AN INVESTIGATION INTO EFL TEACHERS' PERCEPTIONS AND PRACTICES OF USING MIND-MAPPING IN WRITING CLASSES

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Abstract

The objective of this study was to investigate the perceptions and instructional practices of English teachers regarding the use of Mind-mapping in teaching writing skills. Data were gathered from a sample of 96 teachers who employed Mind-mapping as a pedagogical tool in Vietnam. A mixed-methods approach, integrating both quantitative and qualitative methodologies, was utilized for data collection. The findings indicated that the participating teachers recognized the potential benefits of Mind-mapping in enhancing writing instruction. Additionally, the involved teachers emphasized the importance of ensuring clarity and comprehensiveness in the implementation of Mind-mapping within educational contexts. By effectively optimizing the use of Mind-mapping, educators can foster more engaging and supportive learning environments that facilitate the development of students' writing skills. The outcomes of this study offer foundational insights and recommendations aimed at improving the quality of writing instruction for students in the future.

Keywords: *Mind-mapping, teacher perceptions, teacher practices, teaching English writing, writing skills.*

MỘT CUỘC ĐIỀU TRA VỀ NHẬN THỨC VÀ THỰC HÀNH CỦA GIÁO VIÊN TIẾNG ANH VỀ VIỆC SỬ DỤNG BẢN ĐỒ TƯ DUY TRONG CÁC LỚP VIẾT

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Tóm tắt

Mục tiêu của nghiên cứu này là điều tra nhận thức và thực hành giảng dạy của giáo viên tiếng Anh về việc sử dụng bản đồ tư duy trong việc dạy kỹ năng viết. Dữ liệu được thu thập từ một mẫu gồm 96 giáo viên sử dụng bản đồ tư duy như một công cụ sư phạm tại Việt Nam. Một phương pháp tiếp cận hỗn hợp, kết hợp cả phương pháp định lượng và định tính, đã được sử dụng để thu thập dữ liệu. Các phát hiện chỉ ra rằng các giáo viên tham gia nhận ra những lợi ích tiềm năng của bản đồ tư duy trong việc nâng cao hướng dẫn viết. Ngoài ra, những người trả lời nhấn mạnh tầm quan trọng của việc đảm bảo tính rõ ràng và toàn diện trong việc triển khai bản đồ tư duy trong bối cảnh giáo dục. Bằng cách tối ưu hóa hiệu quả việc sử dụng sơ đồ tư duy, các nhà giáo dục có thể thúc đẩy môi trường học tập hấp dẫn và hỗ trợ hơn, tạo điều kiện phát triển kỹ năng viết của học sinh. Kết quả của nghiên cứu này cung cấp những hiểu biết cơ bản và khuyến nghị nhằm cải thiện chất lượng hướng dẫn viết cho học sinh trong tương lai.

Từ khóa: *Dạy viết tiếng Anh, kỹ năng viết, nhận thức của giáo viên, sơ đồ tư duy, thực hành của giáo viên.*

1. Introduction

In the context of teaching writing in English as a Foreign Language (EFL), educators face distinct challenges in improving students' writing skills while also promoting creativity and critical thinking. One effective pedagogical tool that has emerged is Mind-mapping, which serves as a visual representation technique to help organize thoughts and ideas (Buzan, 2006; Hsu, 2015). The use of Mind-mapping in teaching English has been recognized as an effective strategy for enhancing students' comprehension and organization of ideas. Mind-mapping, a visual representation of information, allows learners to structure their thoughts and connect concepts, thereby facilitating deeper understanding and retention of language skills (Buzan, 2006). Research has shown that Mind-mapping can aid in the writing process by helping students brainstorm, outline, and organize their essays more effectively (Nesbit & Adesope, 2006). Furthermore, educators have noted that incorporating Mind-mapping into English language instruction not only promotes creativity but also encourages collaborative learning among students, as they can work together to create and refine their maps (Duffy, 2008). Overall, the historical application of Mind-mapping in English teaching has contributed to more interactive and student-centered learning environments.

This study aims to investigate EFL teachers' perceptions and practices regarding the use of Mind-mapping in writing classes, exploring how this technique can be effectively integrated into instructional strategies. Understanding teachers' views on Mind-mapping is crucial, as their beliefs and practices directly influence student engagement and learning outcomes. The study will contribute to EFL education and provide practical recommendations for teachers.

