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The Use of Mind Mapping to Improve Chinese Writing Skills of Grade 7 Students in Jiangsu Province, China

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Abstract:- *Mind Mapping is an effective tool for helping students make sense of their logical reasoning. This study aimed to compare grade 7 students' Chinese writing skills before and after using Mind Mapping and investigated their satisfaction towards the use of Mind Mapping in a Chinese writing course in Jiangsu Province, China. A combination of quantitative and qualitative methods, including four lesson plans, pre-test, post-test, and focus group interview was used. The quantitative data were analyzed using descriptive analysis of means, and standard deviation, and the qualitative data were analyzed using thematic analysis. The results showed that the application of Mind Mapping for Chinese writing skills had a significant effect on Chinese writing. The average scores of students' post-test were higher than that of the pre-test. The student's responses to the interview on interest, motivation, and engagement indicated that they expressed positive satisfaction towards the use of Mind Mapping in Chinese writing instruction. These findings provided significant evidence that the use of Mind Mapping should be considered as an alternative and effective method for teaching Chinese writing in Jiangsu Province, China, and all.*

Keywords: Mind Mapping; Chinese Writing Skill; Students' Satisfaction and Grade 7 Students

Introduction

Education, teachers, and students have greatly benefited from the rapid development of the information technology sector, which provides them with rich learning resources and efficient teaching methods. Teaching and learning methods are becoming more and more diverse as the standard of teaching and learning in China's education sector continues to rise.

A Mind Mapping approach influences and changes many people's lifestyles and learning habits. It has been proven that Mind Mapping has many benefits and has significantly impacted education, the media, and other industries. As Pei (2007) points out, Mind Mapping is a visual graphical tool that enables us to integrate, manage, and display information in a much more effective and efficient manner. Using this tool, we become more able to adapt to the constantly changing environment of new network media and integrate new information quickly and effectively.

Mind Mapping is a visual representation of the student's thinking in a way that helps them visualize their thinking in a more imaginative and informative way. This is when compared to the traditional teaching model. In addition, this enables the teacher to guide the students' thinking more quickly and effectively.

The limitation of your memory or the fact that you need more time may make it difficult to quickly write down an idea or a complex problem you have come up with. It has been shown that using

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Mind Mapping in teaching design conforms to the natural thinking mode of the brain, in which the left and right brains imagine with the assistance of keywords, lines, colors, images, and symbols, which enhances the creativity of teachers (Zeng, 2017). Student tests also indicate that Mind Mapping is effective because it fully uses their associative power and reflects their thinking characteristics. Mind Mapping is an effective tool for helping students make sense of their logical reasoning (Yang, 2019; Liu, 2014; Yu et al., 2019)

This study aimed to use Mind Mapping to improve the Chinese writing of Grade 7 students in one of the junior high schools in Jiangsu Province, China. It was anticipated that the use of Mind Mapping as a learning tool in this coursed positive attitude toward using Mind Mapping as a learning tool among Grade 7 students and that this study provided some assistance in the use of Mind Mapping in learning and teaching, which ultimately resulted in more effective teaching and learning.

Research Objectives

1. To compare Grade 7 students' Chinese writing skills before and after using Mind Mapping.
2. To investigate Grade 7 Chinese students' satisfaction towards the use of Mind Mapping in learning Chinese writing.

Research Questions

1. Would the use of Mind Mapping help to improve the Chinese writing skill of grade 7 students in Jiangsu Province?
2. Would grade 7 Chinese students have positive satisfaction towards the use of Mind Mapping in learning Chinese writing?

