A Systematic Review of ChatGPT for English as a Foreign Language Writing: Opportunities, Challenges, and Recommendations

Mark Feng Teng

Macao Polytechnic University, Macau SAR, China

Abstract

Since its release in November 2022, ChatGPT has become a focal point of discussion among scholars and practitioners. This study investigates the role of ChatGPT in English as a Foreign Language (EFL) writing through a systematic review of the 20 most pertinent articles. Inclusion and exclusion of references were based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Findings suggest that the integration of artificial intelligence (AI) into education is an evolving process that significantly impacts how EFL students learn to write. This systematic review highlights both the opportunities and challenges associated with adopting ChatGPT for EFL writing. On one hand, ChatGPT offers innovative ways to enhance writing skills, providing instant feedback and diverse writing prompts. On the other hand, challenges such as dependency on AI and the need for critical thinking skills remain. Based on the synthesized literature, recommendations for EFL teaching were proposed, emphasizing a balanced approach to integrating AI tools like ChatGPT into writing curricula and creating a community of practice among teachers and students.

Keywords

Artificial intelligence, writing instruction, learning to write, teaching writing, digital education

1. Introduction

> *As AI technology advances, we can expect AI tools to become even more sophisticated, assisting writers in generating unique content, improving language fluency, and adapting to individual writing styles. Ultimately, AI tools have the power to revolutionize writing, making it more efficient, accurate, and accessible for all (AIContentfy Team, 2023)*

The above quote effectively communicates the supportive role of AI in writing. It highlights that AI is meant to assist and improve the writing process. This perspective is important as it addresses potential concerns about AI taking over educational roles and emphasizes the collaborative relationship between technology and educators. The integration of ChatGPT into academia has become a highly debated topic

Email: markteng@mpu.edu.mo

in the writing domain, particularly due to its notable features that enhance academic writing in foreign languages (Barrot, 2023). This article aims to explore the potential uses of ChatGPT in EFL writing and the future of teaching writing skills for foreign language learners, with a focus on a collaborative relationship between technology and educators.

ChatGPT transforms the education sector. Since its launch in November 2022, ChatGPT developed by OpenAI has achieved remarkable success. By January 2023, it became one of the fastest-growing and most widely accepted artificial intelligence (AI) tools, amassing over 100 million active users within just two months. The underlying technology, Generative Pretrained Transformer (GPT), has revolutionized traditional learning and writing practices. ChatGPT, an open-access and sophisticated chatbot powered by GPT technology, has significantly transformed language teaching and learning (Kohnke et al., 2023). The latest version, ChatGPT-4o, has further advanced these capabilities. ChatGPT processes language and functions as a personal conversational interface, which warrants an examination of how it can support instruction and enhance students' AI literacy skills.

AI literacy, which requires new conceptualization, can be interpreted as the competencies needed to interact effectively with both humans and machines, including the knowledge and skills that enable humans to critically understand, evaluate, and use AI systems and tools to safely and ethically participate in an increasingly digital world (Long & Magerko, 2020). In this new educational landscape, students must continually strengthen their digital skills to keep pace with rapid technological advancements and prepare for an unpredictable future. AI tools in 21st-century learning environments will equip students to critically analyze AI-generated outputs and become technologically literate in an increasingly tech-centric world. AI can thus enhance professional development by offering real-time feedback and data-driven insights, empowering educators to continually improve their pedagogical practices in teaching writing in a foreign language.

Familiarizing students with AI tools like ChatGPT has significant real-world relevance beyond the classroom. ChatGPT has the potential to transform the preparation of writing teachers, enabling them to effectively address the evolving needs of 21st-century learners in building digital literacy and writing skills in a target foreign language with limited language input. However, integrating ChatGPT into writing instruction presents challenges, particularly regarding robust data privacy. The collection and analysis of data by AI tools, including ChatGPT, pose risks, and over-reliance on technology may also diminish the importance of human interaction and mentorship in learning to write (Barrot, 2023). Additionally, the digital divide and unequal access to technology can exacerbate educational disparities (Akgun & Greenhow, 2022).

Celik et al. (2022) conducted a comprehensive analysis to investigate the potential and challenges of AI in teaching practices from the perspectives of teachers and their roles in AI-based education research. Their findings highlighted AI's potential to enhance teaching planning, implementation, and assessment while also emphasizing challenges related to technical capacity, reliability, and the necessity for teacher involvement in AI development. In the context of English language teaching, Kostka and Toncelli (2023) explored the opportunities, such as the accelerated innovation in English teaching due to the emergence of ChatGPT, the challenges, including concerns over potential student misuse for academic work, and recommendations like fostering greater collaboration among teachers, staff, and stakeholders, associated with AI integration. While ChatGPT offers ample opportunities for innovation, widespread concerns about its use in educational settings persist, particularly regarding academic integrity (Teng, 2023).

The present study aims to contribute to the role of ChatGPT in teaching and learning English writing by presenting a comprehensive overview of opportunities, challenges, and recommendations. It will also examine gaps and unexplored areas, such as the adaptation of ChatGPT as a writing assistant for learners and teachers, assessment scenarios, pedagogical roles, and ethical considerations. This article aims to provide an overview of the current state of scholarship in teaching EFL writing with ChatGPT. It highlights opportunities, challenges, and recommendations of using ChatGPT for teaching writing, contributing to the ongoing discourse on AI in foreign language writing instruction.

2. Conceptualizations of AI Literacy and Digitalized Writing

2.1 A conceptualization of AI literacy

In the past five years, there has been a growing need to define AI literacy due to the increasingly pervasive presence of AI technologies in education. Long and Magerko (2020) defined AI literacy as a set of competencies that enable individuals to critically evaluate AI technologies, communicate and collaborate effectively with AI, and use AI as a tool online, at home, and in the workplace. Their framework categorizes AI literacy into five main components: understanding what AI is, recognizing what AI can do, comprehending how AI works, determining how AI should be used, and understanding how people perceive AI.

Ridley and Pawlick-Potts (2021) offered another definition focused on algorithmic literacy, which includes the skills, expertise, and awareness needed to understand and reason about algorithms, recognize and interpret their use in systems, create and apply algorithmic techniques to various problems, and assess the influence of algorithms in social, cultural, economic, and political contexts. This definition positions individuals as active participants in algorithmic decision-making processes.

The capabilities of ChatGPT and other generative AI tools, which can generate significant bodies of content from short prompts, have shifted concepts of what AI literacy refers to. Using Long and Magerko's (2020) framework, Zhao et al. (2024) updated the notion of AI literacy to include generative AI literacy, which might be defined through several dimensions: pragmatic understanding, safety understanding, reflective understanding, socio-ethical understanding, and contextual understanding.

Based on these evolving understandings, there is a need to update the notion of AI literacy specifically for writing. This updated literacy should enable individuals to effectively interpret information, pick the right tool for the task, use the chosen tool effectively for specific tasks, and make informed decisions about where in the writing process to use AI tools (e.g., for search, brainstorming, structuring text, prompt engineering). It should also encompass defining what sort of answer is required, rephrasing questions, asking for sources used, iterating and synthesizing results, and updating knowledge as tools develop rapidly. Moreover, critical thinking on generative AI outputs is essential to ensure information accuracy, currency, citeability, and to mitigate privacy risks. Social and cultural awareness of AI must also be integrated into this updated literacy to address the broader implications of AI technologies. By developing a comprehensive understanding of AI literacy in the context of generative AI, individuals can navigate the complexities of digitalized writing more effectively and responsibly.

2.2 A conceptualization of digitalized writing

The advent of generative AI tools, such as ChatGPT, has significantly transformed the landscape of digitalized writing. Digitalized writing represents a major shift in the process of writing, which remains a fundamental mode of expression and learning (Strobl et al., 2019). Despite its evolution, digitalized writing retains the cultural value and status of conventional writing, albeit with notable differences. In the context of EFL teaching, digitalized writing is increasingly characterized by the integration of multimedia elements and interactive platforms. This trend facilitates a more engaging and dynamic learning experience for students. Moreover, digitalized writing tools enable real-time feedback and collaborative writing practices, allowing students to receive immediate corrections and suggestions, which can significantly improve their writing proficiency.

