



Use of Generative AI in Academic Writing: Student Interaction Patterns and Implications

1. WHY IT MATTERS

- Academic writing is a complex process, requiring proficiency, and students are increasingly turning to generative AI (GenAI) tools for support with ideation, drafting, and revision.
- However, little is known about students' interaction patterns with GenAI during academic writing tasks and how these patterns influence writing performance.
- Understanding how student interaction with GenAI differs is essential for designing effective GenAI writing tools and AI-assisted instruction and learning experiences that meet students' diverse needs.

2. PURPOSE & CONTEXT

Aim of the study:

- Identify the different patterns of student-GenAI interactions (SAI) during academic writing tasks based on their level of AI literacy.
- Examine whether different SAI patterns are related to students' AI literacy. Examine whether different SGI patterns are associated with differences in academic writing performance.

The study involved 36 students enrolled in a master's program in Digital Education. Using a custom GPT-4 writing system, students completed an AI-assisted academic writing task while screen recording, think-aloud protocols, and chat history data were collected to analyze their interactions with GenAI.

3. KEY FINDINGS

Students with **high AI literacy** demonstrated a **collaborative approach** to engaging with GenAI.

They:

- Frequently used metacognitive strategies such as planning, evaluation, and revision.

- Actively and iteratively refined their prompts.
- Viewed GenAI as a collaborative tool.
- Incorporated GenAI's feedback.
- Achieved **significantly higher academic writing performance** across all evaluation criteria.

Students with lower AI literacy interacted with GenAI differently.

They:

- Used GenAI less frequently.
- Relied primarily on their own ideas and evaluations.
- Were less likely to revise prompts or integrate feedback from GenAI.
- Engaged less with GenAI throughout the writing process, resulting in more linear and less collaborative interactions.

Overall, the findings suggest that **how** students engage with GenAI is more important than **whether** they use it. Students with higher AI literacy collaborated more effectively with GenAI and produced higher-quality academic writing.

4. RECOMMENDATION FOR PRACTICE

- Integrate AI literacy instruction into higher education curricula to teach students how to effectively collaborate with GenAI rather than merely using it to produce answers.
- Provide explicit guidance on using GenAI throughout the writing process, including planning, drafting, revising AI-generated suggestions, and reflection.
- Teach students prompt engineering, critical evaluation of AI-generated content, and strategies for revising AI suggestions.
- Design learning environments that integrate GenAI to support students' metacognitive skills and foster socio-emotional engagement.
- Encourage students to critically evaluate AI-generated responses and feedback rather than relying on surface-level copy-and-paste edits.

5. REFERENCES

Kim, J., Lee, S.-S., Detrick, R., Wang, J., & Li, N. (2026). Students-Generative AI interaction patterns and its impact on academic writing. *Journal of Computing in Higher Education*, 38(1), 504–525. <https://doi.org/10.1007/s12528-025-09444-6>