Developing AI Chatbots for English Process Writing

[*1]Ryan Oktafiandi, [2]Dimas Apriyandi, [3]Yohannes Gatot Sutapa Yuliana, [4]Dwi Riyanti, [5]Endang Susilawati,

[1345]English Education Study Program, Teacher Training and Education Faculty,

[2]Computer Science Study Program, Engineering Faculty

***Corresponding Author**

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ABSTRACT

This research explores the design and efficacy of a personalized AI chatbot, developed using the GPT-4.0 API, to support seventh-grade students at Kinderfield-Highfield School Pontianak in mastering English process writing. The study addresses the critical need to balance the immense potential of AI assistance with the preservation of academic integrity and the development of independent writing skills. Guided by the ADDIE instructional design model, the research began with a comprehensive needs analysis to identify student challenges, including idea generation, grammatical accuracy, and a lack of consistent feedback. The resulting chatbot was meticulously fine-tuned with specialized prompts to guide learners through each stage of the writing process: pre-writing, drafting, revising, and editing. Data was gathered through expert evaluations and student checklists following implementation. Results demonstrated that the chatbot was highly effective in boosting students' motivation, engagement, and writing effectiveness, particularly during the drafting and editing phases. However, the study also identified key areas for refinement, such as enhancing the clarity of feedback and fostering greater independent thought during the pre-writing and revising stages. Experts affirmed the tool's convenience, educational value, and potential for future use. The study concludes that while AI chatbots present a transformative tool for personalized writing instruction, their design must strategically encourage critical thinking rather than dependence to fully realize their benefits in the L2 classroom.

Keywords: AI Chatbots, English Process Writing, Educational Technology, Writing Assistance, GPT-4.0

INTRODUCTION

The integration of Artificial Intelligence (AI) in education has revolutionized traditional teaching methodologies, particularly in the field of English teaching and learning. However, the real challenge with AI in the classroom is not just technology—it is academic integrity. Controversial on over-relying to AI in academic purposes brings another discussion to the table. Even for some educational institutions, such as Cambridge University and other universities around the globe, they construct an Ethical Guideline to use generative AI tools for students.

The seventh-grade students of Kinderfield-Highfield School, Pontianak, are freely exposed to AI even without teachers' instruction. The development of social media platforms enables them to discover and interact with AI concepts and tools from an early age. As a result, students are increasingly seeking ways to incorporate AI into their learning processes, including writing homework from teachers at home. Since the ethical guidance for students in school institutions is unavailable, students may become overly dependent on these tools, using them as shortcuts rather than developing their own critical thinking and problem-solving skills. The easy access to AI-driven platforms may discourage them from investing the necessary time and effort to thoroughly understand the material.

The process-oriented writing approach demonstrates effective writing, as it requires an understanding of learners' cognitive processes (Williams & Burden, 1997). Instead of concentrating only on the finished

product, this method emphasizes the nature of writing (Hyland, 2003). Research has shown that process-oriented writing instruction lowers learners' anxiety about L2 writing and increases their motivation (Hong, 2014). Additionally, it enhances grammatical accuracy and fluency (Butterfield & Jung, 2013; Park, 2017) and promotes learner autonomy, helping students to improve their overall writing performance (Nicolás-Conesa et al., 2014).

In every assignment or task, including writing, a teacher plays multiple roles, such as providing guidance or feedback during specific stages, supporting the development of individual writing strategies and encouraging students to recognize and internalize the key components of writing processes (Hyland, 2003; Yang, 2018). These roles that teachers are expected to fulfil can create significant cognitive and emotional demands, which can make it difficult for them to manage the varying needs of individual students effectively. Teachers are not only responsible for delivering content but also for acting as mentors, motivators, and emotional supporters, all while addressing the unique challenges and learning styles of each student (Lipson et al, 2000).

Hence, AI technologies offer significant integration in the English writing process. Every stage, such as pre-writing, drafting, revising and editing, requires writers with a varied range of specialized skills (De Larios et al., 2002). Generative AI can adapt to these multiple stages and capable to understand task contexts and user intents (Zou & Huang, 2023). These technologies can enhance the specific needs of each stage, providing personalised assistance that aligns with the writer's progress, such as suggesting ideas during brainstorming, offering structural guidance during drafting, or refining language use in the revision process. This ability to provide stage-relevant help can elevate the writing process, making it more efficient and accessible for L2 writers.