Traditional writing processes, which consist of stages such as prewriting, planning, drafting, revising, and editing (Strobl et al., 2019), still apply to digitalized writing. However, digitalized writing is different from traditional writing. Digitalized writing leverages advanced technologies to offer real-time feedback, multimedia integration, and collaborative features, making it more interactive and efficient compared to

traditional writing. Traditional writing, on the other hand, relies on physical materials, manual editing, and lacks the dynamic capabilities of digital tools. The process of writing has been subject to innovation, evolving from the introduction of word processors to spelling, grammar, and style checkers, connectivity, and now, generative AI tools. This digitization process has profound effects on writing, which are often difficult to pinpoint because they are primarily mental rather than directly visible (Kruse & Rapp, 2019). The acceleration of this digitization process is evident with the emergence of AI-powered writing assistants like Grammarly and Automatic Writing Evaluation (AWE) tools, as well as other applications such as QuillBot. Additionally, tools for search, text summarization (e.g., Scholarcy, Iris.ai, SummarizeBot), and literature reviewing (e.g., ResearchRabbit, Gecko, Connected Papers) have become integral to the writing process. Tools for referencing, which link search and reading to producing a final reference list for completed assignments (e.g., EndNote, RefWorks, Zotero, and Mendeley), further illustrate this integration. Tools like AWE and QuillBot are predominantly used in the stages of revising and editing. Rephrasing tools, such as Wordtune, are employed both to improve text during the revision stage and to overcome mental blocks in the early stages of writing or even during planning (Zhao et al., 2024). Translation tools may also be utilized at various stages, including processing reading materials and drafting text.

Writing, whether traditional or digitalized, remains a complex and iterative process. The complexity of digitalized writing is further compounded by the use of multiple digital tools at different stages of the writing process. The dramatic debut of ChatGPT has added a new dimension to this landscape, making generative AI an integral component of digitalized writing. The complexity of digitalized writing is evident in the challenges it presents, such as the need for technical proficiency and digital literacy, concerns over data privacy and security, the risk of over-reliance on technology, and the digital divide that can exacerbate educational disparities.

However, these challenges are accompanied by significant opportunities. Digital tools enhance writing efficiency by automating tasks like grammar checking and reference management, improve writing quality through real-time feedback, and facilitate the writing process by assisting with planning, drafting, revising, and editing. The integration of generative AI encourages innovation in writing practices, allowing for experimentation with different styles and formats. Looking to the future, digitalized writing will likely be an important element of AI literacy.

3. A Systematic Review of ChatGPT for EFL Writing: Methods and Findings

Despite the growing interest in ChatGPT for EFL writing and the call for a synthesis of the existing scholarship in order to move the field forward, there is not yet a review paper that brings together the findings of extant investigations and discusses their implications. To fill this gap, the current study aims to synthesize research to understand EFL learners' perceptions on ChatGPT in writing and the role of ChatGPT in EFL writing, guided by the following research questions:

1. How do EFL learners perceive ChatGPT in writing?
2. What is the role of ChatGPT in EFL writing?

3.1 Methods

The review adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Figure 1). Following the PRISMA guidelines, which are widely used in educational research projects (Imran & Almusharraf, 2023), the review process was structured to ensure comprehensiveness and reliability.

Figure 1

PRISMA Flow Diagram for the Systematic Review
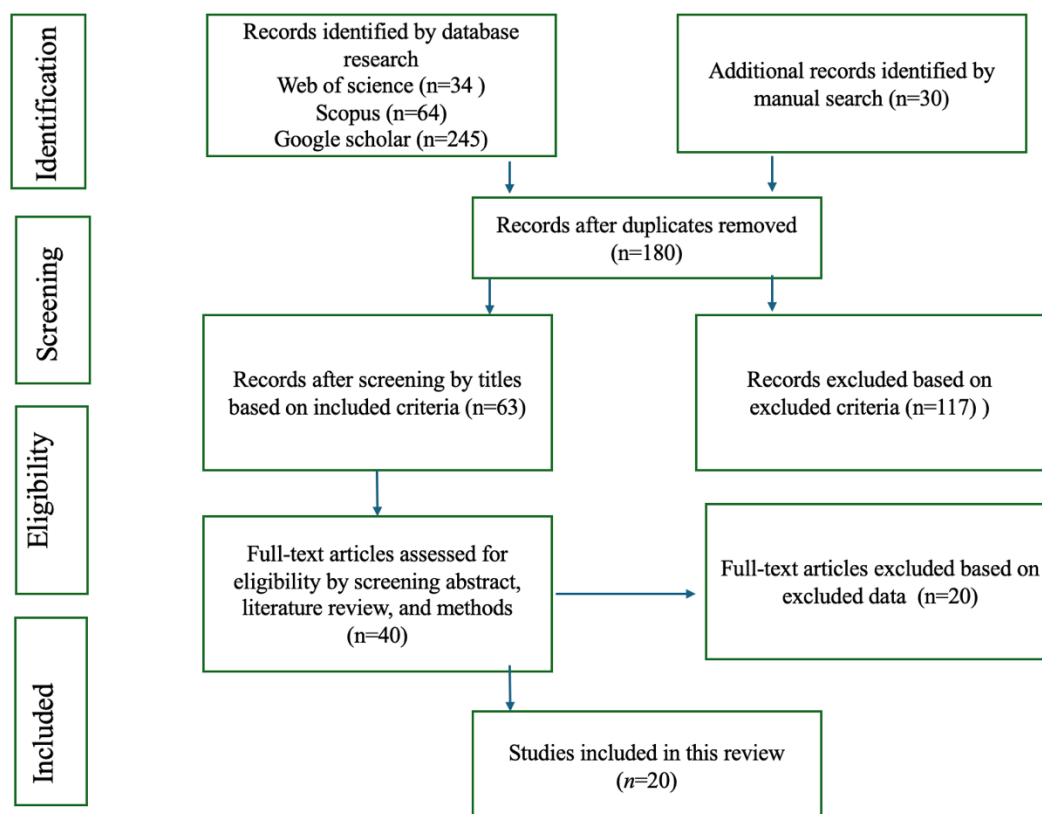
The first step, identification, involved a comprehensive search to locate all pertinent studies on ChatGPT in EFL writing that were published between 2020 and 2024. To obtain relevant studies on this topic, three academic databases that are commonly used in applied linguistics were consulted: Web of Science, Scopus, and Google Scholar. Combinations of the following keywords were utilized: ChatGPT and AI in EFL writing, ChatGPT as a writing assistant, ChatGPT and the future of writing, and AI and scientific writing. The keywords were developed in line with the topic and research questions related to AI literature. The initial search resulted in 343 publications. To mitigate the risk of overlooking significant works, a manual search was also performed by examining the references of the identified studies. After removing duplicate records, the total number of studies for potential inclusion was narrowed down to 180.

The second step, screening, was to formulate the inclusion and exclusion criteria to screen out the located publications. Five criteria must be met for a study to be included: (a) the study is informed by the role of ChatGPT in EFL writing, (b) the study contains empirical evidence based on original data collection, (c)) the study is conducted in EFL writing contexts, (d) the journals are included in Scopus or ESCI, and (e) the study is written in English. A study was excluded if it (a) does not contain empirical data (e.g., conceptual papers), (b) does not investigate EFL student writers, (c) is not conducted in EFL writing contexts, (d) not included in Scopus or ESCI, or (e) is not written in English.

The third step, eligibility, was to screen out studies that did not meet the eligibility criteria. After a careful examination of the abstract, literature review, and method section of the articles identified, a total of 40 primary studies were found to be eligible for current review as per our selection criteria. Language or education related journals are the main source journals included in this review.

The fourth step, inclusion, involved the inclusion of the selected documents in the systematic review. To reflect the latest findings, only 20 of the most relevant documents published in the years of 2023 and

2024 were selected, while others were excluded. The next step was to code the studies selected for analysis. Based on the research questions, relevant information about the studies including identification (i.e., authors, year, publishing venues), research contexts, participants, and research design were extracted.

