

PAPER

Mobile AI Tools in Language Learning: EFL Students' Acceptance of ChatGPT for Writing Brainstorming

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ABSTRACT

Writing poses a significant challenge for most students who struggle with brainstorming. Among many mobile AI tools, ChatGPT can help alleviate writing difficulties. Nevertheless, the use of mobile AI tools, especially ChatGPT, for brainstorming in a writing class has not been fully investigated. Thus, this study aims to inspect the acceptance of EFL (English as a foreign language) students regarding using ChatGPT for brainstorming in a writing class. The present study employed quantitative and qualitative approaches with a 5-point Likert scale questionnaire and a semi-structured interview. 257 EFL students at a private Vietnamese university with prior experience using ChatGPT for writing brainstorming participated in the study. The results revealed that the university students in this study responded positively to using ChatGPT to support them in enhancing their writing quality regarding perceptions of ChatGPT, actual practice, the advantages, and disadvantages. Nonetheless, some difficulties were also addressed to assist EFL students in enhancing their writing skills. Several solutions to using ChatGPT in writing were explored in this study to boost students' writing performance.

KEYWORDS

Chat GPT, acceptance, mobile AI tool, brainstorming, writing

1 INTRODUCTION

Writing is an intricate language skill that students must consistently practice to fully grasp all its components [1]. Effective writing demands an understanding of comprehensive linguistics concerning macro and micro writing skills [2]. Consequently, learning success critically depends on the proper use of a learning strategy [3]. Furthermore, if the methods align with the learning environment, students' motivation can be strengthened [4].

With the rise of technology, students now have greater access to education through online platforms [5] for study purposes, especially with mobile AI tools that assist with instant help, adaptive learning, and personalized feedback. Various synchronous and asynchronous platforms are used in classrooms to enhance learning

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experiences [6]. Among mobile-based AI tools, ChatGPT has become a useful resource, facilitating students to partake in language acquisition and brainstorming activities with flexibility. ChatGPT provides prompt and customized responses, supporting students in improving their language, communication, and critical thinking skills [7].

ChatGPT is being used more frequently via mobile devices than desktops, prompting significant inquiries on its impact on student involvement, usability, and efficacy in brainstorming. Mobile access facilitates real-time feedback and improves accessibility; nonetheless, it may also introduce distractions and affect students' interactions with AI-generated information. Despite the growing significance of ChatGPT in language learning, few studies have examined its effectiveness in writing—particularly in the Mekong Delta of Vietnam.

To address this gap, this study explores the role of mobile AI tools in writing instruction, focusing on ChatGPT-assisted brainstorming. The research aims to answer the following questions:

1. What are university students' views about using ChatGPT for brainstorming in writing?
2. How do students perceive the pros and cons of utilizing ChatGPT for brainstorming in writing?

By investigating these aspects, this study contributes to a deeper understanding of mobile AI-assisted learning environments and their implications for writing development.

2 LITERATURE REVIEW

2.1 ChatGPT and its growing role in education

ChatGPT can provide replies to students' needs; thus, students are capable of grasping innovative ideas and personalized responses [8]. With its huge benefits, there has been a growing number of users. ChatGPT has had tremendous success since 2023, thereby becoming one of the most rapid technology tools [9] because its use across industries, as well as its ability to provide instant outputs, is unmatched. As mentioned by Lavidas et al. (2024), the connection of AI tools such as ChatGPT in academic settings has been a key factor in enhancing students' engagement to apply innovative technologies for their learning purposes [10].

2.2 Brainstorming as a writing strategy

Brainstorming is a strategy to aid students in initiating ideas for their writing performance [11]. Students can not only gather initial thoughts but also generate new ideas for their writing [12]. Furthermore, as Karakose et al. (2023) point out, incorporating brainstorming techniques in the writing process encourages students' critical thinking and self-efficacy, leading to improved academic performance [13].

2.3 Chat GPT in language learning and mobile education

ChatGPT performs a crucial role in all educational levels [14]. ChatGPT also simulates daily-life conversations and provides immediate feedback on their grammar as

well as vocabulary; therefore, it enhances students' language skills [15]. Therefore, this tool can be utilized to promote students' performance [16].

2.4 Effectiveness of ChatGPT for writing and brainstorming in mobile environments

ChatGPT, with its large data stores, can enable itself to understand and interpret users' inputs and produce relevant responses [17]. Consequently, ChatGPT plays a crucial role as a writing assistant in different subjects [18]. Thanks to ChatGPT, students and teachers can explore diverse angles of their domain [19].

