

# *Examining the Effectiveness of AI-integrated Approach in EFL Writing: A Case of ChatGPT*

Siti Yulidhar Harunasari

English Language Department  
Sekolah Tinggi Bahasa Asing LIA  
Jakarta, Indonesia  
yulidhar1@stbalia.ac.id



**Abstract**—In recent years, there has been a growing trend of integrating Artificial Intelligence (AI) into language learning, and ChatGPT has emerged as one of the most widely utilized AI tools in this domain. However, incorporating such tools into language classes, particularly in English as a Foreign Language (EFL) writing classes, poses challenges. This study aims to investigate effective and responsible strategies for incorporating ChatGPT into an undergraduate EFL writing class. To achieve this objective, a one-shot case study was conducted on fourth-semester EFL students enrolled in a Creative and Media Writing class at an Institute of Foreign Languages in Jakarta, Indonesia. Data was collected through tests and questionnaire. The study identified key strategies for the effective and responsible incorporation of ChatGPT, which include establishing a clear usage policy and maintaining a record of students' questions and queries while using ChatGPT in the EFL writing class. The findings of this study provide valuable insights into the appropriate and responsible use of ChatGPT, as well as its potential impact on students' writing skills.

**Keywords**—Artificial Intelligence (AI), ChatGPT, English as a Foreign Language (EFL), Writing Skills, Language Learning

## I. INTRODUCTION

Artificial intelligence (AI) is rapidly becoming an essential tool for education. AI which refers to a collection of theories and methods that mimic human intelligence, enabling computers to perform some cognitive functions, such as learning and reasoning. As a result, contemporary teaching increasingly incorporates various digital tools alongside traditional face-to-face learning [1]. The utilization of digital technology has been found to have a direct correlation with increased student engagement and self-directed learning. Research conducted by [2] further implies that suitable technology can effectively foster the creation of an interactive learning environment. In line with this, [3] emphasizes the significance of employing AI-based technology in a novel manner to create an engaging educational experience that fosters the accomplishment of particular objectives and encourages learners' active involvement and motivation. Recognizing the importance of leveraging AI-based technology, instructional designers can derive advantages when creating favorable learning environments.

Language learning benefits greatly from AI's capabilities. English writing mastery, in particular, presents a challenge for English as a Foreign Language (EFL) students who often encounter language barriers. Previous studies have identified several challenges that students commonly encounter in writing, including insufficient vocabulary, limited knowledge of grammar rules, inadequate spelling skills, lack of readiness, low motivation, suboptimal learning environment, and limited exposure to books and reading materials [4], [5], [6]. As of late, there has been an abundance of digital tools available to help EFL students face these challenges and enhance their writing skills. Regrettably, only a few of these tools effectively assist users in the actual writing process, such as formulating and translating ideas into written form [7]. The majority of the digital tools that are accessible for EFL students primarily focus on aiding users in the editing stage of writing, such as detecting errors in written work.

### A. *ChatGPT*

The emergence of OpenAI's ChatGPT AI in November 2022 renewed interest in the potential of AI to assist writers throughout the entire writing process using Natural Language Generation (NLG) capabilities. NLG refers to the AI's ability to generate human-comprehensible language texts based on provided information [8]. ChatGPT has received extremely excellent feedback with numerous individuals praising its advanced capabilities and user-friendly interface. The sophisticated features and ease of use have been particularly well-received by users [9]. With ChatGPT, EFL students can benefit from a writing tool that offers assistance across all stages of the writing process, from formulating ideas to producing a final written piece. This can be particularly valuable for students facing language barriers, as it can help improve their writing skills and boost their confidence.

Overall, the use of AI in language learning has the potential to revolutionize the way we teach and learn languages, offering improved learning outcomes and increased engagement for students. A study conducted by [10] confirmed that students perceived AI as a helpful and effective tool in enhancing their learning experiences. Therefore, maximizing the potential of feedback to promote student writing skills becomes a crucial consideration [11]. In this regard, the emergence of ChatGPT represents a significant step forward. By providing personalized and comprehensive assistance throughout the writing process, AI can greatly support EFL students in enhancing their writing skills and ultimately achieving their academic and professional goals.