2. Literature review

2.1. Mind-mapping as a Pedagogical Tool

Mind-mapping, a technique first popularized by Tony Buzan in the 1970s, serves as a valuable method for visually organizing information, thereby enhancing comprehension and recall (Buzan, 2006). Mind-mapping involves creating a diagram that visually represents words, ideas, tasks, or concepts connected to a central theme. It typically begins with a central idea at the center of the page, from which branches extend to related subtopics, creating a hierarchical structure that illustrates relationships among concepts.

In EFL writing instruction, Mind-mapping serves as a cognitive tool that enhances student writing processes by promoting structured thinking and creativity. By organizing their ideas visually, students can better arrange their thoughts before writing, leading to clearer and more coherent essays. This technique encourages free brainstorming, allowing students to explore various perspectives without the constraints of linear thinking. Additionally, Mind-mapping helps students identify connections between ideas, fostering a deeper understanding of the subject matter and contributing to more sophisticated arguments. The use of colors, images, and symbols further stimulates creativity and makes the writing process more engaging. Research has shown that Mind-mapping can significantly improve students' writing skills by helping them organize their ideas coherently (Al-Damen & Al-Damen, 2017; Alqasham & Al-Ahdal, 2022). For instance, Abd Rani et al. (2013) found that Mind-mapping enhances critical thinking skills among ESL learners, suggesting that the technique not only aids in writing but also fosters higher-order cognitive skills.

Several studies have documented the positive impacts of Mind-mapping on EFL students' writing performance. Al-Damen et al. (2023) reported that EFL university students who utilized Mind-mapping as a pre-writing strategy demonstrated improved writing outcomes compared to those who did not. Similarly, Al-Zyoud et al. (2017) found that Mind-mapping positively influenced students' writing performance, indicating its effectiveness as a teaching strategy. These findings underscore the potential of Mind-mapping to facilitate the writing process by helping students organize their thoughts and ideas in a structured manner.

2.2. Teachers' Perceptions of Mind-mapping

Despite the documented benefits of Mind-mapping, the perceptions of EFL teachers regarding its use in writing instruction remain underexplored. Teachers' beliefs about instructional strategies significantly influence their implementation in the classroom (Pajares, 1992). Al-Inbari et al. (2022)

highlighted the need for teacher training in using Mind-mapping effectively, as many educators may lack familiarity with the technique or its potential benefits. Their study revealed that teachers who received training on Mind-mapping were more likely to incorporate it into their writing instruction, suggesting that professional development plays a crucial role in shaping teachers' perceptions. Furthermore, Al-Jarf (2009) emphasized that teachers' familiarity with Mind-mapping software can enhance its effectiveness in writing instruction. The study found that when teachers were comfortable using digital Mind-mapping tools, they were more likely to integrate them into their lessons, leading to improved student engagement and writing outcomes.

2.3. Mind-mapping and EFL Writing Instruction

A growing body of empirical evidence, coupled with qualitative feedback and practical implementation examples, strongly supports the use of Mind-mapping as an effective pedagogical tool for enhancing writing skills. Quantitative research has consistently demonstrated significant improvements in writing scores among students who utilize Mind-mapping techniques (Buzan, 2006; Kosslyn, 2006). Qualitative feedback from students further underscores the positive impact of Mind-mapping, highlighting increased engagement, confidence, and overall writing abilities (Nesbit & Adesope, 2006). Additionally, incorporating student feedback, such as testimonials and survey results, provides valuable insights into the perceived benefits and challenges associated with Mind-mapping (Dunston, 2010). Comparative analyses between traditional and Mind-mapping-based writing instruction methods can shed light on writing performance, student engagement, and the retention of concepts over time (Baker, 2011). Finally, practical implementation examples, including step-by-step guides and lesson plans, offer concrete strategies for integrating Mind-mapping into specific writing tasks within EFL curricula (Horton, 2012).