Problem Statement

The implementation of AI in L2 writing presents several challenges, particularly in terms of over-reliance and ethical concerns. A primary issue is learners' tendency to over-reliance on AI, expecting the technology to handle all writing tasks for them, which can hinder their development of essential writing skills (Ningrum, 2023). This dependence on AI may result in a superficial understanding of writing processes, leaving learners without the critical thinking and creativity needed for authentic writing. Furthermore, the use of AI-generated text raises significant ethical concerns, such as plagiarism and academic dishonesty, as learners may present AI-produced content as their own work (Yuan et al., 2024). These challenges involve careful consideration of how AI is integrated into L2 writing education, ensuring that it complements, rather than replaces, the learning process while upholding academic integrity.

To leverage the opportunities of generative AI while strategically addressing its challenges, it is essential to consider technological advancements and instructional design in tandem and create innovative environments for enhanced language learning. As one such approach, this paper explored the development of personalised AI Chatbots with ChatGPT, especially GPT-4.0 API, as the brain. The researcher used prompt fine-tuning techniques to develop GPT-4.0 API-based chatbots as personalised writing tutors that offer stage-specific feedback, prevent unquestioning reliance on AI, and promote writing development. Lastly, the researcher also provided an evaluation to analyse how EFL students and experts interact with these chatbots and incorporate feedback into their process writing.

Objectives

1. To develop AI Chatbots as personalised tutors for the English process writing.
2. To evaluate the personalised AI Chatbots for English process writing from the experts and students.

PRODUCT DESCRIPTION & METHODOLOGY

The study employed a developmental design. According to Seels and Richey (1994), a developmental study is a systematic investigation of designing, developing, and evaluating instructional programs, processes, and products that are evaluated against the criteria of internal consistency and effectiveness. During the

development of AI Chatbots, the researcher employed the ADDIE model by Branch (2009). The ADDIE model is an acronym of Analysing, Designing, Developing, Implementing, and Evaluating.

The data collection for this study involves a comprehensive approach to understanding the needs of seventh-grade students and evaluating the effectiveness of AI chatbots in addressing those needs. The technique employed includes distributing a needs analysis questionnaire, an expert evaluation questionnaire, and a student checklist. A needs analysis is conducted before designing the AI chatbots to gather data on the target needs and learning needs of the students. This data is essential to address the specific challenges faced by learners, such as improving motivation and overcoming anxiety, particularly in areas like time management, grammatical accuracy, and fluency, as observed in the English subject class during writing assignments and homework.

The needs analysis questionnaire was directed to the students to identify students' need in English writing. A need analysis questionnaire was constructed in accordance with the theory proposed by Dedley and John, as cited in Basturkmen (2010, p.17). It consists of information such as professional information about the learners (the tasks and activities learners are/will be using English for), personal information about the learners (previous learning experience, cultural information, reason for attending the course and expectations of it), English language information about the learners (their current skills and language use) The questionnaires also regarded as one of the ways to evaluate products from the participants involved.

Once the AI chatbot prototype was developed, an expert evaluation questionnaire was given to evaluate the content and design appropriateness of the chatbot. This process ensures that the tool is effective, engaging, and aligned with educational goals. Lastly, after students had interacted with the AI chatbots, a student's checklist was distributed to gather their opinions on the chatbot's functionality and usefulness in supporting their writing development. These data collection methods provide a well-rounded understanding of the students' needs, the chatbot's effectiveness, and areas for further refinement.

The data came from the Needs Analysis Questionnaire, the Expert Evaluation Questionnaire, and the Student Checklist. To analyse the students' needs, the researcher examined the data in the form of questionnaires. The form of the questionnaire is multiple choices questions. The data were analysed by calculating the percentage of each response, the researcher was able to identify the areas of greatest need as indicated by the students. The highest percentage of responses was considered to reflect the students' most needs, which guided the design and development of the AI chatbots to better support their writing skills.

