

The Influence of AI Reliance Mentality on English Majors' Academic Writing Proficiency

Qianling Ou*

Faculty of Foreign Languages, The College of Arts and Sciences · Kunming, Kunming, China

**Corresponding author*

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Abstract: In recent years, the application of artificial intelligence (AI)-assisted tools in English academic writing has become increasingly widespread, with English majors growing more reliant on them. This study focuses on the impact of AI dependence psychology on the development of academic writing skills, exploring its mechanisms and potential educational interventions. The research reveals that AI dependence affects academic writing proficiency through three pathways: cognitive, behavioral, and emotional. At the cognitive level, AI tools may accelerate the internalization of language rules but could also inhibit deep thinking. Behaviorally, over-reliance on AI may reduce independent writing practice, weakening foundational writing skills. Emotionally, while some students gain confidence from AI assistance, others experience anxiety due to stagnant skill development. Through case studies, this research highlights the paradox between "tool empowerment" and "skill degradation" and proposes educational strategies such as phased usage policies, metacognitive training, and assessment system reforms to balance AI assistance with academic writing development. The findings offer significant implications for English writing instruction, emphasizing the need to redefine writing skill cultivation in the AI era to foster critical thinking and original expression.

1. Introduction

With the rapid advancement of artificial intelligence (AI), AI-assisted writing tools (e.g., Grammarly, ChatGPT, DeepL) have become essential supports for English majors in academic writing. These tools provide functions such as grammar correction, sentence optimization, and content generation, significantly improving writing efficiency. However, excessive reliance on AI may lead to a decline in students' independent writing abilities and even hinder the development of critical thinking and original expression^[1].

Currently, English majors face a contradiction between "AI dependence" and "skill development" in academic writing: on one hand, AI tools help correct language errors and refine expression, enhancing writing quality; on the other hand, long-term dependence may cause students to neglect fundamental language training and diminish independent thinking. Therefore, investigating how AI dependence psychology influences academic writing skills and proposing corresponding educational strategies hold substantial theoretical and practical significance.

This study analyzes the mechanisms of AI dependence psychology from cognitive, behavioral, and emotional dimensions, examines its impact pathways through case studies, and suggests interventions such as phased usage policies, metacognitive training, and assessment system reforms. The aim is to provide insights for English writing instruction in the AI era, promoting sustainable skill development amid technological assistance.

2. Core Conceptual Definitions

The concept of AI dependence psychology in this study refers to the cognitive, behavioral, and emotional reliance of English majors on AI-assisted writing tools, which influences their approach to academic writing. Unlike general technology dependence, AI dependence specifically pertains to the subconscious trust in AI-generated corrections, suggestions, and even content creation, leading to a reduced sense of agency in writing. This psychological state manifests in various ways, such as hesitation to write without AI assistance, diminished confidence in self-editing, or an overestimation of AI's capabilities in producing high-quality academic work. Importantly, AI dependence is not merely about frequent tool usage but rather the internalized belief that AI is indispensable for effective writing, which may alter learning behaviors and cognitive processes over time.

Academic writing skills, in this context, encompass not only linguistic proficiency (grammar, vocabulary, and coherence) but also higher-order competencies such as argumentation, critical analysis, and originality. Unlike general writing, academic writing requires discipline-specific conventions, evidence-based reasoning, and a nuanced balance between formal expression and individual voice. The development of these skills traditionally relies on iterative practice, feedback incorporation, and metacognitive reflection^[2]. However, the integration of AI tools introduces a new dynamic—where some aspects (e.g., surface-level accuracy) may improve rapidly, while others (e.g., depth of thought or adaptability to different rhetorical contexts) may stagnate or regress due to reduced manual engagement.