In summary, the literature supports the efficacy of Mind-mapping in enhancing writing skills among EFL learners. However, there is a pressing need to investigate EFL teachers' perceptions and practices regarding this technique. Understanding these factors can provide valuable insights into how Mind-mapping

can be effectively integrated into writing instruction, ultimately benefiting both teachers and students. As the field of EFL education continues to evolve, further research is essential to explore the potential of Mind-mapping as a transformative tool in writing instruction. The present study seeks to bridge existing gaps in the literature by examining EFL teachers' beliefs and behaviors regarding the integration of Mind-mapping into their writing instruction by addressing the following research questions:

1. What are EFL teachers' perceptions of using Mind-mapping in teaching writing?

2. What are EFL teachers' practices of using Mind-mapping in teaching writing?

2.4. Instructional Challenges

The integration of Mind-mapping into EFL writing instruction is not without its challenges. Teachers may encounter difficulties in effectively implementing this technique due to various factors, including time constraints, curriculum demands, and a lack of institutional support (Al-Saggaf, 2017). Time constraints often limit educators' ability to integrate new technologies effectively, as they must balance teaching responsibilities with administrative tasks. Curriculum demands can restrict flexibility, making it difficult to incorporate innovative tools that enhance learning. Additionally, a lack of institutional support may result in insufficient resources or training, hindering the successful implementation of technology in educational settings. Additionally, some educators may be skeptical about the effectiveness of Mind-mapping, particularly if they have not experienced its benefits firsthand (Al-Damen et al., 2017). This skepticism can hinder the adoption of innovative teaching strategies, emphasizing the need for ongoing professional development and support.

2.5. Theoretical Framework

This study utilizes a cognitive theoretical framework to investigate EFL teachers' perceptions and practices of employing Mind-mapping in writing classes. Cognitive theories emphasize active learning, meaningful learning, memory processes, problem-solving, and metacognition. Mind-mapping aligns with these theories by fostering active participation, promoting meaningful connections between ideas, aiding memory retrieval, encouraging problem-solving and critical thinking, and supporting

metacognitive processes. Empirical research supports these claims, demonstrating that Mind-mappingping enhances understanding, problem-solving, and self-regulated learning (Buzan, 2006; Kosslyn, 2006; Nesbit & Adesope, 2006; Dunston, 2010; Baker, 2011).

The cognitive framework guides the analysis of data collected through interviews, surveys, and classroom observations. By examining teachers' understanding of Mind-mapping, their beliefs about its effectiveness, and their strategies for incorporating it into their teaching, the study aims to identify themes related to cognitive processes. These themes include how teachers perceive and make sense of Mind-mapping, the cognitive processes involved in its integration, and any challenges or barriers encountered. The cognitive theoretical framework provides a robust lens for examining the complex cognitive processes underlying EFL teachers' use of Mind-mapping in writing classes.

3. Methodology

This study employed a mixed-methods approach, incorporating questionnaires, observational data, and interviews.

3.1. Teacher participants

The researchers selected a purposive sample of 96 EFL teachers from Vietnam who were actively implementing Mind-mapping as a pedagogical strategy to enhance students' writing skills. This approach ensured that the participants had firsthand experience with the technique and could provide valuable insights into its practical application. To ensure diversity and representativeness, the sample included teachers from various educational levels and was recruited through both paper-based and online questionnaires. Additionally, five teachers were selected for in-depth interviews to gain a more nuanced understanding of their perceptions and instructional practices related to Mind-mapping. This combination of purposive sampling and qualitative data collection methods allowed the researchers to obtain a rich and informative dataset that could be used to explore the effectiveness and implementation of Mind-mapping in EFL writing instruction.

Demographic Profile of Participants

3.1.1. Questionnaire

A questionnaire was administered to 96 EFL teachers to gather their perceptions of Mind-mapping. Descriptive statistics were utilized to run the data, while inferential statistics were employed to test the research hypotheses.

The demographic profile of the participants is presented in Table 1. The majority of participants were female (70%) with a mean age of 29.5 years. Most participants had 1-5 years of teaching experience (51%) and held a Bachelor's Degree (77%). This demographic information provides valuable context for interpreting the participants' perceptions and practices in relation to Mind-mapping in writing instruction.