Literature Review

The Development of Chinese Writing in China

Literature has a long history and a young discipline (Du, 2007). From the late Qing dynasty to the Xia, Shang, and Western Zhou dynasties, language and writing teaching progressed through several stages. These include the beginning, transitional, developmental, and perfection stages. Studies have shown that scholars during the pre-Qin and Warring States periods of the Western Zhou Dynasty promoted self-cultivation as an imperative component of literacy education. The goal of writing education was changed after the Han Dynasty to serve one's interests and to serve one's merit in the late Qing dynasty. As writing education developed during the late Qing dynasty, it became more "practical." Following the May Fourth Movement and Mandarin education (Pan, 1997), Chinese writing education became more modern. In Chinese literature, much emphasis is placed on the formulation of literary subjects. This is because writing serves both as a means of 'portraiture' and as a means to ensure sincerity.

The advancement and progress of human civilizations are impossible without the use of technology, knowledge, and advanced ideas, but they cannot advance and progress without these things. In order to achieve progress and development, these elements must be present. Written communication is a medium for disseminating technology, ideas, and knowledge. Breaking through limitations, seeing higher and farther, and breaking through limitations can lead to a better and more brilliant civilization.

Chinese writing skill

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Referring to students' use of beautiful words and phrases to portray their ideas and logical thinking in a coherent way when they are writing. It is measured through achievement tests and standards and essays make up a very large proportion of language examinations. We will learn to improve our thinking skills as well as our creative writing skills through the use of Mind Mapping for each topic. In this study, this was assessed through the use of pre-test and post-test.

Mind Mapping Teaching Method

Mind Mapping helps students to develop a complete and systematic framework of knowledge and to improve the quality of their assimilation. It can also help teachers teach faster and more effectively. The use of Mind Mapping in the design of lessons will lead to teachers and students developing a holistic view and creating a panorama in their minds, further enhancing the overall grasp of what is being learned and taught, and allowing for specific and logical adjustments to be made according to the teaching process and the actual invitation needed. Mind mapping includes various types of diagrams, such as the Tree Diagram, the Bubble Diagram, the Circle Diagram, and the Flow Diagram.

Mind Mapping as a New Medium for Chinese Writing skill Learning

In the 21st century, Mind Mapping has been referred to as the most revolutionary thinking tool, and Harvard University and other leading universities in the world have attempted to incorporate Mind Mapping into their classrooms. It is now considered one of the most innovative tools in education. Developing the ability to write is an integral part of learning a language, and teaching composition in secondary schools plays an essential role in this process. Chinese language education is currently characterized by a single rigid model, irregular language expressions in students' writing, scattered writing materials, and a lack of creativity in the classroom.

Mind Mapping can be used in Chinese writing classes to allow students to present their ideas, clarify their writing, and pinpoint what they want to say. In addition to supporting brainstorming, students can use Mind Mapping to relieve the anxiety and confusion associated with overthinking. An essential part of committing to writing is thinking of ideas, and material is an extension of them. In junior schools, there is a lack of life experience, so the material is fragmented and limited, which makes it challenging to organize the material at multiple levels. Mind Mapping is part of the curriculum to help students systematically organize their material.

In order to evaluate the effectiveness of Mind Mapping in Chinese teaching, teaching experiments have been designed in the context of purpose, object, and tool preparation to assess the effectiveness of Mind Mapping in classroom practice. According to studies, Mind Mapping has demonstrated its ability to enhance students' writing skills and interests. In Yang's (2019) opinion, Mind Mapping improves students' writing skills, increases their interest in writing, and enhances classroom engagement.

The selection of the appropriate form of Mind Mapping

Content

In the past few decades, new teaching methods, such as Mind Mapping, have emerged due to the rapid development of information technology. This way of teaching has several advantages over traditional ways of teaching, such as being intuitive, easy to see, sharing resources, and giving students more freedom.

Mind Mapping is frequently observed in foreign schools to encourage students to become

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independent thinkers. It is based on the theory that the brain is shaped and shaped by a central point, which spreads outward in all directions so that it is based on the shape and form of neurons (Ma, 2021). Mind Mapping can be used in various ways depending on the chosen approach. There are several factors to consider when selecting a Mind Mapping method.