ChatGPT allows users time for brainstorming, as it can provide a variety of new ideas related to topics, themes, and viewpoints as well [20]. Students who tend to write in other languages may find ChatGPT's text translation helpful with accurate grammar and vocabulary [21]. As a result, ChatGPT can enhance students' writing skills faster [22, 23]. Students can use ChatGPT's features on mobile phones, which helps them think through ideas and improve their writing skills with ease. Lavidas et al. (2024) offered deeper insight into this phenomenon and demonstrated how AI tools like ChatGPT encourage learners to participate actively as a result of the AI's personalized, user-friendly interface.

ChatGPT can do more than provide ideas; it can analyze written texts and offer feedback on various writing features like vocabulary and word choice [24]. Students improve their writing abilities by receiving guidance and assistance from this tool for their successful writing [25]. ChatGPT not only facilitates students' writing performance but also the effectiveness of their compositions [26].

3 METHODOLOGY

3.1 Research design

The research employs a descriptive research design to investigate English as a foreign language (EFL) students' opinions of ChatGPT employment in writing, as it can clarify the reality regarding people's perspectives [27].

Convenience sampling is useful; however, it does have drawbacks like the probability of bias, which includes a lack of representation from certain groups and an overall failure to generalize. In order to address these biases, diversity in participants was achieved through different levels of language proficiency and gender balance. Students from the Mekong Delta region were chosen because their specific language and education context were pertinent to the purpose of the study. The implications of the result are not applicable for other areas that have differing socio-economic and cultural circumstances.

3.2 Participants

A total of 257 EFL students got involved in the survey. The convenience sample technique was used to let the researcher accumulate information from the available participants when the research was being conducted. These individuals are all freshmen to senior university students, whose ages range from 18 to 23, attending various universities in Vietnam's Mekong Delta. Additionally, all participants had four months of experience using ChatGPT in writing. Students use mobile devices in

class for numerous academic activities via ChatGPT to generate ideas in academic writing with permission. Therefore, their composition can reach higher achievement.

Table 1. Demographic information of the participants

Variable and Modalities		Frequency	Percent
Gender	Male	120	47
	Female	155	53
Age	18	215	78.2
	19	20	7.3
	20	15	5.5
	21	25	9
Years of study	1st	220	80
	2nd	15	5.5
	3rd	15	5.5
	4th	25	9

3.3 Instruments

To answer the research questions, a mixed-methods approach was employed, incorporating quantitative and qualitative data [28]. In the first section, a questionnaire was used to gather data about how EFL students perceive utilizing ChatGPT for brainstorming in their writing. For the quantitative approach, a questionnaire was adapted from Jamoom [29]. The questionnaire of 16 items was categorized into five key areas: perceived usefulness, perceived attitude, perceived benefits, and perceived drawbacks. The items were rated on a 5-point Likert scale, from strongly disagree to strongly agree (from one to five). In the second segment, students' perceptions regarding the usage of ChatGPT for brainstorming in writing were examined using qualitative data from semi-structured interviews with open-ended questions.

Ten participants were interviewed with the six questions: (1) Do you agree that ChatGPT is beneficial to brainstorming in writing?; (2) Do you agree that ChatGPT is easy to use for brainstorming in writing?; (3) Do you have positive views of utilizing ChatGPT for brainstorming in writing?; (4) Will you continue using ChatGPT for brainstorming in writing class in the future?; (5) What are three primary pros of ChatGPT for brainstorming in writing?; and (6) What are three main causes of ChatGPT for brainstorming for writing?

To collect quantitative data with the acceptance of each lecturer, these participants were sent the link to the questionnaire. The process of data collection lasted for 20 minutes. The answers were recorded on the Google Doc form and used for this stage of the research. To gather qualitative data, multiple appointments were arranged between the researchers and the respondents. Individual interviews were conducted, lasting around 45 minutes, with responses meticulously documented and transcribed for subsequent analysis. Prior to official involvement, the students were provided with detailed information regarding the study, their responsibilities, and the option to refrain from answering any sensitive questions that would induce discomfort. The participants were requested to sign a consent form affirming that their participation was voluntary and that they might withdraw from the study at any moment.