Table 1. Demographic Profile of Participants

Demographic		Percentage	Demographic		Percentage
Gender	Male	30%	Educational Background	Bachelor's Degree	77%
	Female	70%		Master's Degree	23%
Age	22-25	37%	Years of Teaching Experience	1-5 years	51%
	26-30	25%		6-10 years	28%
	31-35	17%		11-15 years	14%
	36-40	11%		16-20 years	3%
	41+	10%		20 years +	4%

A comprehensive survey was administered to a diverse sample of EFL writing instructors. The primary objective was to quantify the prevalence of Mind-mapping among these educators. A thirty-item multiple-choice questionnaire was designed to gather quantitative data on Mind-mapping adoption, informed by a cognitive theoretical framework (Schunk, 2012). This framework guided the identification and interpretation of themes related to teachers' cognitive processes, including their understanding of Mind-mapping, perceptions of efficacy, implementation strategies, and encountered challenges. The questionnaire consisted of 30 items divided into three clusters:

1. Cognitive Aspects of Mind-mapping: items 1-10.

2. Perceptions of Using Mind-mapping in Writing Classes: items 11-20.

3. Practices of Using Mind-mapping in Writing Classes: items 21-30.

A five-point Likert scale (1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree) was utilized to measure levels of agreement. To enhance questionnaire clarity and accessibility, the instrument was provided in both English and Vietnamese (Sekaran & Bougie, 2016).

The questionnaire was developed grounded in Ormrod's (2018) cognitive framework. Questionnaires are considered efficient tools for gathering large amounts of information from a substantial number of participants (Gay et al., 2009; Creswell, 2003). A pilot study involving 15 adolescent EFL writing teachers was conducted to enhance questionnaire reliability (Frankel et al., 2012). These participants were not part of the primary sample. Subsequent scale reliability analysis yielded a Cronbach's alpha coefficient of .75, indicating acceptable reliability. The teacher questionnaire was administered and collected within a two-week timeframe. By adopting a cognitive lens, this study sought to elucidate the complex interplay between teachers' cognitive processes, pedagogical choices, and the successful integration of Mind-mapping into EFL writing instruction. Ultimately, this research aimed to deepen understanding of the influence of cognitive factors on EFL writing pedagogy and to inform the development of effective teaching strategies.

3.1.2. Interview and observation

To investigate the practical application of Mind-mapping in EFL writing classrooms, a combination of interviews and observations was conducted. Five writing classes, including high school, VSTEP Preparation, IELTS, and PET Preliminary English Test classes, were observed across various levels and contexts. Teachers with diverse experience levels were interviewed to explore their perspectives and challenges related to Mind-mapping. The aim was to gather qualitative data on the integration of Mind-mapping, perceived benefits and challenges, instructional strategies, and factors influencing its adoption. Observations followed a semi-structured protocol, focusing on instructional strategies while interviews utilized open-ended questions to elicit detailed responses. This combined approach provided a comprehensive understanding of Mind-mapping's role in EFL writing instruction.

3.2. Data collection and analysis

A mixed-methods explanatory sequential design (Creswell, 2018) was employed for this study. This approach involved a two-phase process:

Quantitative Data Collection and Analysis: Initially, a 30-item questionnaire was administered to EFL teachers to gather quantitative data on their perceptions and practices regarding Mind-mapping in writing instruction. The questionnaire included items related to teachers' beliefs about Mind-mapping, their frequency of use, and their perceived benefits and challenges. The collected data were analyzed using SPSS version 20.0 to generate descriptive statistics and identify significant correlations between variables.

Qualitative Data Collection and Analysis: Following the quantitative phase, five EFL writing classes were observed to collect qualitative data on teachers' classroom practices. These observations focused on how Mind-mapping was integrated into the teaching and learning process, the specific activities and prompts used, and students' engagement with the tool. Additionally, five EFL teachers were interviewed to explore their perceptions, experiences, and challenges related to Mind-mapping in writing instruction. The qualitative data were analyzed using thematic analysis to identify recurring themes and patterns.

The explanatory sequential design allowed for a more comprehensive understanding of the research topic by combining quantitative and qualitative data. The quantitative data provided a broad overview of teachers' perceptions and practices, while the qualitative data offered in-depth insights into their experiences and challenges. By integrating these two types of data, the study was able to provide a more nuanced and informative picture of the role of Mind-mapping in EFL writing instruction.

