

Learners' Cognition and Behavior in AI-assisted L2 Writing: A Thematic Analysis in The Context of China

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Abstract

Integrating artificial intelligence (AI) in foreign language education is transforming the landscape of language teaching and learning. However, research on how learners perceive and engage with AI tools remains limited. This study explores the perceptions and behaviors of Chinese EFL (English as a Foreign Language) learners regarding AI-assisted second/foreign language (L2) writing. Through a qualitative thematic analysis of 80 first-year undergraduate students at a university in South China, we discovered that students recognize the significant benefits of AI in enhancing both the quality and efficiency of their writing in four key areas: language optimization, literature processing, content generation, and strategic provision. They understand both the advantages and limitations of AI, which influences their engagement with these tools. Additionally, the study examines how academic writing skills may be redefined in the digital age, emphasizing the need for new educational approaches. The findings suggest a collaborative model that merges human creativity with machine capabilities, ultimately enriching the foreign language learning experience.

Keywords

Artificial intelligence; L2 writing; Learner cognition; Behavioral patterns; Collaborative model.

1. Introduction

The digitization of education has significantly advanced educational practices, particularly through the integration of generative artificial intelligence (AI). AI tools such as ChatGPT, GrammarlyGO, and Kimi.ai are advanced language models that provide real-time feedback on language use, transforming foreign language instruction by reshaping cognitive and behavioral dynamics in classrooms (Godwin-Jones et al., 2024). In the context of foreign/second language (L2) writing, these tools serve as virtual writing assistants, offering students instant corrective feedback on grammar, vocabulary, structure, and style. Such features are especially beneficial for L2 learners, who often face challenges in producing fluent and accurate writing. AI tools like ChatGPT and Kimi support self-directed learning and build learner confidence in writing by enabling learners to self-editing and actively provide alternative expressions (Marzuki et al., 2023).

By handling surface-level errors, AI tools enable teachers to dedicate more time to higher-order writing concerns such as argumentation, coherence, and creativity. For example, Kimi, a platform tailored for educational use, offers structured feedback that aligns with pedagogical goals, supporting students as they refine clarity and improve arguments in academic writing tasks. However, while such tools offer significant advantages, the growing reliance on AI raises concerns regarding overdependence, where students may rely heavily on AI corrections without fully internalizing language structures. Additionally, issues around the accuracy and

appropriateness of AI feedback—especially where nuanced or idiomatic expressions are involved—highlight educators' need for critical oversight.

Despite the promise of AI-enabled foreign language teaching, existing research has primarily emphasized theoretical discussions from the teachers' perspective (e.g., Guo Xi et al., 2023; Li, 2024). Limited research explores students' cognitive and behavioral engagement with AI in language learning. This gap hinders teachers' understanding of students' needs and challenges when utilizing AI in their studies. This lack of insight into the student experience restricts teachers' ability to provide effective guidance in AI-supported learning contexts.

Given this context, the present study focuses on academic English writing to investigate learners' cognitive and behavioral engagement with AI tools. Through this exploration, the study aims to provide insights to enhance human-computer collaboration in foreign language education, contributing to the broader discourse on AI's role in language teaching and learning.

2. Literature Review

2.1. Second language writing and AI tools

Early research on AI-enhanced language learning has predominantly examined automated writing evaluation (AWE) tools, which utilize AI technology to deliver feedback. Platforms like Pigai and Grammarly represent the initial phase of AI integration into writing instruction. Studies in this domain have mainly assessed the effectiveness of these AI tools within various instructional models. With the advent of generative AI tools such as ChatGPT, the research focus is broadening to encompass a wider range of AI applications in English writing instruction (Cao & Zhong, 2023). Despite advancements in AI-driven feedback mechanisms, notable disparities remain in their effectiveness in improving students' language proficiency. These variations are often linked to methodological and contextual factors, particularly application modes, including AI-only feedback, combined teacher and AI feedback, and incorporating peer feedback (Zhang & Hyland, 2018; Koltovskaia, 2020).