To examine the validity of the survey before the collection of data, numerous peers checked the survey with a great deal of carefulness. Statistical Package for the Social

Sciences (SPSS) version 25 was employed to evaluate the quantitative data to certify the questionnaire's reliability. The finding indicated that the alpha value for Cronbach was .94, which can ensure the questionnaire's sufficient reliability. The questionnaire was designed with bilingual items. These participants had some freedom to answer in either English or Vietnamese. Such responses were then translated into English.

4 FINDINGS AND DISCUSSION

4.1 The findings from the questionnaire

Table 2. Mean score of students' views on using ChatGPT for brainstorming in writing

	N	Minimum	Maximum	Mean (M)	SD
Students' perception of the use of ChatGPT for brainstorming in writing	257	2.00	5.00	3.96	0.72

Table 3. Mean scores of four clusters of students' views on using ChatGPT for brainstorming in writing

Clusters	N	Minimum	Maximum	Mean (M)	SD
Students' perceptions on using ChatGPT for brainstorming regarding "perceived usefulness"	257	2.00	5.00	3.96	0.72
Students' perceptions on using ChatGPT for brainstorming regarding "perceived attitude"	257	1.50	5.00	3.94	0.77
Students' perceptions on using ChatGPT for brainstorming regarding "perceived advantages"	257	2.00	5.00	3.97	0.80
Students' perceptions on using ChatGPT for brainstorming regarding "perceived disadvantages"	257	1.00	5.00	3.59	0.90

The findings of a 16-item questionnaire are presented in Table 1. It indicates that students perceive utilizing ChatGPT for brainstorming in writing fairly positively ($M = 3.96$, $SD = 0.72$). The results are described in Table 2, which shows students' mean agreement degrees were at a relatively high level (from 3.59 to 3.97).

Students' views on using ChatGPT for brainstorming in writing regarding "perceived usefulness"

Table 4. Students' views of using ChatGPT for brainstorming in writing regarding perceived usefulness

	N	Minimum	Maximum	Mean (M)	SD
1. I find utilizing ChatGPT to be simple and convenient.	257	1	5	4.18	0.81
2. I believe ChatGPT can help me brainstorm for writing more effectively.	257	1	5	4.04	0.85
3. Learning writing with ChatGPT is enjoyable.	257	1	5	3.92	0.94
4. I feel that I can easily understand the writing content provided by ChatGPT.	257	1	5	3.97	0.88
5. I think ChatGPT can help me save time in brainstorming for writing.	257	1	5	3.78	0.98
6. I want to utilize ChatGPT for brainstorming in writing in the future.	257	1	5	3.89	1.01

According to Table 2, students' perceptions of ChatGPT's perceived value for writing brainstorming were rather positive ($M = 3.96$, $SD = .71$) among their responses. Table 3 illustrates that the highest degree of agreement was reached when students thought that using ChatGPT in writing would be easy and convenient ($M = 4.18$, $SD = 0.81$). Then, the students reckoned that using ChatGPT in writing is more pleasant ($M = 3.92$, $SD = 0.94$), which could aid them in learning writing more efficiently ($M = 4.04$, $SD = 0.85$). Next, the students expressed the least amount of agreement ($M = 3.97$, $SD = 0.88$) that they could easily understand the writing material offered by ChatGPT. In addition, the students ($M = 3.89$, $SD = 1.01$) desired to utilize ChatGPT for future brainstorming writing. In conclusion, most of the students thought that using ChatGPT would facilitate their brainstorming in writing.

Students' views of using ChatGPT for brainstorming in writing regarding "perceived attitude"

Table 5. Students' views of using ChatGPT for brainstorming in writing regarding perceived attitude

	N	Minimum	Maximum	Mean (M)	SD
7. I use ChatGPT to increase my interest and motivation for brainstorming in writing.	257	1	5	3.68	1.10
8. I use ChatGPT to improve my brainstorming in writing.	257	1	5	4.04	0.99
9. I use ChatGPT to improve my ideas in writing.	257	1	5	3.92	0.75
10. I use ChatGPT to help me gain a deeper understanding of the English language and culture in writing.	257	1	5	3.97	0.92

From Table 2, students' perception of utilizing ChatGPT for brainstorming in writing regarding perceived attitude was quite high ($M = 3.94$, $SD = 0.77$). In Table 4, the students believed they utilized ChatGPT to boost their interest and motivation in writing brainstorming ($M = 3.68$, $SD = 1.10$) with the least amount of agreement. Conversely, the greatest degree of agreement was given to the student's statement that they used ChatGPT to enhance their writing brainstorming ($M = 4.04$, $SD = 0.99$). The students then claimed to have utilized ChatGPT to enhance their writing concepts ($M = 3.92$, $SD = 0.75$). Following that, the students thought that ChatGPT assisted them in writing with a greater comprehension of the English language and culture ($M = 3.97$, $SD = 0.92$). In summary, most students had a positive attitude towards using ChatGPT for brainstorming in writing.

