THE USE OF MIND MAPPING AND GAME TEACHING
METHOD FOR ENGLISH VOCABULARY SKILL
OF GRADE 8 STUDENTS IN YUNNAN
PROVINCE, CHINA

BY

DI NENG

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Abstract

This study compared grade 8 students' English vocabulary skill before and after using Mind Mapping and Game Teaching Method and investigated their satisfaction towards the use of Mind Mapping and Game Teaching Method in an English vocabulary course in Yunnan province, China. The sample group consisted of 30 grade 8 Chinese students. Quantitative data were collected through four lesson plans, a pre-test, a post-test and questionnaire, and were analyzed using means, standard deviations and paired sample t-test. The data collection lasted for four weeks.

The results obtained from the pretest and posttest showed that the students in the sample group improved their English vocabulary skill with a pretest score ($\bar{x}$= 20.93, SD=3.97) and a posttest score ($\bar{x}$=25.20, SD=2.41). The data collected from the questionnaire demonstrated that all items on the questionnaire were rated at the highest level. Most students in the sample group expressed positive satisfaction with the use of Mind Mapping and Game Teaching Method in English vocabulary leaning. This study demonstrated that the use of Mind Mapping and Game Teaching Method provided an alternative and effective method for English vocabulary learning. Therefore, English teachers from all over the world, including China, can consider this method as an option for their English vocabulary teaching.

(Total 117 pages)

Keywords: Mind Mapping and Game Teaching Method, English Vocabulary Skill, Learning Achievement, Students' Satisfaction, Grade 8 Students

Student's Signature …... Thesis Advisor's Signature ....

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CHAPTER 1

INTRODUCTION

This chapter explains the background and rationale of the study, the research objectives, the research questions, the research hypotheses, the scope of the study, the operational definitions, the conceptual framework of the study, the limitations of the study, and the significance of the study.

1.1 Background and Rationale of the Study

With the continuous development of technology and the increasing abundance of teaching resources, teaching methods are also becoming increasingly diverse. However, the quality of English vocabulary teaching has not been ideal for many years (Liu, 2022). Obviously, the traditional irrigation teaching method is no longer advisable and more effective methods need to be explored. Combining mind mapping with game teaching method is an optional approach. If we can combine the two, it can achieve an effect of 1 plus 1 is greater than 2.

It is an established fact that English is the most widely used language in the world (Chen, 2022). The development is so fast and the coverage is so extensive that learning English has become a compulsory course for students from primary school to university, and even to the doctoral stage. With the increasingly close global connections, learning English has become an essential condition for students to open the door to the world. This is not only to complete a learning course, but also a path towards the world. Learning English can broaden students' horizons and enables them to learn more diverse knowledge, and have more pioneering ideas.

China attaches great importance to cultivating students' English proficiency. The Chinese English Curriculum (2022) emphasizes that students should master four basic skills of English listening, speaking, reading and writing. These four basic skills constitute the main content of English teaching and reflect students' ability to master

English. However, the foundation for mastering these skills is based on plenty of vocabulary. Wu (2023) mentioned that vocabulary is an important component in any language. In order to learn English well, one must proficiently master a certain number of words and phrases and be able to apply them to real life. Meanwhile, Wu (2023) pointed out that if English is compared to a high building, sentence structure and grammar are the basic framework, while vocabulary is the bricks that fill the framework, belonging to the most basic building materials. Moreover, In China, the English Curriculum Standards of Compulsory Education (2022) clearly states that "Junior high school students must learn and use approximately 1600 words to communicate and express around relevant topics. Additionally, they can learn 100-300 words within the scope of relevant topics based on actual situations." Therefore, both teachers and students must be aware of the significance of vocabulary and put vocabulary learning in an important position. More importantly, English teachers should continuously optimize teaching methods to improve students' vocabulary skill.

However, the reality of English vocabulary teaching is not optimistic. Firstly, teaching method is single. Tian (2023) pointed out that teaching method is an important factor that affects the teaching efficiency and students' interest in learning. But currently, the majority of English classrooms maintain the traditional teaching method, which is monotonous and tedious (Xu, 2023). Teachers usually adopt a relatively fixed pattern, which is to lead students to repeatedly read words in class, then let them to memorize words after class, and finally test their memory results through dictation in class. The long-term use of this single teaching pattern has resulted in students being forced to accept knowledge, which cannot stimulate their interest in learning vocabulary and even generate learning resistance. Secondly, the scope of vocabulary teaching is very limited. The English Curriculum Standards of Compulsory Education (2022) points out that teachers should not be limited to the

vocabulary listed in textbooks when teaching, but should pursue openness within a certain limit and appropriately expand students' vocabulary. However, many teachers are influenced by examination-oriented education system and only teach students the words on the vocabulary list without guiding them to learn more relevant vocabulary. Thirdly, the importance of vocabulary review is ignored. Zhao (2022) said that review is a key link in vocabulary teaching. Only with regular review can students better strengthen their knowledge and timely identify and correct errors. However, teachers only lead students to comb through the vocabulary list from beginning to end, and vocabulary review is still in the stage of rote memorization. Finally, students lack effective learning methods. They only memorized the basic meaning of words, without understanding the connection between words. Faced with such a large number of words, students only memorize the meaning of each word in isolation, which is easy to forget and the learning effect is inevitably not ideal.

Actively exploring the effective ways of English vocabulary teaching can help student complete vocabulary learning tasks efficiently and high-quality (Li, 2023). In recent years, mind mapping has become increasingly popular. So far, it has been widely applied in various fields, especially in education, and has achieved many good results. Therefore, it has been regarded as an effective teaching method. In fact, mind mapping is a thinking tool that can realize knowledge visualization. Based on the characteristics of students' learning and the development of their thinking, teachers can help students to memorize words by mind mapping according to the logical relationship between words, so that students can combine the new words with their existing old words, and then construct a new vocabulary framework to achieve the goal of gradually accumulating a large amount of vocabulary. Gong (2023) mentioned that in the process of learning vocabulary, by transforming scattered vocabulary into images is more conducive to improving the efficiency of students in memorizing

vocabulary. Moreover, the use of mind mapping in vocabulary teaching can expand students' vocabulary learning methods and help them establish good self-learning thinking in vocabulary learning (Wang, 2022). Consequently, it is obvious that using mind mapping has great benefits for vocabulary learning.

When it comes to game teaching method, many people believe that it is more suitable for the primary school. Actually, in junior high school English vocabulary classes, teachers can also introduce games for teaching, integrating vocabulary into games, stimulating students' enthusiasm for learning vocabulary, and effectively increasing students' vocabulary. Game teaching method is a method that fully embodies the concept of "people-oriented". It emphasizes by designing interesting games to encourage students to actively participate in the classroom, making them the main body of the class, thereby mobilizing students' interest in learning and improving learning efficiency. A large number of researchers believe that games are indeed very beneficial for learning English vocabulary. Tang (2022) mentioned that game teaching method is an effective way to stimulate students' interest in English learning, help them hold the positive attitude towards leaning English vocabulary and game teaching can improve their academic performance of English vocabulary. Huang (2022) noted that conducting vocabulary teaching in game scene to concretize English vocabulary can better help students deepen their memory and understanding of vocabulary.

Mind mapping and game teaching method are both highly useful teaching methods for students' learning (Yang, 2022). In order to address the issues mentioned above, combining mind mapping with game teaching method has great advantages for teaching English vocabulary. Firstly, drawing mind mapping and playing games require students' participation, which makes the classroom atmosphere very active. In this situation, students are more willing to learn, which greatly improving students'

learning initiative and increasing their interest in learning. Secondly, when drawing mind mapping and playing games, students can learn more words outside of the textbook. They can learn more vocabulary related to the topic through divergent thinking, thereby increasing their vocabulary. Finally, it can play a significant role in reviewing and consolidating the knowledge learned before. Review is an important link that cannot be ignored in English vocabulary teaching in junior high school. When playing games, students can deepen their understanding of knowledge in a pleasant classroom atmosphere. At the same time, by drawing a mind mapping, relevant knowledge is integrated, making scattered knowledge points more concentrated, which is beneficial for students to summarize. Therefore, if teachers can combine mind mapping and game teaching method in vocabulary teaching, the quality of teaching will be greatly improved, and students' vocabulary skill will also be improved.

To sum up, this study aims to use mind mapping and game teaching method to improve the English vocabulary skill of grade 8 students in one of the junior high schools in Yunnan province, China. It is expected that using mind mapping and game teaching method as teaching method will improve students' English vocabulary skill and also lead to positive satisfaction among grade 8 students. This study can provide some assistance for teaching English vocabulary in junior high school.

1.2 Research Objectives

1.2.1 To compare grade 8 students' English vocabulary skill before and after using mind mapping and game teaching method, in Yunnan province, China.

1.2.2 To investigate grade 8 students' satisfaction after using mind mapping and game teaching method, in Yunnan province, China.

1.3 Research Questions

1.3.1 Would grade 8 students' English vocabulary skill be improved after using mind mapping and game teaching method, in Yunnan province, China?

1.3.2 Would grade 8 students' satisfaction be increased after using mind mapping and game teaching method, in Yunnan province, China?

1.4 Research Hypotheses

1.4.1 Grade 8 students' English vocabulary skill would be improved after using mind mapping and game teaching method.

1.4.2 After using mind mapping and game teaching method, grade 8 students' satisfaction would be high.

1.5 Scope of the Study

This study was conducted within the specific scope described here. Consequently, it is crucial to generalize the results cautiously, especially in the contexts of different educational levels and using different research instruments.

Firstly, the background was one of the junior high schools in Yunnan province, China. In addition, the data would be collected through achievement tests and questionnaire of grade 8 students from the specific school.

Secondly, in China, English teachers had standard teacher reference books and curriculum outlines, allowing them to develop and implement learning materials based on students' requirements. Therefore, through this study, the researcher recommends

using mind mapping and game as one of the leaning resources to help students improve their English vocabulary skill and learning satisfaction.

1.5.1 Location of the study

The study was conducted at a junior high school in Yunnan province, China. It is a rural school located in Xinyi Village, Xishan District, Kunming City, 20 kilometers away from the urban area of Kunming City. The school currently has 408 students and 43 teachers. In Figure 1.1, the location of the Research School is shown.
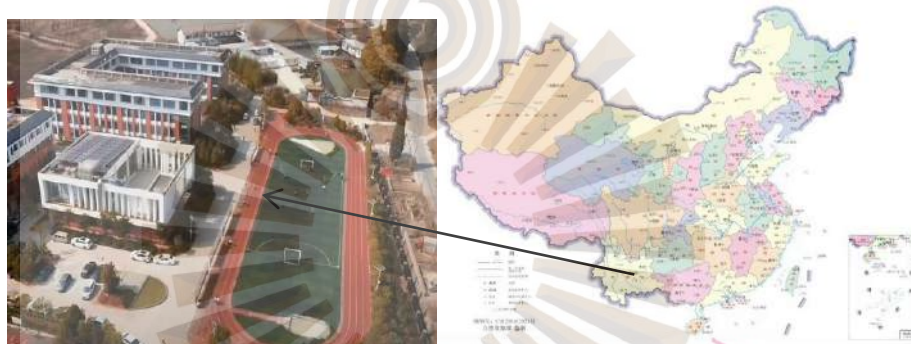
Figure 1.1 Location of the Research School

Source: Baidubaike, 1938

1.5.2 Population and Sample

Population: this study included 100 students from three classes at a junior high school in Yunnan province, China. These students were approximately 14 years old, and they had different genders and English proficiency levels.

Sample: Using a cluster random sampling method, the researcher selected only a class of 30 students in grade 8. The students in this class were mixed in gender and had different English proficiency levels.

1.5.3 Time Frame

The study was conducted in 2023. In this study, the teaching experiment lasted for four weeks. The researcher conducted classroom instrument twice a week. Four lesson plans would be designed, each consisting of two sessions of 45 minutes each, for a total of 90 minutes. Table 1.1 below shows the timeline of the study.

Table 1.1 Timeline of the study

Activity	Jan	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Literature Review	■	■	■								
Research Proposal				■	■						
Data Collection							■	■			
Data Analysis									■	■	
Final Defense											■

1.5.4 Content of the Study

In this study, the researcher designed four lesson plans, each consisting of two sessions, so there were eight sessions in total. Each session lasted for 45 minutes and two sessions would be completed in one week, so the study included a total of four weeks of teaching sessions. The theme of each lesson was based on the compulsory education textbooks for English subjects designated by the official Chinese Ministry of Education. The course materials included English vocabulary tests, both pre-test and post-test. The students in the sample group were taught according to a specific

curriculum schedule and completed a vocabulary test before and after the start of the study so that the researcher checked whether the students' vocabulary skill improved after using mind mapping and game teaching method.

Table 1.2 Content of the study

Lesson plans	Topics	Mind mapping & Game teaching method
Test	Pre-test	
Lesson plan 1	I'm going to study computer science	Tree Map; Pointless
Lesson plan 2	Where did you go on vacation?	Bracket Map; Clean the blackboard
Lesson plan 3	How often do you exercise?	Bubble Map; You move and I guess
Lesson plan 4	How do you make a banana milk shake?	Flow Map; Vocabulary spelling
Test	Post-test	

1.6 Definition of Terms

Mind mapping and Game teaching method mind mapping refers an effective tool for expressing dispersed thinking, which can be used for memorizing, analyzing, reviewing, summarizing, etc. Game teaching method is integrating various interesting games into teaching to attract students' attention and make the dull classroom active, thus stimulating students' interest in learning and improving their enthusiasm for active learning. This study combined mind mapping with game teaching method in teaching to improve students' vocabulary skill. Additionally, there is no requirement for the order of using mind mapping and the game, which can be flexibly combined. Mind mapping can inspire thinking and summarize knowledge points. Games can stimulate learning interest and deepen the memory of knowledge

points. If the two can be combined, the efficiency of learning English vocabulary will greatly improve. In this study, the researcher used four mind mapping pattern and designed four games to teach students based on English textbooks: Bracket map, Bubble map, Flow map and Tree map, and games included Vocabulary spelling, Clean the blackboard, You move and I guess and Pointless.

English vocabulary skill refers to the vocabulary requirements for grade 8 students are gradually increasing, and they need to learn vocabulary related to tourism, shopping, food, sports, and other aspects. In this study, the English vocabulary skill of students was assessed through achievement tests.

Students' satisfaction refers to the results after using mind mapping and game teaching method to teaching English vocabulary of grade 8 students, which investigate three aspects, including their interest and motivation, engagement, and efficacy of mind mapping and game teaching method on student learning. In this study, the learning satisfaction of students was assessed through a 5-point Likert scale questionnaire.

Grade 8 students refers to students selected by the research in this study. They were a group of students in adolescence, with an average age of around 14 years old.

1.7 Conceptual Framework of the Study

In this study, there were two types of variables: independent variable and dependent variable. The independent variables included the use of mind mapping and game teaching method whereas the dependent variables were students' English vocabulary skill and their English learning satisfaction. Figure 1.2 illustrates the conceptual framework of this study.
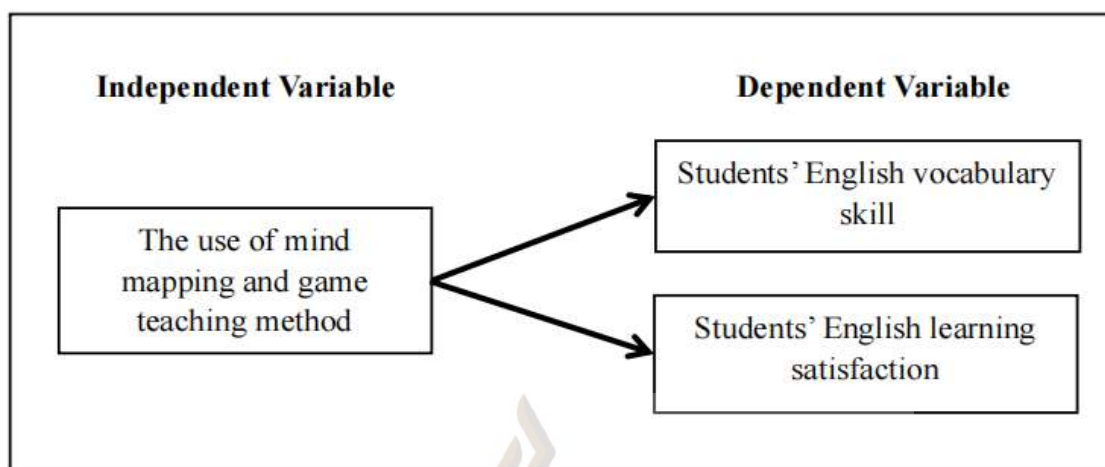
Figure 1.2 Conceptual Framework of the Study

1.8 Limitations of the Study

1.8.1 This study was limited to grade 8 students in one of the schools in Yunnan province, China. Consequently, generalizing the results to students of other levels or backgrounds may be unreliable.