Overall, following the PRISMA framework, this systematic review ensured that the research was conducted in a structured and methodical manner. The selected studies offer a comprehensive overview of the current state of ChatGPT in writing, highlighting their opportunities and challenges. This review underscores the importance of effectively leveraging ChatGPT for EFL writing.

3.2 Findings

This section examines the background information of these selected documents, including the distribution of countries based on the origin of the first author (Figure 2) and journals and citations (Table 1). Figure 2 reveals that scholars in China produced more articles than those in other countries on the topic of ChatGPT in EFL writing. Japan and the USA also significantly contributed to research on ChatGPT as a tool for EFL writing. Authors from various countries highlighted that ChatGPT's role as a writing tool for EFL students has garnered global attention.

Figure 2

Distribution of Selected Articles Based on Their Origin of the First Author
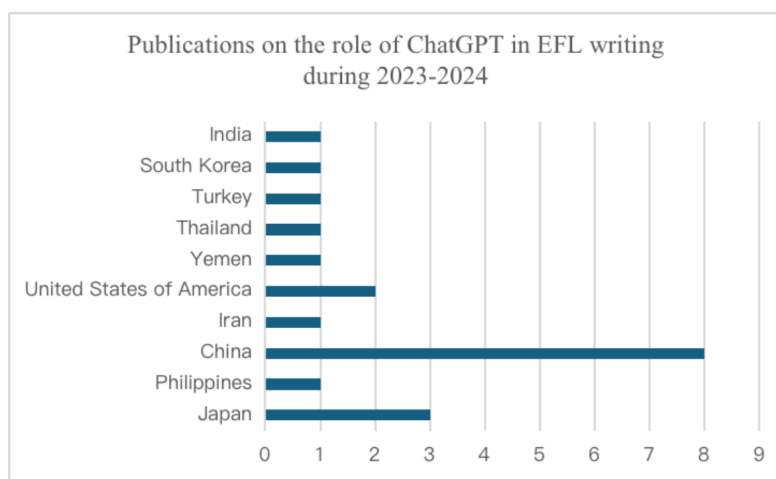
The given collection of articles in Table 1 offers a comprehensive overview of recent research on the use of ChatGPT in EFL writing instruction. The studies span a range of topics, from automated essay scoring to learner perceptions and the impact on writing skills and writing efficacy. Notably, Mizumoto and Eguchi's (2023) and Yan's (2023) work on automated essay scoring has garnered significant attention, with 140 and 189 citations, highlighting its influence in the field. Even more recent studies, particularly those published in 2024 (e.g., Steiss et al., 2024), have accumulate citations, reflecting the attention to this topic of ChatGPT in EFL writing.

Several studies explore practical applications and the perceived benefits of ChatGPT. For instance, Allen and Mizumoto (2024) investigated Japanese EFL learners' preferences for editing strategies, while Teng (2024) examined learners' perceptions of using ChatGPT for feedback, both indicating a trend towards integrating AI tools for EFL writing. The potential for ChatGPT to enhance writing instruction is a recurring theme. Ghafouri et al. (2024) and Song and Song (2023) discuss its role in improving writing skills and motivation, suggesting positive outcomes for both teachers and learners. However, some studies also address challenges and limitations. Tsai et al. (2024) highlight pitfalls and feasibility issues, underscoring the need for cautious implementation.

Table 1

Documents Reviewed Based on Journals, Titles, Citations and the Main Findings

Author(s) and year	Article title	Journal	Citations (up to June 2024)	Main focus	Main findings
1. Allen, T., & Mizumoto, A. (2024).	ChatGPT over my friends: Japanese EFL learners' preferences for editing and proofreading strategies	RELC	0	Japanese EFL students' experiences and perceptions in using ChatGPT for writing	Students mostly preferred using AI technology for editing and proofreading, as it provided effective feedback that improved the clarity and cohesion of their writing. Students also expressed a preference for specific prompts to enhance their writing. ChatGPT served a dual role by offering authoritative insights into students' writing and delivering feedback that learners could comprehend, similar to the peer review process in writing groups.
2. Al-Garaady, J., & Mahyoob, M. (2023)	ChatGPT's capabilities in spotting and analyzing writing errors experienced by EFL learners.	Arab World English Journal	16	Potential benefits and challenges of integrating Artificial Intelligence (AI) into EFL writing education	ChatGPT successfully identified most surface-level errors but could not detect writing errors related to deep structure and pragmatics. Conversely, human teachers could spot most of these issues. ChatGPT cannot replace human instructors' expertise and nuanced understanding in detecting errors related to the more complex aspects of writing.
3. Boudouaia, A., Mouas, S., & Kouider, B. (2024)	A study on ChatGPT-4 as an innovative approach to enhancing English as a foreign language writing learning.	Journal of Educational Computing Research	3	The use and acceptance of ChatGPT-4 in students' EFL writing.	The results showed that the experimental group (EG) of using ChatGPT outperformed the control group. The findings also revealed substantial improvements in the EG's views of perceived usefulness, perceived ease of use, attitudes, and behavioral intention.

4. Bucol, J. L., & Sangkawong, N. (2024).	Exploring ChatGPT as a writing assessment tool	Innovations in Education and Teaching International	0	How well ChatGPT can assess students' writing using prompts and pre-defined rubrics compared to human raters.	ChatGPT displays substantial promise as an AWE tool, offering distinct features such as human-like interface, consistency, efficiency, and scalability.
5. Ghafouri, M., Hassaskhah, J., & Mahdavi-Zafarghandi, A. (2024)	From virtual assistant to writing mentor: Exploring the impact of a ChatGPT-based writing instruction protocol on EFL teachers' self-efficacy and learners' writing skill.	Language Teaching Research.	0	Using ChatGPT for a 10-week writing instruction program.	Results showed a significant effect of ChatGPT for teacher self-efficacy. In addition, learners demonstrated significant improvement in writing skills.
6. Gozali et al. (2024).	ChatGPT as an Automated Writing Evaluation (AWE) Tool: Feedback Literacy Development and AWE Tools' Integration Framework..	JALT CALL	0	Compare ChatGPT and Grammarly and Quillbot for EFL feedback literacy	The AWE tools complemented each other in supporting almost all aspects of students' feedback literacy, with "feedback processing" being the aspect that ChatGPT could potentially enhance or diminish, contingent upon students' feedback-seeking behavior.
7. Guo, K., & Wang, D. (2024).	To resist it or to embrace it? Examining ChatGPT's potential to support teacher feedback in EFL writing	Education and Information Technologies	42	Examining the possible role of ChatGPT in facilitating the teaching and learning of writing English as a Foreign Language (EFL)	ChatGPT produced a significantly larger amount of feedback than teachers and that compared with teacher feedback, which mainly focused on content-related and language-related issues, ChatGPT distributed its attention relatively equally among the three feedback foci (i.e., content, organisation, and language).

8. Mahapatra, S. (2024)	Impact of ChatGPT on ESL students' academic writing skills: a mixed methods intervention study.	Smart Learning Environments	7	Applying ChatGPT's text generation feature in a one-week L2 writing practicum.	The affordance and potential applicability of the tool in L2 writing pedagogy. Additionally, the tool also showcased an automatic workflow that could maximize the efficiency in composing writing.
9. Mizumoto, A., & Eguchi, M. (2023)	Exploring the potential of using an AI language model for automated essay scoring.	Research Methods in Applied Linguistics	140	The reliability and accuracy of automated essay scoring (AES) for writing assessment	AES using GPT demonstrated notable accuracy and reliability. Leveraging linguistic features could further enhance scoring accuracy. ChatGPT has the capability to provide automated corrective feedback, making it a valuable resource for classroom writing teachers.
10. Mizumoto, A., Shintani, N., Sasaki, M., & Teng, M. F. (2024).	Testing the viability of ChatGPT as a companion in L2 writing accuracy assessment.	Research Methods in Applied Linguistics.	0	ChatGPT's viability as a companion for L2 writing accuracy assessment.	There is a strong correlation between assessment by ChatGPT and human accuracy ratings, with a correlation coefficient (ρ) of 0.79, surpassing Grammarly's correlation of 0.69. This strong correlation affirms the potential of AI in accurately reflecting linguistic accuracy assessment. ChatGPT is precise in automated assessments, making it a suitable companion for L2 writing.
11. Pfau, A., Polio, C., & Xu, Y. (2023).	Exploring the potential of ChatGPT in assessing L2 writing accuracy for research purposes.	Research Methods in Applied Linguistics.	6	ChatGPT's potential for measuring linguistic accuracy in second language writing	There is a strong correlation ($\rho = 0.97$ using one method and .94 using another method) between ChatGPT's error detection and human coding. This correlation diminishes with lower proficiency levels

