

# Enhancing English Speaking Skills of Vietnamese University Students Through ChatGPT-Aided Mind Maps

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**Abstract**—Speaking skills are vital because they enable learners to express their ideas, opinions, and understanding of the material presented by the teacher. Furthermore, ChatGPT shows significant benefits to support students' English-speaking learning. To find out the impact of using ChatGPT-aided mind maps on students' English-speaking performance, a classroom action research study was conducted with 30 second-year English major students at a university in Vietnam during the first semester of the 2025-2026 academic year. The data collection tools included a pre-test, a post-test, and a questionnaire consisting of 24 Likert scale items and three open-ended questions. Quantitative data were analyzed using IBM SPSS Statistics (Version 25.0), including descriptive statistics and paired sample t-tests. The result shows that (1) the ChatGPT-aided mind maps help students enhance their English performance in grammar, vocabulary, pronunciation, fluency, and discourse management. (2) Students have positive perceptions of using ChatGPT-aided mind maps for preparing and organizing ideas for speaking skills. This study demonstrated that ChatGPT-aided mind maps have beneficial impacts on students' English-speaking skills.

**Index Terms**—speaking skills, ChatGPT, mind maps, action research, English-speaking performance

## I. INTRODUCTION

Four main factors affecting students' fluency in speaking are limited vocabulary, pronunciation, grammar, and self-confidence (Fitriani et al., 2015; Leong & Ahmadi, 2017; Jaya et al., 2022). Speaking is generally recognized as one of the most essential skills in English language learning, as it enables students to communicate effectively. However, for many learners of English as a foreign language (EFL), speaking is also one of the most difficult skills to master. In fact, they have difficulties in acquiring it successfully. Therefore, it is necessary to find out effective ways to support students in improving their speaking skills.

Buzan and Buzan (1993) emphasize that the mind map is a reflection of Radiant Thinking, and can be seen as a basic cognitive function. In addition, it is an effective graphic technique that offers a universal framework for enhancing learners' cognitive potential. It means that mind mapping is a useful technique for organizing and visualizing ideas helping learners generate, connect, and remember key concepts more easily. Mind maps provide a clear structure that supports coherence and reduces hesitation, making oral communication more effective. Mind maps can enhance memory, stimulate creativity, and improve coherence in both writing and speaking tasks.

Meanwhile, the rapid development of artificial intelligence (AI) has created new opportunities in language education. ChatGPT, an advanced language model developed by OpenAI, has been shown to support learners by generating ideas, supplying vocabulary, and offering contextualized input that enriches traditional classroom learning.

Given the benefits of ChatGPT for language learning and the limited research on ChatGPT-aided mind maps to enhance English-speaking skills, this study investigates the impact of ChatGPT-aided mind maps on students' English-speaking performance and their perceptions of using this tool for speaking preparation. In order to achieve the objectives of the study, two research questions are stated:

(1) To what extent does the use of ChatGPT-aided mind maps improve the speaking skills of second-year English major students?

(2) What are students' perceptions of using ChatGPT-aided mind maps for preparing and organizing ideas for speaking tasks?

## II. LITERATURE REVIEW

### A. Mind Maps

Dwina (2024) confirms that mind mapping is one of the instructional tools that can be used by teachers. Previous studies indicate that mind mapping is highly effective because it helps students connect ideas and become engaged in learning activities. Students benefit from being able to integrate disparate ideas, think creatively, and associate concepts (Buzan, 2018).

Mind mapping displays not only information, but also a subject's overall organization and the relative importance of its various components. Mind mapping has been utilized in language learning and teaching for a considerable time and has consistently demonstrated its advantages. Mind mapping is a flexible method that provides learners with a powerful graphic tool for organizing, recording, and gathering information. According to Buzan (2006), mind mapping is a visual tool that learners can use to generate and organize ideas, take notes, and develop concepts. Mind maps are highly suitable for helping learners generate ideas and connect new information with their prior knowledge (AlMutairi, 2015). It also makes it easier for students to brainstorm and share their thoughts. It is considered a supportive tool for students in developing their English-speaking skills. Bystrova and Larionova (2015) explain that the mind-mapping learning model employed concept maps, supported by images and keywords, to represent material in a comprehensive manner. Liu et al. (2018) argue that mind-mapping techniques are employed due to their advantages in teaching and enhancing both logical and innovative thinking. According to Buzan and Buzan (1993), the mind map has four essential characteristics: the crystallization of the subject of attention in a central image, the subject's main themes radiate from the central image as branches, the structural composition of branches with key images or keywords placed along connecting lines and the hierarchical representation of less important topics as subordinate branches, and the formation of a connected nodal structure by branches.

