



Application of Artificial Intelligence in Teaching Academic Writing Skills to English Major Students: A Survey Study at Thai Nguyen University of Technology

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Abstract

In recent years, artificial intelligence has quickly become part of everyday life in higher education. As a result, using AI tools to support academic writing instruction has turned into an important new trend in language teaching. This study examined how AI affects the academic writing skills of 50 English-major students at Thai Nguyen University of Technology, using a pre- and post-intervention survey design. The findings reveal that AI tools helped students make clear progress in organizing ideas, improving grammatical accuracy, using more appropriate academic vocabulary, and developing better self-editing skills. However, the study also points out some serious concerns, especially the risk of students becoming too dependent on AI and the possible weakening of their critical thinking abilities when these tools are used without proper teacher guidance. Based on the results, this research proposes an “AI-assisted writing pedagogy” model that aims to improve the quality of academic writing instruction in higher education by promoting the responsible and effective use of AI.

Keywords: artificial intelligence, academic writing, ChatGPT, Grammarly, English-major students, higher education.

I. INTRODUCTION

In recent years, artificial intelligence has dramatically reshaped higher education, especially in the areas of foreign language teaching and academic writing development. The rise of powerful AI tools such as ChatGPT, Grammarly, and Wordtune has fundamentally changed how students approach the writing process — from drafting and revising to generating and refining academic content. These tools now offer support in grammar correction, sentence restructuring, vocabulary enrichment, and even idea development, opening up exciting new possibilities for teaching academic writing.

A systematic review by H. Aljuaid (2024) highlighted the positive impact of AI tools on academic writing instruction in higher education, particularly through instant feedback, personalized learning paths, and increased learner autonomy. In a similar vein, Alkamel and Alwagieh (2024) found that ChatGPT significantly improved paragraph and essay writing skills among Yemeni EFL students, especially in vocabulary use and idea organization.

Khalifa and Albadawy (2024) further argued that AI has become a vital productivity tool for both academic writing and research. Their study showed that AI not only boosts writing performance but also enhances research efficiency and helps lighten students’ workload. Along the same lines, Guo and Zaini (2024) noted that AI is transforming academic writing pedagogy worldwide, with particularly strong effects in foreign language education settings.

However, not all the outcomes have been entirely positive. Several researchers have raised important concerns about the potential downsides. Al-Sofi (2024) warned that over-reliance on tools like ChatGPT could erode students’ critical thinking abilities and academic independence. Likewise, Malik et al. (2023) observed that many university students tend to treat AI as a quick content generator rather than a genuine learning support tool, which can foster unhealthy technological dependency.

Other recent studies have explored students’ own views and experiences with AI in writing. Bantoto et al. (2024) reported that more than 70% of university students felt AI tools boosted their confidence in academic English writing. Similarly, Al-Raimi et al. (2024) found that AI helped Omani EFL learners make meaningful gains in vocabulary, grammar, and text organization.

For English-major students, academic writing remains one of the most crucial skills in their language program. They are expected not only to produce grammatically correct texts but also to demonstrate strong

academic reasoning, critical analysis, and logical argumentation in English. Nevertheless, many English majors in Vietnam still face challenges in organizing their arguments, using appropriate academic vocabulary, and effectively revising their work.

At Thai Nguyen University of Technology, English-major students have started adopting AI tools in their writing courses. However, this use is still largely self-directed and lacks a structured pedagogical approach. While some students use AI productively for grammar checking and idea generation, others have become overly dependent on AI-generated content when completing academic essays.

Unlike many previous studies, the current research not only evaluates the effectiveness of AI in improving writing performance but also examines students' level of dependency on AI, its effects on their academic thinking, and its influence on learner autonomy. Moreover, this study collected practical data from 50 English-major students across all four academic years through a before-and-after comparison of AI integration in their writing instruction.

II. CONTENTS

2.1. Theoretical Background of AI in Academic Writing Instruction

Academic writing is a demanding skill that requires students to combine several important abilities: critical thinking, logical organization of ideas, effective use of academic vocabulary, and grammatical precision. In conventional language classes, students often struggle to get timely and personalized feedback because instructors have limited time and classes are usually large.

The emergence of AI technologies has opened up a new learning environment where students can now receive instant feedback on grammar, sentence structure, and writing style. As Schmohl et al. (2020) noted, AI offers the ability to personalize writing instruction by detecting individual weaknesses and suggesting targeted improvements.