1.8.2 This study was completed in a short period of time, and there was not enough time to observe the performance of each student. Therefore, students still need a lot of time to practice their English vocabulary skill.

1.9 Significance of the Study

1.9.1 The use of mind mapping and game teaching method helped students to improve their English vocabulary skill.

1.9.2 This study helped students obtain positive satisfaction through using mind mapping and game teaching method.

1.9.3 This study provided a new perspective for English teachers to improve students' English vocabulary skill by using mind mapping and game teaching method.

CHAPTER 2

LITERATURE REVIEW

This chapter presents the development of English education in China, teaching and learning English as a foreign language, teaching and learning English vocabulary in China, mind mapping teaching method, game teaching method, the advantages and necessity of combining mind mapping with game teaching method, students' learning satisfaction, related studies and research.

2.1 The Development of English Education in China

English education in China began in the Qing Dynasty and has a history of nearly 140 years (Zhou, 2021). With the progress of human civilization and the development of foreign language education, China's English education has also made great progress, making great contributions to China's construction. This study will conduct a preliminary exploration of the history of English education from the early, Republic of China, and after the establishment of New China.

2.1.1 Early English education in China

According to Cheng (2010), the establishment of Tongwen Guan is the official beginning of the history of English History of education in China. According to the needs of diplomatic affairs at that time, the first major offered by the Tongwen Guan is English. English teachers are hired with high salary from British and American. Under the influence of Tongwen Guan, a number of new schools have been set up throughout the country. The main purpose of these schools is to cultivate English translation talents. Another aspect that can reflect China's early English education is the dispatch

of international students. During the Qing Dynasty, visionary Chinese officials proposed to the government to send international students to study in Britain. In addition to the government sending international students, schools in various regions also send their own students to study abroad. With the development of the New Culture Movement, many international students returned to China after completing their studies and were successively employed, making great contributions to the development of all walks of life in China.

After continuous development, the atmosphere of learning English in China has become very strong, and the number of students learning English is constantly increasing. During this period, English teachers were no longer entirely staffed by foreign teachers, and a large number of Chinese people began to serve as English teachers, cultivating many English talents for the development of the country.

2.1.2 English education during the Republic of China period

During the Republic of China period, the government of the Republic of China promulgated the "Renxu Education System". The new educational system refers to the American educational system and adopts six, three, and three years (six years in primary school, three years in junior high school, and three years in high school). In terms of teaching, comprehensive training in listening, speaking, reading, and writing is highly valued in junior high school. Entering the high school stage, teaching emphasizes the cultivation of reading ability, and the textbooks adopt the form of literary selections, with the content mainly focused on European and American literary masterpieces. In addition to textbooks, a series of dictionaries have also been published. These have effectively promoted the popularization of English and the improvement of teaching level. Therefore, on the whole, the quality of English

teaching during this period was still good, making a certain contribution to the development of English education in China.

2.1.3 English education in New China

Since the founding of the New China, education has received great attention, and the development of English education was extremely rapid. Compared to the past, the prominent characteristics of foreign language education during this period were the large scale of education, high quality of teaching, and rapid progress in research on teaching theories and methods. After the founding of the People's Republic of China, due to changes in the country's political and economic situation, the development of English education varied in different periods, and the speed of development also varied.

In the early days of the founding of New China, it was highly recommended to learn "Russian" rather than "English", so English was to some extent neglected. Later, people gradually realized that excluding English and other foreign languages was a manifestation of not considering long-term development, and this phenomenon should be corrected timely. For the scientific development of the country, not only do we need to learn Russian, but we also need to learn English. Therefore, English classes are gradually being restored in teaching. However, the teaching methods of the school were deeply influenced by the Soviet Union: emphasizing grammar teaching while neglecting language practice. At that time, all schools in the country implemented the teaching principles of the Soviet Union, which can be summarized as the "three centers", that is, centered around the classroom, teachers, and textbooks. In the classroom, teachers impart knowledge while students passively accept it, known as the "cramming" teaching method. Afterwards, Premier Zhou pointed out that "in order to achieve the plan of advancing towards science, we must prepare all necessary

conditions for the development of scientific research, expand foreign language teaching, and expand the translation of important foreign books." After that, there were new developments in English and other language majors in universities.

In 1962, English was officially listed as a subject in the college entrance examination. The Ministry of Education clearly stated that "English should be designated as the first foreign language in school education, and the number of people learning English should increase significantly." Since then, universities have started offering English majors, and multiple foreign language colleges have been built and expanded nationwide. After 1986, the English proficiency exams have began one after another. So far, the CET-4 and CET-6 have become a large-scale English exam during the university stage, greatly promoting the development of college English teaching. Firstly, the school leaders attach great importance to it. Many universities allocate special funds to improve teaching conditions, add teaching equipment and books, and ensure the further development of college English teaching from a material perspective. Moreover, the vast majority of schools require students to pass the college English Test (CET-4) in order to obtain a bachelor's degree and a graduation certificate. This further stimulates students' enthusiasm for learning. The improvement of college English education and the establishment of a system have made outstanding contributions to improving the English proficiency and comprehensive quality of Chinese college students.

After a century of development, China's English education has made tremendous progress. However, if we look back at history, we will find how difficult and tortuous the development of English education in China has been. Although significant progress has been made in English education at this stage, compared to developed countries in the world, there is still much room for improvement in English education in China. We must believe that with the support of the country and the joint

efforts of English educators, China's English education system will become more and more perfect and advanced, making outstanding contributions to improving the quality of the people and accelerating the development of the motherland.

2.2 Teaching and Learning English as a Foreign Language

What is the difference between second language and foreign language? How will it affect the effectiveness of English teaching? In fact, second language is opposite to first language, while foreign language is opposite to native language. The common feature of first language and native language is that the language learned first is often learned in a family environment and has a high level of proficiency. The common characteristics of second language and foreign language are: this is a bilingual phenomenon, which is later than the first language in the time sequence of mastering, generally less proficient than the first language, and the acquisition method is usually school education or self-study. In China, English should be referred to as a foreign language rather than a second language, and China lacks an environment for teaching English as a second language. Firstly, there is a fundamental difference between second language and foreign language in terms of language environment. Second language learners generally have a relatively natural language environment. There are numerous native speakers of the language around. Due to various reasons, there are many opportunities for them to come into contact with the language. This language may be one of the official languages (such as English as an official language in India), and news media, official documents, advertisements, etc. provide learners with a relatively authentic and natural language environment, which is difficult for foreign language learners to have.

The learning of any language has its foundation, and vocabulary is the foundation. Vocabulary is like the foundation of building a house. Only when the

foundation is solid can the house be strong. Generally speaking, the more vocabulary a person has, the stronger their language ability will be (Jia, 2021). The learning of English vocabulary is the foundation and support of English learning, and without English vocabulary, one cannot fully learn English knowledge (Xie, 2023). Therefore, vocabulary learning and vocabulary accumulation are extremely essential. As a foreign language, if you want to learn English well, you must put vocabulary learning in an important position.

However, in real English teaching, there are still many problems between teachers' teaching and students' learning. For instance, when conducting teaching activities, not all teachers speak English throughout the teaching process. They often speak both Chinese and English for teaching, and even speaking Chinese more time than speaking English. Additionally, for students, there are very few opportunities to truly speak English in the classroom. Most of the time is centered around the teacher, and most students can only sit quietly and listen to the teacher explain the knowledge in the textbook. Moreover, students rarely actively or passively accept English knowledge in their spare time, and they usually only consider English as a learning task that they have to complete. Finally, many students are afraid to speak English and even have nothing to say. The reason for this situation is because they are not familiar with many words, or even do not know them, and have a feeling of 'wanting to speak but unable to speak'. Therefore, teachers should be committed to improving students' vocabulary abilities, guiding them to think in English and speak English in the classroom, making them actively participate in classroom activities and become the main body of the classroom. At the same time, guiding students to master the correct learning methods can significantly improve their English proficiency.

2.3 Teaching and Learning English Vocabulary in China

2.3.1 English vocabulary standards for junior high school students

According to the Junior High School English Curriculum Standards (2022), for the vocabulary skill of grade 8 students, the specific requirements are as follows:

1) Understand English vocabulary including words, phrases, idioms and fixed collocations.

2) Understand and comprehend the basic meaning of vocabulary, as well as its other commonly used meanings, part of speech, and function in specific contexts and discourse.

3) Understand new words by identifying their roots and affixes, and identify the prefixes, suffixes, and their meanings within the words.

4) In a specific context, use vocabulary to name things based on different themes, describe things, behaviors, processes, and features, explain concepts, and express main information and viewpoints related to the theme.

5) Learn and use about 1600 words to communicate and express around related topics. In addition, students can learn 100-300 words within the scope of related topics, as well as a certain number of idioms or fixed collocations according to the actual situation.

2.3.2 Teaching Requirements for junior high school English Teachers

According to the Junior High School English Curriculum Standards (2022 Edition), the following teaching requirements are proposed for junior high school English teachers:

1) Teachers should be student-centered, attach importance to individual differences among students, optimize teaching methods, cultivate students' interest in learning English, and lay a solid foundation for students' long-term English learning.

Firstly, teachers should fully understand the language abilities of all students, choose appropriate teaching methods, fully mobilize the enthusiasm of all students, enable them to maintain confidence in learning English, experience the fun of learning English, and make continuous progress in each stage of learning. Secondly, teachers should fully understand students' different learning experiences, learning levels and learning styles, respect students' personality, make full use of students' different potentials, teach students based on their characteristics and provide them with diverse teaching methods. Targeted guidance should be provided to students on the problems they encounter during the learning process. In addition, teachers should strive to create a harmonious classroom teaching atmosphere, reasonably arrange teaching content and steps, organize different forms of classroom interaction, encourage students to learn and use English through observation, experience, cooperation, create as many language practice opportunities as possible for students, and guide them to learn independently. When students make mistakes, teachers should adopt a tolerant attitude, choose appropriate opportunities and flexible methods to correctly handle the errors that students make in language practice. Finally, teachers should develop students' interest in learning English, positive learning attitude, and good learning habits, establish a solid foundation for students to continue learning English in the future.

2) Teachers should cultivate students' cross-cultural awareness, enable them to understand foreign cultures, expand their cultural horizons.

Firstly, teachers should guide students to pay attention to the cultural factors of English based on the teaching content, understand the similarities and differences between Chinese and foreign cultures, gradually enhance students' understanding of English culture, and prepare for cross-cultural communication. Secondly, it is necessary to cultivate students' cross-cultural communication skills. Teachers should create as authentic cross-cultural communication situations as possible based on students' language proficiency, cognitive ability, and life experience, so that students can gradually develop their cross-cultural communication abilities.

3) Teachers should creatively use textbooks and make appropriate choices and adjustments based on actual teaching needs.

Firstly, teachers can make appropriate supplements and deletions to the textbook content based on the actual teaching needs, the current level of students, and class schedule. The supplements and deletions made to the textbook should not affect the teaching objectives and the systematic nature of the textbook. Secondly, teachers can replace content and activities in textbooks based on actual teaching objectives and students' learning needs. Teachers can also expand the teaching content or add activity steps as needed, such as adding suggestive steps, to reduce the difficulty of the activity. The original teaching activities can also be appropriately extended, such as discussion or debate activities based on reading comprehension, vocabulary learning activities or writing activities, so as to enrich the teaching content. In addition, teachers can make appropriate adjustments to the sequence of textbook arrangement based on the real life around students. For example, if something very important happens in real life and it is related to the topic of a unit in the textbook, teachers can teach this unit in advance to make it easier for students to better understand. Finally, due to differences in objective conditions and students' current levels, sometimes the teaching methods and steps recommended or suggested in the course do not match the actual teaching. In this

situation, teachers should promptly adjust the suggested teaching methods and adopt teaching methods and steps that are more suitable for the current teaching needs.

4) Teachers should learn and make reasonable use of various educational resources to improve teaching efficiency.

Firstly, teachers should make full use of conventional resources such as blackboards, whiteboards, cards, models, and physical objects based on actual teaching conditions. At the same time, teachers should actively utilize modern educational resources such as audiovisual, internet, and multimedia to make teaching content and forms more diverse and colorful, provide a context that is beneficial for students to better understand. Secondly, teachers should effectively utilize various resources such as English newspapers, libraries, etc., and provide sufficient learning resources to expand the channels and space for students' autonomous learning. Schools that relatively lack teaching conditions should fully utilize distance education resources to effectively improve teaching quality. Finally, teachers should make full use of their life experiences and students' learning experiences to enrich teaching content. Meanwhile, it is important to correctly handle the relationship between teaching and multimedia. When using multimedia for teaching, teachers should consider its purposefulness and rationality. The use of multimedia cannot replace the real and vivid language communication and emotional interaction between teachers and students in the classroom.

5) Teachers should actively organize lively extracurricular activities to provide diverse channels for students' learning.

Teachers should carry out extracurricular activities that are implementable, rich in content, and diverse in form based on the age characteristics

and needs of students, such as English recitation competitions, English singing competitions, telling English stories, and performing English plays. At the same time, teachers should encourage and mobilize students with learning difficulties to participate in extracurricular activities, design appropriate content for them based on their situation, so that they can actively participate and generate learning interest and motivation through personal experience. Provide them with patient guidance during activities and pay attention to protecting their self-esteem and enthusiasm. Finally, teachers should fully unleash students' autonomy, constantly monitor the activity process, observing students' performance in the activity, and provide guidance and support for their activities.

6) Teachers should continuously improve their professional abilities and strive to adapt to the new requirements of English courses for teachers.

Firstly, teachers need to master and continuously update their subject professional knowledge. The knowledge that the English teachers should possess includes systematic basic knowledge of English language, solid language skills, and good language application ability; Can read professional literature in English, express opinions, and implement classroom teaching in English. Additionally, teachers should also have strong cross-cultural communication awareness and ability, and constantly update language knowledge and improve language proficiency with the development of society and language.

Moreover, teachers should continuously accumulate subject teaching knowledge and improve their teaching practice abilities. The knowledge of English subject teaching includes not only fundamental knowledge of education and psychology, but also theoretical knowledge, teaching methods, and teaching techniques related to English teaching. Teachers should understand the cognitive

characteristics of students, and constantly explore the objective laws of students' English learning according to the influence of Chinese students' English learning characteristics and learning environment on English learning. Teachers should be able to determine reasonable and actionable teaching objectives, design coherent and clear teaching processes, select and use multiple teaching methods, and effectively organize and implement classroom teaching. Teachers should also constantly observe the teaching process, monitor teaching effectiveness, and timely adjust teaching objectives, content, and methods based on actual teaching situations.

Finally, teachers should actively engage in teaching reflection. Teaching reflection is a continuous process of discovering, analyzing, and solving problems, which is an important way for teachers to achieve progress. Teachers should deepen their understanding of the educational and learning processes, adjust and optimize their teaching behaviors, and improve teaching effectiveness through continuous reflection. All in all, teachers should actively explore effective teaching methods, and become an English teacher with continuous progress and innovative spirit.

2.3.3 The methods of Vocabulary Teaching

For a long time, vocabulary teaching has not received enough attention compared with grammar teaching. But with the accumulation of practical experience, the importance of vocabulary teaching in English teaching has become increasingly significant. There are many ways to teach vocabulary, and the following are several common English vocabulary teaching methods.