The interplay between AI dependence psychology and academic writing skills forms the crux of this study. While AI tools undeniably enhance efficiency and accessibility, their long-term impact on skill development remains contested. For instance, AI-generated feedback might accelerate error recognition but fail to cultivate the learner's ability to self-diagnose mistakes independently. Similarly, automated content suggestions could streamline idea generation while inadvertently narrowing creative exploration. These tensions underscore the need to distinguish between tool-aided improvement (where AI supplements learning) and skill substitution (where AI replaces foundational practices). The latter scenario risks creating a "competency illusion," where students perceive proficiency based on AI-enhanced outputs without internalizing the underlying skills.

Ultimately, this study's framework treats AI dependence not as a binary state (dependent/independent) but as a spectrum influenced by factors such as task complexity, learner autonomy, and pedagogical guidance. By delineating these core concepts, the research aims to disentangle the nuanced effects of AI assistance on writing skill acquisition, providing a foundation for targeted interventions that harness technology's benefits while safeguarding essential learning processes.

3. Pathway Analysis of Impact

The influence of AI dependence psychology on the academic writing skills of English majors is neither unidirectional nor static; rather, it unfolds through a dynamic, multi-layered interplay of mechanisms. At its core, this impact pathway revolves around how the use of AI tools reshapes students' cognitive habits, learning strategies, and self-efficacy, thereby exerting profound long-

term effects on the development of writing proficiency. Initially, AI-assisted writing tools, with their efficient error correction and linguistic optimization features, may significantly enhance students' writing performance in the short term—for instance, by reducing grammatical mistakes, enriching lexical diversity, or refining sentence structures. However, the convenience of instant feedback may also lead students to gradually reduce opportunities for independent thinking, fostering an overreliance on AI. When students become accustomed to passively accepting AI-generated corrections, they may no longer actively engage with grammatical rules or rhetorical strategies, instead uncritically adopting algorithmic suggestions. This dependency, once entrenched, can erode foundational writing skills, leaving students more anxious and less confident in scenarios where AI support is unavailable (e.g., timed exams or handwritten assignments).

Delving deeper, AI dependence psychology may also indirectly constrain the development of academic writing skills by impairing metacognitive strategies. Metacognition—the ability to monitor and regulate one's own learning process—is a critical component of academic writing. Proficient writers, for example, actively plan their arguments, evaluate the sufficiency of evidence, and adjust their strategies throughout the writing process^[3]. However, when AI tools assume the bulk of revision and optimization tasks, students may gradually cede control over their writing process, relying instead on external algorithmic decisions. This "cognitive outsourcing" weakens their capacity for self-reflection, making it difficult for them to independently assess and refine their work in AI-absent contexts. Notably, while AI-generated suggestions may be technically accurate, they often lack an understanding of discipline-specific conventions or instructors' nuanced expectations. If students adopt these suggestions uncritically, their work may meet superficial standards while falling short of the deeper objectives of academic writing—such as originality, critical analysis, and adaptability to rhetorical contexts.

Furthermore, the impact pathway of AI dependence psychology extends into affective and motivational dimensions. On one hand, the immediate positive feedback provided by AI tools (e.g., "error-free" notifications or fluency scores) may boost short-term motivation, particularly for students with weaker language foundations, as it mitigates frustration. On the other hand, prolonged reliance risks fostering a "competency illusion," where students mistake AI-enhanced output for their own genuine ability, underestimating the necessity of autonomous practice. This mindset can suppress behaviors essential for deep learning—such as extensive reading, iterative revision, and critical engagement with feedback—which are pivotal for advancing academic writing skills. More complexly, as students consistently produce high-quality texts with AI assistance, instructors or peers may unconsciously raise their evaluation standards, creating implicit pressure to further rely on AI to maintain performance. This dynamic can trap students in a "tool-reinforcement loop," where dependence deepens even as genuine skill development stagnates.