### B. *Potential of ChatGPT for EFL writing*

ChatGPT offers a wide range of applications in higher education, encompassing teaching, learning, research, and institutional development [12]. In the creative writing domain, undergraduate EFL students can utilize ChatGPT to generate original story ideas, develop plot outlines, create vivid character descriptions, and overcome writer's block by receiving creative directions and writing prompts [13]. At a syntactic level, ChatGPT can assist in identifying and correcting typos, while at a semantic level, it can help in detecting grammatical inconsistencies and providing personalized improvement strategies [14]. Additionally, ChatGPT can aid students in conducting contextual research, translating text, as well as summarizing and paraphrasing written content. Despite being in the exploratory stage due to its novelty, the utilization of ChatGPT in higher education, particularly in EFL writing, holds significant potential. By responsibly incorporating ChatGPT into students' work, it opens up new avenues for enhanced creativity, efficiency, and innovation.

Having a solid understanding of ChatGPT's functionality is crucial for EFL students to effectively utilize it as an assisting tool in the writing process. It is important to note that NLG tools like ChatGPT require specific prompts or instructions to be optimally utilized, distinguishing them from automated evaluation systems [15]. The quality of the generated text or writing by ChatGPT is significantly influenced by the content of the prompt. Modifying the length of the prompt, changing keywords, or adjusting the word order can impact the quality of the resulting text. Due to the novelty of ChatGPT, EFL students who are unfamiliar with the tool may encounter challenges when attempting to create effective prompts that can produce the desired text. Therefore, students should carefully construct prompts, evaluate the quality of the generated text, and then decide whether to incorporate it into their own writing [16]. By engaging in this process, students can enhance their critical thinking and independent problem-solving skills.

ChatGPT represents a revolutionary advancement, and it is essential for the academic community to embrace its potential. Outright banning, rejecting, or dismissing it is no longer sustainable [17]. In fact, ChatGPT is expected to become an indispensable tool in the writing process, akin to how calculators and computers have transformed the fields of math and science [18]. By incorporating ChatGPT into the writing classroom, teachers and students can significantly enhance their teaching and learning experiences. Therefore, it is crucial to explore responsible ways of integrating this technology into the educational setting.

In his study, [19] proposed five essential strategies and techniques that should be implemented concurrently when utilizing ChatGPT in a classroom environment to ensure transparency, credibility, academic integrity, and authentic learning. These strategies include establishing a ChatGPT policy, utilizing reflection notes/reports, maintaining an audit trail of queries, employing AI detector tools, and implementing role swapping. However, it is noteworthy to mention that the study did not provide empirical evidence regarding the implementation and effectiveness of these strategies.

### C. *Concerns of ChatGPT for EFL Writing*

As with any new technology, there are concerns about the application of ChatGPT in higher education. The COVID-19

pandemic has led to an increase in the reported number of academic dishonesty cases [20]. Additionally, there has been a rise in the perception of academic dishonesty among both students and academic staff [22], [23]. There is particular concern about the possible increase in acts of plagiarism among EFL students, as distinguishing between AI-generated and human-generated writings is becoming more challenging. Instructors worry about the possibility of students using ChatGPT to complete their written assignments, as it has been demonstrated to generate reports within seconds, evading detection by plagiarism detection systems [24]. Plagiarism refers to the act of presenting someone else's ideas as one's own without giving proper credit. This can be avoided by clearly acknowledging the involvement of ChatGPT in one's work and providing citations or references to the source. Not only is this an ethical practice, but it also helps maintain the integrity of students' work.

Another concern is the AI's limited understanding of human emotions, intentions, and moral reasoning [12], [25]. This limitation can result in the production of written work that lacks vibrancy and appears rigid. EFL writers, who heavily rely on emotions and imagination, may find this aspect of AI to be restrictive and inhibiting. It is important to recognize that while ChatGPT can generate human-like texts, its purpose is not to replace human writers. It does not possess the same level of understanding and empathy as human writers, nor does it have the ability to comprehend and interpret context and nuances the same way humans can. Therefore, it is crucial to use ChatGPT as a supportive tool to enhance a writer's work, rather than a complete substitute for human creativity and comprehension. In addition to this, as [26] said, without careful considerations, technology can pose as a distraction rather than a beneficial tool. By being mindful of the potential drawbacks and limitations of technology, we can better navigate its usage and ensure it serves as a valuable asset in our writing processes.

### *D. Research Questions*

Given the lack of sufficient evidence in the existing literature regarding the interaction between EFL students and ChatGPT in supporting their writing process, this study aims to address the aforementioned concerns and implement appropriate measures to explore ways of enhancing the responsible and effective integration of ChatGPT into the writing process of EFL students. To tackle these challenges, two research questions were formulated:

**RQ1:** What strategies can be employed to incorporate ChatGPT into a writing classroom responsibly?

**RQ2:** How effective are these strategies in utilizing the tool within a classroom environment?

By addressing these concerns and implementing the necessary measures, this study aims to explore ways to enhance the potential of responsibly and effectively integrating ChatGPT into the writing process of EFL students. To achieve this goal, two strategies proposed by [19] were also tested: providing ChatGPT policies to students and mandating the submission of ChatGPT chat history data as a source of reference.

