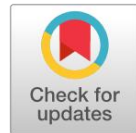


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## Student Narratives on the Use of Artificial Intelligence to Enhance Creativity and Academic Writing Skills

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### ABSTRACT

**Background.** The increasing integration of artificial intelligence (AI) into higher education has transformed students' approaches to learning, particularly in academic writing. While previous studies have primarily examined the effectiveness of AI-assisted writing, limited attention has been given to students' own narratives and lived experiences regarding how these technologies shape their creativity, confidence, and writing practices.

**Purpose.** This study explores student narratives on the use of artificial intelligence tools to enhance creativity and academic writing skills. Specifically, it examines how undergraduate students at Halu Oleo University, Kendari, Southeast Sulawesi, describe their experiences of using AI writing tools in academic writing courses, focusing on idea generation, writing organization, language improvement, creative engagement, and self-confidence.

**Method.** This study employed a qualitative narrative approach involving fifteen undergraduate students enrolled in an Academic Writing course. Data were collected through in-depth semi-structured interviews and analysis of students' reflective writing samples.

**Results.** The findings reveal that students consistently described AI tools as valuable learning companions that facilitated idea generation, improved text organization, refined language quality, and strengthened confidence throughout the writing process. Their narratives also demonstrated increased creative engagement and greater willingness to revise and develop academic texts.

**Conclusion.** Student narratives suggest that artificial intelligence can serve as a meaningful pedagogical resource for enhancing creativity and academic writing skills when integrated within a supportive instructional framework. The findings emphasize that AI should complement rather than replace students' critical thinking and creative processes.

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### INTRODUCTION

Advances in digital technology over the past few decades have had a significant impact on various aspects of life, including education. These changes not only affect how individuals obtain information but also alter the design and implementation of learning processes. Various technological innovations have opened up opportunities to create more dynamic, adaptive, and student-centered learning environments (Alqahtani & Wafula, 2025).

One important development in this regard is the emergence of artificial intelligence (AI) which is beginning to be widely utilized in educational activities. AI technology holds significant potential to support the learning process, such as providing materials tailored to individual needs and providing rapid and automated feedback. Therefore, the integration of this technology is a strategic element in improving the quality of education in the contemporary era (Papadimitriou & Virvou, 2025).

In line with the continuous advancement of technology, demands on student competencies have also undergone fundamental changes. Modern education systems no longer focus solely on mastering knowledge but also emphasize the importance of developing higher-order thinking skills, such as critical, creative, and analytical thinking. These skills are crucial in facing the dynamics and complexity of today's global challenges (Yang et al., 2024). A recent meta-analysis of experimental studies confirms that AI-assisted learning tools are associated with measurable gains in higher-order thinking propensities alongside improvements in academic performance, although the effect depends heavily on how the tool is integrated into instruction (Deng et al., 2024). Therefore, the learning process needs to be designed to meet these needs through an innovative, flexible, and responsive approach. The findings of Grájeda et al. (2024) suggest that AI can function as a supportive learning tool by helping students clarify concepts, deepen their understanding of course materials, and navigate academic tasks more effectively. Rather than serving merely as a technological resource, AI appears to provide cognitive and pedagogical support throughout the learning process.

One of the essential competencies students need in the modern education era is adequate academic writing skills. Academic writing activities are not limited to arranging words into coherent sentences but also include the ability to construct rational and structured arguments. Furthermore, students are required to develop ideas systematically and present them in a logical and coherent flow. AI can serve as a valuable cognitive and pedagogical support tool, helping students develop higher-order thinking skills through personalized feedback, interactive simulations, and tailored guidance throughout the learning process (Fatima et al., 2024). This skill plays a crucial role because it is the primary medium for communicating ideas, thoughts, and scientific findings. Through academic writing, students can demonstrate their analytical, synthesizing, and evaluating abilities regarding a problem. Therefore, mastery of these skills is a crucial indicator of learning success. However, the reality on the ground shows that many students still have not been able to optimally master these skills. They often have difficulty organizing ideas, constructing strong arguments, and selecting diction appropriate to the academic context (Gupta et al., 2022; Aizawa et al., 2023; Caplan, 2022).