12. Punar Özçelik, N., & Yangın Ekşi, G. (2024)	Cultivating writing skills: the role of ChatGPT as a learning assistant—a case study.	Smart Learning Environments	3	The impact of ChatGPT on the acquisition of register knowledge across various writing tasks.	Students found ChatGPT beneficial for acquiring formal register knowledge but perceived it as unnecessary for informal writing. Additionally, the effectiveness of ChatGPT in teaching neutral register was questioned by the participants
13. Shin, D., & Lee, J. H. (2024)	Exploratory study on the potential of ChatGPT as a rater of second language writing.	Education and Information Technologies	0	The potential of ChatGPT as an automated writing evaluation tool for L2 assessment	There was a strong similarity between human rater and ChatGPT scores. However, ChatGPT showed a slightly greater deviation from the model than its human counterparts.
14. Song, C., & Song, Y. (2023)	Enhancing academic writing skills and motivation: assessing the efficacy of ChatGPT in AI-assisted language learning for EFL students	Frontiers in Psychology	34	The role of ChatGPT in enhancing writing for EFL students	There were significant improvements in both writing skills and motivation among students who received AI-assisted instruction compared to the control group. The experimental group demonstrated enhanced proficiency in various aspects of writing, including organization, coherence, grammar, and vocabulary.
15. Steiss et al. (2024)	Comparing the quality of human and ChatGPT feedback of students' writing	Learning and Instruction	16	The ability of generative AI (ChatGPT) to provide formative feedback.	Human raters were better at providing high-quality feedback to students in all categories other than criteria-based. AI and humans showed differences in feedback quality based on essay quality.
16. Su, Y., Lin, Y., & Lai, C. (2023)	Collaborating with ChatGPT in argumentative writing classrooms	Assessing Writing	107	Integrating ChatGPT into argumentative writing classrooms as a promising solution.	ChatGPT is helpful for tasks such as outline preparation, content revision, proofreading, and post-writing reflection. ChatGPT supported pre-writing, during-writing and post-writing.

17. Teng, M. F. (2024)	"ChatGPT is the companion, not enemies": EFL learners' perceptions and experiences in using ChatGPT for feedback in writing	Computers & Education: Artificial Intelligence	0	Chinese students' perceptions and experiences in utilizing ChatGPT for their writing process	AI assistance had a significant effect on writing, including writing motivation, self-efficacy, engagement, and collaborative writing tendency
18. Tsai, C. Y., Lin, Y. T., & Brown, I. K. (2024).	Impacts of ChatGPT-assisted writing for EFL English majors: Feasibility and challenges.	Education and Information Technologies	0	The impacts of using ChatGPT to assist English as a foreign language (EFL) students' writing	ChatGPT-assisted revised essays shifted the score curve from a normal distribution to a skewed distribution towards higher grades, with the greatest increase in revision scores seen among students who had lower original scores.
19. Woo, D. J., Wang, D., Guo, K., & Susanto, H. (2024).	Teaching EFL students to write with ChatGPT: Students' motivation to learn, cognitive load, and satisfaction with the learning process	Education and Information Technologies	1	EFL students' experiences and perceptions as they learn to write a composition with ChatGPT's support	ChatGPT has a potential to engage EFL students in the writing classroom, but its use can impose heavy cognitive demands.
20. Yan, D. (2023)	Impact of ChatGPT on learners in a L2 writing practicum: An exploratory investigation.	Education and Information Technologies	189	The impact of ChatGPT on writing	ChatGPT has a significant effect on students' academic writing skills, and students' perceptions of the impact were also overwhelmingly positive.

Table 1 also highlights the diverse applications and impacts of ChatGPT in EFL writing instruction. The studies consistently demonstrate the potential of ChatGPT to enhance writing skills, provide accurate assessments, and offer valuable feedback. For instance, Mizumoto and Eguchi (2023) found that automated essay scoring (AES) using GPT is both accurate and reliable, while Mizumoto et al. (2024) revealed a strong correlation between ChatGPT's assessments and human ratings, indicating ChatGPT's precision in linguistic accuracy assessment.

Several studies focus on learners' preferences and perceptions. Allen and Mizumoto (2024) noted that Japanese EFL learners preferred using ChatGPT for editing and proofreading, as it improved clarity and cohesion in their writing. Similarly, Teng (2024) highlighted that AI assistance significantly boosted writing motivation and self-efficacy among Chinese students.

The impact of ChatGPT on teaching efficacy and learner outcomes is also evident. Ghafouri et al. (2024) showed that a 10-week ChatGPT-based writing instruction program significantly enhanced teacher self-efficacy and student writing skills. Gozali et al. (2024) emphasized the importance of ChatGPT in EFL students' feedback behaviors.

Other studies explored the broader educational implications of ChatGPT. Yan (2023) and Guo and Wang (2024) examined ChatGPT's role in providing extensive and balanced feedback, surpassing human feedback in some areas. However, some challenges remain, such as ChatGPT's limitations in detecting deep structure and pragmatic errors (Al-Garaady & Mahyoob, 2023) and its potential to impose heavy cognitive demands on learners (Woo et al., 2024).

There were four main themes when comes to an analysis of the included literature.

Theme 1: EFL Students' Positive Preferences and Experiences with ChatGPT

The integration of ChatGPT into EFL writing has garnered positive feedback from students, who appreciate its effectiveness in enhancing their writing skills.

Allen and Mizumoto (2024) conducted a study focusing on Japanese EFL students' preferences for using ChatGPT for editing and proofreading their written work. The research revealed that students highly favored ChatGPT due to its ability to provide effective feedback that significantly improved the clarity and cohesion of their writing. The AI offered authoritative insights and feedback that were easy for learners to understand, mirroring the benefits of peer review processes. This ease of comprehension and the quality of feedback made ChatGPT a preferred tool among students for refining their writing.

In a similar vein, Boudouaia, Mouas, and Kouider (2024) investigated the use and acceptance of ChatGPT-4 in EFL writing classes. Their study included an experimental group that utilized ChatGPT and a control group that did not. The findings were striking: the experimental group outperformed the control group, demonstrating significant improvements in several areas. These included perceived usefulness, ease of use, attitudes towards the technology, and behavioral intention to continue using it. The results suggest that ChatGPT not only enhances writing performance but also positively influences students' attitudes and intentions regarding its use.

Teng (2024) further explored the impact of ChatGPT on learners' writing perceptions, uncovering several key benefits. The study highlighted that ChatGPT had a significant effect on learners' writing motivation, self-efficacy, engagement, and collaborative writing tendencies. Students reported feeling more motivated to write and more confident in their writing abilities when using ChatGPT. Additionally, the AI tool fostered greater engagement with writing tasks and encouraged collaborative efforts, as students were more inclined to share and discuss their work with peers.

Overall, EFL students have shown a strong preference for using ChatGPT in their writing practices, driven by the effective feedback and user-friendly interface it provides. The studies by Allen and Mizumoto (2024), Boudouaia, Mouas, and Kouider (2024), and Teng (2024) collectively underscore the positive impact of ChatGPT on EFL students' writing skills and attitudes. By improving clarity, cohesion, motivation, and engagement, ChatGPT is a valuable tool in the EFL writing landscape, enhancing both individual and collaborative writing experiences.

Theme 2: ChatGPT: An Innovative Tool for Writing Assessment

The advent of ChatGPT has introduced a new paradigm in the field of writing assessment, showcasing its potential as a powerful tool for evaluating and improving written work. Al-Garaady and Mahyoob (2023) conducted an in-depth analysis of ChatGPT's ability to spot and analyze writing errors.