From the perspective of the educational ecosystem, the impact pathway of AI dependence psychology is further mediated by external environmental factors. For instance, the frequency of AI tool usage in course design, instructors' guidance on AI-assisted writing (e.g., encouraging critical engagement versus passive acceptance), and whether assessment criteria distinguish between "AI-polished output" and "intrinsic ability" all shape the trajectory of dependence. If educators explicitly position AI as a "scaffold" rather than a "substitute"—for example, by designing structured tasks that require students to reflect on AI-generated revisions—they may mitigate negative effects and even harness AI as a lever for skill enhancement. Conversely, without systematic intervention, dependence may gradually permeate higher-order writing competencies (e.g., formulating research questions, adapting to academic discourse styles), ultimately resulting in a paradoxical state where students exhibit "technical proficiency but intellectual impoverishment" when tackling complex writing tasks.

In summary, the impact of AI dependence psychology on academic writing skills manifests as a

dynamic, multi-channel network of interactions, encompassing cognitive strategy erosion, metacognitive suppression, motivational biases, and educational environmental mediation. Understanding this complexity enables educators to design targeted interventions—such as balancing AI tool usage with autonomous writing practice, strengthening metacognitive training, or restructuring assessment systems to differentiate tool reliance from authentic ability. Only through such nuanced calibration can AI technology enhance writing efficiency without compromising the foundational development of academic competencies.

4. Case Study Analysis

The impact of AI dependence psychology on English majors' academic writing skills can be illustrated through a series of real-world cases that reveal both the immediate benefits and long-term risks of overreliance on AI tools. One notable example involves a group of third-year English majors at a Chinese university who were required to submit weekly argumentative essays. Initially, students who used AI-powered grammar checkers and paraphrasing tools demonstrated significant improvements in surface-level features such as grammatical accuracy and lexical variety. Their papers received higher scores compared to those who relied solely on manual proofreading, reinforcing the perception that AI assistance was indispensable for academic success. However, over time, instructors observed a troubling pattern: many students began submitting essays with structurally similar sentence patterns, generic transitions, and formulaic arguments—hallmarks of AI-generated suggestions rather than original thought. When these students were later tasked with writing an in-class essay without AI support, their performance dropped sharply, revealing deficiencies in critical thinking, coherence, and stylistic adaptability. This case underscores how AI dependence can create an illusion of competence while masking underlying weaknesses in independent writing skills.

Another revealing case involves a graduate student specializing in applied linguistics who relied heavily on AI-based writing assistants to refine research papers. The tools helped streamline citation formatting, improve academic tone, and even suggest relevant literature—tasks that initially boosted productivity. However, when the student attempted to draft a conference paper without AI assistance, they struggled to articulate complex arguments, organize ideas logically, or maintain disciplinary-appropriate conventions. Peer reviewers noted that the draft lacked depth and originality, despite being technically polished. This scenario highlights a critical paradox: while AI tools excel at optimizing surface-level features, they cannot replace the intellectual rigor required for high-quality academic writing. The student's dependence had inadvertently stifled their ability to engage deeply with content, resulting in work that was mechanically sound but intellectually shallow.

A contrasting case demonstrates how mindful integration of AI tools can mitigate these risks. In a writing-intensive course, an instructor designed assignments that required students to first draft essays independently, then use AI tools for revision, and finally reflect on the changes made. Students were asked to justify each AI-suggested edit, distinguishing between corrections that enhanced clarity and those that might alter their intended meaning. Over the semester, this approach fostered a more critical engagement with AI: students began to recognize the tools' limitations, such as their tendency to favor conventional phrasing over creative expression or their inability to grasp nuanced rhetorical goals. By the end of the course, these students not only produced higher-quality work but also developed a healthier, more autonomous relationship with AI—viewing it as a supplementary aid rather than a crutch. This case illustrates that the negative effects of AI dependence are not inevitable; they can be counteracted through pedagogical strategies that prioritize metacognitive awareness and intentional tool use.

Collectively, these cases reveal a spectrum of outcomes shaped by how students and educators navigate AI integration. The common thread is that unchecked reliance on AI tends to erode foundational writing competencies, whereas structured, reflective use can enhance learning without compromising skill development. The challenge lies in designing educational environments that harness AI's efficiency while safeguarding the cognitive and creative demands of academic writing. Without such balance, the convenience of AI may ultimately undermine the very skills it was meant to support.