Various obstacles often arise in the process of learning academic writing experienced by students. One major obstacle is the limited ability to develop ideas in depth and with direction. Furthermore, many students are unable to structure their writing systematically and logically. A recent meta-ethnographic synthesis of qualitative research on non-native English-speaking students in higher education found that these organizational and structural difficulties are compounded by linguistic insecurity, which often manifests as reluctance to take ownership of one's own academic voice (Li, 2024). This difficulty is exacerbated by low levels of self-confidence when they must express their ideas in scientific writing. Furthermore, using language effectively and in accordance with academic principles remains a challenge for most students. This condition indicates that academic writing skills have not yet fully developed optimally. This problem indicates the need for a more adaptive and innovative learning approach. The approach used must be able to help students overcome the various obstacles encountered during the writing process. Therefore, a learning strategy that is designed appropriately and comprehensively is needed. This strategy is expected to provide

maximum support in improving the quality of students' academic writing. Thus, writing learning should not only focus on results, but also on the process of developing students' thinking and expression skills (Moussa & Belhiah, 2024).

In the context of these problems, the use of artificial intelligence-based tools can be seen as an innovative solution with significant potential. The presence of AI technology allows students to receive support in developing initial ideas, which often poses a barrier to the writing process. A recent investigation into how students use generative AI tools at the planning and research stage of essay writing found that the majority of students who engaged with these tools did so specifically to organize their thinking before drafting, although the same study noted that almost none of the students documented their AI use when citing sources, a gap with implications for transparency and academic integrity (Johnston et al., 2025). Furthermore, AI also plays a role in helping to structure writing to be more systematic and in accordance with academic standards. Recommendations regarding word choice and language usage provided by the AI system also help improve the linguistic quality of students' writing (Tsao & Nogues, 2024). Then, this technology is able to provide rapid and direct feedback on written work, allowing students to make revisions immediately. This ongoing feedback process encourages gradual and consistent improvement; experimental evidence indicates that AI-generated feedback can meaningfully increase students' engagement in text revision while also fostering motivation and positive emotional responses to the writing task (Meyer et al., 2024). Thus, students learn not only from the final product but also from the process of perfecting the writing itself.

Although artificial intelligence offers numerous benefits in the learning process, its implementation is not without challenges that require serious attention. One key issue is the potential for students to become dependent on technology, which could hinder the development of independent and critical thinking skills. A systematic review of the cognitive effects of over-reliance on AI dialogue systems found that while these tools can improve efficiency and decision-making in the short term, sustained over-reliance is consistently associated with reduced critical thinking, analytical reasoning, and independent decision-making capacity among students (Zhai et al., 2024). When students rely too heavily on AI, the process of independent exploration of ideas can be diminished. Furthermore, the use of this technology requires a sufficient level of digital literacy to utilize it effectively and avoid misuse. Without sufficient understanding, students risk using AI passively without developing their cognitive skills. Therefore, digital competence is an essential prerequisite for integrating this technology (Sousa, A. E., & Cardoso, P., 2025). The role of educators in this context is crucial as facilitators and guides of the use of AI in learning. Teachers need to ensure that technology is used proportionally and remains oriented towards achieving learning objectives (Tzirides et al., 2024). Thus, appropriate guidance will help students use AI reflectively and responsibly.

This research is driven by the rapid development of digital technology, particularly in the field of artificial intelligence, which is increasingly contributing to the world of education. The presence of this technology has opened new opportunities to support a more innovative and adaptive learning process to meet students' needs. AI does not necessarily replace human abilities. Under certain conditions, it can function as a form of scaffolding that reduces cognitive load and enhances the quality of performance outcomes (Chandrasekera et al., 2025). These abilities are crucial for producing high-quality and meaningful academic writing. However, the reality on the ground shows that many students still struggle to develop ideas in depth and relevantly. Furthermore, students also face obstacles in constructing logical arguments and expressing ideas clearly and systematically.

These problems indicate that the learning methods used have not fully accommodated students' needs in academic writing. Therefore, a new, more effective and innovative approach is needed in the learning process. One alternative that can be utilized is the use of artificial intelligence-based tools as learning support media. Thus, this study aims to examine in depth the role of artificial intelligence technology in enhancing students' creativity and academic writing skills.

Several previous studies have highlighted the use of technology in writing instruction as an effort to improve students' skills. Research conducted by Polakova and Ivenz (2024) revealed that ChatGPT-generated feedback produced measurable improvements in university students' writing performance, particularly in conciseness, grammar accuracy, and the use of passive voice, although its contribution still focused on technical aspects such as grammar and sentence structure rather than deeper argumentative or analytical development. On the other hand, a study by Wan et al. (2023) showed that AI-based tools can help improve the overall quality of students' writing by serving as a generative scaffold during the pre-writing stage, though the study did not deeply explore the dimensions of creativity in the extended writing process. Furthermore, research conducted by Avello-Sáez and Estrada-Palavecino (2023) discussed the use of AI in a broader educational context, emphasizing the efficiency and effectiveness of the learning process, without specifically examining academic writing skills.