4. Results and discussion

4.1. EFL teachers' perceptions of using Mind-mapping in teaching writing

The study included 96 EFL teachers, with 70% female and a mean age of 29.5 years. Most participants had 1-5 years of teaching experience (51%) and held a Bachelor's Degree (77%).

4.1.1. Questionnaire Reliability

A Cronbach's Alpha of 0.7 showed the questionnaire's reliability.

Table 2. Reliability Statistics of the questionnaire

Reliability Statistics	
Cronbach's Alpha	N of Items
0.7	30

4.1.2. Quantitative Analysis of Perceptions

Descriptive statistics revealed a mean score of 4.03 (standard deviation = 0.25) for EFL teachers' perceptions of Mind-mapping, suggesting a generally positive attitude.

Table 3. Descriptive Statistics of EFL teachers' perception about Mind-mapping

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
MEAN	96	3.23	4.90	4.0340	0.24623
Valid N (listwise)	96				

4.1.3. Analysis of Cognitive, Perceptions, and Practices Dimensions

Further analysis identified three distinct dimensions: cognitive, perceptions, and practices. The cognitive dimension received the highest mean score (4.44), indicating a positive perception of Mind-mapping's cognitive benefits. The perceptions and practices dimensions had slightly lower mean scores (3.85 and 3.81, respectively), suggesting areas for further exploration.

Table 4. Descriptive Statistics of EFL teachers' cognitive, perceptions and practices on Mind-mapping in writing classes

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Cognitive	96	3.40	5.00	4.44	.314
Perceptions	96	3.10	5.00	3.85	.330
Practices	96	2.80	4.70	3.81	.310

4.1.4. Relationship Between Dimensions

Paired sample t-tests revealed significant positive correlations between cognitive perceptions and perceptions of practices (r = 0.56), perceptions of practices and actual practices (r = 0.39), and actual practices and cognitive perceptions (r = 0.29). These findings suggest a strong relationship between teachers' cognitive beliefs, perceived effectiveness, and actual implementation of Mind-mapping in their classrooms.

Table 5. Paired Samples Statistics of EFL teachers' cognitive, perceptions and practices on Mind-mapping in writing classes

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Cognitive	4.4365	96	0.31393	0.03204
	Perceptions	3.8510	96	0.32606	0.03328
Pair 2	Perceptions	3.8510	96	0.32606	0.03328
	Practices	3.8146	96	0.30504	0.03113
Pair 3	Practices	3.8146	96	0.30504	0.03113
	Cognitive	4.4365	96	0.31393	0.03204

Table 6. Paired Samples Correlations of EFL teachers' cognitive, perceptions and practices on Mind-mapping in writing classes

		N	Correlation	Sig.
	Paired Samples Correlations			
Pair 1	Cognitive & Perceptions	96	0.560	0.000
Pair 2	Perceptions & Practices	96	0.390	0.000
Pair 3	Practices & Cognitive	96	0.290	0.004

Table 7. A Paired Samples T-test of EFL teachers' cognitive, perceptions and practices on Mind-mapping in writing classes

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	SD	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Cognitive - Perceptions	0.585	0.300	0.031	0.525	0.646	19.1	95	0.000
Pair 2	Perceptions - Practices	0.036	0.349	0.036	-0.034	0.107	1.0	95	0.308
Pair 3	Practices - Cognitive	-0.623	0.369	0.038	-0.697	-0.547	-16.5	95	0.000

Table 8. The mean score of whole contents of EFL teachers' cognitive about using Mind-mapping in writing classes

Descriptive Statistics

	N	Min	Max	Mean	SD
1. Mind-mapping helps students activate prior knowledge related to writing tasks.	96	3.00	5.00	4.64	0.53
2. Mind-mapping encourages students to make connections between different ideas in their writing.	96	4.00	5.00	4.65	0.48
3. Mind-mapping promotes a visual representation of information, enhancing memory and recall for students.	96	3.00	5.00	4.68	0.49
4. Mind-mapping helps students categorize and organize their thoughts during the writing process.	96	4.00	5.00	4.66	0.48
5. Mind-mapping supports students in identifying the main idea and supporting details for their writing.	96	3.00	5.00	4.80	0.47
6. Mind-mapping fosters critical thinking skills by encouraging students to analyze and evaluate their ideas.	96	3.00	5.00	4.31	0.64
7. Mind-mapping promotes student autonomy and self-regulation in the writing process.	96	2.00	5.00	4.18	0.73
8. Mind-mapping caters to different learning styles by offering a visual and non-linear approach.	96	3.00	5.00	3.50	0.75
9. Mind-mapping can be a tool for students to overcome writer's block and generate new ideas.	96	2.00	5.00	4.44	0.68
10. Mind-mapping can be adapted to different writing tasks (e.g., essays, reports, narratives)	96	3.00	5.00	4.52	0.58