The findings of this research offer potential benefits for both students and educators, providing valuable insights to EFL students on how to responsibly and effectively utilize ChatGPT in their writing process. Furthermore, these findings can inform educators and curriculum developers in designing effective language instruction that harnesses the advantages of ChatGPT to enhance writing pedagogy.

## II. METHOD

### *A. Study participants and setting*

The design of this study is a one-shot case study conducted on a single group ([26]). It involves applying a treatment and conducting a pretest and post-test to determine the effect of the treatment. The subject of this study comprises 16 undergraduate EFL students of a private foreign languages institute in Jakarta, Indonesia. The participants were selected randomly. They were assigned to write a short story of any genre using ChatGPT as an assisting tool. In order to introduce the usage of ChatGPT in the writing class, the students were provided with a tutorial video illustrating the process of utilizing ChatGPT. A WhatsApp group was made to facilitate research participants if there was something that they needed to get information of.

Both quantitative and qualitative data are utilized in this study. Quantitative data derived from the assessment of students' creative works, obtained from their post-test scores, evaluated using a performance rubric. Later on, the score from the assignment were compared to the scores before they were introduced to ChatGPT. The qualitative data was obtained from questionnaire feedback and the chat history data generated by students' interactions with ChatGPT. The questionnaire questions employed in this study comprise close-ended Likert scale items ranging from 1 to 5 points (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 =

agree, and 5 = strongly agree), as well as open-ended questions designed to elicit long-form written or typed responses. While the chat history data include the questions posed by students to ChatGPT and the corresponding responses.

*B. Data analysis*

The analysis of the quantitative data involved the utilization of descriptive statistics to compare the scores before and after the treatment. Conversely, the qualitative data underwent analysis using qualitative data analysis techniques to identify patterns within the students' questionnaire feedback and chat history data. The qualitative analysis encompassed three parallel activities, namely condensation, display, and verification, as specified by [27]. Condensation entailed the transformation of survey responses into percentages using a fundamental Excel formula ( $\text{Part/Total} = \text{Percentage}$ ). Subsequently, the data were presented visually and subjected to comprehensive verification.

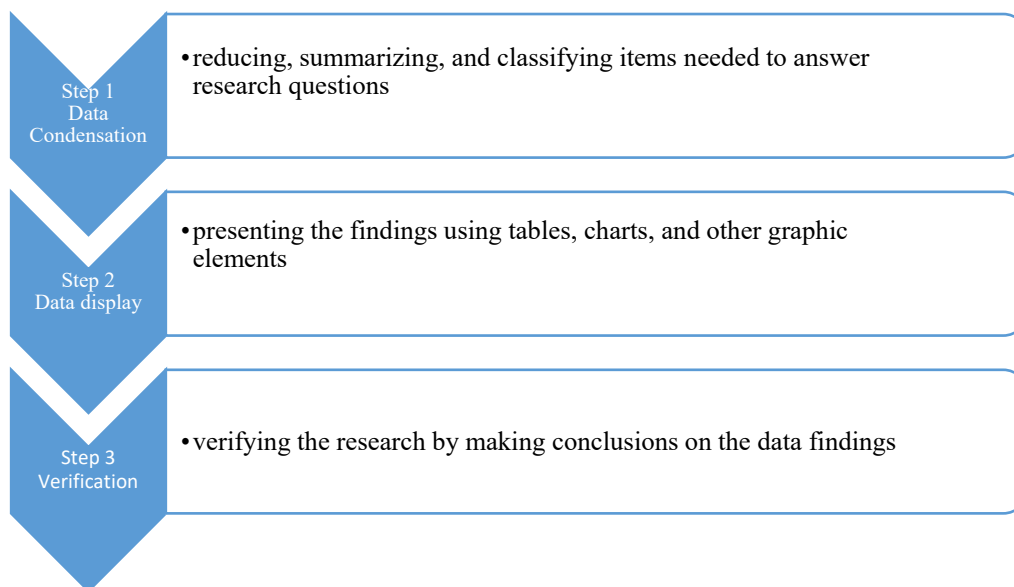


Fig. 1: Technique of Data Analysis

**III. FINDINGS AND DISCUSSION**

*A. Participants demographic data*

This study participants were the semester 4 students majoring in English language at a private university in Jakarta, Indonesia. They comprised of 9 female and 7 male students who were selected randomly. They were enrolled in Media & Creative Writing class, a course that intended to give students knowledge and skills in generating a variety of short and creative writing from short story, short movie scripts and news features. The students' basic skill of English was CEFR A2 Level that corresponds to basic users of the language, i.e., those able to communicate in everyday situations with commonly-used expressions and elementary vocabulary [28].