Many other studies also highlight the importance of AI literacy, ethical use, and the importance of instructor supervision in preventing dependency and improving writing originality. This suggests that the discussion has shifted from simply whether AI should be used in education to how it can be integrated effectively and responsibly. Departing from these limitations, this study presents a more targeted focus, namely a comprehensive analysis of how artificial intelligence-based tools can contribute to improving both creativity and students' academic writing skills. With a more integrative approach, this research is expected to make a deeper contribution to the development of technology-based learning strategies. This is important considering that educational demands in the digital era increasingly emphasize creative thinking skills and effective academic communication. Therefore, this study not only complements previous findings, but also offers a new perspective on the integration of AI in writing learning.

## RESEARCH METHODOLOGY

This study employs a qualitative descriptive design to examine how undergraduate students at Halu Oleo University in Kendari, Southeast Sulawesi, Indonesia engages with AI tools in academic writing and what effects that engagement has on their written work. Fifteen third-year students enrolled in a required Academic Writing course were selected through purposive sampling, prioritising variation in reported AI tool use frequency, prior writing experience, and gender. Participants ranged in age from 18 to 22 years and used Indonesian as their primary academic language. All are referred to by pseudonyms throughout.

Data were collected through two methods: interviews and document analysis. The interview protocol covered six areas: background and AI tool use; idea development; writing structure and language quality; confidence and motivation; dependency and critical use; and teacher guidance. Where document analysis raised specific interpretive questions about a participant's writing practices, targeted follow-up questions were posed, for example, asking participants to explain particular terms in their essays or describe how they located specific cited sources. This two-stage approach proved

consequential: several participants described more moderate AI use in standard questions than their documents supported, and the supplementary probes consistently produced more accurate accounts.

Document analysis was applied to two writing samples per participant collected under different conditions. The first was produced during an in-class session in which mobile device use was restricted during writing, though students were permitted to bring reference materials prepared in advance. The second was a separate assignment completed without any restrictions on tool use. This two-condition design was not part of the original plan; it emerged when interview data revealed the constrained conditions of the first session, and was subsequently recognised as analytically significant. Each of the thirty samples was assessed on a seven-dimension rubric namely idea development, originality, writing structure, language quality, register consistency, coherence, and revision evidence, rated on a five-point scale. AI-use indicators were systematically noted alongside the rubric, including register shifts, vocabulary inconsistencies, formulaic transitions, and citation anomalies. Mean rubric scores were calculated per participant for each condition, and within-participant differences were interpreted in relation to the AI-use typology that emerged from the combined analysis.

Data were analysed using thematic analysis. Source triangulation was applied throughout: divergences between interview accounts and document evidence were treated as analytically meaningful rather than as errors to be resolved. In several cases, the gap between what a participant claimed and what their documents showed was itself the most informative finding about that participant's AI use practices. Member checking, peer debriefing, and researcher reflexivity memos strengthened the trustworthiness of the findings.

## RESULT AND DISCUSSION

This study generated data from three sources: document analysis of fifteen first-session essays produced under controlled classroom conditions, document analysis of fifteen second-session writing samples completed without restrictions, and interviews with all fifteen participants. Together, these sources produced a richer picture of AI use in academic writing than any single source would have allowed and in several cases, the most informative finding was the gap between what participants said and what their documents showed.

Results are organized into six thematic areas that emerged from the data: the landscape of AI use in this cohort, what AI does and does not do for student writing, a typology of AI use practices, what the gap between the two writing conditions reveals about AI assistance and genuine writing development, the relationship between confidence and dependency, and the role of instructor guidance.

### Theme 1: AI Use Is Universal

The first and perhaps most immediate finding is that every participant in this study uses AI tools for academic writing. Several use three or four different tools depending on the task. ChatGPT, Gemini, DeepSeek, Claude, Perplexity, and Grammarly all appear across the interview data. One participant described using more than one AI for a single assignment and feeling frustrated when results across tools differed.

This is not a finding about adoption rates. It is a finding about how the question has changed. Asking whether students use AI is no longer particularly useful; what matters is how they use it, for what purposes, and with what degree of critical engagement. As one participant put it: “*AI is utilized*



*either as an assistant to aid learning or merely as a tool with no further significance”* a distinction they raised themselves in the closing question, without being prompted.