1) English-Chinese direct translation method

The translation method is to translate English words into Chinese directly. This is a traditional teaching method lacks context, leading to a phenomenon—soon learned, soon forgotten. This method is to correspond English words with their Chinese meanings one by one, and mechanically memorize the spelling of English words based on their Chinese meanings. When using English vocabulary in practice, it is also usually to think of the Chinese meaning first and then think of the corresponding English vocabulary, treating Chinese as a "transit station" for memorizing English vocabulary (Wang, 2023).

2) Root and Affix method

The root affix method is a scientific and effective method for learning and memorizing English vocabulary. Generally speaking, the root is the fundamental component of a word, determining its meaning. Prefixes change the meaning of a word, while suffixes determine its part of speech (Xu, 2015). Different from traditional mechanical memory, the analysis of roots and affixes and their relationships in teaching makes vocabulary learning more regular and can greatly improve the efficiency of English words memory (Yang, 2021). In addition, the root affixes method establishes the connection between old and new words, allowing students to fully understand the learned vocabulary from a new perspective, while associating with related words, or inferring new words based on the basic knowledge of word formation. Students can break through the memory difficulty in a short time, and improve the quality and quantity of vocabulary. However, the rules of root affixes are relatively complex and boring, making it difficult to stimulate students' interest in learning vocabulary.

3) Intuitive teaching method

Liao (2023) believed the teacher can achieve the purpose of vocabulary teaching by using multimedia to play video, audio or pictures. In addition, they can

also show students relevant objects, models, etc. The advantages of using physical objects in vocabulary teaching are that it can initiate a more authentic context for students and let students understand the meaning of vocabulary directly. It can also reduce the interference in understanding vocabulary, and it is helpful to cultivate students' thinking in English and memory the vocabulary. The use of these tools is also helpful in creating natural language situations. Using multi-media can make the classroom teaching content of English vocabulary more vivid and interesting, so that students can get more intuitive feelings in the visual and auditory aspects, so as to deepen the memory of English vocabulary knowledge in the students' minds (Yang, 2021).

4) Contextual teaching method

According to Tang (2022), the contextual teaching method is a very effective vocabulary teaching method. When teachers place English words in specific contexts, students can better understand and master the meaning and usage of vocabulary, and at the same time, students can deepen their impression and memory of vocabulary, so as to ensure the effectiveness of students' vocabulary learning. For example, when teaching the word 'present', the teacher can create two situations. The first is when it is a noun: "I want to buy a present for my mother." the second is when it is a verb: "A vivid picture was present in her mind." It can be seen that the meaning of the same word varies in different contexts. Creating context provides conditions for students to understand the meaning of word. Research has found that when students learn vocabulary in isolation without context, their level of memory and understanding is not deep enough, and they are prone to forgetting. Therefore, infiltrating vocabulary teaching in reading and allowing students to guess and understand vocabulary through context can not only improve vocabulary learning efficiency, but also improve reading ability. Ensure that students can use their knowledge to infer the meaning of new

words when encountering similar words in future learning, and continuously improve their learning ability (Sun & Zou, 2017).

5) Action demonstration method

When using the action demonstration method, teachers need to present intuitive actions to students during the vocabulary teaching process, and accurately describe the meaning of a word through action demonstrations. Especially when leading students to learn verbs or nouns with strong action, demonstration methods can be used (Ye & Wu, 2022). For instance, vocabulary like jump, run and swim; and vocabulary expressing feelings, such as sad, happy, excited. Through demonstration, real situations can be created, and teachers can do actions with students and encourage students to participate in vocabulary learning activities.

6) Classification teaching method

Classification refers to a method of classifying knowledge or materials that need to be memorized based on certain features and connections, in order to facilitate memory. In the learning and review of English vocabulary, putting words of the same type together for memory can deepen the impression of both learned and newly learned words, which is a good way to remember words (Li, 2020). For example, words can be classified according to different topics such as festivals, occupations, weather, food or according to synonyms and antonyms. Using classified memory strategies can not only improve students' interest in English vocabulary learning, but also help them memorize vocabulary and cultivate their strategic awareness. During the vocabulary learning process, students are able to constantly think about combining new words with old ones, which will help deepen their impression of learning new words (Du, 2022).

2.4 Mind Mapping

2.4.1 The definition of mind mapping

Mind mapping was invented by Tony Bozan, the father of British memory. Mind mapping is a graphical tool that uses lines, symbols, vocabulary, and images to turn a large amount of information into colorful, easy to remember, and organized graphics. Compared with large-scale and single text descriptions, mind mapping has the characteristics of being intuitive, concise, and vivid (Yin, 2023).

Liu (2023) pointed out that mind mapping can express certain complex knowledge in a simple way, enhancing students' understanding and memory of knowledge. Cognitive structure is a way for the brain to process information, which is a process in which the brain learns new knowledge through existing experiences and knowledge. In this process, students can connect new knowledge with old knowledge. And mind mapping has similar movement trajectories to human cognitive structures, so to some extent, mind mapping can also help people construct knowledge structures. With the development of technology, mind mapping has also been increasingly widely used in the field of education. Mind mapping has become a widely used teaching method in the new era classroom. Applying it to daily teaching processes can help students establish a clear and understandable knowledge system, while teachers can integrate and summarize knowledge, present it to students in a more vivid and specific way, help students understand and remember, and stimulate learning interest (Ji, 2023). By using mind mapping to organize teaching content in a timely manner, students can discover the connections between them, deeply understand the teaching content, and fully grasp knowledge (Qiu, 2023).

2.4.2 The components of mind mapping

The components of mind mapping mainly include keywords or central maps, colors, lines, nodes, graphic annotations, and associations (Buzan, T. & Buzan, B. 1993). It is not necessary to include all elements of the vocabulary mind mapping when drawing it. Thus, some main elements of vocabulary mind mapping will be introduced, including words, lines, colors, graphics, and the associated ability required for drawing mind mapping.

Firstly, words. There are keywords and related words on a vocabulary mind mapping. The function of the keywords is to turn on the brain's thinking and make the brain associate and imagine. In the process of making the mind mapping, the divergence of thinking is carried out around the keywords. And the vocabulary associated with the keywords that is thought out through dispersed thinking is called related vocabulary.

Secondly, lines. Lines are the external manifestation of the direction and path of the brain thinking, playing a connecting role in the vocabulary mind mapping, used to connect the relationships between keywords and related words. When drawing the mind mapping, both straight lines and curves can be used, as long as they can serve as connections.

Thirdly, colors. Cleverly using colors can enhance memory and creativity, attract people's attention and make vocabulary mind mapping more vivid. It is recommended to use color reasonably in the mind mapping. For example, the color of the keywords can be highlighted, or the same type of words can be marked with the same color, which will make it easier and faster for students to understand the information and make the whole clear at a glance as well as deepen memory.

Fourthly, graphics. The graphic theory states that a vivid graphic, instead of thousands of words, is more effective when describing a subject. And a graphic allows for a clearer and more detailed explanation for understanding when compared to words consisting of monotonous letters. With the use of vibrant colors and vivid characters, pictures and graphics are easier to recognize tiny distinctions between words. Thus, learning becomes more efficient when graphics are combined with words.

And lastly, the association ability. Memory and understanding are facilitated by the association in the brain. People who have access to association ability can establish a network between old and new information quickly and efficiently. Based on the characteristics of words, various types of vocabulary mind mapping can be drawn through association.

2.4.3 Steps to draw mind mapping

With the wide application of mind mapping in various fields, its drawing methods also show diversified characteristics. People can use mind-master, X-mind and other different computer software to make it (Chen, 2022). During classroom teaching, mind mapping is mainly drawn by hand. Before starting to draw a vocabulary mind mapping, students need to prepare white paper, pencils, and watercolor pens. In addition, it is also important to fully prepare the creativity and imagination in the brain.

To draw a vocabulary mind mapping, it is generally divided into the following four steps: the first step is to select a central word or theme and write it on the center of white paper, leaving enough space around it. At the same time, students can draw some graphics or write some words to explain the central word. The second step is to brainstorm and divergent thinking, come up with the word that has the closest logical

relationship with the central word, and write it around the central word. Use thicker lines or brighter colors to connect the central word with the first level related words. Students can write the logical relationship between words on the line. The third step is to extend more branches downwards based on the first level related words, and so on, continuously forming a vocabulary knowledge network. The fourth step is that after the mind mapping is drawn, students can view the mind mapping according to actual situation. If new words need to be added, they can add new words and corresponding pictures in appropriate positions, then connect them to the old words with new lines.

Besides, there are some principles of drawing mind mapping: firstly, focus on the key part. The mind mapping should highlight the central word and the associated vocabulary expanded from the central word. Secondly, use association. The core of mind mapping is divergent thinking. Students should activate the brain's divergent thinking ability and creative imagination as much as possible. Thirdly, make it clear and visual. Although the advantage of mind mapping is divergent thinking, Students should pay attention to the graphics drawn to clearly and visually reflect the logic between the associated knowledge. And lastly, develop a personal style. The role of mind mapping is to visually display the thinking in the mind of the mapper. Students can draw a unique mind mapping according to their styles and preferences.

2.4.4 Forms of mind mapping

Cai (2018) divided mind mapping into eight types in his book "Learning Mind Maps from scratch", namely: circle map, bubble map, double bubble maps, tree map, bracket map, flow map, complex flow map, and bridge map. In this study, the researcher will introduce the six most widely used types.

Circle map, as the name suggests, is a map composed of circles. Circle map is often used to define infinite divergence based on a central theme within a circle. The traditional circle map consists of two concentric circles, with the inner circle being the central theme. The large circle surrounding it is used to fill in all information related to the central theme. You can use circle map for brainstorming, making the large circle surrounding the central theme infinitely large, so that the thinking and details that can be accommodated are also infinite. An example of a circle map of "pencil box" is shown in Figure 2.1.
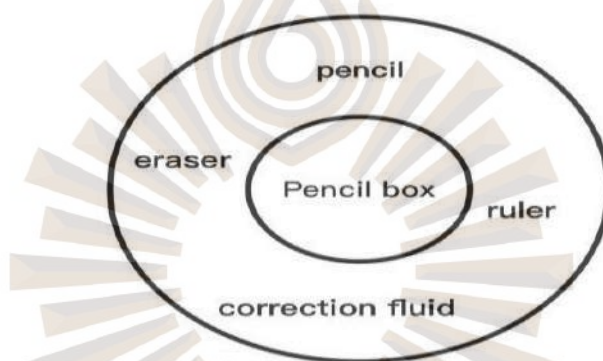
Figure 2.1 Circle map "pencil box" model

Source: Researcher

Bubble map naturally have the property of dispersion and expansion, and can be infinitely expanded on a single layer basis. The structure of a bubble map is extended from a circle chart, which is usually used to describe the properties of things or the corresponding relationships between things. When drawing a bubble map, the central theme is usually written in the center circle, and then branch connected bubbles are used to describe the relevant content of the central theme. This type of map can help people quickly discover various features of things, effectively exercising people's divergent thinking. An example of a bubble map of "fruit" is shown in Figure 2.2.

Figure 2.2 Bubble map "fruit" model

Source: Researcher

Double bubble map has the same overall form as a bubble map, with branches used to connect different bubbles together. But unlike bubble map, double bubble maps h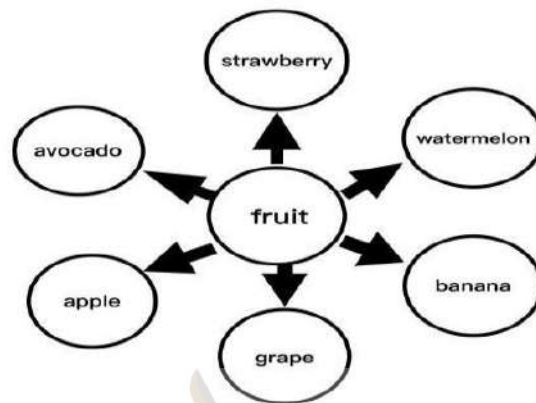ave two central themes, and they are often used to compare and contrast two things, identifying their differences and similarities. When drawing a double bubble map, the two central themes should be drawn in two different circles. Like a bubble map, branches are connected to more bubbles, which can diverge thinking, creating a common association between two central themes. However, once there is a common association between two central themes, they need to be connected together through a common bubble. Double bubble maps often appear disorganized because common branches intersect with different branches. But the double bubble map also has an advantage, which is that when thinking is limited to one layer of logic, the commonalities between the two central themes can be clearly understood at a glance. An example of a double bubble map of "Creatures living in water or living on land" is shown in Figure 2.3.
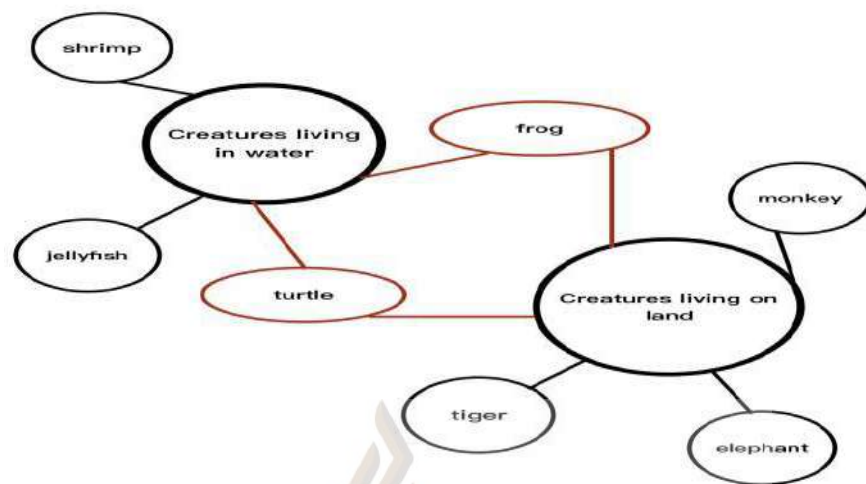
Figure 2.3 Double bubble map "Creatures living in water or on land" model

Source: Researcher

Tree map looks like a tangled branch. It is different from the divergent forms of bubble map and circle map, and is more suitable for grouping or classifying things, making it easier to organize and summarize. From the form of tree map, it is not limited to the first layer of thinking. The second layer can perform infinite divergence and add all information related to the previous layer. When drawing a tree map, the central theme should be placed at the top of the tree map, and the classified content should be written below. Based on the hierarchy of primary, secondary, and tertiary themes, it should diverge like a tree branch. An example of a tree map of "Transportation" is shown in Figure 2.4.
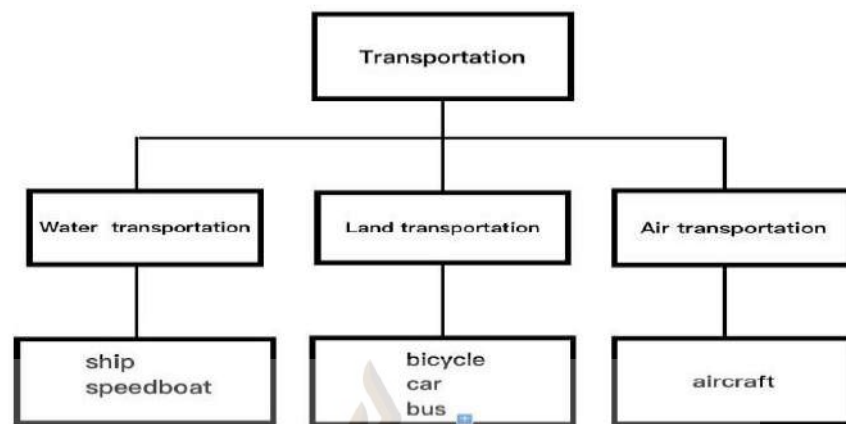
Figure 2.4 Tree map "transportation" model