The analysis of EFL teachers' perceptions of Mind-mapping (Mind-mapping) in writing classes shows generally positive attitudes, as detailed in Table 8. The sample of 96 teachers reported mean scores between 3.50 and 4.80, indicating strong agreement on Mind-mapping's effectiveness. Notably, teachers believe Mind-mapping activates prior knowledge (M = 4.64, SD = 0.53) and fosters connections between ideas (M = 4.65, SD = 0.48). A mean score of 4.68 (SD = 0.49) highlights its role in promoting visual representations that enhance memory. The highest mean score of 4.80 (SD = 0.47) indicates strong consensus on Mind-mapping's effectiveness in identifying main ideas. While perceptions of Mind-mapping's ability to foster critical thinking (M = 4.31, SD = 0.64) and promote student autonomy (M = 4.18, SD = 0.73) are high, the lower score for addressing different learning styles (M = 3.50, SD = 0.75) suggests areas for improvement. Overall, low standard deviations indicate consistent agreement on the cognitive benefits of Mind-mapping in writing instruction.

Table 9. The mean score of whole contents of EFL teachers' perceptions of using Mind-mapping in writing classes

Descriptive Statistics					
	N	Min	Max	Mean	SD
11. I believe Mind-mapping is an effective strategy to improve students' writing skills.	96	3.00	5.00	4.61	0.53
12. Using Mind-mapping in my writing class will benefit student learning.	96	3.00	5.00	4.56	0.54
13. Mind-mapping is a time-consuming activity and reduces writing time.	96	1.00	5.00	2.23	1.05
14. I am confident in my ability to effectively integrate Mind-mapping into my writing.	96	2.00	5.00	4.32	0.73
15. I am concerned that students may find Mind-mapping difficult to understand or use.	96	1.00	5.00	2.45	0.99
16. Resources available to support the implementation of Mind-mapping in the classroom are limited.	96	1.00	5.00	2.65	1.22
17. My students will be receptive and engaged in using Mind-mapping for writing activities.	96	3.00	5.00	4.43	0.64
18. Overall, I believe the benefits of using Mind-mapping outweigh the challenges.	96	2.00	5.00	4.53	0.58
19. I recoMind-mappingend Mind-mapping to other EFL teachers interested in improving the way they teach writing.	96	2.00	5.00	4.35	0.65
20. I have used Mind-mapping techniques in my writing classes in the past.	96	3.00	5.00	4.38	0.60

The analysis of EFL teachers' perceptions of Mind-mapping (Mind-mapping) in writing classes, detailed in Table 9, indicates a generally favorable outlook on this instructional strategy. Data from 96 teachers reveal mean scores from 2.23 to 4.61, highlighting a strong belief in Mind-mapping's benefits for enhancing student writing skills. Specifically, the effectiveness of Mind-mapping received a high mean score of 4.61 (SD = 0.53), and its potential to benefit student learning scored 4.56 (SD = 0.54). However, concerns about Mind-mapping being time-consuming were evident, with a low score of 2.23 (SD = 1.05). Teachers expressed moderate confidence in integrating Mind-mapping (M = 4.32, SD = 0.73) but noted worries about its usability for students (M = 2.45, SD = 0.99) and limited resources (M = 2.65, SD = 1.22). Despite these challenges, many teachers believe students will engage positively with Mind-mapping (M = 4.43, SD = 0.64) and that its benefits outweigh the drawbacks (M = 4.53, SD = 0.58). The recoMind-mappingendation of Mind-mapping to fellow teachers received a mean score of 4.35 (SD = 0.65), indicating a strong overall positive perception of Mind-mapping as a valuable tool in writing instruction, despite implementation concerns.