Age and students' interests

Using Mind Mapping is a great way for students to increase their interest in Chinese writing and improve their writing skills. Students must be aligned with the teacher's lecture pace to receive effective instruction, which requires the teacher to guide the students in following the teacher's train of thought into the content discussed during class. Consequently, the course content must engage them quickly and, more importantly, Mind Mapping can help them to write and learn more effectively.

Classroom time control

Firstly, Mind Mapping's structure is straightforward so that students can understand the key points, and teachers can describe their teaching objectives more clearly. It is a structured and radioactive mode of thinking where keywords are used as a starting point and smooth lines as links to create an intuitive and visually appealing graphic image (Liu, 2008).

Secondly, students' thinking is fragmented, and Mind Mapping can systematize knowledge systems (Liu, 2014) and solve disorganization problems. Students can integrate old and new ideas and expand on them throughout building their Mind Maps.

Additionally, teachers can use Mind Mapping to teach more easily since the visual and intuitive nature of Mind Mapping makes students more focused and engaged. Consequently, the introductory period can be reduced, and the students will remain in a positive frame of mind throughout the course.

Knowledge visualization theory

In February 1987, an NSF symposium established the term "visualization" as a technical term (as cited in Zhang & Tang, 2010). The visualization of knowledge uses visual representations to enhance the creation and transfer of knowledge between two or more individuals. As a result of Mind Mapping, implicit knowledge can be externalized as images, lines, symbols, and colors, mobilizing the learner's mind and improving his or her memory and creativity.

Branching nodes, connections, annotations, and supporting information of Mind Mapping. Tsinakos, A., Balafoutis, T.,(2009) Refer to Mind Mapping as a very personal graphical representation. Using Mind Mapping, students can capture these fleeting moments of inspiration when they experience sudden ideas that pop into their heads. Mind maps visualize abstract ideas in each "inspiration capture."

Conceptual Framework of the Study

In this study, the independent variable was the teaching of Mind Mapping and the dependent variables were the skills of learning Mind Mapping and students' attitudes towards using Mind Mapping. Figure 1 illustrates the conceptual framework of this study.

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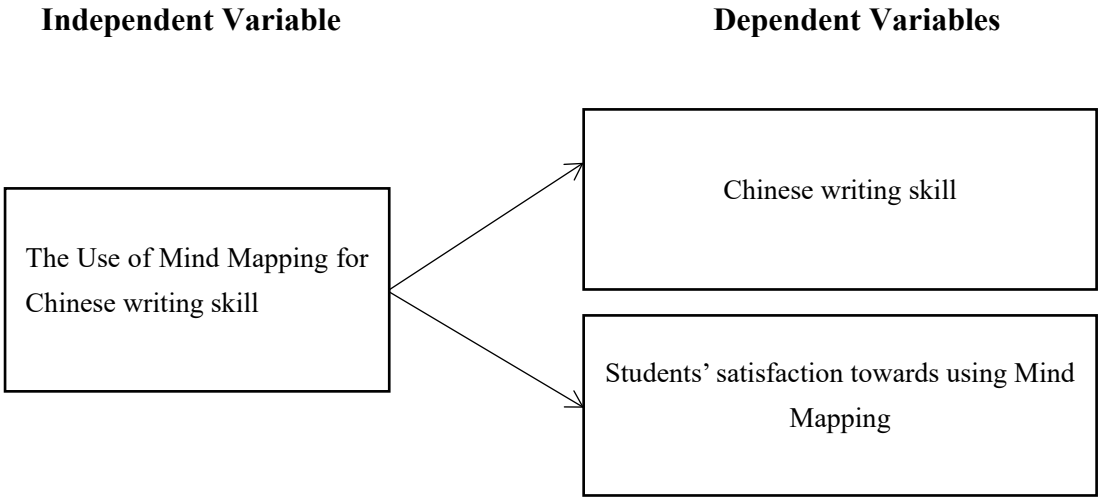

Figure 1 Independent Variable and Dependent Variables

Research Methodology

Research Instruments

An instrument of research is a tool designed to collect, measure, and evaluate data about a topic of interest to research participants. In mixed methods research, instead of combining quantitative and qualitative findings manually, various qualitative and quantitative research methods are employed (Yu et al., 2019). Using mixed methods research allows researchers to address various research questions, provide stronger conclusions, and increase the generalizability of findings (Creswell JW et al., 2011). Figure 2 below describes the research design of the study.