Students' views of using ChatGPT for brainstorming in writing regarding "perceived benefits"

Table 6. Students' views of using ChatGPT for brainstorming in writing regarding perceived benefits

	N	Minimum	Maximum	Mean (M)	SD
11. I think ChatGPT can help me improve the quality of my writing.	257	1	5	4.06	.91
12. I believe ChatGPT can provide me with more writing learning opportunities.	257	1	5	3.89	.94
13. I think ChatGPT can help me enhance my writing abilities.	257	1	5	3.94	.87

As the results described in Table 2, students' perceptions regarding the advantages or perceived benefits of ChatGPT for brainstorming in writing were fairly high ($M = 3.97$, $SD = 0.80$). According to Table 5, students believed that ChatGPT provided them with more opportunities to learn writing, which was quite high ($M = 3.89$, $SD = .94$), which presented the least value of the agreement. In contrast, the highest amount of agreement was collected through students' confirmation that the quality of their composition was better with the assistance of ChatGPT ($M = 4.06$, $SD = .91$). Besides, the high degree of agreement was recorded when students admitted the advantages of using ChatGPT. To conclude, most of the students agree that ChatGPT can aid them in improving their writing ability.

Students' views of using ChatGPT for brainstorming in writing regarding "perceived drawbacks"

Table 7. Students' views of using ChatGPT for brainstorming in writing regarding perceived drawbacks

	N	Minimum	Maximum	Mean (M)	SD
14. I think ChatGPT may have issues with plagiarism or information leakage.	257	1	5	4.01	1.02
15. I think ChatGPT's responses may contain some inaccurate information.	257	1	5	3.93	1.03
16. I think ChatGPT is not helpful for my English writing.	257	1	5	2.83	1.35

From Table 2, the mean score of students' views regarding the perceived drawbacks of ChatGPT was pretty high ($M = 3.59$, $SD = 0.90$). In Table 7, students thought that ChatGPT was not helpful for their English writing ($M = 2.83$, $SD = 1.35$). On the contrary, the highest degree of agreement was recorded when students think that ChatGPT may have issues with plagiarism or information leakage ($M = 4.01$, $SD = 1.02$). Additionally, students believed that ChatGPT's responses would give some inaccurate information, which was fairly high ($M = 3.93$, $SD = 1.03$). In summary, several students admitted having encountered several difficulties using ChatGPT for brainstorming in their writing.

4.2 Results from the interviews

To investigate students' views of utilizing ChatGPT for brainstorming in writing, ten students were interviewed about perceived usefulness, perceived attitude, perceived benefits, and perceived drawbacks.

Perceived usefulness. Nine out of 10 participants agreed that utilizing ChatGPT was useful in writing. The vast majority of participants expressed the belief that ChatGPT may facilitate the generation of varied ideas and viewpoints, enabling them to investigate various aspects of the writing topic. Some participants also believed that ChatGPT could offer them the very first stage of brainstorming ideas in academic writing, which enables students to get an initial step in bettering their composition.

For brainstorming in my writing class, I believe ChatGPT is helpful. In addition to the ideas I have suggested myself, ChatGPT can give me creative views and ideas. (Student 4, interview extract)

Nonetheless, student 6 expressed disapproval of ChatGPT due to its potential to stifle creativity. He assumed that the students might become dependent on ChatGPT for writing improvement. Instead, students are supposed to brainstorm and iterate their ideas and then refer to ChatGPT's suggestions. This tool could be used as a reference for activating vocabulary related to a writing topic.

I do not think that ChatGPT is useful for brainstorming in my writing class. From my perspective, I prefer articulating and finding ideas by myself, rather than relying on a fixed list of ideas presented to me by ChatGPT because I could be way more creative with my thinking. (Student 6, interview extract)

Perceived attitude. According to the results of the interview, six out of 10 students had a favorable opinion of using ChatGPT for brainstorming when writing since it can generate ideas and overcome writer's block. Furthermore, these participants believed that ChatGPT could enable students to efficiently outline their writing, thereby conserving substantial time.