4.1.2. Interview Findings

In-depth interviews with five EFL teachers provided qualitative insights into their perceptions of Mind-mapping. Key themes emerged, including its positive impact on student creativity, organization, motivation, engagement, idea generation, and memory. First, teachers emphasized Mind-mapping's role in pre-writing organization, helping students structure their thoughts and ideas effectively. Teacher A specifically highlighted that *"Mind-mapping functions as an invaluable pre-writing tool, enabling students to structure their thoughts effectively before beginning the actual writing process."* This aligns with previous research by Al-Damen et al. (2017) and Buzan (2006).

Next, teachers noted that Mind-mapping's interactive and visual nature fostered higher student engagement and alleviated writing anxiety. According to teacher D: *"By providing a structured yet flexible approach to organizing thoughts, mind-maps can reduce cognitive and emotional barriers, making the writing process more approachable and less daunting."* This aligns with research on the motivational benefits of visual tools (Al-Damen et al., 2017). Besides, teachers reported that Mind-mapping stimulated divergent thinking and supported pre-writing organization. According to teacher B, *"the visual representation inherent in mind-maps is instrumental in clarifying the relationships between ideas, thereby facilitating a comprehensive understanding of the overall structure of writing tasks."* This aligns with research by Al-Damen et al. (2017) and Novak and Cañas (2008).

Moreover, teachers observed that Mind-mapping enhanced students' memory and recall of key concepts and vocabulary. Teacher A said: *"Mind-mapping are particularly effective in helping students remember and retrieve key concepts and vocabulary. This is crucial for writing tasks that require precise language use. By visually consolidating information, mind-maps make it easier for students to access and apply the relevant knowledge when they are writing."* Similarly, teacher B provided direct insights into how mind-maps support memory reinforcement and retrieval of key concepts. According to teacher B: *"Mind-mapping are very effective in helping students remember important concepts and vocabulary. The visual nature of Mind-mapping consolidates information in a way that makes it much easier for students to retrieve and use this knowledge when they're writing. This visual consolidation acts like a mental map that helps students locate and apply relevant information efficiently.".* This aligns with cognitive theories of memory and the dual-coding theory (Paivio, 1986).

4.1.3. Conclusion

The findings from both the questionnaire and interviews suggest that EFL teachers perceive Mind-mapping as a promising pedagogical tool for writing instruction. Its potential benefits in enhancing organizational skills, engagement, idea generation, and memory are supported by cognitive theories and previous research.

4.2. EFL teachers' practices of using Mind-mapping in teaching writing

4.2.1. Quantitative findings

Table 10. The mean score of whole contents of EFL teachers' practices of using Mind-mapping in writing classes

Descriptive Statistics					
	N	Min	Max	Mean	SD
21. I introduce Mind-mapping as a prewriting strategy.	96	4.00	5.00	4.54	0.50
22. I demonstrate the process of creating a Mind-mapping step-by-step.	96	1.00	5.00	3.61	1.37
23. I encourage students to use their own creativity and symbols in their Mind-mapping.	96	2.00	5.00	3.92	0.82
24. I provide students with guided practice in creating Mind-mapping.	96	3.00	5.00	4.49	0.62
25. I have students share their Mind-mapping with their classmates.	96	1.00	5.00	2.70	1.05
26. I use Mind-mapping to help students visualize the structure of their writing.	96	2.00	5.00	4.29	0.68

27. I incorporate Mind-mapping into different writing genres (e.g., essays, stories, reports).	96	1.00	5.00	3.34	0.97
28. I provide feedback on students' Mind-mapping to help them improve their use of this strategy.	96	1.00	5.00	4.24	0.72
29. I differentiate my Mind-mapping instruction to meet the needs of all students.	96	1.00	5.00	2.69	1.08
30. I believe that Mind-mapping is an effective tool for improving students' writing skills.	96	2.00	5.00	4.32	0.66

The analysis of EFL teachers' use of Mind-mapping in writing classes, shown in Table 10, presents a mixed picture. Teachers effectively introduce Mind-mapping as a prewriting tool and guide students in its use, but vary in modeling the process and encouraging creativity. Sharing Mind-mapping among peers and differentiating instruction are less common. Overall, teachers view Mind-mapping as effective for improving writing skills. To enhance its impact, more focus on modeling, student engagement, and differentiated instruction is needed.