Similarly, Zulfa et al. (2023) found that AI tools are especially helpful in developing students' self-editing skills. With automated feedback, learners can spot and correct their own mistakes independently, which leads to noticeable improvements in the overall quality of their academic writing.

That said, AI cannot completely replace the teacher's role in academic writing instruction. Guo and Zaini (2024) stressed that AI should only serve as a supportive tool in a human-centered teaching approach, where instructors remain responsible for guiding students' critical thinking, academic reasoning, and ethical engagement with technology.

2.2. Research Methodology

This study involved 50 English-major students at Thai Nguyen University of Technology, representing all four academic years. The sample included 12 first-year students, 13 second-year students, 13 third-year students, and 12 fourth-year students.

The research adopted a pre- and post-intervention design over a ten-week period. During this time, students were encouraged to use ChatGPT and Grammarly as supportive tools while working on academic essay assignments. Data were gathered through questionnaires, academic writing tests, and group interviews. The evaluation focused on several key aspects: grammatical accuracy, idea development, logical organization, self-editing ability, and learner autonomy.

In addition, a comparative analysis was carried out to identify both the similarities and differences between the results of this study and those from previous international research on AI-assisted academic writing.

2.3. Survey Results Before and After AI Integration

The findings clearly show that incorporating AI tools led to a substantial improvement in students' academic writing performance.

Before the intervention, only 28% of the participants felt confident in their academic English writing. After ten weeks of using AI, this number rose significantly to 74%. At the same time, the percentage of students who frequently made serious grammatical errors dropped sharply from 62% to 24%.

In terms of idea organization, the average writing scores increased from 6.4 to 8.1 on a 10-point scale. Notably, third-year and fourth-year students showed the most significant progress, which can likely be attributed to their stronger academic language foundation and greater previous writing experience.

The survey further indicated that 82% of the students felt AI helped them expand their academic vocabulary, while 76% noticed clear improvements in their self-editing abilities.

However, these positive results came with some notable concerns. Nearly 58% of the participants admitted to copying AI-generated content with little to no modification, and 46% acknowledged that they had become increasingly reliant on AI when writing academic essays.

These findings echo the results of Malik et al. (2023), who observed that many university students view AI primarily as a tool for generating content rather than as a learning aid. They also support Al-Sofi's (2024) concerns about how over-reliance on AI can weaken students' critical thinking skills.

2.4. Discussion

The results of this study highlight the considerable promise of AI as a tool for supporting academic writing development among English-major students. Participants showed clear gains in grammatical accuracy, academic vocabulary, and overall text organization, suggesting that AI can be a valuable aid in foreign language learning.

When compared with the work of Alkamel and Alwagieh (2024), our findings reveal similar benefits, especially in terms of content development and grammatical improvement. However, the present research goes further by exploring how AI influences students' academic thinking and their sense of learner autonomy.

One of the most interesting insights from this study is the double-edged nature of AI in academic writing. On the positive side, it helps students write more fluently, confidently, and independently. Yet, on the other hand, over-dependence on AI risks diminishing their critical thinking skills and the ability to construct original, well-reasoned academic arguments.

Interestingly, first-year students tended to rely on AI far more than their senior counterparts. This is likely because senior students already possess stronger academic foundations and better judgment when evaluating AI-generated suggestions.

The study also found that AI proves most useful during the revision and polishing stages rather than in the initial critical thinking and idea-generation phases. This observation echoes the conclusions of Fadli et al. (2024), who noted that tools like Wordtune can significantly enhance linguistic quality but cannot replace human critical reasoning.

From a teaching perspective, these findings point to the pressing need to develop a thoughtful "AI-assisted writing pedagogy." Rather than viewing AI as a replacement for student effort, educators should treat it as a supportive tool. Instructors need to actively guide students on how to use AI responsibly—for brainstorming, language refinement, and grammar checking—while consistently reinforcing the importance of originality, critical analysis, and academic integrity.

III. CONCLUSION

This study shows that integrating AI into academic writing instruction offers considerable benefits for English-major students at Thai Nguyen University of Technology. AI tools significantly improved students' academic language use, idea organization, and self-editing abilities. However, the findings also reveal potential risks related to technological dependency and the decline of critical thinking skills when AI is used excessively without pedagogical supervision. Therefore, it is essential to develop a balanced instructional framework that combines AI technologies with human-centered teaching approaches in order to maximize the educational benefits of AI in academic writing instruction.

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