

INTERGRATING ChatGPT INTO EFL ACADEMIC WRITING INSTRUCTION TO DEVELOP STUDENTS' CRITICAL THINKING: A CLASSROOM-BASED STUDY AT THAI NGUYEN UNIVERSITY OF ECONOMICS AND BUSINESS ADMINISTRATION

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ABSTRACT

The rapid advancement of generative artificial intelligence has begun to influence various aspects of education, including language learning and academic writing instruction. Among these emerging technologies, ChatGPT has attracted considerable attention due to its ability to generate coherent written responses and provide interactive feedback. While some educators express concerns regarding academic integrity and students' overreliance on AI-generated content, others highlight the potential of such tools to support language learning when integrated through appropriate pedagogical strategies.

This study investigates the integration of ChatGPT into English as a Foreign Language (EFL) writing instruction with the aim of enhancing students' writing performance and critical thinking skills. The research was conducted in a General English course at Thai Nguyen University of Economics and Business Administration in Vietnam with 62 first-year students whose proficiency level corresponded approximately to A2 according to the Common European Framework of Reference for Languages (CEFR).

A classroom-based mixed-methods design was employed. Quantitative data were collected through pre-test and post-test writing assessments, while qualitative data were obtained from student perception questionnaires and classroom observations. During a twelve-week instructional intervention, ChatGPT was used as a scaffold to support brainstorming, sentence construction, and revision processes. Students were also encouraged to critically analyze AI-generated responses rather than accept them uncritically.

The results indicate a statistically significant improvement in students' writing performance after the intervention. In addition, students reported positive perceptions of ChatGPT as a tool that supported idea generation, language accuracy, and writing revision. Classroom observations further revealed that guided interaction with AI-generated texts promoted discussion and reflective learning. These findings suggest that generative AI tools can function as cognitive scaffolds that support both writing development and critical engagement when integrated thoughtfully into EFL writing instruction.

Keywords: ChatGPT; EFL writing; artificial intelligence in education; critical thinking; academic writing instruction

1. INTRODUCTION

Writing in a second or foreign language is widely recognized as one of the most cognitively demanding skills for language learners. Unlike receptive skills such as listening and reading,

writing requires learners to generate ideas, organize arguments, and express meaning through accurate linguistic forms. As a result, many English as a Foreign Language (EFL) learners experience difficulties when attempting

to produce coherent and well-structured written texts.

These challenges are particularly evident among first-year university students in many EFL contexts. Although learners often study English for several years in secondary education, their previous learning experiences frequently emphasize grammar exercises and test-oriented activities rather than extended writing practice. Consequently, students entering university may possess basic grammatical knowledge but lack experience in developing ideas, organizing arguments, and revising written texts.

This situation is observable in Vietnamese higher education, where many first-year students struggle to produce academic writing in English. Classroom observations in a General English course at Thai Nguyen University of Economics and Business Administration revealed that students often had difficulty generating ideas and structuring paragraphs. Their writing tended to consist of short sentences with limited organization and minimal supporting evidence.

At the same time, recent technological developments have begun to transform educational practices. The emergence of generative artificial intelligence (AI) tools, particularly large language models such as ChatGPT, has created new possibilities for supporting language learning. These systems are capable of generating written responses to prompts, suggesting vocabulary and sentence structures, and providing explanations of grammatical forms.

Despite their potential benefits, the educational use of generative AI remains controversial. Some scholars express concern that students may rely excessively on AI-generated texts, which could undermine academic integrity and reduce opportunities for independent learning. Others argue that AI tools may serve as valuable learning resources if they are used as scaffolding tools rather than as substitutes for students' own work.

From a pedagogical perspective, an important question emerges: **How can AI technologies be integrated into writing instruction in ways that promote learning rather than passive dependence?** One possible approach involves encouraging students to critically evaluate AI-generated responses and use them as objects of analysis during the writing process.

Therefore, the present study explores the integration of ChatGPT into EFL writing instruction within a real classroom context. Specifically, the research investigates whether guided interaction with AI-generated texts can support students' writing development and foster critical thinking skills.

The study addresses the following research questions:

1. Does the integration of ChatGPT into writing instruction improve students' academic writing performance?
2. How do students perceive the use of ChatGPT in EFL writing activities?
3. In what ways does interaction with AI-generated texts influence students' critical engagement with writing?