### *B. ChatGPT*

Tertiary education could benefit from using ChatGPT for writing support, language learning, and research (Tran et al., 2025). ChatGPT has a multidimensional impact on education. It provides educational content, supports learning processes, and contributes to the development of essential skills (Ngo et al., 2025). Previous research suggests that integrating AI into the classroom can increase both motivation and academic performance (Afkarin & Asmara, 2024). Students who are interested in practical, experiential learning will benefit from using ChatGPT as a learning aid (Rudolph et al., 2023). ChatGPT is considered an educational and learning tool that creates both opportunities and challenges for students and instructors (Atlas, 2023). ChatGPT, in particular, has attracted considerable attention due to its ability to generate human-like language and has been suggested as a potentially valuable tool for language education (Baskara & Mukarto, 2023).

The benefits of ChatGPT are proven by the number of scholars. It has become a new trend in education, which is expected to be an effective alternative learning tool due to its advantages in providing quick, meaningful responses and saving time. Furthermore, it is considered a powerful tool to improve learning and teaching processes. AlAfnan et al. (2023) confirm that ChatGPT provides both instructors and students with many opportunities to improve the quality of their teaching and learning. For students, it is considered a potential alternative to traditional search engines, allowing them to quickly find millions of results for discussion. Using ChatGPT to support students in creating mind maps for English-speaking skills is highly beneficial for enriching vocabulary, expanding ideas, and saving time on task. However, one key consideration when applying ChatGPT to designing mind maps is how to provide effective prompts. The teacher should provide guidance on how to write prompts and utilize the information they receive from ChatGPT to enhance their mind maps.

### *C. Speaking Skills*

Graddol (2006) emphasizes the growing importance of English as a key factor in academic achievement and career opportunities, as it is essential for global communication, mobility, and employability. Speaking as a reciprocal process of making meaning that involves receiving and processing input and producing spoken output (Brown, 1994; Burns & Joyce, 1997). According to Abd El Fattah Torky (2006), speaking is a bidirectional interactional process that involves a true communication of ideas, information, or feelings.

Ur (1996) argues that speaking is one of the four essential language skills, as people who acquire a language are referred to as language users. In fact, English-speaking competence is crucial in both learning and real-life situations, which helps students communicate successfully. In fact, many students cannot communicate in English effectively and confidently after studying it for many years. In the 21st century, being able to speak English is a key factor enabling learners to enter the world of work and become a global citizen. It is undeniable that learners who excel in English are more confident in communication and collaboration, which are vital in life. If we want students to engage in effective communication in English, we should create a supportive learning environment that encourages them to use English as frequently as possible.

Two important elements of the communication approach are fluency and accuracy. Students can improve their English communicative competence through classroom practice. Two main characteristics of speaking performance are fluency and accuracy. Fluency is the first characteristic of speaking performance, so teachers often focus on teaching it. Hedge (2000) states that fluency involves answering coherently, linking words and phrases smoothly, pronouncing sounds clearly, and applying appropriate stress and intonation. According to Hughes (2002), fluency is the learner's ability to speak intelligibly, preventing communication breakdowns that may lead listeners to lose interest. Accuracy is the second characteristic of speaking performance; therefore, learners should pay careful attention to grammatical structures, vocabulary, and pronunciation to improve their speaking accuracy. In terms of vocabulary, learners know how to select suitable words in appropriate contexts. It means that they can use words and expressions correctly. In

addition to speaking English accurately, learners should master grammatical structures, lexical resources, and phonological rules, including stress, intonation, and pitch.

Acquiring and mastering English language skills is not easy because of linguistic complexity (grammar, vocabulary, and pronunciation) and the four skills. The speaking problems were categorized into three main categories: affective-related issues, including self-confidence and anxiety; relevant difficulties with limited opportunities for English learning and speaking in class; and linguistically related problems, including fluency, grammar, vocabulary, and pronunciation (Jaya et al., 2022).

### III. METHODOLOGY

#### A. Research Setting

This study was conducted with second-year English major students at a university in Vietnam during the first half of the 2025-2026 academic year. The English-speaking course lasts 12 weeks and uses Life Vision Intermediate plus the Student's Book as the main textbook. The English-speaking course was delivered for 2.5 contact hours on Wednesday mornings. The classroom is equipped with basic learning facilities, including whiteboards and a smart TV with an internet connection.

#### B. Participants

The participants in this study were 30 second-year English major students who participated in Speaking Skill Course 3 at the beginning of the academic year 2025/2026. The class consisted of 5 male and 25 female students, aged 18-19. Based on preliminary observations and the pre-test results, the majority of students demonstrated a basic level of English proficiency equivalent to Level 3 of the Vietnamese Six-Level Foreign Language Proficiency Framework, and encountered some difficulties in their English performance.

#### C. Research Design

The study employed the action research model of Kemmis and McTaggart (1988) to apply ChatGPT-aided mind maps to English-speaking skills for seven weeks. The model comprises four distinct stages: planning, action, observation, and reflection.

