–99. **No DOI available**. Article URL: https://pnap.ap.edu.pl/index.php/pnap/article/view/1347 pnap.ap.edu.pl+1

Quinde, G. A. L., Muñoz, M. Y. T., Suárez, J. M. R., Villarreal, R. E. P., Vélez, W. A. Z., & Del Pezo Laínez, A. A. (2024). Perception of university students on the use of artificial intelligence (AI) tools for the development of autonomous learning. *Revista de Gestão Social e Ambiental*, *18*(2), e06170. https://doi.org/10.24857/rgsa.v18n2-136

Ruzieva, M. (2025). AI-supported problem-based learning: A pathway to developing students' critical thinking abilities. *Общественные науки в современном мире: теоретические и практические исследования, 4*(5), 40–44. https://doi.org/10.5281/zenodo.15074358 Zenodo

Yim, I. H. Y., & Wegerif, R. (2024). Teachers' perceptions, attitudes, and acceptance of artificial intelligence (AI) educational learning tools: An exploratory study on AI literacy for young students. *Futures in Educational Research*, *2*(4), 318–345. https://doi.org/10.1002/fer3.65