2. LITERATURE REVIEW

2.1 Writing Development and Critical Thinking in EFL Contexts

Second language writing is widely recognized as a cognitively demanding process that requires learners to integrate linguistic knowledge with higher-order thinking skills. Unlike receptive language skills, writing involves generating ideas, organizing arguments, and expressing meaning through accurate linguistic forms. As a result, many English as a Foreign Language (EFL) learners encounter substantial difficulties when attempting to produce coherent and well-structured texts.

Previous research has emphasized that effective academic writing involves more than grammatical accuracy. It also requires the ability to organize

ideas logically, develop arguments, and evaluate information critically. According to Hyland, second language writers must develop not only linguistic competence but also rhetorical awareness in order to participate effectively in academic discourse communities [11]. Similarly, Ferris argues that writing instruction should provide learners with opportunities to revise their texts, reflect on language use, and develop strategies for improving their writing over time [12].

Writing activities are also closely connected to the development of critical thinking. Bean suggests that writing tasks encourage learners to clarify their ideas, evaluate evidence, and construct logical arguments, thereby supporting intellectual development in academic contexts [13]. From this perspective, writing is not simply a language practice activity but also a means through which students engage in analytical and reflective thinking.

However, learners with limited language proficiency often experience difficulties when performing complex writing tasks. In many EFL classrooms, students tend to focus primarily on grammatical accuracy rather than on idea development or argumentation. As Flower and Hayes' cognitive process theory of writing suggests, the writing process involves multiple stages including planning, translating ideas into language, and revising texts [14]. When learners lack sufficient linguistic resources, they may struggle to manage these processes simultaneously.

In the context of Vietnamese higher education, these challenges are particularly evident among first-year university students. Many learners enter university with several years of English instruction but have limited experience in producing extended written texts. Consequently, they may find it difficult to generate ideas, organize paragraphs, and revise their writing effectively.

Given these challenges, educators have increasingly explored the use of technological tools that can support students during the writing process.

2.2 Artificial Intelligence in Language Education

Advances in artificial intelligence have significantly influenced the development of educational technologies, including tools designed to support language learning. Early forms of AI-assisted learning in language education included automated writing evaluation systems and grammar-checking software, which were designed to provide feedback on linguistic accuracy. Such technologies have been shown to support learners by offering immediate feedback and opportunities for revision.

More recently, the development of large language models has expanded the capabilities of AI-assisted learning systems. These models are capable of generating coherent text, answering questions, and simulating interactive dialogue with users. Brown et al. demonstrated that large language models can generate contextually appropriate responses across a wide range of tasks, highlighting their potential applications in educational contexts [1].

The emergence of generative AI tools such as ChatGPT has therefore attracted considerable attention among educators and researchers. Several recent studies suggest that such tools may support learning processes by providing examples of language use, assisting with idea generation, and facilitating revision during the writing process. For example, Kasneci et al. argue that large language models can function as learning assistants that help students explore ideas and receive immediate feedback during problem-solving activities [3].

Similarly, Okonkwo and Ade-Ibijola note that ChatGPT has the potential to support teaching and learning in higher education by assisting students with writing tasks, explaining concepts, and providing interactive guidance [7]. From a

pedagogical perspective, AI-based tools may therefore function as scaffolding mechanisms that help learners overcome difficulties encountered during the writing process.

Nevertheless, the integration of generative AI into education has also raised significant concerns. One major issue involves the risk of students relying excessively on AI-generated texts, which may undermine academic integrity. Cotton, Cotton, and Shipway highlight that AI-generated writing systems may facilitate plagiarism if students submit AI-generated content as their own work without appropriate attribution [4].

Another important concern relates to the reliability of AI-generated information. Bender et al. argue that large language models generate text based on statistical patterns in training data rather than genuine understanding, meaning that the outputs may contain factual inaccuracies or misleading information [2]. Consequently, students must develop the ability to evaluate AI-generated responses critically.

In addition, ethical considerations surrounding the use of AI in education have received increasing attention. Scholars emphasize that the responsible integration of AI technologies requires clear pedagogical strategies and guidelines that encourage critical engagement rather than passive dependence on automated systems [6].

2.3 ChatGPT as a Cognitive Scaffold for Writing Development

Despite these concerns, recent research suggests that generative AI tools may provide valuable support for writing instruction when integrated appropriately. In particular, AI systems may function as cognitive scaffolds that assist learners during various stages of the writing process.