TABLE 1  
THE SEVEN-WEEK IMPLEMENTATION OF CHATGPT-AIDED MIND MAPS

Week	Unit	Tasks
1	Pre-test	The teacher assessed students' English-speaking skills The teacher guided students to formulate prompts for using ChatGPT edit and refine the mind maps
2	Unit 1: From the page to the screen	Topic 1: Talk about books Topic 2: Talk about films Students created the mind maps related to the themes in class. The teacher provided feedback on the mind maps Students revised the mind maps at home based on the teacher's comments and ChatGPT support.
3	Unit 2: Back to nature	Students submitted both the original and revised versions of the mind maps for evaluation Topic 3: Talk about geographical features and landscapes Topic 4: Talk about the environment Students created the mind maps related to the themes in class. The teacher provided feedback on the mind maps Students revised the mind maps at home based on the teacher's comments and ChatGPT support.
4	Unit 3: Get well soon	Students submitted both the original and revised versions of the mind maps for evaluation Topic 5: Talk about injuries & illnesses Topic 6: Talk about healthy living Students created the mind maps related to the themes in class. The teacher provided feedback on the mind maps Students revised the mind maps at home based on the teacher's comments and ChatGPT support.
5	Unit 4: This is who we are	Students submitted both the original and revised versions of the mind maps for evaluation Topic 7: Talk about people's personalities Topic 8: Talk about family relationships Students created the mind maps related to the themes in class. The teacher provided feedback on the mind maps Students revised the mind maps at home based on the teacher's comments and ChatGPT support.
6	Revision	Students submitted both the original and revised versions of the mind maps for evaluation
7	Post-test	Students practiced English speaking with the revised mind maps. The teacher assessed students' English-Speaking Skills

#### D. Data Collection and Analysis

To collect valid and comprehensive information, this study employed three main instruments: a pre-test, a post-test, and a questionnaire. Each instrument was selected to serve a specific function in addressing the research objectives, ensuring both qualitative and quantitative perspectives were covered.

Pre-test and Post-test instruments: Speaking tests were administered to assess students' oral performance before and after the implementation of the mind map technique. The tests were adapted from the VSTEP (Vietnamese Standardized Test of English Proficiency) speaking test format. The students' performance was evaluated using the VSTEP speaking scoring criteria, which includes five aspects: grammar, vocabulary, pronunciation, fluency, and discourse management, are made public by the Vietnamese Ministry of Education and Training. The criteria were modified to align with the learning outcome of the Speaking 3 course. All the speaking tests were assessed by the course instructor, who was formally trained and certified as a VSTEP speaking examiner. Subsequently, the speaking test data were analyzed using SPSS 25.0.

Questionnaires were distributed to examine the impact of ChatGPT-aided mind maps on English-speaking skills (Questions 1-12) and to collect students' perceptions of ChatGPT-aided mind maps on their English-speaking performance (Questions 13-24). A Likert scale format (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree) was applied to quantify students' responses. This instrument was selected because it enabled the researcher to efficiently gather perspectives from all participants, ensuring a broad representation of students' views.

The internal consistency of the Likert scale items was assessed using Cronbach's alpha. The scale measuring the impact of ChatGPT-aided mind maps on English-speaking performance demonstrated high internal consistency (Cronbach's  $\alpha = .988$ , 12 items). Correspondingly, the questionnaire assessing students' perceptions of ChatGPT-aided mind maps showed excellent reliability (Cronbach's  $\alpha = .984$ , 12 items). The Likert-scale items were analyzed using SPSS version 25. Additionally, three open-ended questions were used to explore their views on using ChatGPT-aided mind maps to enhance their English-speaking skills. These responses were treated as qualitative data and analyzed with care, which provided deeper insights and richer qualitative data that could not be captured through tests alone.

To increase the reliability of the data obtained from the questionnaires, a pilot test was conducted with 10 participants from the cohort, and the instrument was reviewed by the English lecturer. Necessary revisions were made based on the feedback.

In summary, the use of multiple instruments not only enabled triangulation of data but also ensured a more holistic understanding of how the mind map technique contributed to improvements in students' speaking skills.