The interview data show that mind mapping is the most universally reported use, thirteen of fifteen participants mentioned it explicitly. This is consistent with what the document analysis found, essay structures across the first-session writing showed striking uniformity in macro-organization, which is most plausibly explained by students arriving at the writing session with AI-generated outlines already prepared. Other commonly reported uses include grammar checking, vocabulary assistance, literature search, and revision support. Interestingly, almost no participants described using AI to write the prose of their assignments when asked directly in the interviews. Instead, they tended to portray AI as a support tool for generating ideas and finding sources. Yet a closer examination of the submitted documents revealed indications that AI may have played a more substantial role. This tension between what participants reported and what appeared in their work forms the basis of Theme 3.

**Table 1.** AI tools used and reported functions across 15 participants

| AI Tool    | Participants Reporting Use | Primary Reported Function                                     |
|------------|----------------------------|---------------------------------------------------------------|
| ChatGPT    | 11                         | Mind mapping, grammar check, literature review, draft support |
| Gemini     | 8                          | Mind mapping, idea generation, topic selection                |
| DeepSeek   | 3                          | Mind mapping, grammar, revision                               |
| Perplexity | 4                          | Reference search, information retrieval                       |
| Claude     | 3                          | Writing structure, brainstorming                              |
| Grammarly  | 2                          | Grammar and paraphrasing                                      |

*Note. Several participants reported using multiple tools; totals therefore exceed 15.*

**Theme 2: The Effect of AI on Students’ Writing**

**2.1 Idea Generation**

Most participants reported that AI helps them generate richer, more varied ideas than they would produce independently. This was the dominant view, eleven of fifteen said yes, without significant qualification. But within that majority, some of the more analytically interesting responses came from students who pushed back on it.

Two participants, independently and in different phrasings, identified the same limitation: AI cannot generate genuinely personal or contextually specific content. Student A noted that when writing about a specific person, AI exaggerated, despite being given accurate descriptions. Student P made the same observation from a different angle, noting that AI ideas can be flat, using 'advanced words that are difficult to understand,' and that the output does not always match what the writer actually needs. Student O offered perhaps the most candid assessment:

"Sometimes I only provide a general description of the topic I want, for example education. Then AI helps me find title ideas and essay outlines about current educational topics. If I develop it myself, I am afraid it may not be up to date and less rich."

In the same interview, she also said she feels less creative since using AI because she has become too dependent on it. This is not a contradiction. It is an accurate description of a trade-off, AI expands the range of ideas a student can access, particularly for general academic topics, but it is

poorly suited to producing ideas that are genuinely specific, personal, or locally situated. The document analysis bore this out. The essays with the strongest sense of original argument were precisely those where the writer had something to say that AI could not have produced, including one essay that was the only document in the entire dataset to discuss the environmental impact of AI data centers, a point the writer arrived at through his own reading.

## **2.2 Language Quality**

The most analytically consequential finding about what AI does to student writing concerns language quality specifically, that it is a misleading indicator of learning.

Document analysis of the fifteen first-session essays revealed a wide spread of language quality scores. The two essays with the highest scores also showed the strongest indicators of AI-generated prose: no systematic EFL error patterns, sophisticated vocabulary inconsistent with first-year undergraduate writing, register consistency across the full document without a single informal slip, and sentence structures that replicated academic journal prose rather than student approximations of it. These same essays showed the largest drops in language quality when compared to the second unrestricted writing samples, one student fell from 5 to 3 on that dimension; another from 5 to 4.

Contrast this with Student A, whose first essay contained misspellings that are the orthographic signature of someone writing by sound, in a second language, in real time. His second writing sample scored 4.1 overall, up from 2.3. The gap is explained by AI access, but the nature of that gap is important. Student A used AI to help him express ideas he genuinely had; the ideas were his, and the AI helped him articulate them in more controlled academic prose. The two students with the highest first-essay language scores, by the documentary evidence and confirmed in interviews, used AI to generate text they submitted as their own and their second samples, produced more independently, were correspondingly weaker.

Language quality, then, measures the surface of the text, not the learning underneath it. A student who submits AI-generated prose with flawless grammar has not developed grammatical competenceshe has borrowed it for the duration of the assignment. This distinction is not trivial; it is precisely the distinction that assessment needs to be able to make.

## **2.3 Structural Homogeneity**

One of the most striking findings from the document analysis is that all fifteen first-session essays followed an identical macro-structure: introduce AI as beneficial, describe specific benefits, identify challenges, recommend responsible use, conclude. The concluding position across all fifteen essays was also substantively identical.