The rapid evolution of AI technologies has significantly expanded their role in foreign language education. Researchers are now investigating AI's impact on various stages of English writing, including the writing process, human-AI collaborative writing, and issues related to academic integrity. For instance, Chen and Lv (2024) delineated the writing process into four stages: pre-writing, composing, reviewing, and reflection. Utilizing Activity Theory, they analyzed ChatGPT's advantages and limitations across each phase. Their findings suggest that ChatGPT can fully or partially assume roles traditionally held by teachers, such as designing classroom activities, providing language and cultural input, supervising language use, and reviewing essays. Consequently, teachers may adopt new roles, including AI trainers, evaluators, risk mitigators, and reflection facilitators. This finding redefines teachers' roles in AI-assisted English writing instruction and underscores the necessity for enhanced AI literacy among educators.

In another study, Guo et al. (2023) examined human-AI collaborative writing, suggesting that AI can assist in identifying research trends, reviewing literature, generating writing outlines, offering insights, and enhancing overall writing quality. Nguyen et al. (2024) investigated doctoral students' collaboration with AI in academic paper writing. They found that students who engage in iterative, interactive collaborations with AI tools achieve superior writing outcomes compared to those who use AI merely as a supplementary information source. This finding underscores the importance of further research into human-AI collaboration in higher education, with implications for developing tailored educational strategies and solutions.

However, the integration of AI in academic writing has raised concerns regarding academic integrity, particularly the risk of inadvertent plagiarism. Dale and Viethen (2021) discuss the controversies surrounding AI-assisted English writing instruction, emphasizing the need for

collaborative efforts between AI technology developers and educational researchers to prevent explicit and implicit academic misconduct.

2.2. Learner cognition in AI-empowered language education

AI has transformed the traditional "teacher-student" dynamic into a "teacher-student-AI" triad that enriches foreign language education. Research indicates that students generally hold a positive attitude toward AI-empowered instruction, appreciating AI's adaptability in meeting individual learning needs and its capacity to enhance language skills through real-time guidance and instant feedback (Wu et al., 2024). In L2 writing, students acknowledge AI's positive role in educational innovation. They report that AI stimulates motivation and improves writing skills, particularly in organization, coherence, grammar, and vocabulary (Song & Song, 2023). Furthermore, studies suggest that, when used cautiously, AI can quickly and effectively provide information and guidance, boosting students' motivation, engagement, and confidence in academic tasks, thereby facilitating writing progress. (Feng, 2025).

However, despite this favorable perception, students remain aware of potential challenges associated with AI in language education. Studies have identified three main concerns among students using AI for writing support: first, doubts regarding the credibility and authenticity of AI-generated content; second, fears that over-reliance on AI may diminish their critical thinking skills; and third, apprehensions that widespread AI use may exacerbate plagiarism and cheating issues (Zhai et al., 2024). Hartono et al. (2023) highlighted two critical considerations in AI-assisted English instruction: (1) whether teachers and students possess the necessary AI skills to ensure effective application, and (2) whether over-reliance on AI tools will dehumanize the learning process.

In summary, existing research predominantly offers a macro perspective, presenting positive and skeptical student attitudes toward AI-empowered foreign language teaching. However, there is a lack of focus on students' specific AI usage and perceptions within distinct language-learning contexts. This study, therefore, investigates learners' cognition and behavioral patterns within the context of AI-assisted academic English writing, addressing the following two questions:

Q1: How do students perceive the role of AI in academic English writing? What are the advantages and limitations of AI across different application areas (e.g., language, content)?

Q2: What typical behavioral patterns emerge when students use AI in academic English writing?

3. Research Design

3.1. Participants

This study was conducted within the context of an academic English writing course offered at a university in South China. The course was for undergraduate students in science and engineering disciplines and aimed to equip students with the skills needed for effective academic communication in English. Specifically, the course covered the structure of academic papers (abstract, introduction, methodology, results, conclusion) and the linguistic features of each section, with a focus on enhancing students' abilities to write research papers and communicate scholarly ideas effectively.