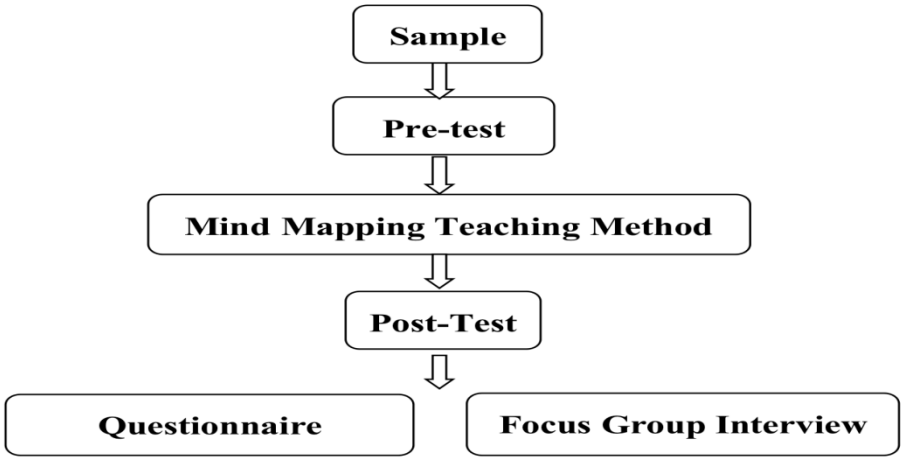

Figure 2 Illustration of Research Design

Lesson Plans

This researcher developed four 90-minute lesson plans (1 lesson plan = two sessions) for one month. The researcher conducted the instruction to the sample group twice a week for one month. To select a topic for the study, the researcher considered the school curriculum, the educational level of the

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sample group, and their interest.

Achievement Test

The Chinese Writing Achievement Test was used to measure the student's achievement before and after an intervention with Mind Mapping lessons and to compare their achievements before and after the intervention. There were 2 questions in total. In order to better analyze students' Chinese writing skills, the first question examined students' understanding and application ability of Mind Mapping in composition, and the second question examined students' innovation and writing skills.

Questionnaire

A questionnaire was administered to find out the students' satisfaction with the use of the Mind Mapping method in the Chinese writing classroom. The participants completed the questionnaire after the achievement test. The questionnaire responses completed by the participants were kept confidential and used for this study only.

Focus group interview

After the use of Mind Mapping, the researcher conducted an interview on four main content topics. The interview consisted of 6 questions covering topics such as interest level in writing, motivation for learning, and student engagement. These topics were carefully selected to elicit reliable data.

Validity and Reliability

According to Li (2018), validity in educational research refers to the reliability of research findings and the degree to which they reflect the research purpose. Several items were considered parts of an instrument if their values fell between 0.67 and 1.00. Subsequently, if the value fell below 0.67, the item should be rephrased or omitted from the instrument. Three Chinese experts validated the instruments of the study and the result of IOC validity was 0.86. This proved the validation of this study.

In this study, the reliability test was also carried out with the other 30 students studying in grade 7 at the same school. They were taught for one session. Then, they were asked to do the test and respond to the questionnaire. A reliability test was conducted using Cronbach's alpha to determine the reliability of the 5-point Likert scale questionnaire.

It is generally accepted that the higher the score, the higher the reliability is. Cronbach's Alpha scale was used to determine whether each item on the questionnaire was reliable. It was deleted if the score was below 0.7, indicating that the item is unreliable. In this study, the reliability test of the questionnaire of this study was 0.86 which was acceptable to be used for further process.