This is unusual enough to warrant explanation. The essays were submitted as individual assessments. No prescribed format was mandated. Yet the argumentative architecture of every essay was interchangeable. The most plausible explanation, supported by interview data showing that nearly all students prepared mind maps with AI before the writing session, is that AI-generated outlines converge on the same benefits-challenges-recommendation frame when prompted on this topic. Several students confirmed this directly: the mind map came from AI, and the essay followed the mind map.

Doshi and Hauser (2024) documented that AI tools enhance individual creative output while simultaneously reducing the collective diversity of ideas across a student group. What this dataset adds is that the homogenising effect operates not only at the level of content but at the level of argumentative structure, the intellectual skeleton of the writing, not just its flesh. Whatever diversity of thought existed before the writing session did not survive the AI-mediated outlining process intact.

### Theme 3: A Typology of AI Use

The most analytically productive contribution of combining document analysis with interviews is the identification of meaningful variation in how students use AI and the gap between reported use and evidenced use. Four patterns emerged from the triangulated data. They are presented as a typology rather than a taxonomy: the boundaries are real but porous, and individual students can move between types across different tasks and contexts.

**Table 2.** Typology of ai use patterns across 15 participants

| Type          | Description                                      | n   | Students         | AI Functions / Risk                                                                       |
|---------------|--------------------------------------------------|-----|------------------|-------------------------------------------------------------------------------------------|
| <b>Type 1</b> | Writing Independently, AI for Peripheral Support | n=6 | A, D, J, K, F, H | Uses: Topics, grammar checks, mind maps   Risk: Low                                       |
| <b>Type 2</b> | Independent Writing with AI for Source-Finding   | n=4 | C, E, I, N       | Uses: Source-finding verified against databases   Risk: Low-moderate                      |
| <b>Type 3</b> | AI-Assisted Prose with Student Modification      | n=3 | B, M, O          | Uses: Outline, references, paragraph generation   Risk: Moderate                          |
| <b>Type 4</b> | AI as Primary Author                             | n=2 | G, L             | Uses: Essay generation; sources unverified   Risk: High . fabricated references confirmed |

*Note.* Typologies assigned through triangulation of document analysis ratings and interview data.

#### **Type 1 Writing Independently with AI for Peripheral Support (n=6)**

These students wrote their prose independently, AI was used before or after writing for mind mapping, topic selection, grammar checks, or initial reference hunting, but not for generating the sentences and paragraphs that constitute the essay. Their first-session essays showed consistent EFL error patterns, phonological misspellings, colloquial register intrusions, and in some cases composing-in-real-time markers like sentences that trailed off mid-thought. What distinguished the stronger writers within this type from the weaker ones was not AI use, it was how reflectively they used it.

Student A described his process clearly: “*Before asking AI to generate a text, I study the output, follow its general structure and style, and then write the content in my own words*”. He used AI output as a model to observe and learn from, not as text to reproduce. Student F articulated the same principle with more sophistication: “*I use AI to help me as a helper or a starting point, not as the main author of my writing.*” She also identified, without prompting, that AI-generated language tends to be flat and sometimes uses advanced words that are difficult to understand, a metalinguistic observation that places her among the most self-aware participants in the dataset.

Student K by contrast, used AI and acknowledged not reading the source articles she cited. She also could not explain the meaning of a phrase she used three times in her essay, a phrase that appeared to reflect a genuine belief about AI's cognitive effects but one she had not developed into an argument. Asked in interview to elaborate, she replied that she could not explain it in more detail.



This is not a failure of intelligence; it is a failure of the conditions under which she engaged with the writing task.

### **Type 2 Writing Independently with AI for Source-Finding (n=4)**

This group wrote their own prose but used AI more systematically for literature searching, then verified sources directly. The distinction from Type 1 is the sophistication of the AI use: these students had developed a two-step process, ask AI for references, then check whether those references actually exist and are accessible.

Two participants in this group, independently and without being prompted, reported having encountered AI hallucination in references like links that did not work, citations that did not correspond to real papers. Student C discovered this through direct experience: *“Speaking from personal experience, when I asked the AI for references, it ended up giving me broken links”*. Student N described the same experience: *The links that appeared were inaccessible.* Both had adapted their behaviour as a result, building verification into their workflow.

This matters because it suggests that direct experience of AI failure is a more effective teacher than instruction about AI limitations. Both students had presumably heard warnings about hallucination; neither changed their behaviour until they encountered it themselves. The pedagogical implication is that students need structured opportunities to discover AI's limitations in low-stakes contexts, so the discovery happens before a high-stakes assessment.