#### IV. RESULTS

##### A. Results From Pre-Test and Post-Test Scores

TABLE 2  
PRE-TEST AND POST-TEST COMPARISONS OF STUDENTS' ENGLISH-SPEAKING PERFORMANCE (N = 30)

Speaking criteria	Pre-test M (SD)	Post-test M (SD)	t (29)	p	Cohen's d
Grammar	6.68 (0.70)	6.97 (0.99)	1.81	.081	.33
Vocabulary	6.83 (0.74)	7.38 (0.93)	3.78	.001	.69
Pronunciation	6.87 (0.66)	7.43 (0.92)	4.07	< .001	.74
Fluency	6.73 (0.72)	7.05 (1.03)	2.35	.026	.43
Discourse management	6.68 (0.73)	7.27 (0.96)	4.51	< .001	.82
Overall speaking	6.78 (0.66)	7.21 (0.94)	3.43	.002	.63

Note. M = mean; SD = standard deviation. Paired-samples *t*-tests were conducted. Effect sizes were calculated using Cohen's *d*. Values of  $p < .05$  indicate statistical significance

As shown in Table 2, the results indicate that students' speaking performance improved after a 7-week implementation of ChatGPT-aided mind maps. In all six areas, the post-test mean scores were higher than the pre-test scores. For grammar, the mean increased slightly from 6.68 to 6.97. Vocabulary improved more clearly, from 6.83 to 7.38, showing that students used a wider range of words after the intervention. Pronunciation also improved from 6.87 to 7.43, indicating students' progress in stress, intonation, and pitch in speaking. The mean fluency score rose from 6.73 to 7.05, illustrating a minor improvement. Discourse management grew from 6.68 to 7.27, reflecting better organization and coherence. Finally, the overall speaking performance improved from 6.78 to 7.21.

The results also show that most aspects of English-speaking performance improved significantly after the intervention. Vocabulary ( $t = 3.78$ ,  $p = .001$ ), pronunciation ( $t = 4.07$ ,  $p < .001$ ), fluency ( $t = 2.35$ ,  $p = .026$ ), discourse management ( $t = 4.51$ ,  $p < .001$ ), and overall performance ( $t = 3.43$ ,  $p = .002$ ) all showed statistically significant gains. In contrast, grammar showed a minor, non-significant improvement ( $t = 1.81$ ,  $p = .081$ ). The results confirm that ChatGPT-aided mind maps had a positive impact on students' English-speaking performance.

The paired-sample *t*-test revealed significant improvements in fluency, overall speaking performance, pronunciation, vocabulary, and discourse management, with medium to large effect sizes (Cohen's  $d = .43-.82$ ). Grammar showed a small-to-medium effect that did not reach statistical significance ( $p = .081$ ,  $d = .33$ ).

##### B. Results From Open-Ended Questions

Furthermore, thirty students were also asked to answer three open-ended questions to find out the most useful aspects, challenges, and strategies of using ChatGPT-aided mind maps to improve English-speaking skills.

*What was the most useful thing about using ChatGPT to support mind map designs for speaking performance?*

*What challenges did you face when using ChatGPT to design mind maps?*

*How would you improve your speaking performance by using ChatGPT-aided Mind Maps?*

For the perceived usefulness, the majority of students emphasized idea generation, while a substantial proportion highlighted vocabulary enrichment and clarity of organization. A smaller group noted the benefit of time saving. These findings suggest that students viewed ChatGPT as a helpful tool for preparing content and structuring ideas prior to speaking tasks. Students also share their perceptions of the benefits of using ChatGPT in mind-mapping. One student wrote that ChatGPT provided “more vocabulary, collocations for topics that I often find difficult to express.” (Student 2). Another emphasized, “the most useful thing was quickly generating a wide range of ideas” (Student 8), while another response highlighted “saving time” during preparation. These statements demonstrate that students primarily valued ChatGPT for idea generation, lexical enrichment, and efficiency in preparing ideas, therefore reducing the cognitive burden before speaking tasks.

In terms of challenges, the most frequently reported issue was the generic nature of ChatGPT outputs. Other concerns included unsuitable or missing vocabulary items, difficulties in understanding certain generated content, and over-dependence on the tool. A few students also mentioned the lack of personalization. One student noted that ChatGPT “used words I don’t like, some important details were missing,” (Student 9) while another admitted, “the main challenge was making the generic ideas fit my context.” (Student 15). A third explained, “try to not depend too much on ChatGPT and try to think for myself.” (Student 17) These reflections indicate that while students valued AI support, they were also aware of its limitations in personalization and the potential risks associated with over-reliance.

Regarding suggested improvement strategies, students most commonly pointed to the need to practice more and to expand vocabulary. In addition, some students mentioned the importance of clearer organization, others emphasized the need to build confidence, and a few highlighted the use of linking words to enhance fluency and cohesion. One student explained, “How to use linking words,” while another emphasized, “clearer organization – the mind map helps me to structure ideas better.” (Student 24). Others expressed the intention to “practice more” or “use more vocabulary and linking words.” (Student 28). These comments suggest that students perceive ChatGPT-aided mind maps as a scaffold for better organization and lexical richness; however, they still view active practice and self-regulation as essential to improving their speaking performance.