I have positive attitudes towards the use of ChatGPT for brainstorming in a writing class because it can enhance writing ability, offer new insights, and assist me in overcoming writer's block. (Student 1, interview extract)

Two students, however, supposed that using ChatGPT for writing and brainstorming would result in indolence and a lack of inventiveness. As a matter of fact, relying on this tool to generate ideas may lead them to passive thinking.

I have negative attitudes towards brainstorming depending on ChatGPT. Many students utilize ChatGPT without using their knowledge and sometimes they use ChatGPT for other purposes which rapidly enhance their writing exams. (Student 7, interview extract)

Similarly, the other two students had a neutral attitude toward utilizing ChatGPT for writing brainstorming as this trend can lead to both pros and cons. Therefore, students must utilize ChatGPT judiciously to maximize its benefits.

After several times using ChatGPT for writing, I have kept a neutral attitude about using this platform for brainstorming in writing class. I mean it generates a lot of ideas but not many of them are applicable, so I use a combination of my knowledge and use ChatGPT. (Student 10, interview extract)

Perceived benefits. According to the results of the interviews, eight out of ten students highly evaluated the ability of ChatGPT to provide a huge number of ideas for their composition. Moreover, they shared the same satisfaction with the speed of ChatGPT in writing.

Some main advantages of using ChatGPT for brainstorming include rapid idea generation and exposure to diverse perspectives. (Student 8, interview extract)

In addition to its benefits, three out of ten admitted that using ChatGPT to collect information before starting to write was very easy. Therefore, they can save a great amount of time for other aspects of their work. Furthermore, they certainly obtain adequate and essential vocabulary for their composition.

It can help me save time because it is very easy to use and fast. (Student 4, Interview extract)

Perceived drawbacks. As the analysis of students' responses presented, most of the students share one similarity regarding the drawbacks of ChatGPT. Seven out of 10 students claimed that they could be too dependent on ChatGPT.

Because of the convenience of ChatGPT, students are likely to rely on the support of this tool. (Student 9, interview extract)

However, such convenience could easily lead to students' laziness. In other words, they did not need to spend time thinking of ideas; with the help of ChatGPT, they had lots of different information for their writing.

Using ChatGPT frequently may make students lazier. (Student 6, interview extract)

As a result, students lost their creativity in writing. Three students admitted that ChatGPT reduced their ability to generate ideas on their own. Consequently, it is prudent for teachers to provide students with explicit instructions to ensure they utilize ChatGPT appropriately while enhancing their writing abilities. Even one of those three students emphasized the influence of this matter on their writing ability.

Using ChatGPT may reduce my creativity to think of first ideas for my work. (Student 6, interview extract)

5 DISCUSSION AND CONCLUSION

5.1 Discussion

This study aims to examine students' views of ChatGPT in writing brainstorming, falling into four categories: (1) perceived usefulness, (2) perceived attitude, (3) perceived benefits, and (4) perceived drawbacks.

The questionnaire and interview results indicate that most students were favorable toward utilizing ChatGPT for brainstorming in writing. The findings align with previous research [18], which suggests that ChatGPT can support idea development and foster collaboration among learners. Furthermore, this study reinforces the conclusions of [17, 18], demonstrating that ChatGPT enhances students' ability to comprehend inputs and generate relevant responses to writing prompts, solidifying its role as an essential writing aid.

Regarding perceived attitudes, most students expressed a positive stance toward using ChatGPT for brainstorming. This aligns with [19], where students generally exhibited enthusiasm for integrating ChatGPT into their writing process. One significant advantage is the accessibility of ChatGPT anytime, anywhere through mobile devices, making writing assistance more immediate and flexible. In comparison with traditional brainstorming methods demanding scheduled sessions, mobile-based ChatGPT permits students to generate their ideas, assisting in a more active learning experience. This benefit reflects the changing landscape of mobile-assisted writing instruction and emphasizes ChatGPT's significance in mobile learning, where flexibility and immediacy are key aspects.

The findings of this study, along with those of [19], highlight ChatGPT's strong potential in generating ideas. Both the questionnaire and interview results reflect students' satisfaction with the tool's convenience at the initial stage of writing. Additionally, the study is consistent with [22, 23], which suggests that using ChatGPT for brainstorming on mobile platforms promotes accessibility and efficiency, aiding students in collecting information and structuring ideas with ease.