Participants included 80 first-year undergraduate students from two writing classes in this course. Their fields of study primarily comprised information and communication engineering, electronic information, and electronics science and technology. This diverse disciplinary background provided a suitable context for exploring students' perceptions and behaviors related to AI use in academic English writing, particularly given the technical nature of their fields, which often demand precise and formal language.

3.2. Instruments

This study collected data through student reflective journals, semi-structured interviews, and classroom observations.

Classroom observations were conducted over 15 weeks throughout the semester to record and analyze students' use of AI in the academic English writing classroom. Observations focused on how students interacted with AI for various writing tasks, including using AI-generated feedback and applying it in their drafts.

In the middle of the semester (Week 8), a reflective journal was assigned to ask students to document their experiences and thoughts regarding the use of AI in their academic writing, focusing specifically on the methods they used, challenges encountered, and their evaluation of AI's effectiveness in supporting their writing process.

At the end of the semester, 20 students (S1-S20) who volunteered to participate in the interviews were selected to conduct a 30-minute semi-structured interview about using AI in conjunction with the reflection journals. The interviews were recorded and transcribed into text with the students' consent.

3.3. Data analysis

This study adopted qualitative thematic analysis to distill themes from student reflective journals and interview data at three levels of coding.

Open Coding: The textual data were meticulously read, with open coding performed line by line and sentence by sentence to identify initial codes.

Categorization: Similar codes were grouped to form preliminary themes. For instance, first-level codes such as "reading literature," "collecting literature," and "translating literature" were categorized under the second-level code "literature processing."

Theme Development: All second-level codes were reviewed, compared, and further analyzed to identify the central themes forming the study's core findings. For example, second-level codes such as "literature processing," "writing efficiency," and "content generation" were further organized to reflect one of the primary findings: that AI contributes to writing efficiency.

To enhance the reliability and validity of the findings, the study employed data triangulation (Creswell, 2020), using reflective journals and interviews as primary data sources complemented by classroom observations.

4. Findings

4.1. Learner cognition

The qualitative thematic analysis indicates that students perceive AI as a supportive tool in academic English writing, focusing on two main themes. One theme is enhancing writing quality: students utilize AI for language optimization, including grammar correction, vocabulary enhancement, and improving overall coherence. The other is increasing writing efficiency: AI assists in literature processing, content generation, and strategy provision, streamlining the writing process. These perceptions align with findings from recent studies, where students view AI as a valuable resource for improving writing skills. (Chan & Hu, 2023)

4.1.1. Improving writing quality

Students widely recognize that AI offers comprehensive language optimization, significantly enhancing the readability and quality of their writing. In their reflective journals, students reported using AI to address various language issues, such as "quickly checking and correcting grammatical and spelling errors to make the language more fluent," "incorporating advanced vocabulary, sentence structures, and expressions to make the language more formal," and "improving overall writing accuracy, fluency, and logical coherence." Some students shared, "I

used AI to translate parts of writing from Chinese into English" (S5 interview)." These examples demonstrate that students utilize AI to enhance accuracy (e.g., correcting grammar and spelling), appropriateness (e.g., selecting suitable vocabulary and terminology), coherence (e.g., maintaining logical paragraph structure), and adherence to academic standards (e.g., formal style, citation formatting). This aligns with previous findings on AI's role in improving writing quality from a learner-centered perspective. (Xiao& Zhi, 2023; Zou& Huang, 2023).

Students' understanding of AI's language optimization evolves through their experiences. For example, one student noted, "Previously, I needed multiple tools to complete different tasks like translation and grammar checking... now, a single tool with one command can accomplish it all, such as checking logical coherence" (S12, interview). Initially, students used AI for grammar correction, translation, and word choice; now, they employ AI for more complex, integrated language improvements.

While students recognize the benefits of AI in language optimization, they often overlook its limitations. Only 7 out of 80 students (8%) acknowledged potential risks, such as data leakage. For instance, some expressed concerns in their reflective journals: "Since the article is not published yet, AI may leak it"; "Be careful to protect personal privacy and critical data." This highlights a significant gap in awareness regarding data security in AI applications. Although academic integrity issues like plagiarism are central in AI-assisted writing research, data security receives less emphasis in instructional guides despite its critical importance in innovative scientific research and academic publishing.