For example, AI-generated examples can help students explore vocabulary usage, sentence structures, and paragraph organization. Such exposure may help learners develop greater awareness of linguistic patterns in academic writing. In addition, AI tools can support

brainstorming activities by generating ideas that students may refine or evaluate critically.

Studies in technology-enhanced language learning indicate that interactive tools can increase student engagement and promote collaborative learning. Crompton and Burke note that AI-supported educational environments can facilitate exploratory learning by allowing students to experiment with language and receive immediate feedback [8].

However, researchers emphasize that the effectiveness of AI-assisted learning depends largely on how these tools are used in educational contexts. Simply providing students with access to AI-generated texts may not lead to meaningful learning outcomes. Instead, instructors must design activities that encourage students to analyze, evaluate, and revise AI-generated content.

From this perspective, the use of ChatGPT in writing instruction should focus not on generating complete essays but on supporting the learning process. When students are required to compare their own writing with AI-generated suggestions and discuss possible revisions, they are more likely to engage in reflective learning.

2.4 Research Gap

Although the use of artificial intelligence in education has attracted growing attention, empirical research examining the integration of generative AI tools into EFL writing classrooms remains limited. In particular, relatively few studies have investigated how AI-assisted writing activities influence both writing performance and critical thinking development among lower-proficiency university students.

Furthermore, much of the existing research focuses on technological capabilities rather than on pedagogical implementation in real classroom contexts. There is therefore a need for classroom-based studies that explore how AI tools can be integrated into writing instruction through structured learning activities.

To address this gap, the present study investigates the integration of ChatGPT into EFL writing instruction in a Vietnamese university context. The study examines whether guided interaction with AI-generated texts can support students' writing development while also encouraging critical evaluation of AI-generated information.

3. METHODOLOGY

3.1 Participants

The participants in this study consisted of 62 first-year undergraduate students enrolled in a General English course at Thai Nguyen University of Economics and Business Administration (TUEBA), Vietnam. The students were majoring in business-related disciplines, including accounting, business administration, and finance.

According to the university's English placement test administered at the beginning of the semester, the students' English proficiency level corresponded approximately to the A2 level on the Common European Framework of Reference for Languages (CEFR). Although most participants had studied English for approximately nine to twelve years in secondary education, their exposure to academic writing in English was relatively limited.

The participants were between 18 and 19 years old. Preliminary classroom observations indicated that many students experienced difficulties in generating ideas, organizing arguments, and revising written texts in English. Writing was therefore considered one of the most challenging language skills for this group of learners.

Participation in the study was voluntary. Students were informed about the purpose of the research and provided consent for their coursework and responses to be used for research purposes. All personal information was anonymized during data analysis to ensure participant confidentiality.

3.2 Research Design

This study employed a classroom-based mixed-methods research design combining both quantitative and qualitative approaches. The use of mixed methods enabled the researchers to obtain a more comprehensive understanding of the impact of ChatGPT-assisted instruction on students' writing development and critical thinking.

The quantitative component focused on measuring changes in students' writing performance through pre-test and post-test assessments administered before and after the instructional intervention. The comparison of these scores provided empirical evidence regarding the effectiveness of the instructional approach.

The qualitative component aimed to explore students' learning experiences and perceptions of ChatGPT-assisted writing activities. Qualitative data were collected through a student perception questionnaire and classroom observations conducted during the intervention period.

By combining multiple sources of data, the study sought to enhance the reliability and validity of the findings through methodological triangulation.

3.3 Research Instruments

3.3.1 Writing Tests

To assess students' writing development, both a pre-test and a post-test writing task were administered. In each test, students were asked to write a short argumentative paragraph of approximately 150–180 words on topics related to university life and student experiences.

Students' writing was evaluated using an analytic scoring rubric adapted from commonly used EFL writing assessment frameworks. The rubric consisted of five criteria:

1. idea development
2. organization and coherence
3. use of supporting evidence
4. grammar and sentence structure
5. vocabulary use

Each criterion was rated on a five-point scale, resulting in a maximum total score of 25 points.

To ensure scoring reliability, two English instructors independently evaluated the writing tasks. Any discrepancies between the two raters were discussed until a consensus score was reached.

3.3.2 Student Perception Questionnaire

A student perception questionnaire was administered at the end of the intervention to

examine learners' attitudes toward the use of ChatGPT in writing instruction.