The integration of ChatGPT into a mobile learning environment also fosters greater engagement. Research in interactive mobile learning technologies suggests that students benefit from tools that provide immediate feedback and flexible learning processes, which ChatGPT can offer. The ability to interact with an AI-powered assistant on mobile devices reduces barriers to learning as students can get immediate assistance outside of the classroom. However, even though ChatGPT has a lot to offer in terms of accessibility and engagement, its use must be balanced with more conventional teaching techniques to prevent students from becoming excessively dependent on AI.

Despite these benefits, the study also identifies concerns regarding over-reliance on ChatGPT, a drawback that aligns with findings from [22, 23]. Students who depend too heavily on AI-generated suggestions may experience reduced critical thinking and creativity in writing. Furthermore, mobile-based learning results in additional challenges, such as distractions from notifications, social media, and limited screen space for extensive text editing. These factors may affect students' ability to engage deeply with brainstorming tasks compared to a desktop environment. These issues show how crucial it is to make sure that students get the most out of ChatGPT without becoming unduly reliant on it. To preserve critical thinking abilities and creativity, one possible tactic is to encourage students to use ChatGPT in conjunction with more conventional brainstorming methods such as mind mapping or cooperative group discussions.

Expanding ChatGPT's role in mobile learning requires integrating more active factors, similar to those found in other mobile educational technologies. Features such as personalized prompts, voice input for brainstorming, and multimodal AI assistance (e.g., combining text and visual brainstorming tools) could further enhance its effectiveness. By encouraging students to interact with the tool more actively rather than merely accepting AI recommendations, these features could reduce worries about over-reliance. Furthermore, adding these interactive capabilities can strengthen ChatGPT's position as a component of the mobile learning environment. Future studies should explore how ChatGPT can be optimized for mobile usage to facilitate more interactive and personalized writing support.

By broadening the discussion to include ChatGPT's role as a mobile educational tool, this study bridges the gap between AI-assisted writing support and the increasing field of mobile learning technologies. Understanding how students engage with ChatGPT in mobile contexts provides valuable insights into its potential for improving both accessibility and learning outcomes in digital education.

5.2 Conclusion

Regarding students' perspectives about utilizing ChatGPT for brainstorming in writing, there are numerous differing views. While some students believe that utilizing ChatGPT while writing would enable them to consult effective writing examples to enhance their work, other students believe that using ChatGPT will result in boredom and a lack of originality. Teachers should therefore give students advice on how to successfully include ChatGPT in mobile learning environments, stressing

that it should be used as an additional tool rather than as a replacement for autonomous thought, in order to help them become better writers. To avoid over-reliance and promote critical thinking, educators should offer advice on establishing clear guidelines for ChatGPT usage.

The long-term effects of AI-assisted brainstorming on students' writing abilities should be investigated in future studies, with an emphasis on the ways in which regular usage of programs like ChatGPT affects creativity, critical thinking, and general writing ability. Additionally, more research might look into how teachers can help kids get the most out of ChatGPT while reducing any negative effects.

6 LIMITATIONS AND IMPLICATIONS

This study has several significant limitations. First, the sample size was relatively small, consisting of participants from a private university in Vietnam. Future research should explore a broader range of settings with more diverse respondents to enhance generalizability. Additionally, this study employed convenience sampling, which may have resulted in a non-representative sample and potential bias. The reliance on convenience sampling could also exclude important groups, limiting the accuracy of the findings. Moreover, due to time constraints, this study focused only on students' perspectives on using ChatGPT for writing brainstorming. Future studies should investigate whether teachers' and students' perspectives align to provide a more comprehensive understanding of ChatGPT's role in writing instruction.

Furthermore, further research should examine the potential long-term impacts of ChatGPT on students' brainstorming for writing. While ChatGPT can provide creative writing ideas, students must learn to use it appropriately to enhance their writing process rather than depend on it entirely. Educators play a crucial role in guiding students toward responsible and effective use of AI tools. Therefore, future studies should explore strategies for integrating ChatGPT into mobile learning environments while addressing concerns about over-reliance. Investigating how teachers can ensure ChatGPT functions as a supportive rather than a substitute tool would be particularly valuable. Additionally, providing practical recommendations for instructors and policymakers could enhance the study's real-world applicability. Understanding students' experiences, challenges, and self-motivation in using ChatGPT for writing could lead to more effective instructional approaches and policies, ultimately improving AI-assisted learning outcomes.