The Expert Evaluation Questionnaire served as a tool to evaluate the AI chatbot prototype in terms of its content and design appropriateness. The experts assessed whether the chatbot met educational objectives and whether its design is user-friendly and effective. Responses to these statements were collected on a Likert scale, with scores ranging from 1 to 4. The scale ranged from "Strongly Agree" (SA) with four points, "Agree" (A) with three points, "Disagree" (D) with two points, to "Strongly Disagree" (SD) with one point. Referring to Kang and Sung (2024), the Likert scale questions about the effectiveness of the chatbots were organized into five themes: entertainment, convenience, writing effectiveness, interest in writing, and future use. These themes were applied to both the overall chatbot experience and each of the four individual chatbots. The scoring system allowed for a clear analysis of experts' opinions on the effectiveness and design of the AI chatbot, providing valuable data for further improvements.

Meanwhile, the Student Checklist was used to gather feedback from the students after they had used the AI chatbots. The researcher provided students with a checklist that was designed on Tomlinson' (2011, pp. 328) guidance. The checklist was used to understand about students' evaluation and impression about the AI Chatbots. In distributing the checklists, the writer explained each point and question in the checklist.

POTENTIAL FINDINGS AND COMMERCIALISATION

Analyse Phase

This questionnaire was designed to gather insights into seventh graders' perceptions and needs for AI chatbots in their English process writing tasks. It can help identify the areas where they require the most support and

whether AI tools would be effective in improving their writing experience. There were 25 students participated to fill in the questionnaire. The students use English for various purposes, but students engage in writing primarily for communication (social and academic), and they are not overly focused on reading books or articles in English. The majority of students write in English on a daily basis or weekly, but a notable portion of students writes rarely or never. This suggests there are students who may need encouragement or motivation to engage with English writing more frequently. A significant number of students (10 out of 25) have been learning English for less than a year, which could indicate they are still developing foundational writing skills. The remaining students have varying levels of experience, with a few having learned English for several years. Over half of the students use technology to assist in their writing, indicating that digital tools could play an essential role in improving their writing skills. This suggests that integrating a chatbot into their learning process could be beneficial. The majority of students report that their writing skills are poor or need improvement. This highlights the need for support, particularly in areas such as grammar, organization, and revision. The most common challenges are related to generating ideas and writing clear, complete sentences. These are areas that a chatbot could address by offering brainstorming help, sentence structuring, and grammar assistance. Feedback is not always frequent, with a few students receiving little to no feedback. This suggests the need for more regular feedback mechanisms, which could be supported by a chatbot that provides instant responses. There is moderate interest in using a chatbot, with 11 students uncertain but open to the idea. This indicates that while some students may not be enthusiastic about chatbots, others are curious or willing to try them.

Based on the responses, the conclusions can be drawn. The majority of students report struggling with writing and require support in generating ideas, organizing thoughts, and improving sentence structure. A chatbot could assist in brainstorming ideas and guiding students through writing processes, particularly in structuring sentences and revising drafts. Many students use technology to aid their writing, making a chatbot a suitable tool for learning. Chatbots can provide instant feedback, support grammar correction, and suggest improvements in writing. Given that many students do not receive regular feedback, a chatbot could serve as an effective tool to provide constant and timely feedback on writing tasks. The diversity in writing skill levels (from poor to very good) suggests that a chatbot could be customized to provide differentiated levels of support, catering to students at various stages of development. While some students may be hesitant, many are open to using chatbots for writing assistance. The chatbot should be designed to be engaging, user-friendly, and capable of providing personalized help, which could increase students' willingness to use it. Overall, a chatbot designed to assist with brainstorming, drafting, revising, and editing could significantly help the students address their writing challenges and enhance their English writing skills.

Design Phase

The AI Chatbots user interface is straightforward to the needs of the students. The button choices are two which promotes the simplicity and user friendliness. The colour choice makes the instruction button readable and easy to operate. A photo of a person typing on a laptop is chosen as the main focus due to the tools used for the AI Chatbots. Lastly, the researcher presented the values of the tools. The following figure is the User Interface of the AI Chatbots introduction page.