Participants

The population of this study consisted of two classes of 30 students from a middle school in Jiangsu Province, China. Their ages varied from 12 to 15, and they were of various mixed genders and Chinese writing learning capacities. The researcher used multiple sampling methods to have one class (N= 30 students) from the population in grade 7.

Data Collection Procedures

For research ethics consideration, the researcher obtained permission from the school's principal before conducting the study. The researcher sent letters to the parents of the study participants to explain the situation and get their consent, personal information, test papers, and semi-structured interview recordings were kept confidential for the sample group. In other words, all the information was kept

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secret throughout the study.

Empirical Results

Data Analysis and discussion

Table 1 illustrates that a one-sample analysis of the test scores indicated, they were positive. In the pre-test group, the mean was 33.4 with a standard deviation of 13.98; in the post-test group, the mean was 51.67 with a standard deviation of 13.40. Compared with the pre-test, post-test means differed by 18.27, resulting in an increase in the post-test mean score. This study resulted in a significant value (P) of .01, which was less than .05 (P*.05). The sample group's post-test scores increased statistically significantly compared to their pre-test scores. An analysis of the pre-test and post-test means can be found in Table 1.

Table 1 One Sample T-Test

	N	Mean	Std. Deviation	t	Sig.	Sig.
Pretest	30	33.40	13.98	13.72	.000	.01
Posttest	30	51.67	13.40		.000	

Based on the results of the pre-test and post-tests, Table 2 indicates the results of the sample group. In terms of pretest scores, the highest was 63 (out of 100) and the lowest was 12. In the post-test, participants received significantly higher scores, with one receiving 75 points out of 100, an increase of 15 points from the pre-test score, and another receiving 33 points out of 100. Post-test results showed that all 30 students improved significantly or slightly.

Table 2 Pretest & Posttest scores of the sample group

ID	Pretest	Posttest	Increase in test Scores	% Difference
1	55	64	9	9.00%
2	32	48	16	16.00%
3	33	46	13	13.00%
4	45	58	13	13.00%
5	54	71	17	17.00%
6	60	75	15	15.00%
7	55	71	16	16.00%
8	21	42	21	21.00%
9	23	33	10	10.00%
10	24	36	12	12.00%
11	26	38	12	12.00%
12	41	68	27	27.00%
13	31	66	35	35.00%

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ID	Pretest	Posttest	Increase in test Scores	% Difference
14	52	63	11	11.00%
15	34	48	14	14.00%
16	39	62	23	23.00%
17	38	63	25	25.00%
18	37	62	25	25.00%
19	22	48	26	26.00%
20	23	43	20	20.00%
21	24	33	9	9.00%
22	63	71	8	8.00%
23	27	42	15	15.00%
24	12	38	26	26.00%
25	18	45	27	27.00%
26	23	38	15	15.00%
27	21	33	12	12.00%
28	24	42	18	18.00%
29	28	58	30	30.00%
30	17	45	28	28.00%

Figure 4 below provided information regarding the mean scores for the pre-test and the post-test, which were 33.4 and 51.67, respectively, for the pre-test and post-test. It was found that the mean score of the post-test was higher than that of the pre-test. As shown in the comparison between the orange bars in the post-test and the blue bars in the pre-test, there has been an increase of 18.27 points. Based on these findings, it can be concluded that all participants improved their scores during the post-test.