4.2.2. Qualitative findings

Qualitative data, derived from interviews with EFL teachers and classroom observations, provided robust evidence supporting the efficacy of Mind-mapping in enhancing EFL writing instruction. In the interviews, teachers consistently highlighted the significant potential of Mind-mapping to enhance student engagement. As Teacher B noted, *"since introducing Mind-mapping, I've seen a noticeable boost in student engagement. The visual aspect grabs their attention, making writing more dynamic and less intimidating. Students are more involved, and I can see their excitement as they create their own Mind-mapping."*. Besides, several teachers reported that Mind-mapping served as an effective tool for overcoming writer's block by providing a structured approach to brainstorming and idea generation. Teacher A remarked, *"I've found that Mind-mapping works well for students who struggle with organizing their thoughts. The visual format breaks down complex ideas into smaller, manageable parts, acting like a roadmap for their writing."* Classroom observations further corroborated the positive impact of Mind-mapping on student learning. Effective teachers were observed providing explicit instruction on Mind-mapping techniques, including: central topic identification, branching out main ideas, and adding subtopics.

First, teachers guided students in identifying the main topic or thesis statement and placing it at the center of the Mind-mapping. Next, teachers demonstrated how to branch out from the central topic to create main ideas or key points. And then, they explained how to add subtopics or supporting details to the main branches, creating a hierarchical structure. By guiding students through the process of creating Mind-mapping and providing timely feedback, teachers facilitated the development of critical thinking and problem-solving skills. Moreover, many teachers agreed that students who were actively engaged in creating Mind-maps were more likely to produce well-organized, coherent, and creative written work. These findings align with recent studies by Al-Damen et al. (2023), Al-Inbari et al. (2022), and Tay & Phang (2022), which underscore Mind-mapping's positive impacts on organization, engagement, creativity, and memory retention. To maximize the benefits of Mind-mapping, educators should provide explicit instruction, encourage regular practice, and adapt the approach to meet diverse learner needs.

5. Conclusion and Policy Implications

The findings of this study underscore the potential of Mind-mapping as a valuable pedagogical tool for enhancing EFL writing instruction. By providing structured guidance, explicit instruction, and comprehensive support, teachers can optimize its use and improve student outcomes.

5.1. Pedagogical Implications

To effectively integrate Mind-mapping into EFL writing instruction, educators must provide structured guidance, including clear instructions and visual examples, to assist students in creating and utilizing mind-maps. Emphasizing the advantages of Mind-mapping is crucial for enhancing students' organizational skills, creativity, and critical thinking.

Educators should explicitly connect Mind-mapping to specific writing skills, such as brainstorming and outlining, and address misconceptions while offering individualized feedback and resources. Promoting collaborative learning through group activities fosters peer support, and tailoring instruction to individual needs enhances learning outcomes. Professional development for teachers further equips them to implement Mind-mapping effectively in their practices.

5.2. Limitations

This study offers valuable insights into EFL teachers' perceptions and practices regarding Mind-mapping in writing classes, but it has several limitations. The sample size of 96 participants, while adequate for initial exploration, may not represent the broader EFL teacher population in Vietnam. Observing only five classes restricts the generalizability of the findings, and the research did not consider contextual factors like school policies and available resources. Additionally, it overlooked the influence of teacher training and experience on Mind-mapping practices. Future research should investigate the relationship between teacher qualifications and their use of Mind-mapping, as well as student perspectives on its effectiveness.

5.3. Suggestions for Further Research

To address the limitations of this study, future research should explore several avenues. First, studies with larger, more diverse samples of EFL teachers from various regions and educational levels would improve the generalizability of the findings. Additionally, contextual analyses that examine factors like school policies, curriculum requirements, and available resources through case studies, surveys, or interviews with educators and administrators are needed. Further investigation into the relationship between teacher training and the use of Mind-mapping, as well as evaluations of professional development programs, is also essential. Incorporating student perspectives via surveys or focus groups could provide valuable insights into their experiences with Mind-mapping. Lastly, comparative studies evaluating the effectiveness of Mind-mapping relative to other writing strategies, such as outlining or graphic organizers, could inform best practices in EFL writing instruction.

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