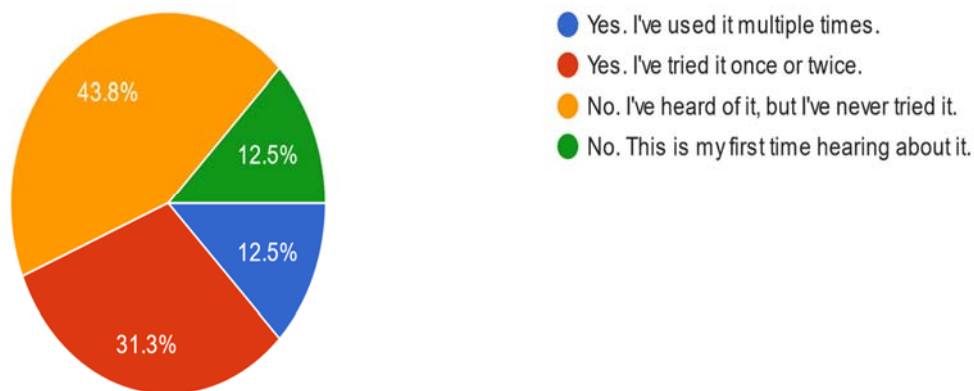


Fig. 2. Participants' familiarity with ChatGPT

Out of the 16 participants, only a mere 12.5%, which represents a subset of students, demonstrated familiarity with ChatGPT. The participants who lacked familiarity with ChatGPT were anticipated to contribute a fresh and unbiased perspective. Their feedback and experiences had the potential to provide valuable insights into the user experience of novice users and highlighted potential challenges that arise when incorporating ChatGPT into their workflow.

*B. Five strategies can be employed to incorporate ChatGPT into a writing classroom responsibly*

To incorporate ChatGPT into a writing classroom responsibly the following strategies were applied:

- **Determining the appropriate moments to integrate ChatGPT into students' writing.**

The teacher needs to carefully plan and structure their instruction to identify the specific points where integrating ChatGPT would be most beneficial for student learning. In the context of the Creative and Media Writing class, the teacher strategically incorporated ChatGPT in two out of the 14 learning sessions.

The first session involved teaching students how to generate story ideas. Recognizing that generating creative and unique ideas can sometimes be challenging for students, the teacher utilized ChatGPT as a tool to assist students in this process. By introducing ChatGPT during this stage, students were able to explore various prompts and suggestions generated by the system, helping them overcome writer's block and spark their creativity. This integration provided students with an additional resource to enhance their idea generation skills and expand their creative thinking.

The second session where ChatGPT was integrated focused on planning a short story. With the assistance of ChatGPT, students were guided through the process of developing a coherent storyline, identifying key plot points, and structuring their narrative effectively. By utilizing ChatGPT as a writing companion during this stage, students received valuable support in organizing their thoughts and crafting a well-structured narrative.

- **Evaluating the quality of the students' generated text by fostering a collaborative learning environment.**

Students' short stories were evaluated using short story evaluation rubric covering overall presentation, creativity and use of literary devices, character development, plot development, grammar, and conflict. The teacher promoted peer feedback on their generated text based on the evaluation criteria, and collaborative discussions on their work. That way helped students learn from each other's insights and identify potential biases or limitations in ChatGPT's responses.

- **Mandating the submission of ChatGPT chat history data, or using *Share Link to Chat* feature.**

Teacher monitored students' chat history through chat history data that was mandated to be attached along with their assignment. The chat history data could be obtained by going to setting page to enable chat History and Training, and then choose Export Data. By analysing chat history data, teacher could monitor students' learning easily. This strategy has been evident to encourage students to use ChatGPT responsibly.

- **Encouraging critical thinking and creativity.**

Teacher emphasized the importance of independent thinking and creativity in the writing process by encouraging students to use ChatGPT as a tool for inspiration and idea generation rather than relying solely on it for content creation. This step was done by offering prompts that necessitated students to analyze, interpret, and assess information, rather than merely reproducing the content provided by the tool. This approach aims to foster critical thinking skills, thereby decreasing the likelihood of plagiarism.

- **Teaching students to verify and fact-check.**

Teacher emphasized the importance of fact-checking and verifying information generated by ChatGPT. Students were encouraged to cross-reference the information provided by ChatGPT with reliable sources to ensure its accuracy and reliability.