Additionally, some students reported an inability to "find faults" (S6 interview) or perceived "no need to find faults" (S11 interview) in AI-optimized language, indicating a potential over-reliance on AI. This uncritical acceptance can inhibit critical thinking and language development. Studies suggest that while AI tools can aid decision-making and improve efficiency, they may reduce students' critical and analytical thinking. (Zhai et al., 2024)

4.1.2. Enhancing writing efficiency

The findings reveal three key areas where AI significantly enhances writing efficiency: literature processing, content generation, and strategy provision.

Literature processing: Students found that using AI for translating, analyzing, and summarizing literature helped them efficiently read and understand academic texts and grasp current research trends. 62 students (77%) mentioned "literature" in their reflective journals, referencing the use of AI to "collect literature and resources," "organize literature," "translate literature," and "analyze literature." For example, one student (S18) shared in an interview: "We often need to read many papers and then analyze and summarize them, which is time-consuming. By organizing and analyzing the literature, AI helps us quickly understand research trends." Such reflections underscore AI's perceived value in saving time, boosting efficiency during literature reviews, and identifying research focus areas.

Although AI tools can enhance efficiency in literature processing, some students have raised concerns about the reliability and accuracy of AI-generated summaries. Notably, 15 students (18%) described these summaries as "incomplete," "inaccurate," or even "fabricated." For instance, one student (S3) mentioned, "Although I have not personally experienced it, studies indicate that AI-generated reference lists can contain fabricated entries and may not include the latest literature." These observations suggest that while AI can assist in processing literature, its outputs require verification. Therefore, students need to develop skills in critically assessing AI-generated content. Educational strategies fostering critical engagement and evaluation can help students analyze and verify AI outputs effectively.

Content generation: AI enhances writing efficiency by generating content relevant to academic papers and offering writing ideas and templates. For example, students have used prompts like, "Write an introduction outlining the research background and problem"

(reflective journal). They perceive AI-generated content as a source of inspiration and a reference for "generating ideas," "broadening perspectives," "providing writing templates," and "stimulating creativity" (reflective journal). The data suggest that students do not merely engage in a linear process of instructing AI to generate content and then copying and pasting it. Instead, they incorporate cognitive processing while interacting with AI-generated material, aligning with Nguyen et al.'s (2024) findings on iterative collaboration. Cognitive processing, a key element for effective learning, enhances the depth of human-AI interaction (Lu et al., 2021). Nonetheless, students acknowledged limitations to AI-assisted content generation. These included concerns about the lack of originality and depth in AI-generated content and the potential risk of academic misconduct. Students noted, "AI relies on existing databases to analyze and reorganize content, lacking creativity," and "AI-generated content may incorporate others' ideas or patents without proper citation, raising concerns about academic integrity" (reflective journal). Three students (4%) even stated explicitly that using AI to write papers contradicts academic ethics, with remarks such as "We must uphold academic ethics and avoid using AI for content generation" (reflective journal). Interviews also revealed that most students (85%) preferred to draft their work independently, using AI to polish and enhance it. This cautious or even avoidant stance suggests that students regard AI-generated content with skepticism, reinforcing the need for educators to help students critically assess the appropriateness of AI-generated content.

Strategy provision: That AI can provide writing strategies is a crucial feature that addresses a key aspect of academic writing instruction. These AI-generated strategies often encompass detailed methods, step-by-step guidance, and tailored recommendations that complement and extend beyond traditional classroom instruction. For instance, some students described these strategies as "more in-depth than class explanations" (S17, interview). Students often used prompts beginning with "How" (e.g., "How to present research findings") to seek AI-generated writing advice, as noted in their reflective journals. Compared to general online searches, AI offers more precise and customized suggestions. S19 observed that "AI-generated writing advice is representative because it is based on big data, and specific prompts can yield more relevant, personalized guidance." This aligns with the growing emphasis on personalized learning, a primary objective of AI-enhanced language instruction.