The questionnaire consisted of 15 Likert-scale items measured on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The items were designed to explore three main aspects:

- the perceived usefulness of ChatGPT in supporting writing development
- the perceived influence of ChatGPT on students' critical thinking
- challenges and limitations associated with the use of AI tools in learning

In addition to the Likert-scale items, the questionnaire included several open-ended questions that allowed students to provide more detailed reflections on their learning experiences.

3.3.3 Classroom Observations

Classroom observations were conducted periodically throughout the twelve-week instructional period in order to document students' interactions with ChatGPT during writing activities.

The observations focused on several aspects of classroom behavior, including:

- how students interacted with AI-generated texts
- patterns of discussion and collaboration among students
- instructional strategies used by teachers to guide critical evaluation of AI-generated responses
- students' ability to identify limitations or inaccuracies in AI-generated writing

Field notes were recorded after each observation session and later analyzed to identify recurring patterns in students' learning behaviors.

3.4 Instructional Intervention

The instructional intervention was implemented over a period of twelve weeks, corresponding to one academic semester of the General English course.

During this period, ChatGPT was integrated into writing instruction as a learning support tool rather than a content generator. Students were encouraged to interact with the AI system critically and to treat its responses as examples for analysis and revision.

Three main types of learning activities were implemented.

Generating Example Sentences

Students used ChatGPT to generate example sentences related to specific writing topics or vocabulary items. These examples helped students explore grammatical structures, academic expressions, and sentence patterns that could be used in their own writing.

Analyzing AI-Generated Texts

Students were provided with short AI-generated paragraphs and asked to analyze them in small groups. During these activities, students evaluated the texts by identifying strengths and weaknesses in organization, clarity, and argumentation. They also examined possible grammatical errors and limitations in the supporting ideas.

This activity was designed to promote critical reading and analytical thinking.

Revising Students' Own Writing

Students submitted draft paragraphs and used ChatGPT to obtain suggestions for improvement. However, teachers emphasized that AI-generated feedback should be evaluated critically rather than accepted automatically.

Students were asked to:

- compare their original drafts with AI-generated suggestions
- decide which revisions were appropriate
- explain their revision choices during classroom discussions

Through this process, ChatGPT functioned as a scaffolding tool that supported reflective writing practice rather than replacing students' own writing efforts.

3.5 Data Analysis

Quantitative data obtained from the pre-test and post-test writing scores were analyzed using

descriptive statistics, including mean scores and standard deviations. A paired-samples t-test was conducted to determine whether the differences between the pre-test and post-test scores were statistically significant.

Responses from the student perception questionnaire were analyzed using frequency distributions and mean values in order to identify overall trends in students' attitudes toward ChatGPT-assisted learning.

Qualitative data collected from open-ended questionnaire responses and classroom observation notes were analyzed using thematic analysis. This process involved identifying recurring themes and patterns related to students' experiences with AI-assisted writing activities.

3.6 Ethical Considerations

Ethical principles for educational research were strictly observed throughout the study. Students were informed about the objectives of the research and assured that their participation would not influence their course grades.

Participation in the study was voluntary, and students had the right to withdraw at any time without penalty. All collected data were used solely for research purposes, and participants' identities were kept confidential through anonymization during the data analysis and reporting process.

4. RESULT

Improvement in Students' Writing Performance

To examine the impact of ChatGPT-assisted instruction on students' writing performance, a comparison between the pre-test and post-test writing scores was conducted. Table 1 presents the descriptive statistics of students' writing scores before and after the 12-week instructional intervention.

Table 1
Descriptive Statistics of Pre-test and Post-test Writing Scores (N = 62)

Test	Mean	SD	Minimum	Maximum
Pre-test	14.23	2.81	9	20
Post-test	17.91	2.64	12	23

As shown in Table 1, the mean writing score increased from 14.23 in the pre-test to 17.91 in the post-test, indicating a noticeable improvement in students' academic writing performance after the intervention.

To determine whether the improvement was statistically significant, a paired-samples t-test was conducted.

Table 2
Paired-Samples t-Test Results for Writing Scores

Test Comparison	Mean Difference	SD	t	df	p
Post-test Pre-test	3.68	3.01	9.71	61	<.001

The results show a statistically significant improvement in writing performance ($t(61) = 9.71, p < .001$). This finding suggests that the integration of ChatGPT into writing instruction had a positive impact on students' academic writing development.

Improvement Across Writing Components

To further explore which aspects of writing improved the most, students' scores were analyzed across five rubric criteria.