Figure 1 The AI Chatbots introduction page

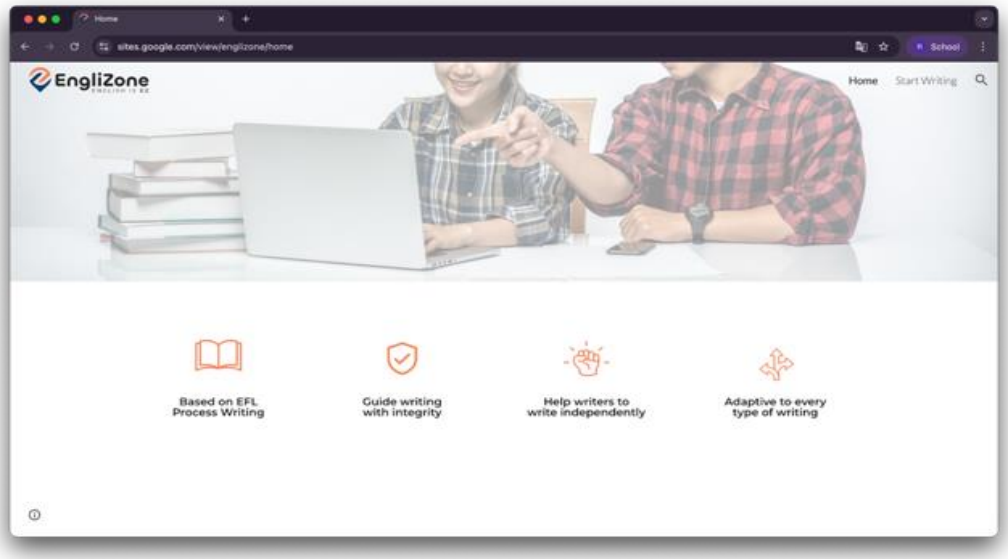
Develop Phase

The procedure for developing AI chatbots for the English language is to guarantee that the chatbot efficiently supports the writing process, writing requires a number of essential components. Three primary areas are the focus of the development phase: automated workflow, optimized prompts, and website integration.

Automation workflow

The automation workflow is designed to streamline the user's interaction with the chatbot, guiding them through each step of the writing process. The researcher used N8N to program the chatbot to assist with brainstorming, drafting, revising, and editing stages of writing. The AI must be capable of understanding the user's input and suggesting improvements, such as enhancing clarity, correcting grammatical errors, and providing feedback on sentence structure. Furthermore, the workflow incorporates intelligent features such as real-time suggestions, automatic sentence rephrasing, and vocabulary enhancement, ensuring that the writing process becomes more efficient and less time-consuming for students. Each stage has the same flow. What differ each stage is the prompts which will be in the next part of the topic. The following is the workflow of Pre-Writing stage:

Figure 2 Pre-Writing stage workflow



Optimised prompts

aPrompts are the core of the chatbot's interaction with the students. Fine-tuning these prompts involves training the AI model with diverse writing scenarios to ensure it can provide relevant, context-sensitive feedback. In the case of English process writing, this means crafting prompts that encourage students to engage with various aspects of writing in every stage, such as pre-writing, drafting, revising, editing. Fine-tuning ensures that the AI chatbot's responses are specific to the students need, allowing for more personalized guidance. These are the prompts specifically with roles and constraints for each stage in process writing:

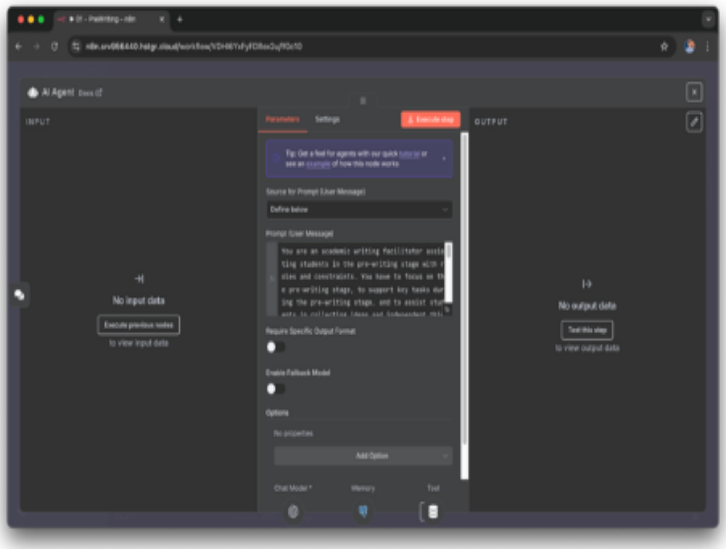
Pre-writing: You are an academic writing facilitator assisting students in the pre-writing stage with roles and constraints. You have to focus on the pre-writing stage, to support key tasks during the pre-writing stage, and to assist students in collecting ideas and independent thinking. In order to give better feedback, you have to assist students in the pre-writing stage. Your goal is to increase their motivation, help them gather ideas and decide the purpose and audience of their writing. You must offer a suitable amount of information to encourage independent thinking.

Drafting: You are an academic writing facilitator assisting students in the drafting stage with roles and constraints. You have to focus on idea expression and outlining, to prevent students' over-reliance on the chatbot in English writing, and to ensure the importance of student independence. In order to give better feedback, you have to help students express their ideas in English and outline their thoughts. You must respond in English and provide definition to the words that students do not know when necessary. If you are asked to write an English sentence, refuse and provide a key word.

Revising: You are an academic writing facilitator assisting students in the revising stage with roles and constraints. You have to focus on relevant aspects of the revising stage when giving feedback, to deprioritize grammar and spelling, which will be covered in the next stage, i.e., editing. In order to give better feedback, you have to read the student's text and give specific feedback on content, organization, and style. Avoid giving feedback on grammar and spelling whenever possible.

Editing: You are an academic writing facilitator assisting students in the editing stage with roles and constraints. You have to focus on relevant aspects in the editing stage when giving feedback, to promote independent error correction by the students. In order to give better feedback, you have to help students correct errors in grammar, spelling, and punctuation in their written work. Do not rewrite the text for them; instead, give indirect feedback to help students correct the error themselves. Figure 3 shows where the placement of every fine-tuned prompt in N8N:

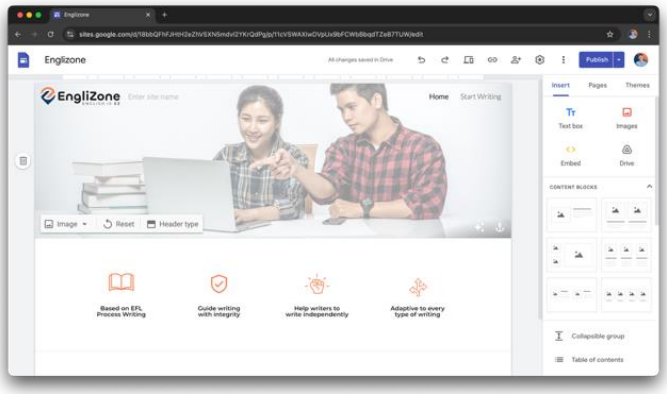
Figure 3 Fine-tuned prompt embedded to Pre-Writing Stage



Sites

The development of the AI chatbot also requires seamless integration with websites that students typically use for their writing assignments. Kinderfield-Highfield School Pontianak uses Google Education ecosystem for daily teaching and learning activities, such as Google Classroom, Google Drive, Google Mail, and Google Sites. Considering the accessibility, Google Sites is chosen as the media to write. By integrating the chatbot to Google Sites, students can easily access the chatbot's assistance within their familiar learning environment. The site was designed as simple as possible adjusting the student level of this study as in Figure 4:

Figure 4 Google Site



Implement Phase

The first thing students had to do was bringing their own laptop. A smartphone was not allowed because they would be distracted so easily with notification or any personal app. The problem occurred when the Wi-Fi connection was unstable. The researcher need to provide the students with hotspot tethering. The second was the process of sharing the link of the websites. The link was shared to the class WhatsApp group. Then, they were given a task about writing informative articles. It focused on the pros and cons of using disposable products. The writing task was structured into four stages, i.e., pre-writing, drafting, revising, and editing.