Based on an analysis of the students' submitted works and an examination of their ChatGPT history, it is evident that all 16 students experienced significant improvements in their learning and writing as a result of utilizing the assistance provided by ChatGPT. It is noteworthy to mention that none of the students resorted to simply copy-pasting answers generated by ChatGPT and submitting them as their own work. This highlights the students' commitment to maintaining academic integrity and the responsible use of ChatGPT. To provide a visual representation of the students' interactions with ChatGPT, Figure 3 illustrates a specific example of a chat history submitted by one of the students, showcasing the dynamic exchange between the student and ChatGPT. The analysis of these interactions further validates the positive influence of ChatGPT in enhancing the students' learning experience.

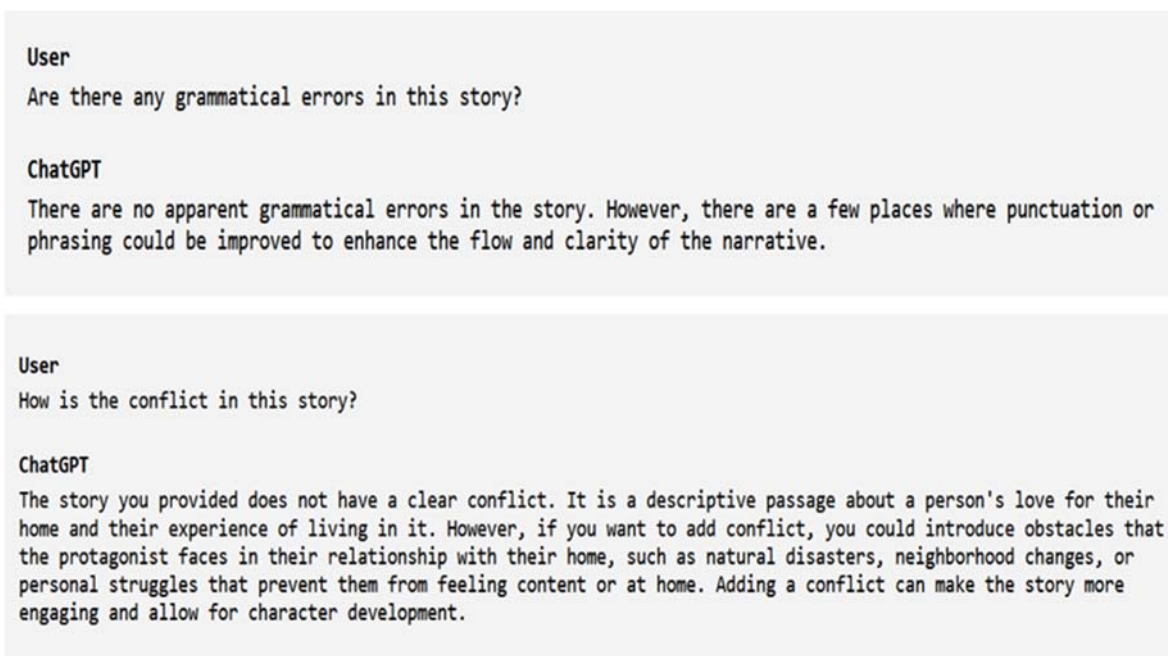


Fig. 3. ChatGPT History Data

By implementing the six strategies outlined in this study, teachers were able to create an environment that encouraged responsible and thoughtful utilization of ChatGPT among students. These strategies not only facilitated the integration of ChatGPT into the writing process but also played a crucial role in fostering critical thinking and enhancing students' writing skills. The implementation of these strategies aligned with the recommendations put forth by [19], which emphasized the importance of establishing a ChatGPT policy for students and maintaining an audit trail of their ChatGPT history data.

However, despite of its potential benefit, some students also encountered technical issues with ChatGPT, which lead to delays of several days in exporting and downloading their ChatGPT history data. This finding indicates that relying solely on [19] strategy to 'Maintain an audit of students' ChatGPT history data' may not be entirely effective, particularly when technical problems arise from ChatGPT itself. However, it is noteworthy that since May 26, 2023, the 'Using Share Link to Chat' feature

has been made available. This feature presents a promising opportunity for teachers to expedite the monitoring of students' chat history and facilitate more streamlined comparisons in contrast to the conventional method of exporting chat history.