Source: Researcher

Bracket map can accurately analyze the overall and partial of things. Drawing a brace map usually involves writing or drawing a central theme on the left side of the brace map, then using a brace to represent the dispersion of the central theme, and then using a brace to describe the relevant content of each section. Brace map can also cultivate a person's sense of space, as they are mainly used for decomposition, so how to decompose and which parts to decompose into are the key points. During the process of drawing brace map, it is also possible to clearly understand how the center of the theme is formed. An example of a brace map of "car" is shown in Figure 2.5.
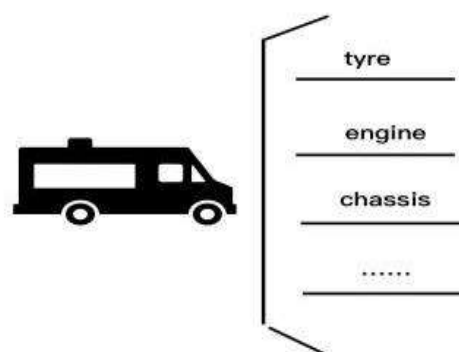
Figure 2.5 Bracket map "car" model

Source: Researcher

Flow map is mainly used to depict an event, which can most intuitively display the sequence, process, and steps of events with strong coherence. Therefore, flow map is also the most effective form of mind mapping that can cultivate procedural thinking. When drawing a flow map, the central theme is usually written in the largest box, and then arrows are used to connect other small boxes in order, and the entire process of the central theme is described in logical order. The application of flow map is very extensive, including the storytelling process of a book or the steps for making delicious food. An example of a flow map of "The growth process of plants" is shown in Figure 2.6.
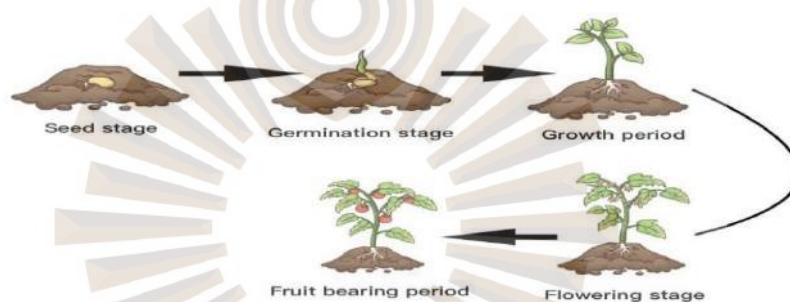
Figure 2.6 Flow map "The growth process of plants" model

Source: Researcher

2.4.5 The benefits of using mind mapping for teaching

1) Stimulate students' interest in learning

In the current English vocabulary classroom, some teachers' teaching methods are too traditional, and "rote learning" is still a common phenomenon in vocabulary learning. This monotonous teaching method can lead to a dull classroom atmosphere, which can make students feel bored and hinder their development. The application of mind mapping as a graphical tool can break the negative impact brought about by traditional vocabulary teaching methods.

Ma (2023) believed that mind mapping is a new teaching method that is very suitable for students' development. Students learn and summarize the vocabulary they have learned, classify the words, and draw a mind map based on the meaning, roots, affixes, and other parts of speech. This helps students remember words, changes the dull atmosphere of learning English, stimulates their interest in learning English, and mobilizes their initiative in learning. By drawing mind maps, students can experience autonomous and interesting vocabulary exploration, and experience the joy of learning. When students draw mind maps, they need to independently construct elements such as lines, shapes, space, and colors, and combine their own creativity to create mind maps with personal characteristics. In this way, the originally dull vocabulary teaching process becomes vibrant due to the integration of mind maps. Students can experience joy in the process of vocabulary exploration, which can further enhance their focus and improve their overall English literacy (Peng, 2023).

2) Improve the efficiency of students' learning English vocabulary

It is not difficult to find that the English vocabulary is not only numerous, but the same word can also express multiple different meanings, which makes it difficult for students to clearly grasp and remember words during the learning process. In order to help students learn and expand their English vocabulary, using mind mapping is conducive to improving students' efficiency in learning English vocabulary and helping students form a deep and complete impression on vocabulary in their minds. After learning a topic, in order to help students clearly integrate words, teachers can scientifically use mind mapping to summarize words and knowledge points related to the topic, enabling students to have a clearer and deeper understanding of the knowledge learned, thereby forming a knowledge system that integrates many scattered knowledge points to improve students' learning efficiency (Hu, 2023).

In addition, although the amount of vocabulary learning is large, if students can learn to use mind maps to memorize words from the main classification, the efficiency and accuracy of memorizing words can be greatly improved, which naturally improves students' English learning ability. Therefore, in daily teaching, teachers should enable students to recognize the important role of classification methods in word memory, as well as the significance of such methods in efficiently memorizing words.

3) Beneficial for students to master effective learning methods

In the traditional vocabulary teaching mode, students often memorize vocabulary through rote memorization, lacking reasonable and effective learning methods. Especially after the teacher completes the content of the topic, they will arrange students to actively review after class. However, many students do not know effective methods of review, and even do not know how to review. They often only leave the review task aside, and in this situation, the knowledge points learned will soon be forgotten. However, if under the guidance of the teacher, students are trained to summarize vocabulary through mind mapping, effectively linking new knowledge with old knowledge that needs to be consolidated and knowledge that needs to be expanded, then the knowledge framework can be clearly understood during review (Hu, 2023).

It is extremely crucial to find efficient learning methods in order to improve learning efficiency and ability. And mind mapping is a method that has been proven to be useful for learning. At the same time, when drawing mind mapping, it can also enhance students' thinking and association abilities, which is also very beneficial for their comprehensive development.

2.5 Game Teaching Method

2.5.1 Educational Principles to follow in using game teaching method

The premise of English classroom games is to serve English teaching. When using games, teachers must meet the requirements of English teaching curriculum standards to assist on completing the teaching objectives and tasks of this lesson. Therefore, using games for teaching, the following principles should be followed (Huang, 2022).

1) Targeted principle

To carry out the English vocabulary game teaching method, the first principle is to have a clear teaching goal. The setting of game activities is to serve the teaching goal of vocabulary memory accumulation, so it must be closely related to the specific teaching content. The goal of game based teaching method is not simply to improve the efficiency of memorizing English vocabulary, but to make students remember easily, deeply, and flexibly. Allowing students to memorize vocabulary without rote memorization, boredom, and repetition, allowing them to experience the joy of games and learning while memorizing vocabulary, so as not to cause some students to develop boredom or aversion to English.

2) Participation principle

The principle of participation refers to an effective teaching method in which all teachers and students participate, allowing students of different intellectual levels to participate. The game based teaching method is not aimed at some people, but at creating different teaching methods for everyone. When designing vocabulary game activities, teachers should start from the age characteristics of students and design various game forms that are flexible and changeable. It is necessary to fully

mobilize the enthusiasm of each student to participate in the game, strengthen communication and feedback between students and teachers, so that students can clearly understand the teacher's intentions and master the knowledge they have learned, and then apply this knowledge to practical life.

3) Flexibility principle

Flexibility means that in teaching, teachers should always pay attention to game activities, grasp of classroom atmosphere and adjust rhythm in the game according to specific situations. Meanwhile, flexibly handle the relationship between teaching and the game, the game should comply with teaching requirements and carry out game activities around the teaching content. No matter how good the game is, after playing a few times, students will have no interest in it. This requires teachers to continuously accumulate methods of games and constantly design new games to meet the strong curiosity and freshness of students (Shi, 2021).

4) Principle of reward and punishment

The games in our life generally have rules of rewards and punishments. Appropriate rewards and punishments will give students unremitting motivation to experience the joy of games in the game teaching method, stimulate their independent thinking, independent participation, and independent reinforcement learning, so as to establish their independent, persistent character and strong perseverance. Rewards and punishments can also be based on the English vocabulary memory specifications in the game, which is a special part of the game teaching method. Reasonable rewards and punishments can motivate them to strive to remember new vocabulary and actively participate in the game.

2.5.2 Using games in teaching

Game teaching method means that teachers should respect students and respect their nature, instinct and personality when teaching vocabulary. In vocabulary teaching, competition, cooperation and other elements in games are introduced into vocabulary teaching to attract students' interest and enthusiasm for vocabulary learning through such a novel teaching mode (Zhang, 2021). It can enable students to learn knowledge imperceptibly in the game, improve students' cooperation and communication ability in the game, and influence students' patience and carefulness, so as to further improve students' comprehensive quality (Liu, 2022). The researcher will apply the following four games to English vocabulary teaching:

1) "Vocabulary Spelling"

The rule of this game is that the teacher divides students into two groups and distributing several cards with letters to the students. After the teacher says the word, the students combine the letters in their hands with the letters of other students to form the corresponding vocabulary. Among them, the group that can quickly combine vocabulary wins, and each student of the winning team can receive one point. After a few rounds, the student with the highest cumulative score wins the championship. In the process of vocabulary teaching, the spelling competition can not only activate the classroom atmosphere, but also help students master the writing and reading methods of vocabulary, and improve students' ability to comprehensively use vocabulary (Ren, 2023).

2) "Clean the blackboard"

The rule of this game is the teacher assigning students to randomly write down the words that need to be reviewed on the blackboard before the game starts. Then divide the students into two groups for competition. The teacher randomly

reads the Chinese meaning of words, and the two participants in the competition will rush up as quickly as possible to find and erase the English corresponding to the Chinese spoken by the teacher. The first person to find the word and erase it can get a point. Then, the second person prepares to relay and so on. If the first person does not wipe it off, then the second person can only relay after he has wiped it off and so on. The team where all students have participated in the game wins.

3) "You move and I guess"

The rule of this game is that the teacher divides students into two groups for competition before the game starts. Give 15 cards to each group and write down the English vocabulary they will learn on the cards. Then, under the guidance of the teacher, students engage in a game where two people move and two people guess. Students who use gestures describe the meaning of words in English and body movements, but cannot directly say the words on the card. The other two students guess and say the English word after guessing, then spell it out. If student can't guess it, he can say "pass", and each group has three chances to say "pass". The team that guesses the most words correctly within the specified time wins. This game not only helps to liven up the classroom atmosphere, but also stimulates students' enthusiasm for learning. At the same time, by actively participating in games, students can also concentrate their classroom attention and promote the development of oral and vocabulary comprehension abilities (Ren, 2023).

4) "Pointless"

This game evolved from a British knowledge quiz show. It has still not been widely used in English classes in China. Generally speaking, knowledge quiz game, the higher score the better. However, "pointless" is the opposite, the lower score the better, zero score is best. The rule of this game is that the teacher divides students into two groups for competition before the game starts. The teacher asks students a

question, such as what kind of transportation? Then give students one minute to think about all the possible words, but not only to be correct but also the less common the better. After one minute, the students say the words and compare them with the reference answers. Each reference answer has a corresponding score, which is set by the teacher based on the frequency of the word. A higher score indicates that the word is common and not good, while a lower score indicates that not many people know the word, which is better. If the student answers incorrectly, they will receive 100 points directly; If the score is 90, it indicates that the answer is too popular. Students can get a score of 90, but this is not a very good score; If the answer given by the student is not included in the list, but the word is correct, it indicates that the student can receive a score of 0, with the highest score. After a few rounds, whichever team has the lowest cumulative score wins.

2.5.3 The benefits of using game teaching method for teaching

1) It is beneficial to improving students' thinking activity

In game teaching, students' brains are always active because they are playing games, and they can also have their own thoughts on the knowledge they have learned in the game, which changes their previous identity as "receiver" and makes learning more interesting (Shao, 2021).

In traditional teaching models, teachers are the dominant players in teaching activities, and students only need to learn according to the teaching plan planned by the teachers, with almost no autonomy and initiative in learning, thus losing the vitality of thinking. Meanwhile, because middle school students are in adolescence and are easily influenced by external factors, it is difficult to maintain concentration for a long time, resulting in poor learning outcomes. In game teaching, games are usually designed based on students' age characteristics and interests, so

students' participation enthusiasm is also higher. At the same time, because teaching activities are carried out in a more interesting form, students will also be more proactive in cooperating with the teacher. This method breaks the previously dull classroom atmosphere, stimulates students' interest in learning English, and also attracts their attention.

2) It is beneficial to improving students' learning efficiency

In traditional teaching, most students memorize words through rote memorization. Although this method can also remember some words, the memory effect is not very good and it is easy to forget. Introducing games into teaching activities usually involves students completing the memorization of words through their own understanding and thinking, which makes it easier to deepen their impression of the words. As a result, their memory of the words becomes stronger and their learning efficiency naturally improves.

2.6 Combination of Mind Mapping and Game Teaching Method

2.6.1 The advantages of combining mind mapping and game teaching method

1) Stimulate students' interest in learning

Interest is an important factor affecting the learning efficiency of students. Only when students have enough interest in learning can they fully immerse themselves in classroom learning (Tang, 2019). Drawing mind mapping and playing games in class both attract students' attention and activate the classroom atmosphere. In the process of drawing mind mapping or playing games, students' initiative is reflected, and each student can actively participate in classroom activities instead of sitting quietly in a chair and listening to the boring theoretical knowledge from the

teacher without thinking. Therefore, the combination of the two can help students break away from the state of 'wanting to sleep from the beginning of class', make them the main body of the classroom and provide them with a pleasant learning experience in a relaxed and joyful classroom atmosphere.

2) Improve students' learning efficiency

When drawing mind maps in the class, the teacher should guide students to brainstorm, by associating theme words, dispersing their thinking and coming up with more relevant vocabulary, thereby expanding students' vocabulary. The forms of games are diverse, and different types of games can play different roles. For example, spelling game is for memorizing words, clean the blackboard game is for reviewing words, and pointless game is for expanding vocabulary. Introducing various games with different purposes in the classroom can improve students' abilities in various aspects, thereby improving their overall English proficiency. Consequently, the combination of the two can effectively improve students' learning efficiency and teachers' teaching quality.

3) Improve students' thinking ability

Drawing a mind map is not simply about drawing a picture. It requires students to actively think and integrate the relationships between words from different perspectives, in order to draw a logical vocabulary mind mapping. When using games for teaching, students are in a process that requires continuous thinking. In order to achieve victory as much as possible, they need to carefully understand the game rules and constantly actively participate and think during the process of playing games. Thus, the combination of the two can give students more room for thinking, thereby improving their thinking ability.

2.6.2 The necessity of using mind mapping and game teaching method in English vocabulary

There are still many problems to be solved in the current junior high school English vocabulary class. For example, students have low learning enthusiasm, lack of interest in learning English vocabulary, lack of correct vocabulary learning methods, teaching methods are too traditional, teachers do not expand more related vocabulary, and do not cultivate students' independent thinking ability, and so on. These issues can hinder students' interest in English learning, thereby affecting learning outcomes. Whether in terms of exams or learning a foreign language well, both teachers' teaching methods and students' learning methods need to be adjusted. With the development of the times, traditional teaching models are no longer desirable, and the trend of innovative teaching methods is unstoppable. Combining mind mapping and game based teaching methods is a good choice for teaching, and many researchers have confirmed that it is beneficial for vocabulary teaching, both for teachers and students. Therefore, the combination can provide some help for future English vocabulary classroom teaching and provide new perspectives for teachers' teaching models.

2.7 Students' Learning Satisfaction

As an activity to cultivate people, the fundamental purpose of education is to promote students' learning and development, thereby cultivating talents for the country. Students are the most important stakeholders in any educational institution. In addition to their progress and development, the important indicator of educational development is student satisfaction. The concept of learning satisfaction was initially borrowed from "customer satisfaction". Simply put, learning satisfaction refers to a certain emotional state that arises when students compare their learning outcomes with

expected outcomes after a period of learning (Ma, 2022). Satisfaction is usually measured through comprehensive feedback and measurement of the psychological state, attitude, and satisfaction of the target group through questionnaire surveys or in-depth interviews (Shen, 2015).

English learning is extremely important and students' satisfaction with learning English is also used as an important way to evaluate English teaching and learning. Satisfaction with learning is a measure of students' education, reflecting their learning problems at a particular stage, and is an important reference for promoting educational reform and improving the quality of teaching (Liu, 2023). The satisfaction survey is both a rational assessment between students' perceptions and expectations and a psychological representation of university students' learning and attitudes, feelings and experiences, as well as an important tool for school management and an important indicator for improving the overall level of educational quality (Yang, 2017).