Furthermore, using AI to generate writing strategies is perceived as relatively risk-free. S8 highlighted, "The quality of AI-generated strategies depends on the prompts, and strategies for writing methods do not involve ethical issues, so they are safe to use." These insights underscore AI's potential to enhance academic writing by providing precise, customizable, and ethically secure support.

However, the effectiveness of AI-generated strategies is limited by the quality of user input or "prompts." As Chen and Lv (2024) noted, AI-driven suggestions heavily depend on the quality of user prompts, meaning the effectiveness of these strategies relies on students' ability to interact meaningfully with AI. Effective use of AI for strategy generation requires students to identify their specific writing issues, allowing for precise prompts that enhance the relevance and effectiveness of AI-provided strategies.

4.2. Learner behavioral patterns

In exploring learners' cognition in AI-assisted academic English writing, we identified several common behavioral patterns. These patterns reflect diverse approaches to AI "support" and highlight critical considerations for effective AI use.

4.2.1. AI-dominated: Copy and paste

The typical pattern for using AI to optimize language was the direct adoption of AI-generated suggestions. In interviews, all 20 respondents mentioned that they "would not" or "rarely"

reconsider or modify AI-suggested language recommendations, predominantly opting to "copy and paste" and "use as it is."

This "direct use" pattern suggests potential drawbacks in language development. On one hand, without critical engagement, students miss opportunities for deep cognitive processing, such as comparison, analysis, and evaluation. This hinders language acquisition and the development of language skills. Therefore, although AI enhances language and improves writing quality, students' abilities in word accuracy and richness, sentence structure correctness and variety, and logical coherence have not substantially improved. On the other hand, students often overlook disciplinary differences in language expression, as AI's language optimization is typically tailored to general academic contexts, which may not align with subject-specific language requirements (Li & Flowerdew, 2020). Thus, students need guidance in assessing the disciplinary relevance of AI's language optimization.

4.2.2. AI-inspired: Referencing and processing

Considering the advantages and limitations of AI in handling literature and content writing, students often adopt a referencing and processing approach toward AI-generated outputs, reflecting an AI-inspired assistance model. Many students noted: "AI-generated literature lists need to be checked, corrected, and supplemented" (S10 interview); "AI-written content shouldn't be directly copied and pasted; it's just for reference"; "Based on AI-generated content, I modify it by incorporating my own insights and thoughts" (reflective journal).

While students acknowledge referencing AI-generated literature and content, few details of their methods leave the extent of their engagement unclear. For instance, to what degree do they employ critical thinking to analyze, evaluate, and selectively apply AI-generated content? Moreover, for some, this "referencing and processing" is more perceived than practiced, influenced by others' experiences—they believe they would or should engage in such behaviors rather than having done so. Indirect experiences, being relatively abstract, have a limited impact on students' cognition, knowledge acquisition, and learning behaviors (Andresen et al., 2020). Therefore, students may not engage in these "referencing and processing" behaviors in future AI applications.

4.2.3. AI-guided: Transfer and application

Given the precision and security of AI-provided strategies, students predominantly exhibit a transfer and application behavior pattern toward AI-generated writing strategies, reflecting an AI-guided assistance model. In this process, human agency is enhanced. For example, some students noted: "I flexibly apply AI-generated writing strategies in my writing" (S13 interview); "I implement AI's guidance and suggested steps progressively in my writing" (S9 interview).

Application involves the transformation and transfer of knowledge. When students adopt AI-generated writing methods to specific contexts, they demonstrate a deep understanding of AI outputs and an ability to integrate and apply information effectively. In AI-assisted writing instruction, educators should guide students in applying learned knowledge in real-world situations, cultivating their human-AI collaboration and knowledge transfer skills.

Students' cognitive processing of AI-generated content varies, and their perceptions of AI are closely linked to their behaviors. When students more readily adopt AI-generated results directly, AI's dominance in assistance is stronger; conversely, when students deeply process AI-generated content, human agency is enhanced.