In order to evaluate the learners' writing process, the researcher developed an evaluation rubric for the four distinct stages of process writing in reference to Ene and Kosobucki (2016) and Liu (2024). Each stage was evaluated based on two assessment criteria, resulting in a total of eight criteria. For the pre-writing stage, the criteria were the relevance and clarity of ideas to the topic and the logic and structure of the organization. In the drafting stage, the criteria included the extent to which the brainstorming results from the pre-writing stage were reflected in the draft and the comprehensibility of the draft. For the revising stage, the criteria were the degree of content revision and the degree of organizational and structural revision. Finally, in the editing stage, the criteria were the completeness and readability of paragraphs as well as the level of editing, particularly regarding errors in grammar, spelling, and punctuation.

Evaluate Phase

The last phase of this research is evaluating the product. In this research there were two types of evaluation applied, they are the student checklist and expert evaluation questionnaire. The students' checklist evaluated the AI Chatbot after they used it. Then the experts would judge the task, user interface, features and design appropriateness.

The experts evaluated the AI Chatbots by the Expert Evaluation Questionnaire. The questions were about the effectiveness of the chatbots. They were organized into five themes: entertainment, convenience, writing effectiveness, interest in writing, and future use. There were six experts participated to this study. Two lecturers, two teachers, and two IT developers. Based on the evaluation, most experts believe that the chatbot provides an engaging and entertaining experience. However, one IT developer disagreed, possibly indicating concerns about the chatbot's entertainment value. All experts agree that the chatbot makes it convenient for students to receive help and provides easy accessibility. This indicates the chatbot's potential for ease of use and time-saving. All experts agree that the chatbot effectively helps students improve their writing skills and provides useful feedback. This shows strong support for the chatbot's impact on writing effectiveness. While most experts agree that the chatbot increases students' interest in writing, one IT developer disagrees. This could suggest that while the chatbot is perceived as motivating by many, it may need further enhancement to increase engagement for all users. The majority of experts are confident in the chatbot's future use, recommending it for long-term adoption and expansion. The positive feedback indicates a strong belief in the chatbot's potential for continuous improvement and wider application. In conclusion, The majority of experts strongly support the chatbot's ability to engage students, provide convenient access to writing help, improve writing effectiveness, and spark interest in writing tasks. Convenience and effectiveness were the most positively evaluated aspects, with experts emphasizing how the chatbot makes writing tasks easier and helps

improve writing skills. Entertainment value had mixed responses, with one IT developer questioning its entertainment value, suggesting the chatbot may need more engaging features. Experts unanimously support the future use of the chatbot, indicating its potential for long-term integration in writing instruction.

Twenty-five students were then did the evaluation of the AI Chatbots by filling Student Checklist. Since the AI Chatbots are divided to 4 stages following the English Process Writing, the checklist was made based on these stages. The chatbot was generally effective in supporting students through all stages of the writing process. Students showed a mixed response in the Pre-Writing stage, with some students agreeing that the chatbot helped them generate ideas. However, there were notable discrepancies in terms of independence during this stage. While some students felt they could generate ideas on their own with the chatbot's help, others felt the need for more structured guidance. This suggests that the chatbot could improve by offering more tailored prompts or strategies to encourage independent thinking. The Drafting stage showed a more consistent level of positive feedback regarding the chatbot's help in organizing ideas and providing clarity in sentence structure. However, responses regarding confidence and structure support varied. Some students felt confident about their drafts after receiving feedback, while others required more structured feedback to help organize their ideas better. It would be beneficial for the chatbot to offer more structured templates or outline suggestions to improve coherence in drafts. The Revising stage revealed that while some students found the chatbot's suggestions useful and engaging, others had issues with the clarity of feedback. Positive feedback was received regarding the chatbot's ability to improve writing clarity, but certain students felt that the revisions were not detailed enough. A potential area for improvement would be for the chatbot to provide more specific suggestions for depth and clarity, particularly during the revision phase. The Editing stage showed overall positive responses, especially concerning grammar and spelling corrections. Students generally felt that the chatbot contributed positively to improving readability and confidence during the final stage of writing. However, some students still experienced mixed reactions, especially in terms of editing speed and feedback clarity. Enhancing the feedback on punctuation and offering faster feedback could make the editing process even more effective. The chatbot was generally effective in supporting students through all stages of the writing process. However, there are areas for improvement, particularly in independence during pre-writing, clarity in revisions, and editing speed. With these improvements, the chatbot could become an even more powerful tool for enhancing students' writing skills across the board.