C. *The proposed strategies in utilizing ChatGPT within a classroom environment were effective.*

The effectiveness of the above strategies in utilizing ChatGPT was seen from the students' test score and students' perception. The utilization of ChatGPT was overall effective in enhancing students' performance in an EFL writing class. A total number of 16 students were given a post-test. The test was writing a short story of any genre using ChatGPT as an assisting tool. The students' short stories were assessed in terms of overall presentation, creativity and use of literary devices, character development, plot development, grammar, and conflict. The pre-test was conducted in session 1 i.e. *Introduction to short story*, before they were introduced to ChatGPT. Quantitative data derived from their pre-test and post-test have shown some improvement compared to the pre-test as shown in Table 1.

Table 1. Students' Pre-Test and Post-Test Scores

	N	Min	Max	Mean
Pre-test	16	55	82	74.5
Post-test	16	68	82	77.5

According to Table 1, while the maximum score remains the same, there is an improvement in both the minimum from 55 to 68 and the mean scores from 74.5 to 77.5. A total of 8 students (50%) experienced an increase in scores, 3 students (18.8%) experienced a decrease in scores, while 5 students' (31.2%) scores stayed the same.

To collect data on how students perceive the effectiveness of ChatGPT incorporation into classroom, a combination of closed-ended and open-ended e-questionnaire distributed to 16 respondents and resulted in 100% response rates. Of 16 participants, 13 respondents or 81.25% agreed that ChatGPT was helpful in the writing process. When elaborated, 43.75% used ChatGPT to assist them in idea formation, followed by grammar and spelling corrector as much as 25%. This finding was adding to only a few of AI tools effectively assist users in the actual writing process, such as formulating and translating ideas into written form, consider that the majority of the digital tools that are accessible for EFL students primarily focus on aiding users in the editing stage of writing, such as detecting errors in written work [7]. ChatGPT has been evident to help students throughout the various stages of the writing process, encompassing idea formation to the production of a polished final written composition as can be seen in Figure 4.

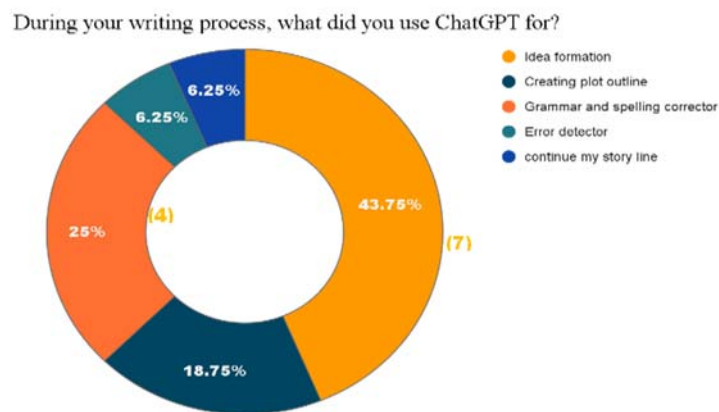


Fig. 4. Various Writing Stages Facilitated by ChatGPT

This finding also aligns with the assertion made by [9], and that the utilization of ChatGPT can provide English as a Foreign Language (EFL) students with a valuable writing tool. And that the students also perceived AI as helpful and effective in enhancing their learning experiences as suggested by [10], reflected in Figure 5.