7 REFERENCES

- [1] S. Rashid and S. S. Yadav, "Impact of Covid-19 pandemic on higher education and research," *Indian Journal of Human Development*, vol. 14, no. 2, pp. 340–343, 2020. <https://doi.org/10.1177/0973703020946700>
- [2] S. Tadesse and W. Muluye, "The impact of Covid-19 pandemic on education system in developing countries: A review," *Open Journal of Social Sciences*, vol. 8, pp. 159–170, 2020. <https://doi.org/10.4236/jss.2020.810011>
- [3] O. B. Adedoyin and E. Soykan, "Covid-19 pandemic and online learning: The challenges and opportunities," *Interactive Learning Environments*, vol. 31, no. 2, pp. 863–875, 2023. <https://doi.org/10.1080/10494820.2020.1813180>
- [4] S. L. Schneider and M. L. Council, "Distance learning in the era of COVID-19," *Archives of Dermatological Research*, vol. 313, pp. 389–390, 2021. <https://doi.org/10.1007/s00403-020-02088-9>

- [5] X. Zhu and J. Liu, "Education in and after Covid-19: Immediate responses and long-term visions," *Postdigital Science and Education*, vol. 2, pp. 695–699, 2020. <https://doi.org/10.1007/s42438-020-00126-3>
- [6] N. Ghounane, "Facebook as a learning platform in Algeria during the COVID-19 pandemic," *Global Journal of Foreign Language Teaching*, vol. 11, no. 2, pp. 80–93, 2021. <https://doi.org/10.18844/gjflt.v11i2.5555>
- [7] M. A. Abdul Halim and R. Aboo Bakar, "Study on acceptance of Google Meet as a learning platform among students in higher education preliminary," *International Journal of Practices in Teaching and Learning (IJPTL)*, vol. 2, no. 1, pp. 1–5, 2022. https://ijptl.uitm.edu.my/files/v2n1-feb2022/IJPTL_205.pdf
- [8] C. Coman, L. G. Țiru, L. M. Schmitz, C. Stanciu, and M. C. Bularca, "Online teaching and learning in higher education during the coronavirus pandemic: Students' perspective," *Sustainability*, vol. 12, no. 24, p. 10367, 2020. <https://doi.org/10.3390/su122410367>
- [9] A. Fakhrudin, "Using Google Meet in teaching speaking," *Journal of English Language Learning*, vol. 2, no. 2, pp. 43–46, 2019.
- [10] A. L. G. Sağlam, K. Dikilitaş, and R. Zhang, "Evaluating an online professional learning community as a context for professional development in classroom-based research," *Language Learning and Technology*, vol. 24, no. 3, pp. 38–53, 2020. <https://eric.ed.gov/?id=EJ1275846>
- [11] K. Lavidas *et al.*, "Determinants of humanities and social sciences students' intentions to use artificial intelligence applications for academic purposes," *Information*, vol. 15, no. 6, p. 314, 2024. <https://doi.org/10.3390/info15060314>
- [12] L. Ding and Z. Hong, "On the relationship between pre-service teachers' sense of self-efficacy and emotions in the integration of technology in their teacher developmental programs," *The Asia-Pacific Education Researcher*, vol. 33, pp. 869–878, 2023. <https://doi.org/10.1007/s40299-023-00758-6>
- [13] T. Karakose *et al.*, "Assessment of the relationships between prospective mathematics teachers' classroom management anxiety, academic self-efficacy beliefs, academic motivation and attitudes toward the teaching profession using structural equation modeling," *Mathematics*, vol. 11, no. 2, p. 449, 2023. <https://doi.org/10.3390/math11020449>
- [14] A. D. Dumford and A. L. Miller, "Online learning in higher education: Exploring advantages and disadvantages for engagement," *Journal of Computing in Higher Education*, vol. 30, pp. 452–465, 2018. <https://doi.org/10.1007/s12528-018-9179-z>
- [15] R. S. Al-Marroof, S. A. Salloum, A. E. Hassanien, and K. Shaalan, "Fear from COVID-19 and technology adoption: The impact of Google Meet during Coronavirus pandemic," *Interactive Learning Environments*, vol. 31, no. 3, pp. 1293–1308, 2023. <https://doi.org/10.1080/10494820.2020.1830121>
- [16] E. K. H. Emon, A. R. Alif, and M. S. Islam, "Impact of COVID-19 on the institutional education system and its associated students in Bangladesh," *Asian Journal of Education and Social Studies*, vol. 11, no. 2, pp. 34–46, 2020. <https://doi.org/10.9734/ajess/2020/v11i230288>
- [17] Z. A. Farkhani, G. Badiei, and F. Rostami, "Investigating the teacher's perceptions of classroom management and teaching self-efficacy during Covid-19 pandemic in the online EFL courses," *Asian-Pacific Journal of Second and Foreign Language Education*, vol. 7, p. 25, 2022. <https://doi.org/10.1186/s40862-022-00152-7>
- [18] M. Imran and N. Almusharraf, "Analyzing the role of ChatGPT as a writing assistant at higher education level: A systematic review of the literature," *Contemporary Educational Technology*, vol. 15, no. 4, p. ep464, 2023. <https://doi.org/10.30935/cedtech/13605>
- [19] A. Aswir, M. S. Hadi, and F. R. Dewi, "Google Meet application as an online learning media for descriptive text material," *Jurnal Studi Guru Dan Pembelajaran*, vol. 4, no. 1, pp. 189–194, 2021. <https://doi.org/10.30605/jsgp.3.3.2020.533>