NOVELTY AND RECOMMENDATIONS

The AI chatbot designed to assist students in process-oriented writing has shown promising results. It offers support in idea generation, organization, content development, and error correction, making the writing process more accessible and efficient. The chatbot was generally effective in motivating students and providing feedback, improving their writing skills in grammar, sentence structure, and clarity. Furthermore, experts confirmed its ease of use, engagement, and impact on writing effectiveness. However, the chatbot's entertainment value and the clarity of feedback, particularly in the pre-writing and revising stages, need further refinement. Addressing these areas will further enhance the chatbot's potential to support students' growth in writing and critical thinking.

REFERENCES

1. Basturkman, H. (2010). Developing Courses in English for Specific Purposes. New York: Palgrave Macmillan.
2. Branch, M. R. (2009). Instructional Design: The ADDIE Approach. New York: Springer.
3. Butterfield, A. L. and C. K. Jung. (2013). A hybrid approach to second language writing. Journal of the Korean English Education Society 12(1), 123-139.
4. De Larios, J. R., L. Murphy and J. Marín. (2002). A critical examination of L2 writing process research. In S. Ransdell and S. Barbier, eds., New Directions for Research in L2 Writing, 11-47. Springer.
5. Ene, E. and V. Kosobucki. (2016). Rubrics and corrective feedback in ESL writing: A longitudinal case study of an L2 writer. Assessing Writing 30, 3-20.
6. Hong, K. (2014). How to assess L2 English writings from L2 English teachers' perspective. The Journal of Mirae English Language and Literature 19(4), 365-390.

7. Hyland, K. (2003). Second Language Writing. Cambridge University Press.
8. Kang, S. and M. Sung. (2024). EFL students' self-directed learning of conversation skills with AI chatbots. Language Learning & Technology 28(1), 1-19.
9. Lipson, M. Y., J. Mosenthal, P. Daniels and H. Woodside-Jiron. (2000). Process writing in the classrooms of eleven fifth-grade teachers with different orientations to teaching and learning. The Elementary School Journal 101(2), 209-231.
10. Liu, X. (2024). Formative writing assessment: An EFL teacher's beliefs and practices. Changing English 31(2), 200-210.
11. Nicolás-Conesa, F., J. R. de Larios and Y. Coyle. (2014). Development of EFL students' mental models of writing and their effects on performance. Journal of Second Language Writing 24(1), 1-19.
12. Ningrum, S. (2023). ChatGPT's impact: The AI revolution in EFL writing. Borneo Engineering & Advanced Multidisciplinary International Journal 2(SI), 32-37.
13. Park, J. (2017). Benefits of the process approach in L2 writing: From the prospective teacher's perspectives. The Journal of Linguistic Science 82, 117-136.
14. Seels, B. B., & Richey, R. C. (1994). Instructional technology: The definition and domains of the field. Washington DC: Association for Educational Communications and Technology.
15. Tomlinson. (2011). Materials Development in Language Teaching. Cambridge: Cambridge University Press.
16. Williams, M. and R. L. Burden. (1997). Psychology for Language Teachers: A Social Constructivist Approach. Cambridge University Press.
17. Yang, H. (2018). Influence of learner training on students' process writing in automated writing evaluation- supported class. Multimedia-Assisted Language Learning 21(3), 88-114.
18. Yuan, Y., H. Li and A. Sawaengdist. (2024). The impact of ChatGPT on learners in English academic writing: Opportunities and challenges in education. Language Learning in Higher Education 14(1), 41-56.
19. Zou, M. and L. Huang. (2023). The impact of ChatGPT on L2 writing and expected responses: Voice from doctoral students. Education and Information Technologies 29(11), 13201-13219.