*C. Results From 24 Likert Scale Items*

The findings in Table 3 indicate that using ChatGPT-aided mind maps is a highly effective way for students to improve their English-speaking skills. Vocabulary-related items gain the highest mean scores with expressing ideas more precisely (M = 4.07) and using a wider range of words (M = 4.03). Students also had improvements in coherence (M = 3.93), grammar use (M = 3.93), and reduced hesitation (M = 3.93). Lower mean scores than previous tests were observed in pronunciation (M = 3.67), naturalness (M = 3.63), and overall performance (M = 3.53), yet the students' improvement was still evident.

TABLE 3  
THE IMPACTS OF CHATGPT-AIDED MIND MAPS ON ENGLISH-SPEAKING SKILLS (N = 30)

Statements	Mean	SD
1. Using ChatGPT-aided mind maps helped me speak more fluently in English.	3.80	.76
2. The mind maps improved the coherence and logical flow of my ideas during speaking.	3.93	.87
3. I hesitated less when speaking because the mind maps gave me clear structure.	3.93	.87
4. ChatGPT provided me with useful vocabulary and collocations for speaking tasks.	3.87	.86
5. I could use a wider range of words in my speaking thanks to ChatGPT suggestions.	4.03	.72
6. The vocabulary from ChatGPT-aided mind maps helped me express my ideas more precisely.	4.07	.79
7. ChatGPT-supported mind maps helped me use more varied grammatical structures.	3.93	.79
8. I made fewer grammatical mistakes when I prepared with ChatGPT-aided mind maps.	3.77	.82
9. With clearer preparation from mind maps, I felt more confident in my pronunciation.	3.67	.71
10. I spoke more naturally and clearly after preparing with ChatGPT-aided mind maps.	3.63	.77
11. ChatGPT-aided mind maps improved my overall performance in speaking tasks.	3.53	.78
12. I believe this strategy will help me perform better in real speaking tests.	3.77	.77

Table 4 presents learners’ perceptions of using ChatGPT-supported mind maps. It highlights that students expressed positive perceptions of ChatGPT-aided mind maps. The highest level of agreement was found in perceived usefulness in preparing for speaking tasks (M = 4.20) and increased confidence in speaking (M = 4.00). Students also valued the tool for providing new vocabulary (M = 3.87) and supporting the organization of ideas (M = 3.83). Moderate means were reported for motivation to practice (M = 3.67) and concerns about over-reliance on ChatGPT (M = 3.80). Overall, students indicated willingness to continue using and recommending the strategy (M ≈ 3.80–3.83).

TABLE 4  
STUDENTS' PERCEPTIONS OF USING CHATGPT-AIDED MIND MAPS FOR ENGLISH-SPEAKING PREPARATION (N = 30)

Statements	Mean	SD
1. ChatGPT-aided mind maps were useful in preparing for my speaking tasks.	4.20	.61
2. The use of ChatGPT saved me time when generating ideas for speaking.	3.77	.57
3. ChatGPT-aided mind maps helped me organize my ideas more effectively.	3.83	.65
4. ChatGPT provided me with new vocabulary and expressions that I could use in speaking.	3.87	.57
5. The use of ChatGPT increased the variety of ideas I could include in my speech.	3.73	.64
6. ChatGPT-aided mind maps helped me feel more prepared for speaking tasks.	3.83	.65
7. Using ChatGPT-aided mind maps motivated me to practice speaking more regularly.	3.67	.71
8. I felt more confident when speaking after preparing with ChatGPT-aided mind maps.	4.00	.70
9. I sometimes relied too much on ChatGPT instead of using my own ideas.	3.80	.71
10. ChatGPT's suggestions were not always fully suitable, and I needed to adapt them.	3.77	.68
11. I would like to continue using ChatGPT-aided mind maps for future speaking practice.	3.83	.65
12. I would recommend ChatGPT to other students to support their speaking preparation.	3.80	.76

## V. DISCUSSION

The findings indicate that ChatGPT-aided mind maps have a positive impact on students' English-speaking skills. Notable improvements were recorded in three aspects of English speaking: discourse management, vocabulary, and pronunciation, while fluency progressed more slowly, and grammar showed the smallest improvement. This can be explained by the fact that ChatGPT provided students with useful vocabulary, linking words, and sentence patterns. With ChatGPT support, it is easy for students to find useful key points and lexical resources, helping them remember and apply them more effectively during speaking tasks.