- [20] V. Jain and P. Jain, "From Industry 4.0 to Education 4.0: Acceptance and use of video-conferencing applications in higher education of Oman," *Journal of Applied Research in Higher Education*, vol. 14, no. 3, pp. 1079–1098, 2022. <https://doi.org/10.1108/JARHE-10-2020-0378>
- [21] M. S. A. Rahman, M. J. Jalil, and M. T. A. Ghani, "Teaching and learning calculus through Google Meet platform during the Covid-19 pandemic: Implementation and evaluation," *Int. J. Acad. Res. Progress. Educ. Dev.*, vol. 10, no. 2, pp. 548–555, 2021. <https://doi.org/10.6007/IJARPED/v10-i2/10138>
- [22] R. E. Prasetya, "Engagement strategies in electronic tools English online learning: Higher education context," *Indonesian Journal of English Education*, vol. 8, no. 2, pp. 309–326, 2021. <https://doi.org/10.15408/ijee.v8i2.22358>
- [23] J. Setiawan, Aman, and T. Wulandari, "Understanding Indonesian history, interest in learning history and national insight with nationalism attitude," *International Journal of Evaluation and Research in Education*, vol. 9, no. 2, pp. 364–373, 2020. <https://doi.org/10.11591/ijere.v9i2.20474>
- [24] R. A. Machado, P. R. F. Bonan, D. E. D. C. Perez, and H. Martelli Júnior, "COVID-19 pandemic and the impact on dental education: Discussing current and future perspectives," *Brazilian Oral Research*, vol. 34, p. e083, 2020. <https://doi.org/10.1590/1807-3107bor-2020.vol34.0083>
- [25] R. W. P. Putra, "Improving the students' motivation in learning English through Google Meet during the online learning," *English Learning Innovation*, vol. 2, no. 1, pp. 35–42, 2021. <https://doi.org/10.22219/englie.v2i1.14605>
- [26] A. Qekaj-Thaqi and L. Thaqi, "The importance of information and communication technologies (ICT) during the COVID-19—pandemic in case of Kosovo," *OALib*, vol. 8, p. e6996, 2021. <https://doi.org/10.4236/oalib.1106996>
- [27] A. R. Nasution and A. B. D. Nandiyanto, "Utilization of the Google Meet and Quizizz applications in the assistance and strengthening process of online learning during the COVID-19 pandemic," *Indonesian Journal of Educational Research and Technology*, vol. 1, no. 1, pp. 31–34, 2021. <https://doi.org/10.17509/ijert.v1i1.33367>
- [28] R. S. Al-Marouf, M. T. Alshurideh, S. A. Salloum, A. Q. M. AlHamad, and T. Gaber, "Acceptance of Google Meet during the spread of Coronavirus by Arab University students," *Informatics*, vol. 8, no. 2, p. 24, 2021. <https://doi.org/10.3390/informatics8020024>
- [29] B. Gleason and M. K. Heath, "Injustice embedded in Google Classroom and Google Meet: A techno-ethical audit of remote educational technologies," *Italian Journal of Educational Technologies*, vol. 29, no. 2, pp. 24–41, 2021. <https://doi.org/10.17471/2499-4324/1209>

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9 ETHICAL STATEMENT

This study was approved by the Institutional Review Board (IRB) of FPT University Can Tho, Vietnam. All participants, including EFL (English as a Foreign Language) students, provided informed consent prior to participation, with full disclosure of the study's purpose and procedures. The research was conducted in accordance with the ethical standards set forth in the Declaration of Helsinki, ensuring the protection of participants' rights and well-being throughout the study.