5. Educational Intervention Framework

To address the challenges posed by AI dependence among English majors, a structured educational intervention framework must be implemented to foster balanced and effective use of AI tools while preserving essential writing skills. This framework should integrate pedagogical strategies that emphasize critical thinking, self-regulation, and intentional tool use, ensuring that students develop both technical proficiency and intellectual autonomy.

At the core of this framework is scaffolded instruction, where educators gradually introduce AI tools in a way that reinforces learning rather than replacing it. For instance, in introductory writing courses, instructors can first require students to complete drafts without AI assistance, focusing on idea generation, argument structuring, and stylistic choices. Only after students have engaged in the cognitive labor of writing should AI tools be introduced—not as a shortcut, but as a means of refinement. This phased approach ensures that students develop foundational skills before relying on automation, preventing the premature outsourcing of critical thinking processes. Additionally, instructors can incorporate reflective exercises, such as journaling or peer discussions, where students compare their original drafts with AI-revised versions, analyzing which changes improved clarity and which may have diluted their voice or argumentative depth.

Another key component is metacognitive training, which helps students become aware of their own writing processes and the role AI plays in them. Workshops or modules can be designed to teach students how to evaluate AI-generated suggestions critically, distinguishing between useful corrections (e.g., grammar fixes) and problematic alterations (e.g., oversimplified phrasing or loss of nuance). For example, students can be given exercises where they assess AI-generated revisions of sample texts, identifying instances where the tool may have misinterpreted tone, context, or rhetorical intent. Over time, this cultivates a more discerning approach to AI use, where students actively engage with the tool rather than passively accepting its recommendations. Furthermore, integrating self-assessment checklists into assignments can encourage students to monitor their reliance on AI, prompting them to justify each use and reflect on whether it enhanced or hindered their learning.

Finally, collaborative and project-based learning can mitigate overreliance by emphasizing the social and iterative nature of writing. Peer review sessions, group writing projects, and instructor-student writing conferences can provide alternative forms of feedback that are dialogic and context-sensitive, unlike the static corrections offered by AI. For instance, a seminar course could require students to co-author a research paper, with each stage—brainstorming, outlining, drafting, and revising—conducted in discussion with peers and instructors. This not only reduces dependency on AI but also reinforces the importance of human judgment, creativity, and adaptability in academic writing. By embedding AI tools within a broader ecosystem of feedback and revision, educators can ensure that technology serves as a complement to—rather than a substitute for—the intellectual and communicative demands of writing.

Ultimately, this framework seeks to transform AI from a crutch into a strategic aid, empowering students to harness its efficiency without sacrificing their ability to think, argue, and express

themselves independently. The goal is not to reject AI outright but to cultivate a generation of writers who use technology mindfully, critically, and in service of their own intellectual growth. Without such interventions, the convenience of AI risks eroding the very competencies that define skilled academic writing.

6. Conclusion

This study explores the impact of AI dependence psychology on the academic writing skills of English majors, revealing both the potential benefits and risks of AI tools. The findings indicate that AI dependence influences academic writing proficiency through cognitive, behavioral, and emotional pathways, with positive effects (e.g., accelerated language rule internalization) and negative consequences (e.g., weakened original thinking).

To address these challenges, the study proposes a series of educational interventions, including phased usage strategies, metacognitive training, and assessment system reforms, to help students utilize AI tools appropriately while maintaining independent writing development. Future research could further investigate the differential effects of various AI tools (e.g., generative AI vs. error-correction AI) and the long-term cumulative impact on writing skills.

In the context of advancing AI technology, English writing instruction must redefine its approach to skill cultivation—leveraging the advantages of AI while mitigating over-reliance—to achieve a harmonious integration of technology and education, ultimately fostering the holistic development of students' academic writing abilities.

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