By effectively integrating AI into writing instruction, educators can create opportunities for students to apply their knowledge in practical situations, enhancing their ability to transfer and apply skills across different contexts.

4.3. Implications

This study provides valuable insights for pedagogical practice. Engaging with AI at various stages of the L2 writing process—to obtain information, clarification, corrections, and suggestions—demonstrates that students utilized AI as a learning assistant and an active collaborator in completing writing tasks. This practice exemplifies human-machine collaboration (HMC) throughout the writing process. HMC refers to the synergy between humans and intelligent machines, where AI handles routine and repetitive tasks, enabling humans to focus on more complex aspects.

In human-AI collaborative teaching practices, educators and students should lead the integration of AI, utilizing it as an auxiliary scaffold rather than merely a shortcut. This approach ensures authentic learning experiences and effectively enhances students' skills. The integration of AI in L2 writing courses implies training students on how to design effective prompts to achieve desired results from AI. It also necessitates training teachers on effectively incorporating AI tools into L2 writing instruction.

By fostering AI literacy and promoting effective human-AI collaboration, educators can create more engaging and effective L2 writing instruction that leverages the strengths of both human and machine intelligence.

5. Conclusion

Through qualitative thematic analysis of students' reflective journals and interviews about an academic English writing course, this study uncovers their perceptions of AI's strengths and limitations in optimizing language, processing literature, generating content, and offering strategies. The research also identifies typical behavioral patterns students adopt when engaging with AI in their writing processes.

The study's findings suggest that effectively integrating AI into L2 writing instruction requires careful consideration of learners' perceptions, existing practices, and contextual factors—including individual, teacher, and school-related elements—to foster optimal engagement with the tool. Providing appropriate training or mentoring can assist educators in identifying and incorporating these aspects into instructional design. For sustainable and effective AI-enhanced L2 writing instruction, educational systems should offer relevant policies, resources, and training at both macro and micro levels. Positive perceptions can yield tangible learning outcomes when learners and teachers receive adequate support and guidance.

While this study contributes to the ongoing discourse on using AI in L2 writing instruction, it has certain limitations in scope and methodology. Future research could broaden the sample to include students from various disciplines, educational stages, and English proficiency levels.

Additionally, exploring how different factors influence learner perceptions and engagement with AI and its impact on EFL learners' L2 writing performance would provide valuable insights.

References

- [1] Andresen, L., Boud, D. & Cohen, R. Experience-based learning. In Foley G (ed.) *Understanding Adult Education and Training*. New York: Routledge, (2020), 225-239.
- [2] Chan, C.K.Y., Hu, W. Students' voices on generative AI: perceptions, benefits, and challenges in higher education. *International Journal of Educational Technology in Higher Education*, (2023), 20, 43. <https://doi.org/10.1186/s41239-023-00411-8>
- [3] Cao, S.Y. & Zhong, L.P. Exploring the effectiveness of ChatGPT-based feedback compared with teacher feedback and self-feedback: Evidence from Chinese to English translation. *ArXiv*, (2023), abs/2309.01645.