The results of this action research provide crucial evidence that integrating ChatGPT-aided mind maps had a positive impact on the speaking performance of English-major students. Quantitative findings from the pre- and post-tests demonstrated great improvements in discourse management, vocabulary, and pronunciation, with less dramatic but still valuable gains in fluency and grammar. This can be attributed to the cognitive scaffolding provided by ChatGPT. Based on the prompts provided by students, ChatGPT offered a range of lexical items with their functions in authentic contexts, allowing them to choose appropriate keywords to create their own mind maps. Vocabulary expansion helped them to generate lexical sets, collocations, and synonyms that are very useful for English-speaking preparation. Similarly, the pronunciation improvement may be explained by the fact that ChatGPT provided vocabulary with meaning explanations and model sentences, which were crucial for applying effectively in their speaking practice and contributed to clearer articulation and intonation. The great improvement in discourse management also reflects the organizational benefits of mind mapping, which allowed learners to plan ideas systematically and present them coherently. In fact, ChatGPT suggested a wide range of linking words, along with detailed explanations and examples, to convey clear, logical ideas. However, the minor progress in grammar and fluency indicates that while ChatGPT provides useful input for preparation, it does not replace the need for spontaneous interaction, which is essential for mastering real-time accuracy and smoothness of delivery. Thus, while the quantitative data confirm that ChatGPT-aided preparation has noticeable improvements on linguistic performance, they also highlight the continuing importance of communicative practice in reinforcing these gains. The results from the questionnaires also showed that ChatGPT-aided mind maps assisted students in enriching their vocabulary the most, particularly with collocations and a wider range of words, enabling them to express their ideas more precisely. Additionally, the pronunciation was improved through their natural speaking. Discourse management was also enhanced with logical flow and coherence in speaking. Students also found that ChatGPT provided them with more varied grammar structures, resulting in fewer mistakes during speaking time. However, they need to practice more to perfect it. They confirmed the improvement in fluency due to the support of ChatGPT in creating mind maps.

The students have positive perceptions of using ChatGPT-aided mind maps in English speaking skills. As a result, they are confident in speaking English, with a richer vocabulary, clearer pronunciation, and well-organized ideas. The results suggest that ChatGPT-aided mind maps enhanced students' preparation, confidence, and lexical resources for speaking tasks. The tool was particularly effective in boosting confidence, likely due to structured support and accessible input. However, students also noted risks of over-reliance and the need to adapt ChatGPT suggestions. These findings highlight both the benefits and limitations of ChatGPT-assisted strategies, underscoring the importance of striking a balance between ChatGPT support and independent idea generation to optimize learning outcomes.

Questionnaire responses confirmed that students show positive perceptions of using ChatGPT-aided mind maps in English-speaking skills. The highest level of agreement is usefulness in speaking preparation and increasing confidence, which is explained by the fact that when students have enough vocabulary, linking words, and grammar structures to express their ideas, they are willing to speak. The more they speak, the better their pronunciation and fluency are. The qualitative data add depth to these interpretations by revealing how students perceived the benefits and challenges of ChatGPT-aided mind maps. Furthermore, the results showed overwhelmingly positive perceptions: all participants reported that they enjoyed learning with ChatGPT, and the majority indicated that the tool made them more motivated and confident. This suggests that the affective benefits of ChatGPT support played an important role in enabling students to improve their performance. When learners are less anxious and more willing to take risks, they are more

likely to apply new vocabulary and experiment with pronunciation, which in turn facilitates faster skill improvement. Thanks to the benefits of ChatGPT support, students are motivated to practice English and are willing to use it in future learning. However, they also mentioned one concern about over-reliance on ChatGPT and the generic nature of ChatGPT outputs, which can reduce their critical thinking and make them confused. Although ChatGPT can enrich language learning, it cannot substitute for students' own critical thinking, creativity, and communicative practice. ChatGPT is a powerful facilitator; however, it is essential for students to recognize the drawbacks of using ChatGPT to understand how to use it properly and effectively in their learning progress with the guidance of teachers. Taken together, the combination of quantitative and qualitative findings suggests that ChatGPT-aided mind maps are most effective as a scaffold for better organization and lexical richness; however, students still need active practice and self-regulation as essential to improving their speaking performance.

Both ChatGPT and mind maps are effective to support English speaking performance. These findings align with Buzan and Buzan's (1993) claim that visual mapping enhances the logical structuring of ideas. They also claimed that clearer thinking and information memory were promoted by mind mapping, while Bystrova and Larionova (2015) and Liu et al. (2018) argued that digital mind maps improve the logical structuring of ideas and comprehensive materials. The present study confirms earlier findings showing that ChatGPT-aided mind maps enabled students to organize coherent ideas in their speaking performance, as reflected in significant improvements in discourse management scores.

The study also matches with prior research on the role of technology and CALL tools in language learning. Ur (1996) emphasized the importance of providing learners with confidence and motivation in speaking tasks, while Burns and Joyce (1997) stressed that both cognitive and affective support should be integrated in speaking instruction. The questionnaire results affirmed that both of these dimensions were supported by ChatGPT. For the cognitive aspect, ChatGPT supplied lexical resources and sentence structures. From an affective perspective, it reduced students' anxiety and motivated them in English speaking performance.