Their research revealed that ChatGPT excels at identifying surface-level errors such as grammatical mistakes, spelling errors, and punctuation issues. However, the AI struggled with more complex errors involving deep structure and pragmatic aspects of writing, areas where human instructors still hold a significant advantage. This indicates that while ChatGPT can serve as a helpful preliminary tool for error detection, it may need to be complemented by human oversight for more nuanced writing issues.

In another study, Bucol and Sangkawong (2024) explored the potential of ChatGPT as a writing assessment tool. They highlighted its promise as an Automated Writing Evaluation (AWE) system, emphasizing its human-like interface, consistency, efficiency, and scalability. These characteristics make ChatGPT an attractive option for large-scale writing assessments, where human resources may be limited. The AI's ability to provide consistent feedback quickly and at scale positions it as a valuable asset in educational settings, particularly for formative assessments.

Mizumoto and Eguchi (2023) focused on the reliability and accuracy of automated essay scoring (AES) using GPT technology. Their findings demonstrated that ChatGPT could provide highly accurate and reliable automated corrective feedback. This suggests that GPT-based systems can be effectively integrated into educational environments to assist with essay scoring, reducing the workload on educators and providing students with timely feedback to improve their writing skills.

Expanding on the application of AI in writing assessment, Mizumoto, Shintani, Sasaki, and Teng (2024) investigated ChatGPT's viability as a companion for assessing linguistic accuracy in second language (L2) writing. Their research affirmed the potential of AI in this area, indicating that ChatGPT could serve as a valuable tool for enhancing L2 writing accuracy. The AI's ability to provide detailed feedback on linguistic errors helps learners refine their language skills more effectively.

Pfau, Polio, and Xu (2023) explored ChatGPT's potential for measuring linguistic accuracy in second language writing for research purposes. Their study highlighted the effectiveness of ChatGPT in this role, noting its capability to provide reliable assessments of linguistic accuracy. However, they also observed that the correlation between ChatGPT's assessments and human evaluations diminished with lower proficiency levels. This suggests that while ChatGPT is a useful tool for linguistic accuracy assessment, its performance may vary depending on the proficiency level of the writers, and it may be more effective for intermediate to advanced learners.

ChatGPT represents an innovative tool for writing assessment, offering significant benefits in terms of efficiency, scalability, and consistency. While it excels at identifying surface-level errors and providing reliable automated feedback, its limitations in detecting deep structural and pragmatic errors highlight the continued importance of human oversight. As research continues to explore and refine its capabilities, ChatGPT is poised to become an integral part of the writing assessment landscape, particularly in educational settings where it can complement traditional assessment methods.

Theme 3: ChatGPT: A Need for Collaboration between Teachers and Learners

ChatGPT has been found to be particularly helpful for editing and proofreading when systematically implemented and supervised by teachers. It offers valuable insights into word choice, coherence, structure, language style, and grammar. For instance, Ghafouri, Hassaskhah, and Mahdavi-Zafarghandi (2024) explored the impact of a ChatGPT-based writing instruction protocol on EFL teachers' self-efficacy and learners' writing skills over a 10-week program. Their study showed significant improvements in both teacher self-efficacy and learners' writing skills.

Additionally, Guo and Wang (2024) examined ChatGPT's potential to support teacher feedback in EFL writing. They found that ChatGPT produced a significantly larger amount of feedback compared to teachers, effectively addressing content, organization, and language issues. This highlights the tool's capacity to enhance the feedback process, ensuring that learners receive comprehensive and detailed guidance.

Furthermore, Mahapatra (2024) investigated the impact of ChatGPT on ESL students' academic writing skills during a one-week L2 writing practicum. The study underscored ChatGPT's affordance and potential applicability in L2 writing pedagogy, demonstrating its ability to support learners in improving their academic writing skills.

These findings collectively emphasize the importance of a collaborative approach where teachers systematically integrate and supervise the use of ChatGPT. Such collaboration ensures that learners can fully benefit from the tool's capabilities while receiving the necessary guidance and support from their instructors.

Theme 4: ChatGPT on Writing Improvement

Punar Özçelik and Yangın Ekşi (2024) conducted a case study examining the role of ChatGPT in cultivating writing skills, particularly in acquiring register knowledge across various writing tasks. Students found ChatGPT beneficial for formal register knowledge but questioned its effectiveness for informal and neutral registers. Gozali et al. (2024) revealed that ChatGPT and other AI tools complemented each other in supporting almost all aspects of students' feedback literacy. In particular, ChatGPT could potentially enhance EFL students' feedback processing.

Overall, the different themes highlight the multifaceted role of ChatGPT in EFL writing education, from enhancing student preferences and experiences to improving error detection and writing assessment. They also underscore the pedagogical implications of integrating ChatGPT into writing instruction and its specific contributions to various aspects of writing improvement. ChatGPT holds significant promise as a tool for enhancing EFL writing instruction. Its ability to provide effective feedback, support error detection and writing assessment, and offer valuable insights into writing improvement makes it a valuable addition to language learning environments. However, the limitations of ChatGPT, particularly in detecting deep structure and pragmatic errors and its varying effectiveness across different writing registers, underscore the need for a balanced approach that integrates AI tools with human instruction. Thoughtful and systematic implementation of ChatGPT, supervised by teachers, can maximize its benefits while addressing its limitations, ultimately enhancing both teaching and learning experiences in EFL writing contexts.

4. ChatGPT and Future of Writing

Through examining the literature on the opportunities and challenges posed by advanced AI technologies and their extensive use in writing, the findings from the systematically reviewed literature underscore that the development of AI technologies, like ChatGPT, has the potential to significantly impact the future of writing. ChatGPT is an invaluable assistant for researchers, teachers, and students. It can be utilized as a collaborative tool to provide personalized feedback, tailor search results, offer writing suggestions, and enhance overall writing quality. Much like human raters, ChatGPT can identify advanced grammar and syntax issues, suggest improvements for writing structure, and enhance the coherence of prompts (Mizutomo et al., 2024). The literature highlights ChatGPT's ability to significantly aid in various writing tasks. It excels in generating text, creating initial drafts, brainstorming ideas, and summarizing literature. These capabilities can greatly assist writers in the early stages of the writing process, facilitating the development and organization of their thoughts (Boudouaia et al., 2024). By handling repetitive and time-consuming tasks, ChatGPT allows writers to focus on more creative and complex aspects of their work. The use of ChatGPT can streamline the writing process, enabling users to produce content more quickly and efficiently. This is particularly beneficial in EFL settings, for which students lack self-efficacy (Teng, 2024). By automating certain aspects of writing, ChatGPT helps to increase productivity, allowing individuals to manage their time more effectively.

Despite its advantages, ChatGPT raises significant concerns regarding ethical use and academic integrity. There is a risk of over-reliance on AI-generated content, which could undermine the development of critical thinking and writing skills (Barrot, 2023). Ensuring that AI tools are used responsibly and ethically is crucial to maintaining the integrity of academic and professional writing. While ChatGPT can assist with various writing tasks, it cannot fully replace the nuanced skills and knowledge of a human writer. AI lacks the ability to deeply understand context, interpret complex emotions, and generate truly original ideas, which are essential components of high-quality writing. Human writers bring a level of creativity, intuition, and cultural understanding that AI currently cannot replicate. The ease of generating content with ChatGPT could lead to misuse, such as creating misleading or plagiarized content, including false citations (Day, 2023). Establishing guidelines and best practices for the ethical use of AI in writing is necessary to mitigate these risks. It is important to educate users on the responsible use of AI tools to prevent potential negative consequences.

In this scientifically advanced era, the importance of AI and its technologies is undeniable, as they are making significant strides in various fields, including writing. The integration of AI tools like ChatGPT into the EFL writing process presents both opportunities and challenges. On the positive side, AI can revolutionize writing techniques by enhancing productivity, providing valuable feedback, and supporting the creation of high-quality content. On the negative side, it poses risks related to ethical considerations, academic integrity, and the potential erosion of human creativity and critical thinking skills.