### **Type 3 AI-Assisted Prose with Student Modification (n=3)**

These students used AI to generate substantial portions of their essays, including paragraphs, not just outlines, and then modified the output. The modification ranged from light editing to more substantial rewriting, but in all three cases the structural and propositional content of the AI output remained recognisable in the final text.

Student O gave the most detailed account of this process: *“Creating an outline with AI, finding references using AI, asking the AI to summarize references in Deepseek, asking the AI to generate essay paragraphs, and then modifying the sentences based on the AI's output.”* Five distinct AI-mediated steps before anything approaching independent writing occurs. With this workflow, the student's only role is to modify the text.

Student O is also the participant who, in answer to a different question, said she feels less creative since using AI, and who provided one of the most striking examples of dependency in the dataset: being unable to start a self-introduction essay without AI help. A self-introduction is the one writing task that requires no research, no literature, and no external knowledge. If that cannot be done independently, something has happened to the baseline writing capacity.

### **Type 4 AI as Primary Author (n=2)**

Two students, confirmed through both document analysis and interview, used AI to produce the essay essentially in full. Student L was the more explicit, she acknowledged that when writing the controlled first-session essay, she had asked AI to write the essay for her and that she had not read the articles she cited, including a source she located through ChatGPT and could not describe beyond its author's name.

Her first-session essay cited nine sources: Brown (2021), Lee (2022), Johnson (2023), Smith (2022), Garcia (2023), Nguyen (2021), Miller (2023), Davis (2022), and Chen (2024). These are among the most common English surnames. These fake sources didn't show up anywhere else in the other fourteen essays, even though everyone wrote on the same topic. They had no DOIs, journals, or publishers attached to them. They're almost definitely AI-generated fake citations that look real

but don't exist. This is the most alarming academic honesty issue in the data, and since the student didn't check her links, she likely had no clue

Student G was less direct in interview but confirmed that a sophisticated term in her first-session essay had been from AI. The document comparison was decisive: her first-session essay scored 4.1 overall; her second, more independently produced sample scored 2.9. That drop is not random noise. It is the gap between borrowed competence and actual competence.

#### Theme 4: The Two-Condition Comparison

The discovery that the first-session essays were written under controlled conditions, no mobile device access during writing, reference materials permitted, added an unplanned dimension to the analysis. It meant the study had, by circumstance, a quasi-comparative design: the same students writing under constrained AI access and unconstrained AI access. The results of that comparison, summarised in Table 3, are among the clearest findings in the study.

**Table 3.** Mean rubric scores: first-session (controlled) vs Second-Session (Unrestricted) Writing Samples

| Student | Typology                    | Essay 1 Mean | Essay 2 Mean | Change |
|---------|-----------------------------|--------------|--------------|--------|
| A       | Type 1 — Independent        | 2.3          | 4.1          | +1.8   |
| B       | Type 3 — AI substantial     | 2.4          | 3.7          | +1.3   |
| C       | Type 2 — Indep. + AI source | 3.1          | 4.4          | +1.3   |
| D       | Type 1 — Independent        | 2.9          | 3.0          | +0.1   |
| E       | Type 2 — Indep. + AI source | 3.4          | 4.7          | +1.3   |
| F       | Type 1 — Independent        | 2.0          | 3.4          | +1.4   |
| G       | Type 4 — AI-dominant        | 4.1          | 2.9          | -1.2   |
| H       | Type 1 — Independent        | 1.9          | 2.7          | +0.8   |
| I       | Type 2 — Indep. + AI source | 2.3          | 3.7          | +1.4   |
| J       | Type 1 — Independent        | 2.4          | 3.4          | +1.0   |
| K       | Type 1 — Independent        | 2.3          | 2.7          | +0.4   |
| L       | Type 4 — AI-dominant        | 4.0          | 3.7          | -0.3   |
| M       | Type 3 — AI substantial     | 3.1          | 3.3          | +0.2   |
| N       | Type 2 — Indep. + AI source | 2.9          | 4.1          | +1.2   |
| O       | Type 3 — AI substantial     | 3.4          | 4.1          | +0.7   |

*Note.* Scores reflect researcher ratings on a seven-dimension rubric (idea development, originality, structure, language quality, register consistency, coherence, revision evidence). Rubric cross-validated through source triangulation with interview data.