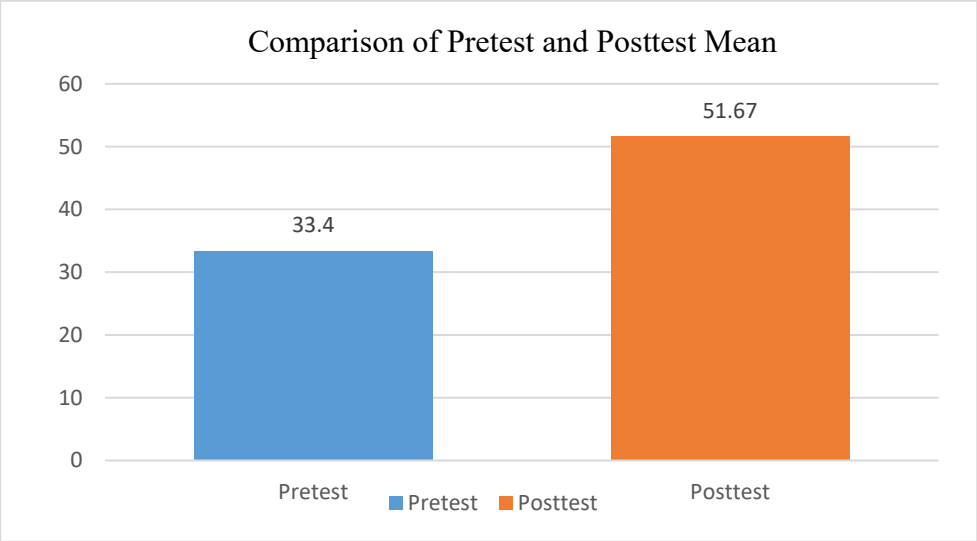

Figure 4 Comparison of pre-test and post-test mean

For this study, quantitative data were collected using a five-point Likert scale to measure students' satisfaction towards Mind Mapping in the Chinese writing course; where 1 indicated a strong

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disagreement and 5 indicated a firm agreement. Each of the 30 participants received a copy of this questionnaire. In order to analyze the survey data, descriptive statistics were used (means and standard deviations).

Table 5 shows the mean scores and standard deviations of students' satisfaction with Part A: Interest and Motivation. Item 4 and item 5 had the highest mean score ($\bar{x}$) at 3.57, which fell within the mean score range of the five-point Likert scale and indicates the "highest" level. Although the mean score for item 2 was relatively low ($\bar{x}$ = 3.37), the interpretation of the mean score suggests that students' perceptions of Part A of the questionnaire, interest, and motivation, remain at the highest level ($\bar{x}$ = 3.5).

Table 5 Mean and Standard Deviation: Part A (N=30)

	Part A- Interest and Motivation	Mean	SD	Interpretation
1	Using Mind Mapping to write is a fun experience.	3.50	1.43	High
2	Writing is easier when I use Mind Mapping.	3.37	1.32	Moderate
3	The use of Mind Mapping has increased my enjoyment of writing.	3.53	1.35	High
4	Writing has become more enjoyable for me as a result of using Mind Mapping.	3.57	1.30	High
5	My creativity is stimulated by Mind Mapping.	3.57	1.22	High
	Average	**3.50**	**1.10**	**High**

Based on the results of Part B: Engagement, the means and standard deviations of the students' ratings are presented in Table 5. The data indicated that item 7 had the highest mean score of 3.67. In contrast, item 9 had the lowest mean score of 3.27. Despite this, considering the average score of 4.43, it still fell within the 'high' range for average scores.

Table 6 Mean and Standard Deviation: Part B (N=30)

	Part B- Engagement	Mean	SD	Interpretation
6	Using Mind Mapping makes it easier for me to write.	3.47	1.27	High
7	With Mind Mapping, I am able to better summarize my ideas and thoughts.	3.67	1.24	High
8	Using Mind Mapping has increased my communication with my teachers.	3.37	1.32	Moderate
9	The Mind Mapping class model makes a lot of sense.	3.27	1.43	Moderate
10	The Mind Mapping helped me to better understand	3.40	1.42	Moderate

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	the structure of the text.			
	Average	**3.43**	**0.94**	**High**

Based on the results of Section C: The impact of Mind Mapping on students' learning, Table 7 presents the mean scores and standard deviations of the student's responses. Most students endorsed Mind Mapping to improve their Chinese writing skills. In terms of the mean score, it was in the 'high' range, with 3.46. In item 14 the mean score was 3.50. At the lowest level of the survey, the mean score was 3.40 for item 11. In terms of the overall mean score, it was still high. Student's ability to write Chinese has improved due to using Mind Mapping.