4.1 Opportunities

The development of artificial intelligence (AI) has been underway for decades, but it has gained significant momentum in recent years, as evidenced by the doubling of publications on the topic (Maslej et al., 2023). The emergence of AI tools like ChatGPT has accelerated innovation in English language teaching, particularly in EFL contexts. Despite the vast majority of educational systems retaining a basic structure, the process of innovating English teaching and learning to meet 21st-century needs has been slow (Kostka & Toncelli, 2023). However, the rapid advancements in EFL teaching and learning driven by AI tools such as ChatGPT present a critical opportunity for significant shifts in educational philosophies and practices.

The rapid changes necessitated by AI advancements require educators to re-evaluate and redefine their roles in EFL writing instruction (Guo & Wang, 2024). AI tools like ChatGPT are prompting much-needed innovation in assessment and teaching methods (Rudolph et al., 2023). For instance, promising uses of ChatGPT in writing assessment have been documented (e.g., Bucol & Sangkawong, 2024; Mizumoto & Eguchi, 2023). ChatGPT can serve as a personal mentor, answering student questions and summarizing key information for writing (Ghafouri et al., 2024). This allows class time to move beyond mere knowledge acquisition, focusing instead on applying knowledge to enhance writing through collaborative and critical engagement (Mahapatra, 2024). AI-generated text can be leveraged as a starting point for projects or as a comparative tool alongside student-generated work. This approach encourages writing and strengthens EFL students' self-efficacy (Song & Song, 2023; Teng, 2024). Allen and Mizumoto (2024) noted that the new approaches to fostering EFL students' writing strategies inspired by ChatGPT may also create space for realigning prior knowledge with current knowledge, thereby benefiting writing skills. This aligns with the recommendation by Su et al. (2023) to help learners collaborate with AI using theoretically grounded principles for argumentative writing classrooms.

Mitchell (2019) identified creativity, curiosity, and critical engagement as essential components of education. If used with critical intentionality, caution, and care, ChatGPT may facilitate innovative teaching practices in EFL writing contexts. The integration of AI tools like ChatGPT into educational settings holds the potential to revolutionize traditional writing teaching methods, making them more interactive, personalized, and effective.

4.2 Challenges

While ChatGPT offers numerous opportunities for innovation in EFL writing instruction, it also brings widespread concerns and challenges. Since the release of ChatGPT, issues surrounding academic integrity have been a significant point of contention. Stewart (2023) coined the term "high-tech plagiarism" from Chomsky to describe the potential misuse of AI in academic settings, while Weismann (2023) went as far as to suggest that such technologies could signal the end of the traditional teaching profession. One of the primary fears among educators is that students will rely on ChatGPT to complete their writing assignments, thereby undermining the process of learning to write. Instances have been reported where students' articles were essentially drafted by ChatGPT, raising serious concerns about the authenticity of student work. Teng (2023) noted that ChatGPT adds a new layer of risk for cheating, exacerbating existing concerns about academic integrity.

In response to these risks, some institutions initially took drastic measures. For example, the University of Hong Kong banned the use of ChatGPT when it was first released. Although such restrictions were later relaxed, the episode underscored the urgent need for new approaches to uphold academic integrity in the age of AI. Guo and Wang (2024) highlighted the critical question facing educators: should we resist or embrace ChatGPT for EFL writing instruction?

The debate over ChatGPT is also reflected in media coverage and public discourse. Tlili et al. (2023) analyzed tweets and interviews with stakeholders, revealing mixed reactions to the potential uses and misuses of these technologies. Similarly, Song and Song (2023) explored the motivations behind student cheating, suggesting that generative AI might tempt students who feel they lack control over the writing process. They conclude that revolutionizing assessments and reflecting on the learning process could be key to addressing these challenges. García-Peñalvo (2023) observed that hysteria and worry are typical reactions to disruptive changes. The diverse range of reactions to generative AI may be "a true reflection of general behavior towards innovation" (p. 2). This mixed response to ChatGPT highlights the immediate challenges of adapting to technological advancements, yet it also underscores the need for a balanced approach that considers both the risks and pedagogical benefits.

The push and pull between concerns about cheating and the opportunities presented by ChatGPT is a central theme in the current discourse. While the potential for misuse is significant, so too are the educational benefits. ChatGPT can serve as a powerful tool for enhancing student engagement, providing personalized feedback, and supporting the development of writing skills (Punar Özçelik & Yangın Ekşi, 2024). However, these benefits must be weighed against the risks to integrity in writing.

4.3 Recommendations

The integration of ChatGPT into undergraduate and graduate writing classes, as outlined in Table 2, serves as an example for recommendations to address both promising opportunities and notable challenges.

Table 2

Recommendations for Writing Classes in a Foreign Language Context

Course title	Undergraduate: Persuasive Writing	Graduate: Advanced Academic Writing
Lesson	Constructing Persuasive Arguments	Academic Presentation Skills in Writing
Prior learning	- Aristotle's conceptualization of ethos, pathos, and logos in persuasive argumentation	- Formal writing skills such as structuring arguments, incorporating visual aids, writing effective introductions and conclusions, and ensuring transitions and cohesion

Lesson Objectives	- Analyze ChatGPT-generated persuasive texts for the presence and quality of ethos, pathos, and logos - Construct and revise persuasive arguments using student-improved texts	- Evaluate ChatGPT output on presentation skills in academic writing - Compare and contrast ChatGPT output with students' prior learning in academic writing
Materials	- ChatGPT - Shared Google - Laptops	- ChatGPT - Laptops - Hard copies of Venn diagrams - Instructor-created prompt questions to input into ChatGPT
In-class activity	- In groups of 3, students craft ChatGPT prompts to generate either an affirmative or negative persuasive text on a topic selected by the instructor - Students confirm prompts with the instructor and generate texts, which are then pasted into a shared Google Doc - Groups analyze their texts for ethos, pathos, and logos by adding comments to the Google Doc - Groups conduct research to improve their texts, including finding credible sources to enhance ethos and adding personal stories to enhance pathos - Groups peer-review each other's revised texts	- In groups of 2-3, students engage in retrieval practice by listing what they remember about one of the five major presentation skill topics given by the instructor - The instructor gives each group a question related to their topic (e.g., How can I engage my audience during an academic presentation?) - Students input their question into ChatGPT and read its response - Students create a Venn diagram to compare their knowledge with ChatGPT output, focusing on similarities and differences
Assessment	- Groups exchange texts and provide peer feedback, focusing on the effective use of ethos, pathos, and logos in the revised texts - Students write a short reflection on whether the peer review process helped them improve their persuasive writing	- Students submit a comparative analysis of their knowledge and ChatGPT's responses, highlighting areas of agreement and divergence, and reflecting on how the activity enhanced their academic writing skills

As demonstrated in the above sections, incorporating ChatGPT into English writing classes presents both opportunities and challenges. Students have shown considerable interest in the capabilities of ChatGPT and its potential role in enhancing their writing skills. The growing body of literature provides valuable recommendations for utilizing ChatGPT to support English writing instruction, emphasizing the importance of collaboration among educators and students.

In the above recommendations for sample writing classes in Table 2, students collaborated to brainstorm ideas on leveraging ChatGPT, reviewed each other's lessons and materials, and discussed preliminary insights from classroom experiences. Such collaborative efforts align with the concept of collegial inquiry, where teachers and students work together to explore and develop more complex perspectives, thereby enhancing engagement in writing (Guo & Wang, 2024; Woo et al., 2024). This collaboration is crucial, particularly in the context of the evolving nature of AI tools like ChatGPT,

which necessitates continuous dialogue and shared learning among educators and students. Teachers and students need to foster an awareness of ChatGPT's functionalities for writing class (Table 3).