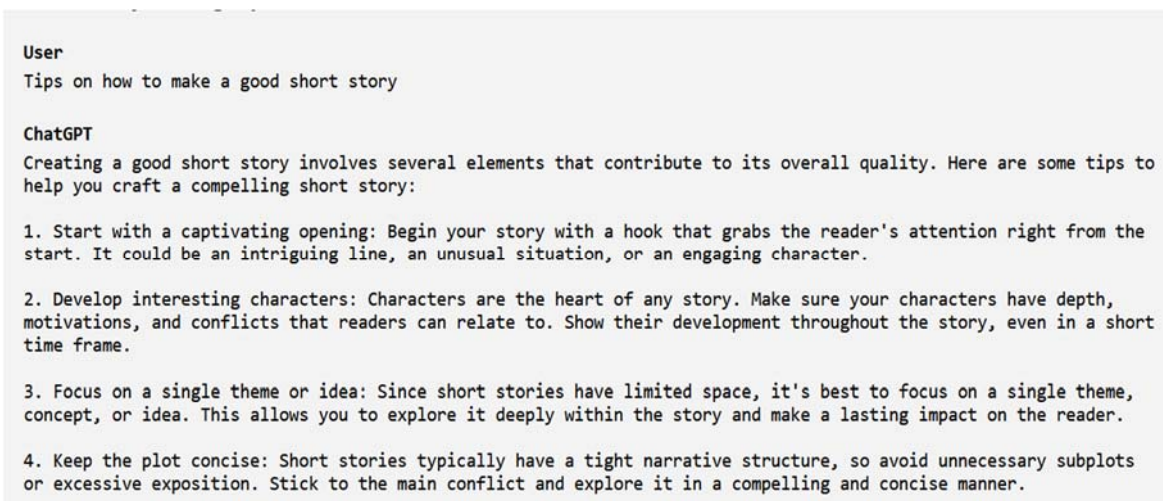


Fig. 5. Student Using ChatGPT for Learning

The effectiveness of implementing ChatGPT and the associated strategies in an EFL writing class were determined by assessing the students' feedback regarding the integration of ChatGPT into their learning process. Among the 16 students, 56.25% expressed agreement with the integration of ChatGPT. A majority of the students who supported the incorporation of ChatGPT in the classroom praised the tool's efficiency. One student provided the following statement:

*Excerpt 1:*

*“For me personally, because we can get an idea or even plot while using ChatGPT. Not everyone can always get idea when they are about to write a story, because sometimes i get stuck in the middle and for me it’s kinda wasting time... I think ChatGPT can help to solve that problem. Using ChatGPT doesn't mean that we can just copy and paste but we can take the idea that given from ChatGPT and change it or improve it to our version of story.”*

Apart from assessing the effectiveness of utilizing ChatGPT, other findings have also highlighted that certain student encountered technical difficulties with the tool. Consequently, there were delays of several days in exporting and downloading their ChatGPT history data. This discovery suggests that relying solely on the strategy proposed by [19] to maintain an audit trail of students' ChatGPT history data may not be entirely effective, particularly when technical issues arise directly from ChatGPT itself.

In addition to the technical challenges, there were concerns raised regarding the integration of ChatGPT into the learning process. Some students expressed their disagreement with incorporating ChatGPT in the classroom, citing concerns about excessive reliance on AI. Within the questionnaire designed to gauge students' perceptions of ChatGPT integration in learning, one student provided the following response:

*Excerpt 2:*

*“Teachers can only do so much to prevent students from relying too much on ChatGPT. In that case, students would most likely take their assignments lightly, knowing that ChatGPT can get it done for them.”*

This student’s voice was in the same vein with overreliance on AI that has been suggested by [15]. In his statement, he highlighted that as AI models such as ChatGPT progress in sophistication, there exists a potential risk of excessive dependence on them. This overreliance has the potential to negatively impact critical thinking and the development of independent problem-solving skills among researchers.

The third significant finding of the research revealed that the students' lack of familiarity with ChatGPT had an impact on how they formulated questions to ChatGPT and the subsequent responses they received. For instance, one student solely provided the topic of a short story she had written and sought feedback from ChatGPT. However, the response from ChatGPT assumed that the user was inquiring about the topic rather than providing feedback on the story.



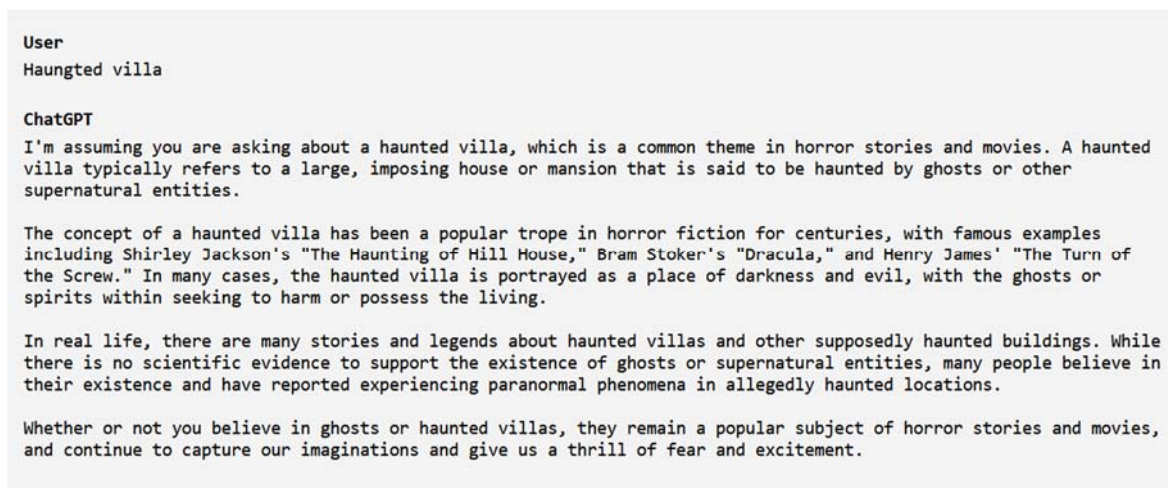


Fig. 6: Ineffective Prompt Resulting in Ineffective Answer

This finding is in line with what has been stated by [17] that the quality of the text generated by ChatGPT is significantly influenced by the content of the prompt, and that students need to carefully construct the prompts [18] as ineffective prompts by the students might result in ineffective answers by ChatGPT.