- [4] Chen, M.& Lv, M.C. College English writing instruction in a ChatGPT context. *Contemporary Foreign Language Studies*,(2024), 2 (1): 161-168
- [5] Creswell, J. W. *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*. (2020), London: Pearson Education.
- [6] Dale, R., & Viethen, J. The automated writing assistance landscape in 2021. *Natural Language Engineering*, (2021), 27(4), 511–518. <https://doi.org/10.1017/S1351324921000164>
- [7] Esmaeil, A. A. A.,Maakip, I.,Matanluk, O. O.,& Marshall, S. Understanding student perception regarding the use of ChatGPT in their argumentative writing: A qualitative inquiry. *Journal Komunikasi: Malaysian Journal of Communication Jilid*, (2023), 39 (4): 150—165.
- [8] Feng, L. Investigating the Effects of Artificial Intelligence-Assisted Language Learning Strategies on Cognitive Load and Learning Outcomes: A Comparative Study. *Journal of Educational Computing Research*, (2025), 62(8), 1961-1994. <https://doi.org/10.1177/07356331241268349>
- [9] Godwin-Jones, R., O'Neill, E., & Ranalli, J. Integrating AI tools into instructed second language acquisition. In C. A. Chapelle, G. H. Beckett, & J. Ranalli (Eds.), *Exploring artificial intelligence in applied linguistics*, (2024), (pp. 9-23). Iowa State University Digital Press. <https://doi.org/10.31274/isudp.2024.154.02>
- [10] Guo, K.& Wang, D. To resist it or to embrace it? Examining ChatGPT's potential to support teacher feedback in EFL writing. *Education and Information Technologies*, (2024), 29: 8435-8463.
- [11] Guo,X., Feng, R.L.,& Hua, Y.F. Using ChatGPT in English academic writing: Benefits and issues. *Technology Enhanced Foreign Language Education*, (2023), (2): 18-23.
- [12] Hartono, W. J., Nurfitri, N. & Ridwan, R. (2023). Artificial Intelligence (AI) solutions in English language teaching: Teachers-students perceptions and experiences. *Journal on Education*, (2023), 6(1): 1452-1461.
- [13] Koltovskaia S. Student engagement with automated written corrective feedback (AWCF) provided by Grammarly: A multiple case study. *Assessing Writing*, (2020), <https://doi.org/10.1016/j.asw.2020.100450>
- [14] Li, Y., & Flowerdew, J. Teaching English for Research Publication Purposes (ERPP): A review of language teachers' pedagogical initiatives. *English for Specific Purposes*,(2020), 59: 29-41.
- [15] Li, Z. W. ChatGPT for Empowering Foreign Language Teaching: Scenarios and Strategies, *Journal of Beijing International Studies University*, (2024), 46 (1): 109-118.
- [16] Lu, K.,Yang, H. H.,Shi, Y.& Wang, X. Examining the key influencing factors on college students' higher-order thinking skills in the smart classroom environment. *International Journal of Educational Technology in Higher Education*,(2021), 18. <https://doi.org/10.1186/s41239-020-00238-7>
- [17] Marzuki, Widiati, U., Rusdin, D., Darwin, & Indrawati, I. The impact of AI writing tools on the content and organization of students' writing: EFL teachers' perspective. *Cogent Education*, (2023), 10(2). <https://doi.org/10.1080/2331186X.2023.2236469>
- [18] Nguyen, A.,Hong Y., Dang. B & Huang, X. Human-AI collaboration patterns in AI-assisted academic writing. *Studies in Higher Education*, (2024), 49(5) : 847—864.
- [19] Song, C.& Song, Y. Enhancing academic writing skills and motivation: Assessing the efficacy of ChatGPT in AI assisted language learning for EFL students. *Frontiers in Psychology*, (2023), 14. <https://doi.org/10.3389/fpsyg.2023.1260843>

- [20] Wu, H., Liu, W. & Zeng, Y. Validating the AI-assisted second language (L2) learning attitude scale for Chinese college students and its correlation with L2 proficiency. *Acta Psychologica*. (2024), 248:104376. <https://doi.org/10.1016/j.actpsy.2024.104376>
- [21] Xiao, Y., & Zhi, Y. An exploratory study of EFL learners' use of ChatGPT for language learning tasks: Experiences and perceptions. *Language*, (2023), 8, 212. <https://doi.org/10.3390/languages.8030212>
- [22] Zhai, C., Wibowo, S. & Li, L.D. The effects of over-reliance on AI dialogue systems on students' cognitive abilities: a systematic review. *Smart Learning Environments*, (2024), 11, 28. <https://doi.org/10.1186/s40561-024-00316-7>
- [23] Zhang, Z & Hyland K. Student engagement with teacher and automated feedback on L2 writing. *Assessing Writing*, (2018), 36: 90-102.
- [24] Zou, M., & Huang, L. The impact of ChatGPT on L2 writing and expected responses: Voice from doctoral students. *Education and Information Technologies*. Advance online publication. (2023), <https://doi.org/10.1007/s10639-023-12397-x>