2.8 Related Studies and Research

2.8.1 Related studies and research on mind mapping

The use of mind mapping has been tested in many studies to improve learners' English vocabulary skill over the years. Research related to this area is discussed in this section.

Chen (2022) explored the application of mind mapping in middle school English vocabulary teaching. She found that applying mind mapping in English vocabulary teaching can effectively enhance the memory effect and learning quality of students. And the introduction of mind mapping is beneficial for teachers to change traditional teaching concepts, guide them to learn more diverse teaching concepts, and thus develop teaching plans that can stimulate students' interest in learning.

Long (2022) found through the use of mind mapping in English teaching that students' changes and gains after teaching practice are multifaceted. Students generally feel more relaxed and joyful throughout the entire teaching practice process, not only gaining a positive learning experience during this process, but more importantly, effectively improving students' language abilities. Moreover, students' thinking quality and learning ability have also been improved to varying degrees. The most important aspect is to cultivate students' ability to summarize, and transform it into fixed thinking and learning habits.

Yang (2022) pointed out that the application of mind mapping in English vocabulary teaching has optimized junior high school students' vocabulary learning strategies. Through a questionnaire survey of the students in the experimental class before and after the experiment, she found that the use of mind mapping as a learning tool changed most students' vocabulary learning strategies and methods, such as classification, association. In addition, mind mapping greatly enhances learners' interest in English learning, making them more active during English practice. Therefore, she concluded that mind mapping has been proven to be effective in improving students' vocabulary efficiency.

Zhao (2022) conducted relevant research on the use of mind mapping, and he found the application of mind mapping to new English words teaching and learning class can arouse, improve, and enhance students' interest in vocabulary learning. Although most students in grade 8 have interest in learning new English words, and they are quite satisfied with their current new English words learning, a large number of them lack efficient new English words learning strategies or habits.

Ju (2021) explored the application of mind mapping in English vocabulary teaching in rural primary. She found that in the process of drawing mind mapping,

students could make full use of their imagination and creativity. Students become more active in learning English vocabulary. In addition, mind mapping could help students improve the ability of independent learning and change their original learning habits. What's more, mind mapping effectively mobilize students' learning enthusiasm, so that students could find appropriate learning methods and mobilize students' learning enthusiasm and initiative.

In Huang's (2021) view, students' attitudes to vocabulary learning, positively affected by the researcher's application of mind mapping to junior high school vocabulary teaching, are improved, which includes two aspects. One is that students' interest in vocabulary learning is raised. Students like the English vocabulary class much better than before. They actively participated in classroom activities and interacted with the teacher. The other is that students' autonomy in vocabulary learning is also improved. They took initiative to spend time previewing new words, which can improve the efficiency of vocabulary teaching in class. They are also more willing to take notes in class because mind mapping drawn by the teacher can help them memorize words deeply and efficiently.

To sum up, through the research on the use of mind mapping in English teaching by the above researchers, it is obvious that the mind mapping is effective in vocabulary teaching. The common point of their research results is that mind mapping can stimulate students' interest in learning English vocabulary, arouse their enthusiasm for learning, improve their English scores, and enlarge their vocabulary.

2.8.2 Related studies and research on game teaching method

Zhang (2021) emphasized that the application of "game teaching method" to the daily teaching of vocabulary is conducive to students to improve their vocabulary

level and their comprehensive English quality, and is conducive to the maximum use of games to help students memorize and learn vocabulary. Such an emerging educational method is conducive to the cultivation of comprehensive English talents suitable for the development of China and the requirements of the times, and is conducive to the sustainable development of students' English learning.

Tang (2022), after using the game teaching method, almost all the students thought that learning English vocabulary was an interesting process, and they were willing to participate in activities in the class actively, and also found that students were more interested in learning vocabulary. A great number of students in the class is passionate to learn English vocabulary, and they speak actively in class, which makes their pronunciation and remembering word ability have been greatly improved. Game activities also help learners gain a great interest in learning English vocabulary, so that students can learn vocabulary independently.

Zhang (2019) found game teaching approach can make students more interested in learning vocabulary. More students are learning because they like English rather than the pressure of exams or requirement of teachers and parents. Then, the game teaching approach makes students more active in class. Using games in vocabulary teaching gave students more opportunities to perform in the class. The game requires the participation and cooperation of students, so students have a lot of positive interactions with classmates and the teacher. Finally, it makes students more active in the classroom and can get more chance for language output. Game teaching approach can not only arouse students' interest in vocabulary learning, but also help students to learn vocabulary effectively.

Xie (2020) mentioned the use of "Vocabulary Solitaire" game teaching method in primary school English vocabulary learning. Under the premise of mastering a large

number of words, students can strengthen and consolidate English vocabulary, deepen the impression of vocabulary, and accumulate a solid and rich vocabulary for students' subsequent English learning.

In Xu's (2022) view, game teaching method can promote the positive change of students' emotional attitude. In the learning process, because the game conforms to the nature and interests of students, it greatly stimulates students' learning interest and enthusiasm for learning content, and can maintain a positive learning attitude. Under the influence of this positive learning emotion, students can maintain their attention for a longer time, reduce their anxiety in English vocabulary learning, and actively participate in classroom learning activities. It can give full play to the role and status of students as learning subjects and promote the positive change of students' learning emotional attitude.

Li (2019) pointed out that using games for teaching is very beneficial. In games, students can move, jump, sing, draw, and perform. There are various forms of games, especially vocabulary classroom teaching, which is more interesting and reasonable. In the game, students can more easily accept new words, spell them, and write new words. The significance of interest in students' learning is self-evident, and it can unleash students' initiative, transforming passive learning into active learning. The biggest role of game teaching is to greatly activate the classroom atmosphere, make learning no longer boring, and improve students' learning effectiveness through playing games.

In Huang's (2022) study, she found that game teaching method can improve the learning enthusiasm of junior high school students. This method is effectively integrated into the English classroom teaching of junior high school, with various

games, to attract junior high school students' attention, mobilize their curiosity, so as to enhance the learning skills of students.

In summary, it can be seen that the use of game teaching method in English teaching is of great help to stimulate students' interest in English learning. However, there are still shortcomings in these studies. Most of the research focuses on the combination of game and early childhood English teaching and primary English classroom. For the junior high school, there is not much research at present. Moreover, most of the existing research on game teaching method focuses on spoken English, and there is relatively little research on English vocabulary teaching. Therefore, this study will take the grade 8 students as the research object, conduct English vocabulary teaching, and fully utilize the advantages of game teaching method.
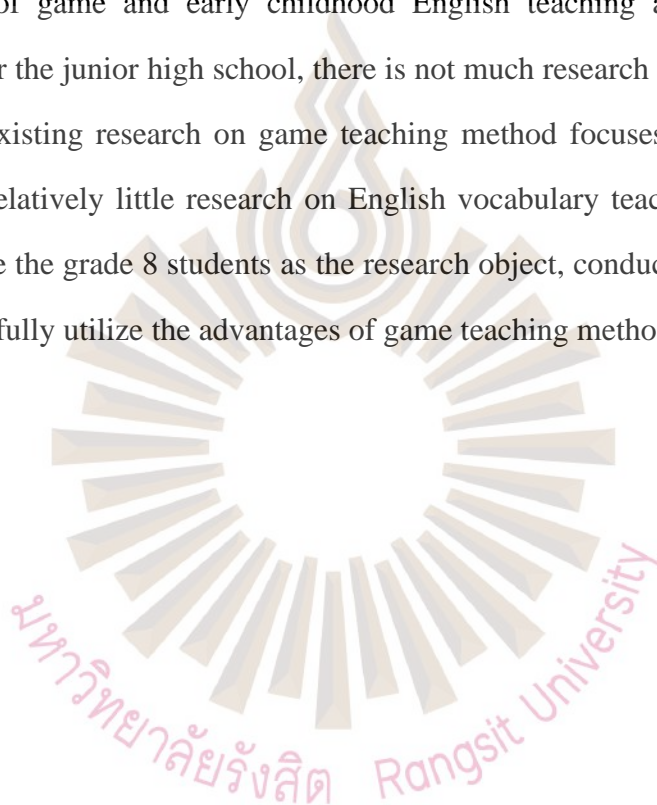
CHAPTER 3

RESEARCH METHODOLOGY

The purposes of this study were to compare grade 8 Chinese students' English vocabulary skill before and after using mind mapping and game teaching method, as well as to investigate their satisfaction with using mind mapping and game teaching method in English vocabulary courses. In this chapter, the researcher is going to present the methodology of this research. It includes the research design, the sample group, the research instruments used to collect data, the validity and reliability of the research instruments, and the data analysis.

3.1 Research Design

In this study, a quantitative method was used to assess the achievement of grade 8 Chinese students and their satisfaction with the mind mapping and game teaching method. Zhou (2008) emphasized the importance of researchers in fully understanding quantitative research method. As a quantitative method, it can be extended a wide range of topics and research, which is objective and accurate, and the information is closed, so there are very few variables that need to be considered. With the widespread use of digital technology, the process of collecting survey information has become increasingly automated. Therefore, respondents from all over the world can participate simultaneously as conveniently and quickly as possible.

In order to analyze the data, a quantitative method was used in this study. To collect data, achievement tests and questionnaire were used. Achievement tests included pre-test and post-test, in addition to the tests, a questionnaire was also added

to determine the students' satisfaction with the mind mapping and game teaching method to learning English vocabulary skill.

According to the research objectives, this study used quantitative research. The achievement test was used to collect data to compare students' English vocabulary skill before and after using mind mapping and game teaching method. A questionnaire was conducted to investigate students' satisfaction with using mind mapping and game teaching method in English vocabulary courses. The following figure 3.1 illustrates the research design of the study.
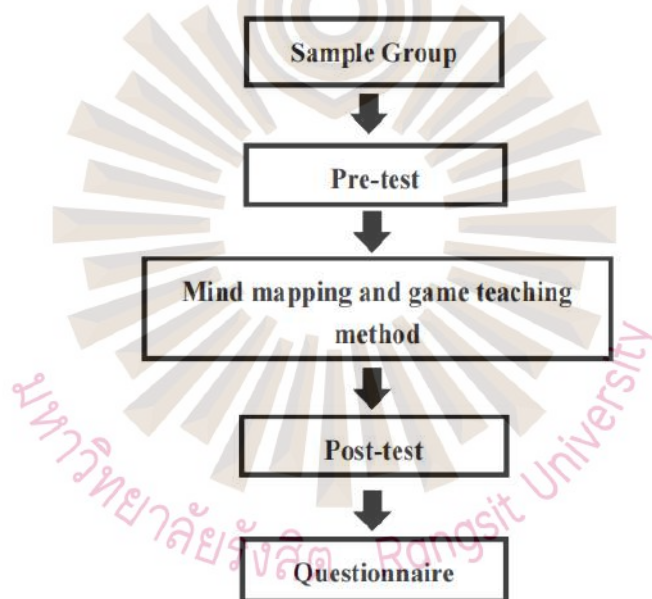

Figure 3.1 Research Design of the study

3.2 Population and Sample

3.2.1 Population

The population of this study included 100 grade 8 students from a junior high school in Yunnan province, China. These students were approximately 14 years old, and they had different genders and English proficiency levels.

3.2.2 Sample group

Using a cluster random sampling method, the researcher selected only a class of 30 students in grade 8. The students in this class were mixed in gender and had different English proficiency levels. All students in the sample group were born in China and speak Chinese. Chinese is their mother tongue, and they started learning English from grade 3 of primary school when it became a compulsory course.

3.3 Research Instruments

According to Lee and Sun (2018), an instrument of research is a tool designed to collect, measure, and evaluate data about a topic of interest to research participants. In this study, four lesson plans, achievement tests (pre-test and post-test), and a satisfaction questionnaire were used as research instruments, as they would be used to collect data to solve the research questions. The details of the research tools used to achieve the research objectives in this study are shown in Table 3.1 below.

Table 3.1 Research Objectives and Instruments

S1. No.	Research Objectives	Research Instruments
1.	To compare grade 8 Chinese students' English vocabulary skill before and after using mind mapping and game teaching method.	Pretest and posttest on English vocabulary achievement.
2.	To investigate grade 8 Chinese students' satisfaction after using mind mapping and game teaching method.	Questionnaire

3.3.1 Instructional Instrument

3.3.1.1 Lesson Plans

The researcher designed four 90-minute lesson plans, for a total of 360 minutes. The lessons were conducted twice a week for a total of 8 sessions (1 lesson plan = 2 sessions). After four weeks, the researcher taught eight sessions. Additionally, the English proficiency of the sample group was taken into account when choosing the study topic. The list of the lesson plans is shown in Table 3.2 below.

Table 3.2 List of Lesson Plans

Lesson Plan	Topics	Time length (minutes)	Mind mapping and game teaching method
Lesson 1	I'm going to study computer science	90mins	Tree Map; Pointless
Lesson 2	Where did you go on vacation?	90mins	Bracket Map; Clean the blackboard
Lesson 3	How often do you exercise?	90mins	Bubble Map; You move and I guess
Lesson 4	How do you make a banana milk shake?	90mins	Flow Map; Vocabulary spelling

3.3.2 Quantitative Data Collection Instrument

3.3.2.1 English Achievement Tests (Pretest and Posttest)

The English achievement test was used to measure students' achievement before and after using mind mapping and game teaching method and to compare their achievements before and after the intervention. In this study, the achievement test was divided into two parts: a pretest and a posttest. After using mind mapping and game teaching method for English vocabulary teaching, the same

participants were given a posttest with the same test content as the pretest. The test was presented in three forms: multiple-choice questions, fill-in-the-blank questions, and cloze filling questions. The first question was to choose the correct English word to fill in the space among the four options based on the given English sentence, and the second question was to write the correct English word based on the given Chinese meaning, and the third question was reading the passage and choose the best option from the four options that could be filled in the corresponding blank space.

3.3.2.2 Questionnaire

An anonymous questionnaire was administered to students to examine their satisfaction with the use of mind mapping and game teaching method during English vocabulary courses. The questionnaire consisted of 15 statements on a five-point Likert scale. The statements were rated from 5 to 1. (5) strongly agree, (4) agree, (3) neutral, (2) disagree, and (1) strongly disagree. These statements were divided into three parts: part A was interest and motivation, part B was engagement, and part C was efficacy of mind mapping and game teaching method on student learning. Before the participants score each statement on the questionnaire, they were fully informed that the researcher would use their mother tongue to guide and provide sufficient explanations for each statement.

3.4 Validity and Reliability

3.4.1 Validity

According to Liu (2022), validity usually determines whether the research conducted measures the purpose of the research or the authenticity of the results. In this study, the research instruments were tested and validated by three experts, all of them from China. The index of Item Objective Consistency (IOC), developed by

Rovinelli and Hambleton in 1997 (Carlson & Turener, 2013), was used in this study. The score range of IOC is from -1 to +1.

      1) + 1: the item clearly matches the stated objectives.

      2) 0: the item is unclear whether the measures meet the stated objectives or not.

      3) -1: the item does not match the stated objectives.

In addition, the operative score domain is from 0.67 to +1. This item will be used as a part of the instrument if the value of the item is between 0.67 and 1.00. However, if the value is below 0.67, the item is considered unclear and should be rephrased or deleted.

In this study, all research instruments were validated by three experts in English teaching and education in China. The validity test result of lesson plans was 1, the validity test result of achievement tests was 0.945, and the validity test result of questionnaire was 0.956. In general, the validity test results of all instruments were greater than or equal to 0.67.

3.4.2 Reliability

Reliability is used to measure whether the results are replicable and can be consistent over time (Golafshani, 2003). In this study, two methods were used to test the reliability of the questionnaire and the achievement test: Cronbach's Alpha and KR-20, respectively. According to Zhang and Tian (2007), reliability is the consistency of results obtained by using instruments that were repeated tested. Therefore, in order to replicate the study, the researcher gave the questionnaire and achievement test to another 30 students at the same level.