One notable finding worth mentioning is the occurrence of distractions arising from the utilization of ChatGPT. Figure 7 illustrates how students, when tasked with using ChatGPT as a learning aid, experienced distractions and engaged in activities unrelated to their assignments.

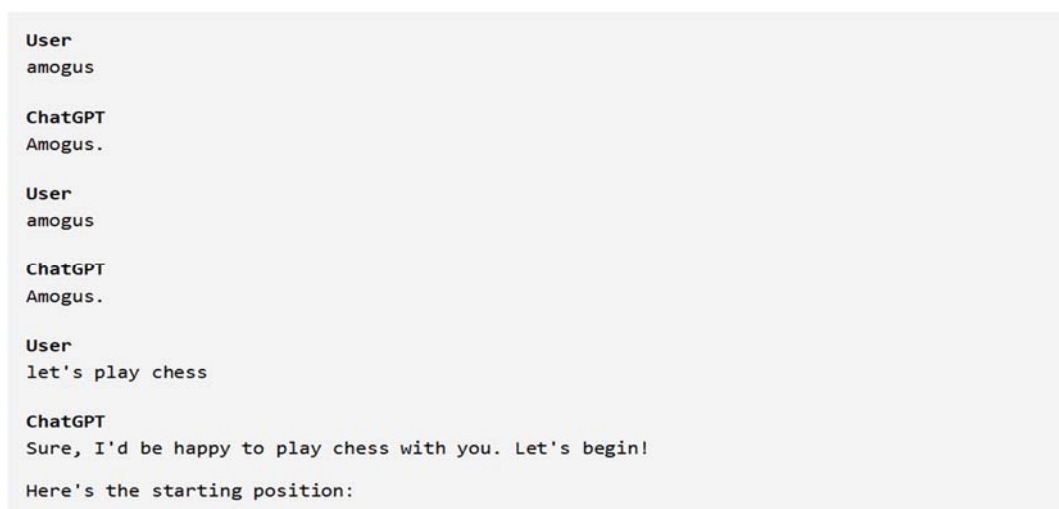


Fig.7: ChatGPT's Impact on Task Focus

This finding aligns with the cautionary note raised by [26] regarding the potential distraction posed by technology in the absence of careful considerations. Hence, it is imperative for teachers to remain mindful of the potential drawbacks and limitations of technology, in order to effectively harness its usage and ensure its role as a valuable asset in the writing processes of our students.

#### IV. CONCLUSION

The primary objective of this study was to identify effective strategies for responsibly incorporating ChatGPT into a writing classroom and evaluate their efficacy within the classroom environment. The analysis of both quantitative and qualitative data confirmed the following findings: (1) Determining appropriate moments for integrating ChatGPT into students' writing, (2) Providing clear policies to students regarding the use of ChatGPT in the classroom, (3) Evaluating the quality of students' generated text through a collaborative learning environment, (4) Mandating the submission of ChatGPT chat history data or

utilizing the Share Link to Chat feature, (5) Encouraging critical thinking and fostering creativity, and (6) Teaching students to verify and fact-check their work. These strategies have demonstrated effectiveness and can be responsibly implemented in the classroom.

The integration of ChatGPT in Creative and Media Writing classes has proven effective in assisting EFL students in generating ideas, planning short stories, and correcting grammar and spelling. By incorporating ChatGPT into the writing classroom, teachers and students can greatly enhance their teaching and learning experiences. Outright banning or dismissing AI is no longer sustainable. In fact, ChatGPT is expected to become an indispensable tool in the writing process, similar to how calculators and computers have transformed the fields of math and science. Therefore, it is crucial to explore responsible ways of integrating this technology into the educational setting.

This study recommends conducting more detailed and long-term experiments to further explore the potential of responsibly utilizing AI in the classroom environment. Promoting the responsible use of the tool among students, including emphasizing the significance of disclosing sources, when necessary, is strongly advocated. This objective can be achieved through workshops, training sessions, or integrating lessons on academic integrity and plagiarism into the curriculum. Additionally, educational institutions should establish well-defined policies and procedures to address instances of plagiarism, ensuring that students are informed about these policies and the potential consequences of violating them.

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