In terms of specific speaking challenges, Jaya et al. (2022) found that even English majors in Indonesia encountered difficulties in fluency, grammar, vocabulary, and pronunciation during speaking performance. Similarly, Leong and Ahmadi (2017) reported vocabulary limitations, lack of confidence, and poor discourse management as recurring challenges for EFL learners. The current research confirms these findings in the Vietnamese context but takes it further by showing that ChatGPT-aided mind maps can moderate these challenges. It is clear that the improvements in students' lexical items, discourse management, pronunciation, grammar, and fluency directly address the problems, which demonstrates that ChatGPT aided-mind maps reduce affective barriers highlighted in previous studies.

Baskara and Mukarto (2023) investigated ChatGPT's role in higher education and confirmed that using it appropriately can improve vocabulary acquisition, stimulate idea generation, and foster critical thinking. The current study elaborates on their work by focusing specifically on English-speaking performance and by integrating ChatGPT into mind map design rather than using it as a separate text generation tool. This result highlights the importance of combining ChatGPT with well-established teaching strategies to achieve meaningful learning outcomes. Moreover, while Baskara and Mukarto (2023) expressed concerns about the generic nature of ChatGPT outputs, the present study found similar challenges, as some students reported difficulties in adapting ChatGPT's support into English performance. This alignment strengthens the need for guided, critical use of ChatGPT in English-speaking skills.

At the same time, the minor improvement in grammar and fluency observed in this study aligns with previous CALL research that emphasizes the limits of technological support for spontaneous oral production. Although ChatGPT is very effective at improving English speaking skills, it requires ongoing practice and feedback to facilitate sustained improvement in fluency among EFL learners. As Brown (1994) and Hughes (2002) argued, communicative competence develops through authentic interaction, negotiation of meaning, and real-time processing. Although ChatGPT provided valuable input during the preparation phase, it could not fully reproduce the dynamics of authentic communication.

In summary, the present study supports earlier findings on the benefits of mind mapping, CALL tools, and affective support in speaking instruction while adding new evidence on the potential of AI integration in EFL contexts. It confirms that ChatGPT-aided mind maps can enhance discourse management, vocabulary, and pronunciation, which echoes established theories while extending them into the emerging field of AI-assisted pedagogy. At the same time, it highlights limitations identified in previous research, particularly concerning generic output and over-reliance on technology. By bridging traditional strategies with innovative AI tools, this study contributes to the evolving conversation on how technology can best support learners' speaking development in higher education.

## VI. CONCLUSION

This study demonstrated that the use of ChatGPT-aided mind maps helps students improve their English-speaking skills. The pre-test and post-test results indicated marked progress in vocabulary, pronunciation, fluency, discourse management, and overall performance, although improvements in grammar were only slight. Questionnaire data further confirmed that students agreed with the usefulness of the tool for preparing, organizing ideas, and building confidence. These findings from open-ended responses shared the same points as those of the two previous ones. Students emphasized the value of ChatGPT in generating a wide range of ideas, enriching vocabulary, and saving time. However, qualitative insights highlighted concerns about generalized outcomes, a lack of personalization, and the risk of over-

reliance, suggesting that while ChatGPT is a powerful support tool, its effectiveness depends on its use with guidance and critical awareness.

The findings provide insights for both teaching and learning. For teachers, integrating ChatGPT-aided mind maps can be an effective classroom strategy to provide students with structured support, richer vocabulary, and clearer idea organization before speaking tasks. For students, the tool can serve as a means of self-study, encouraging autonomy, practice, and confidence. However, to avoid over-reliance on ChatGPT, it should be combined with communicative activities such as pair work, group discussions, and presentations, and teachers' clear guidance on writing prompts. A balanced approach can therefore maximize the benefits of ChatGPT support while still fostering creativity, spontaneity, and independent language use.

Although the study's results demonstrate the positive impact of using ChatGPT-aided mind maps to enhance students' English-speaking skills, it has certain limitations in scope and generalizability because it was conducted with a single class of 30 students over seven weeks. Further studies should extend the intervention time and utilize a large sample size to provide more comprehensive contributions of ChatGPT-aided mind maps to students' improved English skills.