Table 7 Mean and Standard Deviation: Part C (N=30)

	Part C- The impact of using Mind Mapping on students' learning	**Mean**	**SD**	**Interpretation**
11	Learning to use Mind Mapping has helped me a lot in my studies.	3.40	1.42	Moderate
12	Using Mind Mapping has helped me to have more fun in my writing classes.	3.47	1.38	High
13	Using Mind Mapping gives me more confidence when I write.	3.47	1.35	High
14	Using Mind Mapping has made it easy for me to tackle a variety of writing topics.	3.50	1.45	High
15	Using Mind Mapping has been able to improve my writing skills.	3.47	1.47	High
	Average	3.46	1.24	High
	Overall Mean & SD for all 15 items	3.47	1.07	High

The study involved 15 participants who volunteered to participate in a focus group interview after Mind Mapping was used to teach Chinese writing. The study was conducted with three groups of five participants. In organizing and analyzing the responses, the three major categories were A: interest level, B: motivation to learn, and C: engagement of students. From the feedback students, students found the use of Mind Mapping beneficial in improving their Chinese writing skills. The majority of students who shared their overall impression indicated that Mind Mapping had greatly improved their writing efficiency and ability and made them more interested in learning.

Conclusion and recommendations

As previously noted, the study generated two main conclusions.

The first finding showed that students in grade 7 improved their Chinese writing skills after using Mind Mapping.

The second finding was those grade 7 students had positive satisfaction towards using Mind Mapping in learning Chinese writing.

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In the following section, the findings will be summarized and the study's research questions will be addressed.

Writing Achievement

Following the pre-test and post-test results, a paired sample t-test was conducted to compare the learning performance within one group of students.

1) In the sample group, the standard deviations of the pre-and post-tests were respectively 13.98 and 13.40. Compared to the pre-test, the post-test had a higher mean score. Students' language writing skills improved after using Mind Mapping, as indicated by their higher mean score on the post-test with a significance value of .01.

2) In the pre-test, the highest and lowest scores were, respectively (63) and (12). Post-test scores ranged from (75) to (33). In the post-test, three students had the lowest scores, and the lowest score was the most (12 points) higher than the lowest score on the pre-test.

3) Most of the participants, 11 out of 30, scored above 60 on the post-test. In contrast, only two students scored 60 or higher on the pre-test, while the rest scored below that level.

4) For all 30 students, all participants scored higher on the post-test than on the pre-test. The improvement in scores ranged from 8 to 35 points, respectively.

In light of the findings of this study, the use of Mind Mapping in the context of improving the Chinese writing skill of Grade 7 students in Jiangsu Province, China, was an effective method. The results of the study confirmed these findings.

Focus Group Interview

As a second objective, this study aimed to investigate Grade 7 Chinese students' satisfaction with Mind Mapping as a method of learning Chinese writing. The qualitative data were collected through focus group interview sessions with three groups of students, each made up of five students. According to the survey results, students' satisfaction towards Mind Mapping to improve their ability to write Chinese compositions was positive. The responses obtained from the interviewees are summarized below:

1) All students agreed that they enjoyed learning Chinese writing using Mind Mapping. This conclusion was evident based on their questionnaire results and focus group interview.

2) Most students believed that Mind Mapping could facilitate learning because it could give them more inspiration when writing. Their ideas for writing could also be organized using Mind Mapping. Furthermore, some participants suggested that the critical branching keywords could enhance the flow of their thoughts on writing.

3) Mind Mapping was also perceived as constantly stimulating students' thinking and keeping their minds active. Additionally, they could add them to their ideas when they came up with ideas.

4) Chinese writing lessons had been a lot of fun, and students hoped to incorporate them into other subjects.

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