#### 4.1 Students Who Wrote Independently Improve When AI Access Opens

Twelve of fifteen students showed improvement in overall writing quality between the first and second sessions. The students with the largest gains were those whose first-session essays showed the strongest markers of independent writing, phonological misspellings, genuine personal voice,

composing-in-real-time errors. Student A improved by 1.8 points. Student I improved by 1.4 points. Student F improved by 1.4 points. When these students gained unrestricted AI access, they used it to express and develop ideas they already had. The ideas stayed theirs and the language became more controlled.

This is what scaffold-as-scaffold looks like. For students in Types 1 and 2, the answer to whether AI tools can genuinely support the development of academic writing skills appears to be yes, with the important qualification that the benefit depends on the student bringing something to the interaction. AI as a scaffold is only useful if the student is doing the cognitive work that scaffolding is supposed to support.

#### ***4.2 The Diminishing Returns of High AI Use***

The pattern across Types 3 and 4 is different. Students whose first-session essays showed high AI involvement showed smaller gains, no gain, or decline in the second session. Student D gained 0.1 points, student M gained 0.2 points, student L declined by 0.3 points. Student G declined by 1.2 points (the largest drop in the dataset).

The reason appears to be that when AI involvement is already high, removing restrictions does not unlock new potential, it maintains an existing dependency. There is no reservoir of independent writing capacity to scaffold. What AI produces for these students is a ceiling, not a floor. Student G's case makes this concrete: her first-session essay scored 4.1, almost certainly because she had prepared AI-generated text before the session and transcribed it during writing. Her second unrestricted essay scored 2.9, the condition where she could have used AI throughout produced weaker writing, because it required real-time composition, she is less practiced at.

#### ***4.3 Reference Quality as a Distinguishing Feature***

One of the clearest differences between the two sessions was in reference quality. The first-session essays showed citation density higher than would be expected from students researching independently. Several students had used AI to generate reference lists before the session and brought those lists with them. The problem is that some of those reference lists included citations that appear not to correspond to real publications: generic names, missing journal details, conflicting years, and in two cases citations that appear nowhere else in the dataset despite the identical topic.

In the second unrestricted session, references were generally better. Student L's second essay cited eight sources, all with DOIs pointing to real journals, this is not because she became more honest, but because the process of researching within the writing session naturally produced real sources rather than AI-generated placeholders. The controlled first session, designed to limit AI use during writing, may have inadvertently created stronger conditions for reference fabrication: students who prepared AI-generated reference lists in advance had no opportunity during the session to verify those references.

### **Theme 5: Confidence, Dependency, and the Anxiety of Authenticity**

All fifteen participants reported that AI tools increased their confidence in approaching writing tasks. This is a robust finding, and it is consistent with what the literature reports about AI reducing the psychological barriers associated with writing (Derakhshan, 2025; Zheldibayeva et al., 2025). The blank page is genuinely less frightening when there is a tool that will generate something to react to.

But the confidence finding requires qualification. Student A put it best:

"I feel more confident, but there's still this underlying anxiety since not all of the output is actually mine." — Student A

This names something without a clean label in the literature. Call it the anxiety of authenticity: the discomfort of presenting work as your own when you know it is not entirely so. This anxiety appeared in different forms across the interviews. Student A worried about the long-term consequences of continued AI dependence. Student B asked, framing it as a research question back to the interviewer, whether heavy AI use makes offline exams harder. He was asking because he already suspected the answer.

Dependency was acknowledged by twelve of fifteen participants when asked directly. Several acknowledgments were precise about the mechanism. Student K described procrastination enabled by AI availability, she would delay starting because she knew AI would help her finish quickly, then run out of time and use AI more heavily than she otherwise would have. Student N described the pull of AI's speed: "It's very difficult to leave this comfort zone because the convenience and speed that AI offers make me constantly want to use it". Student O provided the most concrete evidence when she was asked to write a self-introduction without AI, she did not know how to start.

A self-introduction requires no research, no literature, and no subject-matter expertise. It requires only the ability to compose sentences about oneself. That a university student finds this difficult without AI assistance suggests that something has happened to the baseline writing capacity, not necessarily through AI causing regression, but through AI use preventing the practice that would otherwise build it.

The two students who denied dependency in interview present an instructive contrast. Student C was a Type 2 writer whose independent composing ability was confirmed by document analysis, her denial is plausible. Student G was a Type 4 writer whose document analysis told a very different story. During the interview, she described using AI mainly for brainstorming ideas and finding relevant references. She did not mention using AI to generate any of the actual text in her work. A supplementary targeted question, which asked directly about a sophisticated term in her essay, drew the admission that it had been from AI.' The standard interview, without that probe, would have classified her as a Type 2 user.