The reliability of the data was tested by using Cronbach's Alpha. The internal consistency is shown below:

Table 3.3 Cronbach's Alpha Rule of Thumb

Cronbach's Alpha Rule of Thumb	Internal Consistency
$\alpha \geq 0.9$	Excellent
$0.8 \leq \alpha < 0.9$	Good
$0.7 \leq \alpha < 0.8$	Acceptable
$0.6 \leq \alpha < 0.7$	Questionable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha < 0.5$	Unacceptable

Source: Habidin, 2015

The higher the score, the higher the reliability. All items of the questionnaire were tested using Cronbach's Alpha. If the score is below 0.7, the item will be considered unreliable and will be deleted. In this study, the reliability test result for the questionnaire was 0.81, which was acceptable to be used for further process.

3.4.2.1 The Reliability of the Achievement Test

The Kuder-Richardson formula (KR-20) was used to check the reliability of the achievement test items in this study. If the value of KR-20 is equal to or higher than 0.70, the test item will be considered reliable. However, if the value is below 0.70, the item will be adjusted or removed.

To examine the reliability of the test items, the test was distributed to 30 students who were not in the sample group. In this study, the reliability test result for the achievement test was 0.85, which was acceptable to be used for further process.

3.5 Data Collection Procedure

3.5.1 Ethical Approvement

In order to conduct research in the school, the researcher obtained an approval letter from the junior high school in Yunnan province, China (see Appendix A). Since the participants in this study were around 13 to 14 years old, the researcher also sought the consent of the responsible school department and parents.

3.5.2 Confidentiality

Before conducting the data collection, the researcher informed the participants of all information regarding the progress of the study. After the study was completed, all data were kept confidential and deleted by the researcher.

3.5.3 Data collection

The sample population included 30 students from a junior high school in Yunnan province, China. They were around 13 to 14 years old, with different genders and English learning abilities. In this study, the data collection lasted for four weeks. The researcher designed four lesson plans. The lessons were conducted twice a week for 2 sessions. Meanwhile, students learning outcomes were collected through a pretest, a posttest and a questionnaire.

3.6 Data Analysis

The data were analyzed by using two different methods, both of which were consistent with the two research objectives. Quantitative data from the pretest and posttest were used to examine the improvement in English vocabulary of the sample group. Moreover, the quantitative data from the survey were also used to investigate

students' satisfaction with the use of mind mapping and game teaching method to achieve teaching objectives in English classrooms.

Quantitative data obtained from the achievement tests (pretest and posttest) were analyzed by paired sample t-test, which was drawn by computing the mean, standard deviation, and significance value. Meanwhile, the questionnaire responses were analyzed by mean and standard deviation. To sum up, these methods were used to investigate grade 8 students' achievement in English vocabulary skill and their satisfaction with the use of mind mapping and game teaching method. The questionnaire results (means) were interpreted based on the range of mean score interpretations below.

Table 3.4 The Range of Mean Score Interpretation

Mean Score Range	Students' Perceptions Level
4.21-5.00	Highest
3.41-4.20	High
2.61-3.40	Moderate
1.81-2.60	Low
1.00-1.80	Lowest

Source: Baidubaike, 2022

CHAPTER 4

RESULTS

In this study, a quasi-experimental design was used to compare the English vocabulary skill of grade 8 students before and after the use of mind mapping and game teaching method, and to investigate the students' satisfaction with mind mapping and game teaching method in learning English vocabulary. The results of the study were obtained from the following research instruments: pre-test, post-test, and questionnaire. The findings of the data are presented in the following order:

4.1 Analysis of English Vocabulary Test Scores

4.2 Analysis of Questionnaire

4.1 Analysis of English Vocabulary Test Scores

This section presents the results of the first research question, the use of mind mapping and game teaching method to improve English vocabulary scores of grade 8 students. The results were obtained from pretest and posttest. The results of the pretest and posttest of the sample group were compared using paired sample t-tests. Comparisons were made using mean, standard deviation, and inferential statistics, with $P<0.5$ as the level of significance.

4.1.1 Analysis of Paired Sample T-test

As shown in Table 4.1 below, the one sample analysis of test scores was conducted, and the result was positive. The pretest mean was 20.93 and the standard deviation was 3.97. The posttest mean was 25.20 and the standard deviation was 2.41. The mean difference between pretest and posttest was 4.27. The significant value (P)

obtained was 0.01, which was lower than 0.05 (P*0.05). Compared with the pretest scores of the sample group, the posttest scores showed a statistically significant increase. Table 4.1 below compares the pretest and posttest means.

Table 4.1 One Sample T-Test

One Sample T-Test						
	N	Mean	Std. Deviation	Mean Difference	t	Sig.
Pretest	30	20.93	3.97	4.27	-11.794	.01
Posttest	30	25.20	2.41			

4.1.2 Comparison of Pretest and Posttest Scores of the Sample Group

Table 4.2 below shows the pretest and posttest scores of the sample group. The highest score in the pretest was 27 (out of a total of 30), while the lowest score was 13. The posttest scores increased significantly, with one participant receiving the highest score of 29 out of 30, and the one participant receiving the lowest score of 20 out of 30. In general, all 30 students achieved significant or slight improvements in the posttest, with scoring gaps ranging from 2 to 9 points. Table 4.2 below shows the pretest and posttest scores, score increases, and percentage differences among participants.

Table 4.2 Pretest & Posttest scores of the sample group

Student ID	Pretest Scores (Full Score=30)	Postest Scores (Full Score=30)	Increase in test Scores	% difference
1	17	22	5	16.67%
2	25	27	2	6.67%
3	26	28	2	6.67%
4	24	26	2	6.67%

63

Table 4.2 Pretest & Posttest scores of the sample group (Cont.)

Student ID	Pretest Scores (Full Score=30)	Postest Scores (Full Score=30)	Increase in test Scores	% difference
5	19	24	5	16.67%
6	25	28	3	10.00%
7	22	26	4	13.33%
8	24	27	3	10.00%
9	23	25	2	6.67%
10	14	21	7	23.33%
11	25	27	2	6.67%
12	22	25	3	10.00%
13	24	28	4	13.33%
14	19	25	6	20.00%
15	20	23	3	10.00%
16	23	27	4	13.33%
17	21	26	5	16.67%
18	15	24	9	30.00%
19	26	29	3	10.00%
20	21	24	3	10.00%
21	25	28	3	10.00%
22	13	20	7	23.33%
23	19	24	5	16.67%
24	22	26	4	13.33%
25	18	23	5	16.67%
26	27	29	2	6.67%
27	16	24	8	26.67%
28	21	26	5	16.67%
29	14	22	8	26.67%
30	18	22	4	13.33%

When the raw scores from the pretest and the posttest were compared, the results showed that all 30 participants had higher posttest scores than pretest scores. According to the results of the pretest and posttest, the following comparisons were made:

4.1.3 Pretest and Posttest Comparison

Figure 4.1 below shows the 30 students' pretest and posttest scores. As shown in the figure, the blue bars represent the pretest score and the green bars represent the posttest score. It can be seen that the scores of all students in the posttest increased, indicating that the mind mapping and game teaching method was helpful to improve students' English vocabulary skill.
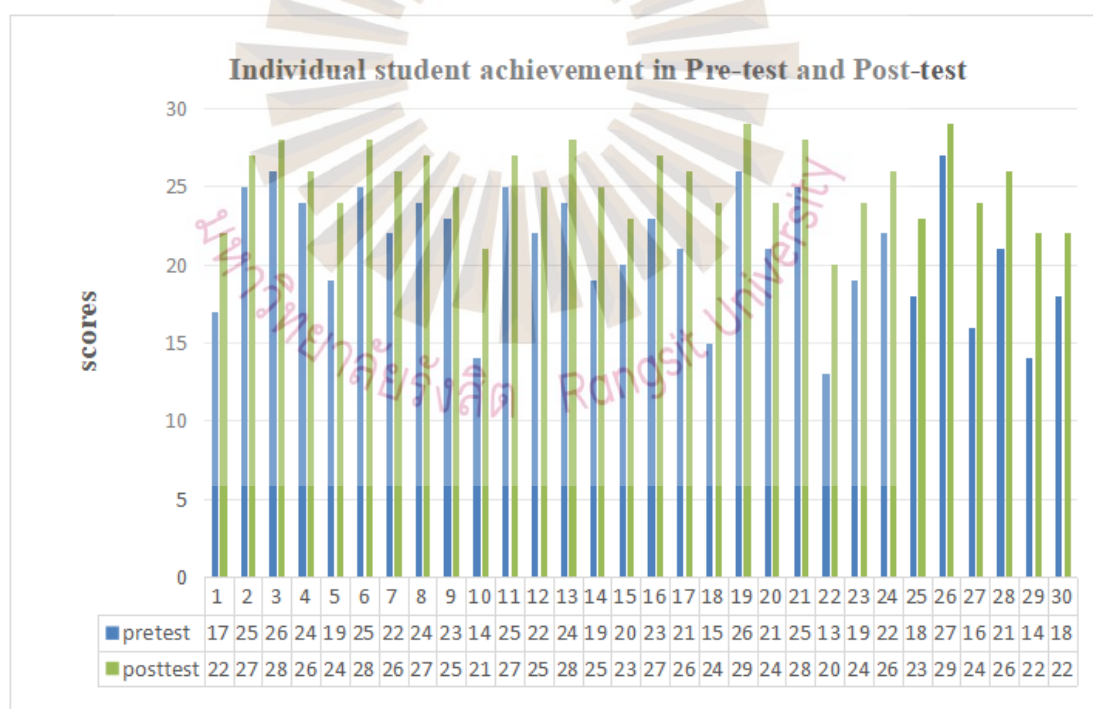

Figure 4.1 Graphical representation of students' pretest and posttest scores

In addition, Figure 4.2 below shows the means of pretest and posttest. These mean scores were 20.93 and 25.20, respectively. Undoubtedly, the mean score of the

posttest was higher than the mean score of the pretest. The posttest score represented by the green bar increased by 4.27 points compared to the pretest score represented by the blue bar. Therefore, it can be concluded that each student made progress in the posttest and got better grades after using mind mapping and game teaching method.
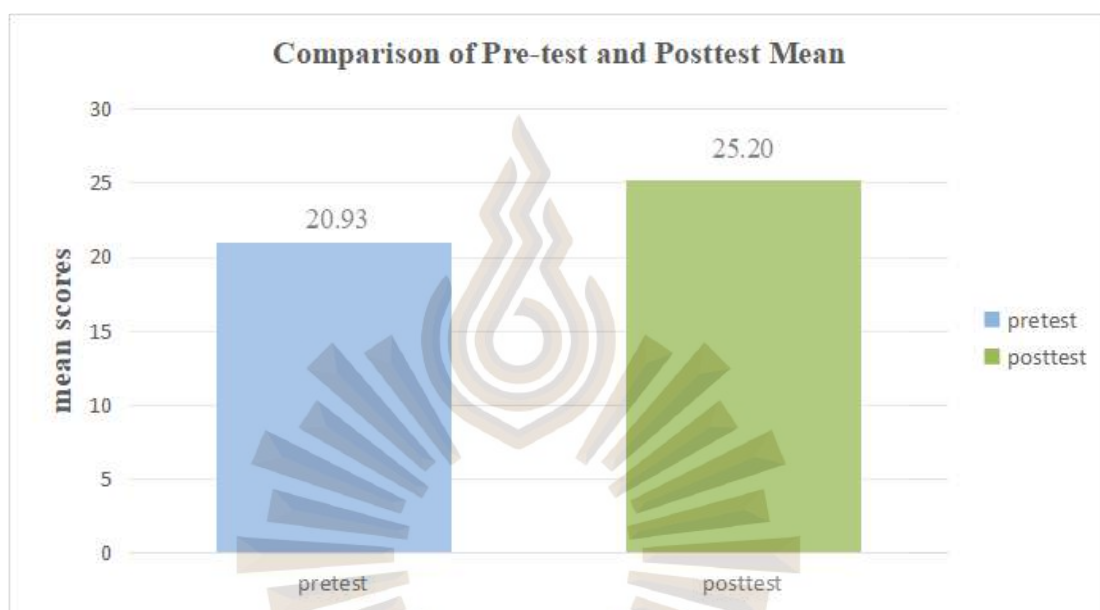

Figure 4.2 Comparison of pretest and posttest mean

4.2 Analysis of Questionnaire

In order to collect quantitative data and investigate students' satisfaction with the use of mind mapping and game teaching method during English vocabulary course, a five-point Likert scale was adopted, 1= strongly disagree, 5= strongly agree. There were 15 items in the questionnaire, which were divided into three parts: part A was interest and motivation, part B was engagement, and part C was efficacy of using mind mapping and game teaching method on student learning. All 30 (N=30) study participants were given questionnaires. Descriptive statistics (mean and standard deviation) were used to analyze the survey results. In the mean interpretation, 4.21-5.00 was the highest level, 3.41-4.20 was the high level, 2.61-3.40 was the moderate level, 1.81-2.60 was the low level, and 1.00-1.80 was the lowest level.

Table 4.3 below shows the mean score and standard deviation of students' satisfaction with Part A, interest and motivation. Item 1, "The process of learning English vocabulary using mind mapping and game teaching method was fun" had the highest average score of 4.43, in the five-point Likert scale within the average scores of "highest" level. Although the average score of item 5, "Using mind mapping and game teaching method helped me to learn English vocabulary with more confidence" ($\bar{x}$=4.17) was relatively low, the interpretation of the mean score showed that students' perceptions of Part A of the questionnaire, interest and motivation, were still at the "highest" level ($\bar{x}$=4.29).

Table 4.3 Mean and Standard Deviation: Part A (N=30)

No.	Part A- Interest and Motivation	Mean	SD	Interpretation
1	The process of learning English vocabulary using mind mapping and game teaching method was fun.	4.43	.568	Highest
2	Using mind mapping and game teaching method made learning meaningful.	4.27	.691	Highest
3	Using mind mapping and game teaching method made learning interesting.	4.37	.711	Highest
4	Using mind mapping and game teaching method motivated me to learn English vocabulary.	4.20	.805	High
5	Using mind mapping and game teaching method helped me to learn English vocabulary with more confidence.	4.17	.747	High
	Average	4.29	.704	Highest

Table 4.4 below shows the mean score and standard deviation of students' scores for Part B, engagement. According to the data, item 10, "I felt more engaged when using mind mapping and game teaching method" had the highest average score

of 4.40. Item 6, "Cooperation was important in English vocabulary classroom" had the lowest average score of 4.13. However, considering the overall average score was 4.27, it was still at the "highest" range.

Table 4.4 Mean and Standard Deviation: Part B (N=30)

No.	Part B- Engagement	Mean	SD	Interpretation
6	Cooperation was important in English vocabulary classroom.	4.13	.730	High
7	Using mind mapping and game teaching method increased my class participation.	4.33	.758	Highest
8	All the activities related to mind mapping and game teaching method helped me to remember words.	4.23	.728	Highest
9	The use of pictures and multimedia in the classroom helped me understand.	4.27	.740	Highest
10	I felt more engaged when using mind mapping and game teaching method.	4.40	.724	Highest
	Average	4.27	.736	Highest

Table 4.5 below shows the mean score and standard deviation of students' responses to Part C, Efficacy of using mind mapping and game teaching method on student learning. According to the data, the majority of students believed that the mind mapping and game teaching method was helpful to improve their English vocabulary skill. Item 14, "Using mind mapping and game teaching method helped improve my self-directed learning ability" had the highest average score of 4.37. Item 15, "Using mind mapping and game teaching method helped improve my cooperation ability" had the lowest average score of 4.07. In terms of the overall mean score was 4.22, it was still at the "highest" level. Based on this, it could be concluded that using mind mapping and game teaching method improved students' English vocabulary skill achievement.