Table 3

ChatGPT Functionalities for Writing Class

ChatGPT Functionalities	Examples	Reflection
Content Development	- Suggestions for potential topics, outlines, or resources	Can aid in early writing stages; risk of over-reliance for ideation.
	- Collection and summarization of related information	Helpful for gathering ideas; ensures critical engagement.
	- Facilitation of brainstorming through conversation	Stimulates thought processes; may hinder original idea generation.
Corpus Search	- Retrieval of example sentences using the given vocabulary or grammar	Enhances practical understanding; must ensure critical engagement.
Text Modification	- Adjustment of difficulty level	Useful for tailoring content; requires oversight for nuanced judgement.
	- Adjustment of genre, tone, voice, or formality	Aids contextual appropriateness; needs careful review.
Feedback and Revision	- Editing and proofreading with explanations	Accelerates learning with detailed feedback; risk of surface-level understanding.
	- Revision for specific aspects of writing (content, organization, clarity)	Supports targeted improvement; students must understand revisions.
	- Analysis of learner errors and mistakes	Identifies common issues; must foster deep comprehension of errors.
Response to Questions	- Providing answers to specific questions	Clarifies doubts quickly; accuracy and comprehensibility are crucial.
	- Appropriateness of word usage, confusing synonyms	Ensures correct usage; requires accurate and clear explanations.
Support for Sentence Generation	- Translation or articulation of a given sentence	Overcomes writer's block; sentences need contextual review.
	- Generation of templates or sentence starters	Provides structure; students must learn to adapt templates meaningfully.
Vocabulary/Grammar Support	- Providing definitions or explanations for unknown vocabulary or grammar items	Expands knowledge; explanations should be clear and contextualized.
Paraphrasing/Summary	- Paraphrasing and summarizing to meet specific requirements	Teaches critical writing skills; outputs need evaluation to meet academic standards.

The development of writing lessons within the EFL curriculum reflects the AI literacy framework, which comprises five essential elements: understanding, accessing, prompting, corroborating, and incorporating (Tseng & Warschauer, 2023). According to sociocultural theory, the significance of tools lies not in their abstract characteristics but in how they transform human activity (Vygotsky, 1981). From this perspective, incorporating tools like AI does not merely facilitate actions that could occur without them; instead, their inclusion fundamentally alters the entire flow and structure of cognitive functions. Writing instructors need to recognize that AI is not just a medium for teaching the same content differently; it is reshaping the entire landscape of language use and learning. The ability to write effectively is, to some extent, dependent on the tools available. Writing well with AI and writing well without it are distinct, though overlapping, competencies. This distinction is evident in the analysis of various writing instruction examples. Recognizing how AI is transforming language use and writing is crucial. Integrating AI into writing instruction in ways that align with students' learning goals and proficiency levels ensures that students become adept at writing both with and without AI. By applying an AI literacy framework, writing instructors can help EFL students effectively harness the power of AI tools to enhance their English writing skills.

Guidelines for the use of AI in writing courses can be co-created with students at the beginning of the course and refined throughout the semester as needed. This iterative process ensures that the guidelines remain relevant and effective. Over time, teachers and students may develop a community of practice, a concept introduced by Lave and Wenger (1991), where they co-construct knowledge about ChatGPT and stay abreast of the latest advancements. Such communities of practice are beneficial for professional development, as they facilitate knowledge sharing, learning, and adaptation to change (Wenger & Snyder, 2000). A community of practice centered on the exploration of ChatGPT can help educators and students feel confident in experimenting with AI applications and addressing associated challenges. This collaborative environment not only supports the process of learning to write but also raises awareness of digital literacy among teachers. As Wenger (1998) notes, developing mutual understanding within a community of practice is essential for fostering a supportive and dynamic learning environment.

5. Concluding Remarks

This systematic review has illuminated the pivotal role of ChatGPT as a tool for enhancing EFL writing. The introduction of ChatGPT marks the beginning of a new era characterized by unprecedented advancements in science, technology, and education. The majority of the studies reviewed support the notion that ChatGPT, as an advanced AI generative model, can significantly aid EFL students in improving their writing skills.

Given the rapid expansion of AI technology, scholars worldwide are exploring various aspects of its application and utility. This study provides a thorough overview of literature published during 2023 and 2024, focusing on the role of ChatGPT in EFL writing. The data was systematically extracted and presented in figures and tables to elucidate its impact on teaching EFL students how to write effectively. By offering detailed findings and discussions, this study addresses the existing gap in the literature concerning the opportunities, challenges, and recommendation associated with ChatGPT as a facilitator and assistant in EFL writing. It underscores ChatGPT's potential to revolutionize current and future EFL writing instruction, highlighting both its benefits and areas for further exploration.

References

(* references included for systematic review)

Akgun, S., & Greenhow, C. (2022). Artificial intelligence in education: Addressing ethical challenges in K-12 settings. *AI and Ethics, 2, 431–440.* https://doi.org/10.1007/s43681-021-00096-7

*Al-Garaady, J., & Mahyoob, M. (2023). ChatGPT's capabilities in spotting and analyzing writing errors experienced by EFL learners. *Arab World English Journal, 9,* 3-17. DOI: https://dx.doi.org/10.24093/awej/call9.1

*Allen, T., & Mizumoto, A. (2024). ChatGPT over my friends: Japanese EFL learners' preferences for editing and proofreading strategies. *RELC Journal.*

Barrot, J. S. (2023). Using ChatGPT for second language writing: Pitfalls and potentials. *Assessing Writing, 57,* 100745. https://doi.org/10.1016/j.asw.2023.100745

*Boudouaia, A., Mouas, S., & Kouider, B. (2024). A study on ChatGPT-4 as an innovative approach to enhancing English as a foreign language writing learning. *Journal of Educational Computing Research.* https://doi.org/10.1177/0735633124124746

*Bucol, J. L., & Sangkawong, N. (2024). Exploring ChatGPT as a writing assessment tool. *Innovations in Education and Teaching International.* https://doi.org/10.1080/14703297.2024.2363901

Celik, I., Dindar, M., Muukkonen, H., & Järvelä, S. (2022). The promises and challenges of artificial intelligence for teachers: A systematic review of research. *Tech Trends, 66*(4), 616–630. https://doi.org/10.1007/s11528-022-00715-y

Day, T. (2023). A preliminary investigation of fake peer-reviewed citations and references generated by ChatGPT. *The Professional Geographer, 75*(6), 1024-1027. https://doi.org/10.1080/00330124.2023.2190373

*Gozali, I., Wijaya, A. R. T., Lie, A., Cahyono, B. Y., & Suryati, N. (2024). ChatGPT as an Automated Writing Evaluation (AWE) Tool: Feedback Literacy Development and AWE Tools' Integration Framework. *JALT CALL Journal, 20*(1), n1. DOI: https://doi.org/10.29140/jaltcall.v20n1.1200

García-Peñalvo, F.J. (2023). The perception of Artificial Intelligence in educational contexts after the launch of ChatGPT: Disruption or panic? *Education in the Knowledge Society, 24,* 1-9. https://doi.org/10.14201/eks.31279

*Ghafouri, M., Hassaskhah, J., & Mahdavi-Zafarghandi, A. (2024). From virtual assistant to writing mentor: Exploring the impact of a ChatGPT-based writing instruction protocol on EFL teachers' self-efficacy and learners' writing skill. *Language Teaching Research.* https://doi.org/10.1177/1362168824123976

*Guo, K., & Wang, D. (2024). To resist it or to embrace it? Examining ChatGPT's potential to support teacher feedback in EFL writing. *Education and Information Technologies, 29,* 8435–8463. https://doi.org/10.1007/s10639-023-12146-0

Kohnke, L., Moorhouse, B. L., & Zou, D. (2023). ChatGPT for language teaching and learning. *RELC Journal.* https://doi.org/10.1177/00336882231162868

Kostka, I., & Toncelli, R. (2023). Exploring applications of ChatGPT to English language teaching: Opportunities, challenges, and recommendations. *TESL-EJ, 27*(3), n3. https://doi.org/10.55593/ej.27107int

Kruse, O., & Rapp, C. (2019). Seamless writing: How the digitisation of writing transforms thinking, communication, and student learning. In Looi CK, Wong LH, Glahn C, Cai, S. (eds), *Seamless learning. Lecture notes in educational technology* (pp. 191-208). Springer, Singapore. https://doi.org/10.1007/978-981-13-3071-1_10

Imran, M., & Almusharraf, N. (2023). Analyzing the role of ChatGPT as a writing assistant at higher education level: A systematic review of the literature. *Contemporary Educational Technology, 15*(4), ep464. https://doi.org/10.30935/cedtech/13605

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation.* Cambridge University Press.