Table 3
Comparison of Writing Components in Pre-test and Post-test

Writing Component	Pre-test Mean	Post-test Mean	Mean Gain
Idea development	2.78	3.61	+0.83

Writing Component	Pre-test Mean	Post-test Mean	Mean Gain
Organization & coherence	2.65	3.52	+0.87
Supporting evidence	2.70	3.45	+0.75
Grammar & sentence structure	3.11	3.65	+0.54
Vocabulary use	2.99	3.68	+0.69

The largest gains were observed in organization and idea development, suggesting that analyzing AI-generated texts helped students better understand how to structure arguments and develop ideas in academic writing.

Student Perceptions of ChatGPT-Assisted Writing

Students' perceptions of ChatGPT-assisted learning were measured through a Likert-scale questionnaire administered at the end of the intervention.

Table 4
Student Perceptions of ChatGPT in Writing Instruction

Statement	Mean	SD
ChatGPT helped me generate ideas for writing	4.21	0.71
ChatGPT helped me understand sentence structure	4.08	0.74
Analyzing AI-generated texts improved my critical thinking	3.97	0.76
ChatGPT helped me revise my writing	4.16	0.69

Statement	Mean	SD
I feel more confident in writing after using ChatGPT	4.03	0.81

The results indicate generally positive attitudes toward the integration of ChatGPT in writing instruction, with most mean scores exceeding 4.0, indicating agreement among students.

Classroom Observation Findings

Classroom observations provided qualitative insights into students' interactions with AI-generated content. Several patterns emerged:

- 1. Increased engagement in writing activities**
 Students were more actively involved in discussing sentence structure and paragraph organization when analyzing AI-generated texts.
- 2. Development of critical evaluation skills**
 Rather than accepting AI responses automatically, students gradually learned to question the accuracy and relevance of generated content.
- 3. Collaborative learning behaviors**
 Group discussions frequently occurred when students compared their original writing with AI-generated suggestions.

These observations support the quantitative findings by demonstrating how ChatGPT-assisted activities promoted reflective learning practices in the classroom.

5.DISCUSSION

The findings of this study suggest that integrating ChatGPT into EFL writing instruction can significantly improve students' academic writing performance and foster critical engagement with AI-generated content.

First, the significant increase in writing scores indicates that AI-supported activities can effectively support the development of writing skills among lower-intermediate EFL learners. The improvement observed in idea development and organization suggests that exposure to AI-generated examples may help students better

understand how academic texts are structured. For learners who often struggle with generating ideas or organizing arguments, AI tools may provide useful scaffolding during the early stages of the writing process.

Second, the results highlight the importance of guided AI use. Rather than allowing students to copy AI-generated responses, the instructional design required them to analyze, critique, and revise AI-generated texts. This approach encouraged students to engage more deeply with language structures and argumentation patterns, which may explain the improvement observed in writing quality.

Third, students' positive perceptions indicate that AI tools can increase learners' confidence and motivation in writing tasks. Many students reported that ChatGPT helped them generate ideas and refine sentence structures, which reduced anxiety commonly associated with academic writing.

However, the study also suggests that AI integration requires careful pedagogical guidance. Without explicit instruction, students may rely excessively on AI-generated content rather than developing their own writing abilities. Therefore, teachers play a crucial role in designing activities that encourage critical thinking rather than passive use of AI tools.

Overall, the findings support the view that generative AI can function as a cognitive scaffold in EFL classrooms when integrated through structured and reflective learning activities.

6. CONCLUSION

This classroom-based study examined the impact of integrating ChatGPT into academic writing instruction for 62 first-year EFL students over a 12-week period. The results demonstrated significant improvements in students' writing performance, particularly in idea development and organizational coherence.

In addition, students reported positive perceptions of ChatGPT as a supportive tool for generating ideas, analyzing texts, and revising written work. Classroom observations further indicated that guided interaction with AI-generated content encouraged discussion, reflection, and collaborative learning.

These findings suggest that ChatGPT can serve as a valuable instructional tool in EFL writing classrooms when used as a support for analysis and revision rather than as a replacement for student writing.

Nevertheless, several limitations should be acknowledged. The study was conducted within a single class at one university, and the intervention lasted only one semester. Future research could involve larger participant groups, longer instructional periods, and comparative experimental designs to further investigate the pedagogical potential of AI-assisted language learning.

In conclusion, the thoughtful integration of generative AI technologies such as ChatGPT may open new opportunities for enhancing writing instruction and promoting critical thinking in English language education.

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