Table 4.5 Mean and Standard Deviation: Part C (N=30)

No.	Part C- Efficacy of using mind mapping and game teaching method on student learning	Mean	SD	Interpretation
11	Using mind mapping and game teaching method helped improve my English vocabulary skill.	4.27	.785	Highest
12	Using mind mapping and game teaching method helped expand my English vocabulary.	4.23	.728	Highest
13	Using mind mapping and game teaching method improved my efficiency in memorizing English vocabulary.	4.17	.791	High
14	Using mind mapping and game teaching method helped improve my self-directed learning ability.	4.37	.765	Highest
15	Using mind mapping and game teaching method helped improve my cooperation ability.	4.07	.785	High
	Average	4.22	.771	Highest
	Overall Mean & SD for all 15 items	4.26	.737	Highest

Finally, as mentioned above, among the three parts, Part A had the highest mean score of 4.29 with a standard deviation of 0.704. In contrast, Parts B and C had relatively lower mean scores of 4.27 and 4.22, with standard deviations of 0.736 and 0.771, respectively. Nevertheless, considering the overall mean score was 4.26, the researcher was convinced that the students had a positive satisfaction with using mind mapping and game teaching method in their English vocabulary learning.

CHAPTER 5

CONCLUSION, DISCUSSION AND RECOMMENDATIONS

This chapter presents the summary of the study and the details are presented in the following order:

5.1 Conclusion

5.2 Discussion

5.3 Recommendations

5.1 Conclusion

The two research objectives were stated for this study:

1) To compare grade 8 students' English vocabulary skill before and after using mind mapping and game teaching method, in Yunnan province, China.

2) To investigate grade 8 students' satisfaction after using mind mapping and game teaching method, in Yunnan province, China.

This study was conducted using mind mapping and game teaching method with a pretest, a posttest, and a questionnaire on grade 8 Chinese students in Yunnan province, China. Based on the data, the following conclusions were obtained:

5.1.1 The Result of Pretest and Posttest Data Analysis

The first objective of this study was to compare grade 8 students' English vocabulary skill before and after using mind mapping and game teaching method, in Yunnan province, China. After that, the pretest and posttest results were analyzed using the paired sample T-test to compare the differences in the leaning performance of the sample groups.

The use of mind mapping and game teaching method could stimulate students' interest in learning English vocabulary, turn passive learning into active learning, from blind rote memorization to mastering efficient and useful memory methods. In addition, the mind mapping and game teaching method also could help students develop self-directed leaning ability and cooperation ability. It had a positive impact on many aspects of students' learning. Based on these reasons, the students' progress in the process of learning English vocabulary was obvious.

1) The statistical analysis of the paired sample T-test of scores showed that the mean score of the posttest (25.20) was higher than that of the pretest (20.93), and the mean difference was (4.27). The standard deviations of the pretest and posttest in the sample group were 3.97 and 2.41, respectively. The average score in the posttest was higher than that in the posttest. According to the results of the posttest, the mind mapping and game teaching method had a positive effect on improving English vocabulary skill.

2) The highest score was 27 points and the lowest score was 13 points in the pretest, while the highest score was 29 points and the lowest score was 20 points in the posttest. From these differences between pretest and posttest scores, it could be concluded that the highest score in the posttest was 2 points higher than the score in the pretest. The lowest score in the posttest was 7 points higher than the score in the pretest.

3) Most of the participants, 23 out of 30, scored 24 or higher out of a total of 30 points in the posttest. Nevertheless, in the pretest, only 10 participants scored 24 or higher out of 30 points.

4) All 30 participants scored higher in the posttest than in the pretest. The improvement in scores was between 2 and 9 points.

The above quantitative data analysis clearly indicated the progress made by all students in the posttest. Accordingly, the results of this study clearly demonstrated that the use of mind mapping and game teaching method effectively improved the English vocabulary skill of grade 8 students in Yunnan province, China.

5.2 Discussion

As mentioned above, this study found two key findings. The first finding showed that the use of mind mapping and game teaching method improved the English vocabulary skill of grade 8 students in Yunnan province, China. The second finding was that grade 8 students showed high satisfaction with learning English vocabulary skill using the mind mapping and game teaching method. The following discussion clearly describes these findings in detail and explains how they address the research questions provided by this study.

5.2.1 Students' English Vocabulary Test Achievement

The results showed that using mind mapping and game teaching method in English vocabulary course improved students' academic performance. The results of the study were also promising, with 23 out of 30 participants scored 24 or above out of 30 points in the posttest. The mean score of the posttest ($\overline{x}$=25.20) was 4.27 points higher than the mean score of the pretest ($\overline{x}$=20.93).

Additionally, there was a significant difference in the grades of No.18 student. The student's pretest score was 15 points, and the posttest score was 24 points, an increase of 9 points. Why do some students make great progress while others make little progress? For all students, mind mapping and game teaching method is a relatively new method. And for them, the speed of accepting new teaching method are different, so the progress of students will also be different. Meanwhile, there is a Chinese proverb that goes, "If the foundation is not solid, the earth will shake and the mountains will tremble." Because each student's original English vocabulary skill is different, the scores they improve will also different. For students with a good foundation in English vocabulary, their grades are already relatively high, so there is less room for improvement. And for students in the middle and lower skill, as long as they focus and think positively, they often have a lot of room for improvement. Therefore, after using mind mapping and game teaching method for English vocabulary teaching, the improvement of each student was also different.

Meanwhile, according to the obtained data, all 30 students have improved in the posttest, with scoring gaps ranging from 2 to 9 points. Why have all students improved? As is known to all, interest is the best teacher for students. When students are interested in something, they will be very focused on doing it. Drawing mind mapping and playing games can greatly stimulate students' interest in learning. Generally speaking, most children enjoy drawing. When drawing mind mapping, students can draw according to their own ideas, choose their favorite watercolor pen. Meanwhile, drawing mind mapping and playing games require students to participate in person, which can improve the phenomenon of students sitting quietly in chairs listening to the teacher's lectures and feeling bored. It can turn the tedious classroom atmosphere into a relaxed atmosphere, transforming students from "unwilling to learn" to "liking to learn". Students' learning enthusiasm is improved, and their academic performance naturally improves. Therefore, each student's English vocabulary skill improved in the posttest.

On the whole, the improvement in student achievement indicated that the use of mind mapping and game teaching method had a positive impact on students' performance in English vocabulary course. Consequently, all of the above findings led to the reliable answer of the first research question.

In addition, there had been many similar studies in previous studies to prove it. According to Tang (2023), the use of mind mapping can improve students' vocabulary scores and made it easier for them to understand the relationships between different words. It can also be seen from the findings of Cheng (2022) that, through the use of mind mapping in vocabulary teaching helps to promote students' memory of words and improve students' vocabulary scores, especially for students with medium and small vocabulary. Furthermore, Liang's (2021) research showed that game teaching makes the boring learning more interesting and vivid, make students' memory more active and improve their English vocabulary achievement. Shi's (2021) research also showed that game teaching has a positive effect on the development of students' vocabulary learning ability. From this, it is apparent that mind mapping and game teaching method were indeed very helpful in improving students' English vocabulary skill.

5.2.2 Students' Satisfaction

In order to collect quantitative data concerning the students' satisfaction with the use of mind mapping and game teaching method in English vocabulary courses, a five-point Likert scale was adopted, where 1= strongly disagree, 2= disagree, 3= neutral, 4= agree and 5= strongly agree. In this study, the questionnaire survey contained 15 items. Part A was about interest and motivation, Part B was about engagement, and Part C was about efficacy of mind mapping and game teaching method on student learning. The questionnaire was distributed to all 30 (N=30) study participants, and descriptive statistics (mean and standard deviation) were used to analyze the survey results. The average score was highest at 4.21-5.00, high at 3.41-4.20, moderate at 2.61-3.40, low at 1.81-2.60, and lowest at 1.00-1.80. The results could be concluded as follows:

1) The questionnaire had a total of 15 items, of which 10 items were rated at the "highest" level, and 5 items were at the "high" level. None of the items were rated as strongly disagree.

2) The results of the descriptive statistical analysis of the questionnaire indicated that students had positive satisfaction towards using mind mapping and game teaching method in their English vocabulary course. Most importantly, none of the items were rated as "strongly disagree", which was strong evidence of students' positive attitudes of using mind mapping and game teaching method in the course.

3) Most students also agreed that regular use of the mind mapping and game teaching method would help them to consolidate and expand their English vocabulary.

The results also showed that most of the students agreed that using mind mapping and game teaching method in English vocabulary course was a pleasant experience for them. Moreover, in previous studies, there had been similar studies to prove it. According to Guo's (2022) questionnaire results, most students have changed their attitudes towards vocabulary leaning from complaining about the difficulty to having a positive attitude. Hu's (2022) research found that most students hold a

positive attitude towards mind mapping as a way of vocabulary leaning, and most of them are willing and like to use mind mapping to learn vocabulary. The study by Mu (2021) found that game teaching method can enhance students' interest in English learning. Adding games to teaching not only enlivens the classroom atmosphere, but also stimulates students' learning enthusiasm.

5.3 Recommendations

5.3.1 Recommendations for Implementation

1) The use of mind mapping and game teaching method to improve the English vocabulary skill of grade 8 Chinese students in Yunnan province has been proven to be feasible and effective. Consequently, the mind mapping and game teaching method could be used to teach English vocabulary in other schools as well.

2) It is recommended that other English teachers could use mind mapping and game teaching method as an alternative learning approach to teach English vocabulary courses.

3) Mind mapping and game teaching method can also be used in other fields, since they provide a variety of materials and have the potential to analyze whether they have a similar impact on student learning. In addition, they can also be used as a supplement to traditional classroom teaching.

5.3.2 Recommendations for Future Research

The following recommendations are for any interested researchers to take into account before doing any similar studies in the future.

1) This study was limited to 30 students in grade 8 in Yunnan province, China. These students cannot represent the teaching situation of all students. Therefore, similar studies may be conducted with a larger sample in different regions and grades of students in China, which would be useful for replication and help to validate and ensure the reliability of the conclusions drawn in this study.

2) This study was limited by time and only lasted for about a month. The improvement of English vocabulary skill was different from other subjects, it was a long-term accumulation process. Therefore, further studies over a longer period of time are recommended in order to obtain more reliable and significant results.

3) This study only investigated a certain school in Yunnan province, China. Further similar studies could be conducted in different schools located in different geographical locations in the country.

4) This study primarily used mind mapping and game teaching method to improve students' English vocabulary skill, but it can also be applied to other skills and may yield a variety of results.

5) In order to conduct comparative research, this study could be repeated to test the effectiveness of using mind mapping and game teaching method in different schools located in different regions.

All the details of the research have already been presented. Before concluding this section, it is evident that the use of mind mapping and game teaching method in English vocabulary courses significantly improved students' English vocabulary skill and increased their learning satisfaction. In summary, English teachers and students from China and around the world may benefit from using mind mapping and game teaching method as an alternative and innovative approach to teaching English vocabulary skill.

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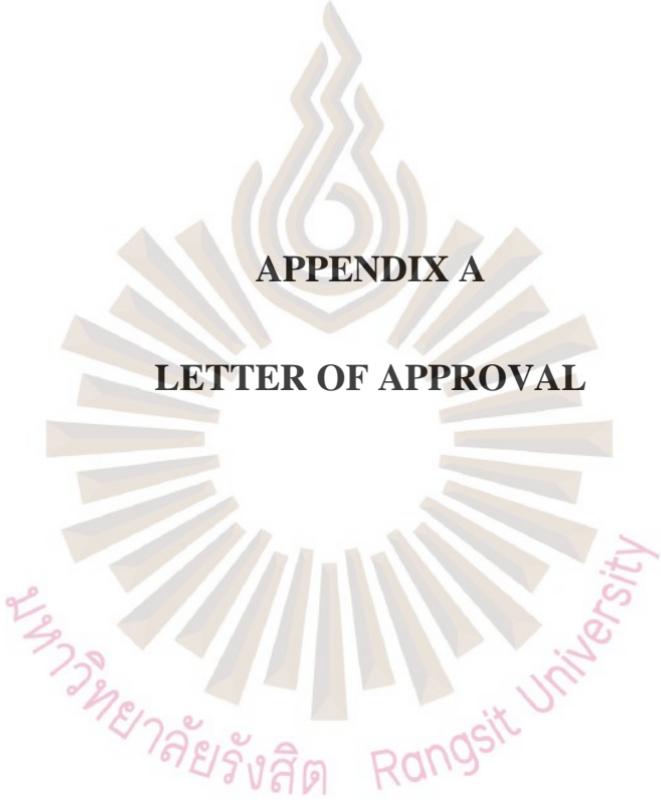
APPENDICES

APPENDIX A

LETTER OF APPROVAL

Certificate of Approval

Minglang Zhongxin School, Administration Department

Subject: Approval to collect data for M. Ed. Thesis

Dear Sir/Madam,

I am currently enrolled in the master of education in Curriculum and Instruction at Rangsit University, Thailand. I am conducting a research on the "The use of mind mapping and game teaching method for English vocabulary skill of grade 8 students in Yunnan province, China". This research requires students' participation. The instruments involved during the pre-test and post-test, questionnaire for obtaining the required data. Therefore, I would like to seek permission from the administration to allow me to collect data at this school where the names and the identities of the students will be kept confidential and undisclosed.

Yours Sincerely,

Neng Di, Student

Rangsit University, Thailand

Since the study requires data for analysis purpose, Neng Di would collecting data from this school and you are kindly requested to allow her to collect data with the following conditions:

Providing research participants with information to make an informed decision as to whether to take part in research (informed consent).

Follow the prior mentioned document have been reviewed and approved by the administration of Minglang Zhongxin School.

Signature:

Date:

APPENDIX B

PARTICIPANTS INFORMATION

Participan's Legal Guardian Information Sheet

Dear Participant:

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully. Talk to others about the study if you wish.

Research School: Minglang Zhongxin School, Yunnan province, China

Name: Neng Di   **Student ID:** 6405998

Studying University: Suryadhep Teachers College of Rangsit University, Thailand

Research Title: THE USE OF MIND MAPPIND AND GAME TEACHING METHOD FOR ENGLISH VOCABULARY SKILL OF GRADE 8 STUDENTS IN YUNNAN PROVINCE, CHINA

1. What is the purpose of the study?

To compare grade 8 students' vocabulary skill before and after using mind mapping and game teaching method in Yunnan Province, and to determine grade 8 students' satisfaction in using mind mapping and game teaching method to improve their English vocabulary skill.

2. Expected results

After using mind mapping and game teaching method, grade 8 students' English vocabulary skill will be improved, and after using mind mapping and game teaching method, grade 8 students will have positive satisfaction.

3. Outcome

Use of mind mapping and game teaching method will yield more effective achievement of Grade 8 students in Yunnan province, China.

4. Number of participants in the study 30 individuals

5. Research procedures

The researchers will collect data in 4 steps. First, the participants will be pretested. Second, the participants will be given English vocabulary lessons using mind mapping and game teaching method. Third, a post-test will be administered after all the lessons have been given. Fourth, a questionnaire will be given to the participants to investigate their satisfaction with learning English vocabulary skill using mind mapping and game teaching method.

6. Duration

The research period will be 4 weeks, 8 sessions,
Week1: class1&2 (to be announced) Week2: class3&4 (to be announced)
Week3: class5&6 (to be announced) Week4: class7&8 (to be announced)
There is no possible risk in this research.

The school has asked students who have volunteered to participate to inform their parents and has obtained consent to volunteer for the research, and the data from the study are true and valid. The school also allow 30 students to assist her with her thesis research, either voluntarily or by voluntary experiments, by agreeing to (Neng Di), who is enrolled at Rangsit University in Thailand to research her thesis.