Long, D., & Magerko, B. (2020). What is AI literacy? Competencies and design considerations. In Bernhaupt R, Mueller F, Verweij D, Andres J (eds). *Proceedings of the 2020 CHI conference on human factors in computing systems* (pp. 1-16). Association for Computing Machinery.

*Mahapatra, S. (2024). Impact of ChatGPT on ESL students' academic writing skills: a mixed methods intervention study. *Smart Learning Environments, 11*. doi.org/10.1186/s40561-024-00295-9

Maslej, N., Fattorini, L., Brynjolfsson, E., Etchemendy, J., Ligett, K., Lyons, T., Manyika, J., Ngo, H., Niebles, J.C., Parli, V., Shoham, Y., Wald, R., Clark, J., & Perrault, R. (2023). *The AI index 2023 annual report.* Stanford University Institute for Human-Centered AI. https://aiindex.stanford.edu/wp-content/uploads/2023/04/HAI_AI-Index-Report_2023-pdf

Mitchell, M. (2019). *Artificial intelligence: A guide for thinking humans.* Farrar, Straus, and Giroux.

*Mizumoto, A., & Eguchi, M. (2023). Exploring the potential of using an AI language model for automated essay scoring. *Research Methods in Applied Linguistics, 2*(2), 100050. https://doi.org/10.1016/j.rmal.2023.100050

*Mizumoto, A., Shintani, N., Sasaki, M., & Teng, M. F. (2024). Testing the viability of ChatGPT as a companion in L2 writing accuracy assessment. *Research Methods in Applied Linguistics.* https://doi.org/10.1016/j.rmal.2024.100116

*Pfau, A., Polio, C., & Xu, Y. (2023). Exploring the potential of ChatGPT in assessing L2 writing accuracy for research purposes. *Research Methods in Applied Linguistics, 2*(3), 100083. https://doi.org/10.1016/j.rmal.2023.100083

*Punar Özçelik, N., & Yangın Ekşi, G. (2024). Cultivating writing skills: the role of ChatGPT as a learning assistant—a case study. *Smart Learning Environments, 11*(1), 10. https://doi.org/10.1186/s40561-024-00296-8

Ridley, M., & Pawlick-Potts, D. (2021). Algorithmic literacy and the role for libraries. *Information Technology Libraries, 40*(2). https://doi.org/10.6017/ital.v40i2.12963

Rudolph, J., Tan, S., & Tan, S. (2023). ChatGPT: Bullshit spewer or the end of traditional assessments in higher education? *Journal of Applied Teaching & Learning, 6*(1), 342-362. https://doi.org/10.37074/jalt.2023.6.1.9

*Shin, D., & Lee, J. H. (2024). Exploratory study on the potential of ChatGPT as a rater of second language writing. *Education and Information Technologies.* https://doi.org/10.1007/s10639-024-12817-6

*Song, C., & Song, Y. (2023). Enhancing academic writing skills and motivation: assessing the efficacy of ChatGPT in AI-assisted language learning for EFL students. *Frontiers in Psychology, 14,* 1260843. https://doi.org/10.3389/fpsyg.2023.1260843

*Steiss, J., Tate, T., Graham, S., Cruz, J., Hebert, M., Wang, J., ... & Olson, C. B. (2024). Comparing the quality of human and ChatGPT feedback of students' writing. *Learning and Instruction, 91,* 101894. https://doi.org/10.1016/j.learninstruc.2024.101894

Stewart, J. (2023, February 17). Noam Chomsky says ChatGPT is a form of "high-tech plagiarism". My Modern Met. https://mymodernmet.com/noam-chomsky-chatgpt/#:~:text=ChatGPT%20is%20basically%20high%2Dtech,to%20avoid%20doing%20-the%20work

Strobl, C, Ailhaud, E, Benetos, K, Devitt, A, Kruse, O, Proske, A, & Rapp, C. (2019). Digital support for academic writing: a review of technologies and pedagogies. *Computers & Education, 131,* 33–48. https://doi.org/10.1016/j.compedu.2018.12.005

*Su, Y., Lin, Y., & Lai, C. (2023). Collaborating with ChatGPT in argumentative writing classrooms. *Assessing Writing, 57,* 100752. https://doi.org/10.1016/j.asw.2023.100752

Teng, M. F. (2023). Scientific writing, reviewing, and editing for open-access TESOL journals: The role of ChatGPT. *International Journal of TESOL Studies, 5,* 87-91. https://doi.org/10.58304/ijts.20230107

*Teng, M. F. (2024). "ChatGPT is the companion, not enemies": EFL learners'. perceptions and experiences in using ChatGPT for feedback in writing. *Computers & Education: Artificial Intelligence.*

Tlili, A., Shehata, B., Adarkwah, M.A., Bozkurt, A., Hickey, D.T., Huang, R., & Agyemang, B. (2023). What is the devil is my guardian angel: ChatGPT as a case study of using chatbots in education. *Smart Learning Environments, 10,* 1-24. https://doi.org/10.1186/s40561-023-00237-x

*Tsai, C. Y., Lin, Y. T., & Brown, I. K. (2024). Impacts of ChatGPT-assisted writing for EFL English majors: Feasibility and challenges. *Education and Information Technologies.* https://doi.org/10.1007/s10639-024-12722-y

Tseng, W., & Warschauer, M. (2023). AI-writing tools in education: If you can't beat them, join them. *Journal of China Computer-Assisted Language Learning.* 10.1515/jccall-2023-0008

Vygotsky, L. S. (1981). The genesis of higher mental functions. In J.V. Wertsch (Ed.), *The concept of activity in Soviet psychology* (pp. 144-188). M.E. Sharpe.

Weissman, J. (2023, February 8). ChatGPT is a plague upon education (opinion). *Inside Higher Ed.* https://www.insidehighered.com/views/2023/02/09/chatgpt-plague-uponeducation-opinion

Wenger, E. (1998). Communities of practice: Learning as a social system. *Systems Thinker, 9(5), 2-3.*

Wenger, E. C., & Snyder, W. M. (2000). Communities of practice: The organizational frontier. *Harvard Business Review, 78*(1), 139-45.

*Woo, D. J., Wang, D., Guo, K., & Susanto, H. (2024). Teaching EFL students to write with ChatGPT: Students' motivation to learn, cognitive load, and satisfaction with the learning process. *Education and Information Technologies.* doi.org/10.1007/s10639-024-12819-4

*Yan, D. (2023). Impact of ChatGPT on learners in a L2 writing practicum: An. exploratory investigation. Education and Information Technologies, 28(11), 13943-13967. https://doi.org/10.1007/s10639-023-11742-4

Zhao, X., Cox, A., & Cai, L. (2024). ChatGPT and the digitisation of writing. *Humanities and Social Sciences Communications, 11,* 482. https://doi.org/10.1057/s41599-024-02904-x

Mark Feng Teng, Ph.D., is Associate Professor at Macao Polytechnic University. He was the recipient of the 2017 Best Paper Award from the Hong Kong Association for Applied Linguistics (HAAL), 2023 Best Paper Award in social sciences from Education Ministry in China. His research portfolio mainly focuses on computer-assisted L2 vocabulary acquisition and L2 writing. His publications have appeared in international journals, including *Applied Linguistics*, *TESOL Quarterly*, *Language Teaching Research*, *System*, *Applied Linguistics Review*, *Computer Assisted Language Learning*, *Computers & Education*, *Foreign Language Annals*, and *IRAL*, among others. His recent monographs were published by Routledge, Springer, and Bloomsbury. He also edited and co-edited special issues for international journals, including *Journal of Writing Research*, *Studies in Second Language Learning and Teaching*, and *TESOL Journal*, etc. Currently he serves as the Chief Editor for *International Journal of TESOL Studies (IJTS)*.