#### REFERENCES

- [1] Abd El Fattah Torky, S. (2006). *The effectiveness of a task-based instruction program in developing the English language speaking skills of secondary stage students* [Doctoral dissertation]. Ain Shams University.
- [2] Afkarin, M. Y., & Asmara, C. H. (2024). Investigating the Implementation of ChatGPT in English Language Education: Effects on Student Motivation and Performance Levels. *Journey: Journal of English Language and Pedagogy*, 7(1), 57-66. <https://doi.org/10.33503/journey.v7i1.865>
- [3] AlAfnan, M. A., Dishari, S., Jovic, M., & Lomidze, K. (2023). ChatGPT as an educational tool: opportunities, challenges, and recommendations for communication, business writing, and composition courses, *Journal of Artificial Intelligence and Technology*, 3(2), 60-68. <https://doi.org/10.37965/jait.2023.0184>
- [4] AlMutairi, A. N. (2015). The effect of using brainstorming strategy in developing creative problem-solving skills among male students in Kuwait: A field study on Saud Al-Kharji School in Kuwait City. *Journal of Education and Practice*, 6(3), 136-145.
- [5] Atlas, S. (2023). *ChatGPT for Higher Education and Professional Development: A Guide to Conversational AI*. College of Business Faculty Publications. [https://digitalcommons.uri.edu/cba\\_facpubs/548](https://digitalcommons.uri.edu/cba_facpubs/548)
- [6] Baskara, F. R., & Mukarto, F. X. (2023). Exploring the implications of ChatGPT for language learning in higher education. *Indonesian Journal of English Language Teaching and Applied Linguistics*, 7(2), 343-358. <https://doi.org/10.21093/ijeltal.v7i2.1387>
- [7] Brown, H. D. (1994). *Teaching by principles: An interactive approach to language pedagogy*. Prentice Hall Regents.
- [8] Burns, A., & Joyce, H. (1997). *Focus on speaking*. Sydney, Australia: National Center for English Language Teaching and Research.
- [9] Buzan, T. (2006). *The mind map book*. London, England: Pearson Education.
- [10] Buzan, T. (2018). *Mind map mastery: The complete guide to learning and using the most powerful thinking tool in the universe*. Watkins Media Limited.
- [11] Buzan, T., & Buzan, B. (1993). *The mind map book*. Dutton.
- [12] Bystrova, T., & Larionova, V. (2015). Use of virtual mind mapping to effectively organise the project activities of students at the university. *Procedia – Social and Behavioral Sciences*, 214, 465-472. <https://doi.org/10.1016/j.sbspro.2015.11.724>
- [13] Dwina, L. (2024). ChatGPT: Empowering self-directed writing through mind mapping and AI-assisted composition. In *The 14<sup>th</sup> Annual International Symposium of Foreign Language Learning* (pp. 33-45). NST Proceedings. <https://doi.org/10.11594/nstp.2024.3804>
- [14] Fitriani, D. A., Apriliaswati, R., & Wardah. (2015). A study on students' English-speaking problems in speaking performance. *Jurnal Pendidikan dan Pembelajaran Untan*, 4(9), 1-13.
- [15] Graddol, D. (2006). *English Next: Why Global English May Mean the End of 'English as a Foreign Language'*. British Council.
- [16] Hedge, T. (2000). *Teaching and learning in the language classroom*. Oxford: Oxford University Press.
- [17] Hughes, R. (2002). *Teaching and researching speaking*. New York, NY: Pearson Education.
- [18] Jaya, H. P., Petrus, I., & Pitaloka, N. L. (2022). Speaking performance and problems faced by English major students at a university in South Sumatera. *Indonesian EFL Journal*, 8(1), 105-112. <https://doi.org/10.25134/ieflj.v8i1.5603>
- [19] Kemmis, S., & McTaggart, R. (1988). *The action research planner* (3rd ed.). Geelong: Deakin University Press.
- [20] Leong, L.-M., & Ahmadi, S. M. (2017). An analysis of factors influencing learners' English-speaking skill. *International Journal of Research in English Education*, 2(1), 34-41. <https://doi.org/10.18869/acadpub.ijree.2.1.34>
- [21] Liu, Y., Tong, Y., & Yang, Y. (2018). The application of mind mapping into college computer programming teaching. *Procedia Computer Science*, 129, 66-70. <https://doi.org/10.1016/j.procs.2018.03.047>
- [22] Ngo, Cong-Lem., Ali, S., & Diki, T. (2025). A Systematic Review of the Limitations and Associated Opportunities of ChatGPT. *International Journal of Human-Computer Interaction*, 41(7), 3851-3866. <https://doi.org/10.1080/10447318.2024.2344142>
- [23] Rudolph, J., Tan, S., & Tan, S. (2023). ChatGPT: Bullshit spewer or the end of traditional assessments in higher education? *Journal of Applied Learning & Teaching*, 6(1), 342-363. <https://doi.org/10.37074/jalt.2023.6.1.9>
- [24] Tran, T. T. P., Dang, T. N., & Nguyen, V. L. P. (2025). Master students' perceptions of how ChatGPT influenced critical thinking in academic writing at the Industrial University of Ho Chi Minh City. *International Journal of AI in Language Education*, 2(2), 20-39. <https://doi.org/10.54855/ijaile.25222>
- [25] Ur, P. (1996). *A course in language teaching: Practice and theory*. Cambridge, England: Cambridge University Press.

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