This divergence between self-report and documentary evidence was not unique to student G. Several participants described more moderate AI use in the standard interview than the documents supported. The pattern suggests that standard self-report instruments underestimate high-intensity AI use, probably because the social desirability of appearing to be a responsible AI user is already well-established among these students. Targeted supplementary questions derived from document analysis produced substantially more accurate reports.

### **Theme 6: Instructor Guidance**

All fifteen participants reported receiving some form of instructor guidance about AI use. The reported content included mind mapping techniques, plagiarism avoidance, paraphrasing, prompt construction, and reminders to treat AI as a tool rather than a replacement for thinking. One participant credited her lecturer with the observation that heavy AI use makes the brain slow, and that plagiarism risk increases with dependence.

This guidance appears to have been genuinely given and, in some cases, genuinely received. Students in Types 1 and 2 generally described AI use practices consistent with responsible guidance, using AI as a starting point, verifying sources, maintaining their own voice. The guidance seems to have mattered for students who were already disposed toward independent work.

For students in Types 3 and 4, the guidance appears to have been heard but not internalised into behaviour change. Student L said her lecturer provided guidance to work responsibly. She then

described asking AI to write the essay for her and not reading the cited sources. There is no reason to think she is lying about the guidance; there is reason to think that the guidance, however clearly communicated, did not reach the decisions she made when sitting down to produce the assignment.

One specific gap is worth naming directly: no participant mentioned receiving guidance about verifying that AI-generated citations correspond to real publications. This is the most serious academic integrity risk identified in this study, the two clearest cases of fabricated references both involved students who found sources through AI without verification and it appears not to have been addressed in instruction. The gap between the risk visible in the data and the guidance reported by participants is large enough to warrant direct attention. Instruction on reference verification needs to be treated as a discrete skill, practiced as part of the writing process, not mentioned as a caveat at the end of an AI policy document.

## CONCLUSION

This study set out to examine the role of AI tools in supporting undergraduate students' creativity and academic writing skills, and the findings resist simple characterisation. AI tools are neither uniformly beneficial nor uniformly harmful. They are conditionally useful. Students who bring genuine ideas to the interaction, who use AI to help express and develop those ideas rather than to generate them wholesale, and who verify rather than accept AI-produced references show real benefits in writing quality with minimal academic integrity risk. These students exist in this dataset, and their trajectories are encouraging.

Students who use AI as a primary author, who arrive at the writing task needing AI to tell them what to say, show surface-level quality gains that mask the absence of underlying development. Their confidence increases, their essays look more polished, but their independent writing capacity does not grow and may erode. The controlled-vs-unrestricted comparison makes this visible in a way that single-session document analysis cannot.

The reference fabrication problem deserves direct attention. Two students in this cohort submitted essays with citations that almost certainly do not correspond to real publications. Both had used AI to locate references without verification. This is not a problem that warnings about plagiarism will solve, because it is not experienced as plagiarism. It is experienced as finding sources, which is a legitimate and encouraged activity. Specific instruction in reference verification, practiced as part of the writing process, is needed.

These findings have practical implications for educators and curriculum designers. AI tools should be integrated into academic writing instruction not as either permitted or prohibited, but as objects of explicit pedagogical attention. Students need structured guidance on which AI functions to use, at which stages of writing, and how to evaluate AI output rather than reproduce it. Assessment design should include tasks that are resistant to AI substitution, requiring students to explain, defend, and demonstrate ownership of their arguments in ways that AI cannot perform for them.

What this study cannot resolve is the question of trajectory. The data here represent one semester, two writing conditions, and fifteen students from one course at one institution. Whether the patterns identified, the anxiety of authenticity, the procrastination-dependency cycle, the capability erosion among heavy AI users, persist, intensify, or correct over time is a question that only longitudinal work can answer. That question is already visible in this data, most clearly in what one participant asked the researcher directly: whether heavy AI use makes offline exams harder. He was asking because he already suspected the answer might be yes.



## DECLARATION OF AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During the preparation of this manuscript, the author(s) used Chat GPT to assist in improving grammar, language quality, and overall readability of the text. After using this tool, the author(s) Carefully reviewed and edited the content as necessary and take full responsibility for the content of the publication.

## AUTHORS' CONTRIBUTION

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.

Author 2: Conceptualization; Data curation; Investigation.

Author 3: Data curation; Investigation.

## DECLARATION OF COMPETING INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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