Signature..Neng........ Date..2022.9.1

Minglang Zhongxin School, Administration Department

APPENDIX C

EXPERTS WHO VALIDATED RESEARCH INSTRUMENTS

No.	Name	Position/Title	Institutes
1	Li Yeshuai	English teacher	Xishan School of Kunming No.1 Middle School, China
2	Wang lanxin	English teacher	Xishan School of Kunming No.1 Middle School, China
3	Tang Li	College Teacher	Guangxi University for Nationalities
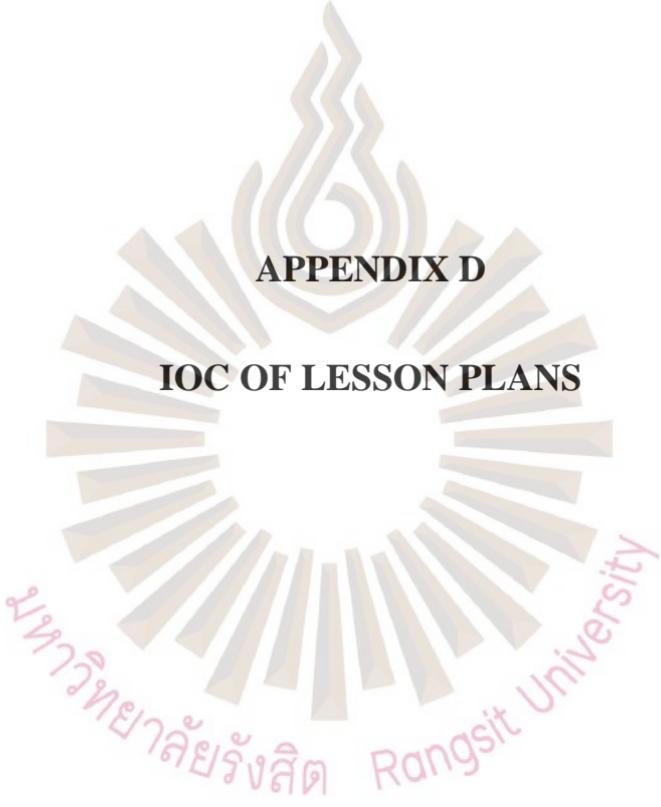
APPENDIX D

IOC OF LESSON PLANS

Item Objective Congruence for Lesson Plans

Rate +1, if the item clearly matches the stated objectives.

Rate 0, if the item is unclear or unsure whether the measures meet the stated objectives.

Rate -1, if the item does not clearly match the stated objectives.

Item No	Attributes	Expert 1	Expert 2	Expert 3	Average	Congruence
1	Lesson plan 1	+1	+1	+1	+1	Congruent
2	Lesson plan 2	+1	+1	+1	+1	Congruent
3	Lesson plan 3	+1	+1	+1	+1	Congruent
4	Lesson plan 4	+1	+1	+1	+1	Congruent
Overall Average		1				Congruent

APPENDIX E

IOC OF ACHIEVEMENT TESTS

IOC OF ACHIEVEMENT TESTS

S1 No.	Items Test No.	Expert 1	Expert 2	Expert 3	Average	Congruence
1.	Multiple Choice Question 1	+1	+1	+1	+1	Congruent
2.	Multiple Choice Question 2	+1	+1	+1	+1	Congruent
3.	Multiple Choice Question 3	+1	+1	+1	+1	Congruent
4.	Multiple Choice Question 4	+1	+1	+1	+1	Congruent
5.	Multiple Choice Question 5	+1	+1	+1	+1	Congruent
6.	Multiple Choice Question 6	+1	+1	0	0.67	Congruent
7.	Multiple Choice Question 7	+1	+1	+1	+1	Congruent
8.	Multiple Choice Question 8	+1	0	+1	0.67	Congruent
9.	Multiple Choice Question 9	+1	+1	+1	+1	Congruent
10.	Multiple Choice Question 10	+1	+1	+1	+1	Congruent
11.	Fill-in-the-blanks Question 1	+1	+1	+1	+1	Congruent
12.	Fill-in-the-blanks Question 2	0	+1	+1	0.67	Congruent
13.	Fill-in-the-blanks Question 3	+1	+1	+1	+1	Congruent
14.	Fill-in-the-blanks Question 4	+1	+1	+1	+1	Congruent
15.	Fill-in-the-blanks Question 5	+1	+1	+1	+1	Congruent
16.	Fill-in-the-blanks Question 6	+1	+1	+1	+1	Congruent
17.	Fill-in-the-blanks Question 7	+1	+1	+1	+1	Congruent

IOC OF ACHIEVEMENT TESTS (Cont.)

S1 No.	Items Test No.	Expert 1	Expert 2	Expert 3	Average	Congruence
18.	Fill-in-the-blanks Question 8	+1	+1	+1	+1	Congruent
19.	Fill-in-the-blanks Question 9	+1	+1	+1	+1	Congruent
20.	Fill-in-the-blanks Question 10	+1	+1	+1	+1	Congruent
21.	Cloze Filling Question 1	+1	+1	+1	+1	Congruent
22.	Cloze Filling Question 2	+1	+1	+1	+1	Congruent
23.	Cloze Filling Question 3	+1	0	+1	0.67	Congruent
24.	Cloze Filling Question 4	+1	+1	+1	+1	Congruent
25.	Cloze Filling Question 5	+1	+1	+1	+1	Congruent
26.	Cloze Filling Question 6	+1	+1	+1	+1	Congruent
27.	Cloze Filling Question 7	+1	+1	+1	+1	Congruent
28.	Cloze Filling Question 8	0	+1	+1	0.67	Congruent
29.	Cloze Filling Question 9	+1	+1	+1	+1	Congruent
30.	Cloze Filling Question 10	+1	+1	+1	+1	Congruent
Overall Average		0.945				Congruent

APPENDIX F

IOC OF QUESTIONNAIRE

IOC OF QUESTIONNAIRE

S1 No.	Items	Expert 1	Expert 2	Expert 3	Average	Congruence
1.	The process of learning English vocabulary using mind mapping and game teaching method was fun.	+1	+1	+1	+1	Congruent
2.	Using mind mapping and game teaching method made learning meaningful.	0	+1	+1	0.67	Congruent
3.	Using mind mapping and game teaching method made learning interesting.	+1	+1	+1	+1	Congruent
4.	Using mind mapping and game teaching method motivated me to learn English vocabulary.	+1	+1	+1	+1	Congruent
5.	Using mind mapping and game teaching method helped me to learn English vocabulary with more confidence.	+1	+1	+1	+1	Congruent
6.	Cooperation was important in English vocabulary classroom.	+1	+1	+1	+1	Congruent
7.	Using mind mapping and game teaching method increased my class participation.	+1	+1	+1	+1	Congruent
8.	All the activities related to mind mapping and game teaching method helped me to remember words.	+1	+1	+1	+1	Congruent

IOC OF QUESTIONNAIRE (Cont.)

S1 No.	Items	Expert 1	Expert 2	Expert 3	Average	Congruence
9.	The use of pictures and multimedia in the classroom helped me understand.	+1	+1	+1	+1	Congruent
10.	I felt more engaged when using mind mapping and game teaching method.	+1	+1	+1	+1	Congruent
11.	Using mind mapping and game teaching method helped improve my English vocabulary skill.	+1	+1	+1	+1	Congruent
12.	Using mind mapping and game teaching method helped expand my English vocabulary.	+1	+1	+1	+1	Congruent
13.	Using mind mapping and game teaching method improved my efficiency in memorizing English vocabulary.	+1	+1	+1	+1	Congruent
14.	Using mind mapping and game teaching method helped improve my self-directed learning ability.	+1	+1	0	0.67	Congruent
15.	Using mind mapping and game teaching method helped improve my cooperation ability.	+1	+1	+1	+1	Congruent
Overall Average		0.956				Congruent

APPENDIX G

ACHIEVEMENT TESTS

Achievement tests (Pre-test & Post-test)

Subject: English   **Total Marks: 30**

Name: _____   **ID Number: _____**

A. Please choose the correct option according to the meaning of the sentence and fill in the blank. (10 points)

(   )1. I was very scared. With no _____in the room, I couldn't see anything.

    A. wind   B. sound   C. light   D. air

(   )2. Harbin is beautiful all year round, _____in winter. Ice lanterns decorate streets and attract lots of tourists.

    A. especially   B. simply   C. probably   D. luckily

(   )3. She took out some money from her_____to pay for the taxi.

    A. wallet   B. mirror   C. menu   D. paper

(   )4. With the help of Mr.Brown, I have made great _____in my spoken English.

    A. decision   B. progress   C. importance   D. difference

(   )5. Many people only_____their children to get good grades, but they care little about their real talents.

    A. expect   B. learn   C. organize   D. think

(   )6. In summer, food will go bad quickly_____we put it into a fridge.

    A. if   B. unless   C. as soon as   D. when

(   )7. ----I won't have time to go shopping with you tomorrow.

    ----But you_____me yesterday, Mum.

    A. ordered   B. knew   C. promised   D. expected

(   )8. ----The_____in the restaurant is great.

    ----Yes. The waiters there are always friendly.

    A.service   B. price   C. food   D. seat

(   )9.----The shirt feels soft. What kind of material is it made of?

    ----It's made of_____.

    A. cotton   B. wood   C. glass   D. bamboo.

(   )10. The two books are not the same. There are many_____between them.

A. lessons   B. differences   C. languages   D. problems

B. Please fill in the blank with the correct word according to the given Chinese meaning. (10 points)

1. If you want to drive well, you must master these_____(基本的) skills.

2. I have to prepare food for seven people_____(包括) me.

3. It took us about two months to finish the_____(项目) last year.

4. "Every child has a _____(权利) to education. You must send your daughter to school,"a policeman said to a young father.

5. I felt very_____(难过) because I lost my bike last week.

6. This car is too expensive, I can't _____(支付) it.

7. Five people were injured in a traffic_____(事故).

8. Each of us must take_____(责任) for our own actions.

9. He doesn't have the_____(勇气) to face the truth.

10. Walking is a_____(流行的) form of exercise in China.

C. Cloze filling. (10 points) (Read the passage and choose the best option from the four options that can be filled in the corresponding blank space)

Little Tom is a boy of eight. He began to go to___1___last year. And now he's in Grade Two. He lives not___2___from school but he's often late for class. He likes watching TV at night and goes to bed late,___3___he can't get up early in the morning.

This term Mrs. Black, Tom's aunt, works in his school. She just___4___students in Grade Two. She teaches___5___. She's very___6___with Tom. And she often tells the boy to___7___the school rules and come to school on time. Yesterday morning, Tom got up late again.___8___he got to school, it was ten past eight. His aunt was___9___for him at the school gate.

"You're ten minutes late for the first class, Tom!" Mrs. Black said___10___"Why are you often late for class?" Little Tom said, "Every time when I get to the street corner, I see a sign 'SCHOOL, GO SLOW'."

(   )1. A.work   B. school   C. shop   D. bed

(   )2. A.far   B. long   C. big   D. high

(   )3.A.because   B. but   C. so   D. and

(   )4. A.plays   B. gives   C. teaches   D. studies

(   )5.A.France   B. French   C. Germany   D. China

(   )6.A.angry   B. strict   C. mad   D. honest

(   )7.A.shake   B. break   C. follow   D. make

(   )8.A.How   B. Who   C. Where   D. When

(   )9.A.preparing   B. waiting   C. paying   D. sending

(   )10.A.angrily   B. slowly   C. easily   D. happily
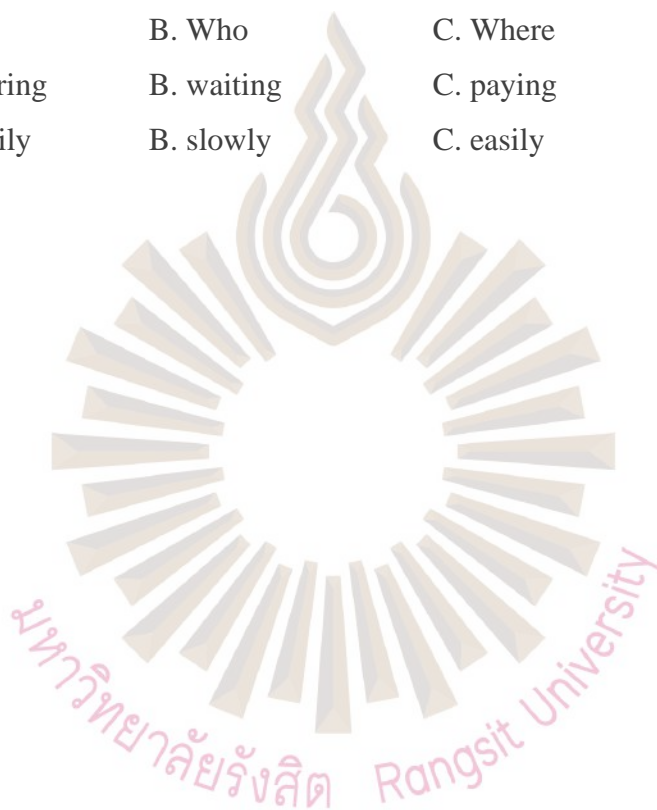
APPENDIX H

SURVEY QUESTIONNAIRE

QUESTIONNAIRE

The questionnaire will be distributed to grade 8 students who are the sample group for this study. The questionnaire is developed to examine students' perceptions of the use of mind mapping and game teaching method in English vocabulary classes. Responses to this questionnaire will remain confidential and will only be used for this study.

Part I: Demographic Data

1. Direction: Put a tick mark (✔) in the brackets.

2. Age: Between 10-12 (   )   Between 13-15 (   )   16 and above (   )

3. Gender: Male (   )   Female (   )

Part II: Students' Satisfaction

Mark your level of opinion from 1-5 (from strongly disagree to strongly agree) against each statement. The description of each scale 1-5 is as shown in the table below.

Scale Strongly Agree (SA)-5 Agree (A)-4 Neutral (N)-3 Disagree (D)-2 Strongly Disagree (SD)-1					
S1 No.	Items	SA 5	A 4	N 3	DA 2	SD 1
PART A: INTEREST & MOTIVATION						
1.	The process of learning English vocabulary using mind mapping and game teaching method was fun.					
2.	Using mind mapping and game teaching method made learning meaningful.					
3.	Using mind mapping and game teaching method made learning interesting.					

SURVEY QUESTIONNAIRE (Cont.)

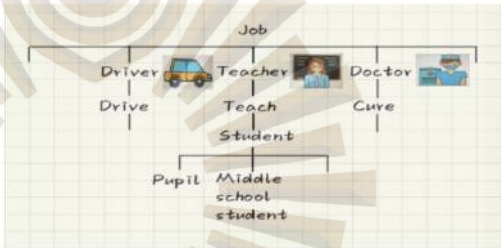|						
4.	Using mind mapping and game teaching method motivated me to learn English vocabulary.					
5.	Using mind mapping and game teaching method helped me to learn English vocabulary with more confidence.					
PART B: ENGAGEMENT						
6.	Cooperation was important in English vocabulary classroom.					
7.	Using mind mapping and game teaching method increased my class participation.					
8.	All the activities related to mind mapping and game teaching method helped me to remember words.					
9.	The use of pictures and multimedia in the classroom helped me understand.					
10.	I felt more engaged when using mind mapping and game teaching method.					
PART C: EFFICACY OF MIND MAPPING AND GAME TEACHING METHOD ON STUDENT LEARING						
11.	Using mind mapping and game teaching method helped improve my English vocabulary skill.					
12.	Using mind mapping and game teaching method helped expand my English vocabulary.					
13.	Using mind mapping and game teaching method improved my efficiency in memorizing English vocabulary.					
14.	Using mind mapping and game teaching method helped improve my self-directed learning ability.					
15.	Using mind mapping and game teaching method helped improve my cooperation ability.					

APPENDIX I

LESSON PLANS

Lesson Plan 1

Lesson Plan 1 (Session:1&2)
Subject: English vocabulary
Topic: I'm going to study computer science
Grade: 8
Number of students: 30 students
Time: 90 minutes (45 minutes/1 session)
Students' background knowledge: Students have been learning English for more than five years and have basic English vocabulary skills.
Teaching and learning strategy: Mind mapping and game teaching method
Teaching and learning materials: English Textbook for Compulsory Education, Multi-media, A4 paper, pencil, color pen.
Lesson Objectives: After the courses, students will be able to: 1. Master new words and phrases about the subject and the profession.   2. Associate words related to the topic, thereby expanding students' vocabulary.   3. Make future plan and get students to know they should do lots of thing to make their dreams come true.

Session 1 (45minutes)	
Stage & Duration	**Activities**
Greeting and Checking (3 minutes)	1. Teacher and students greet each other. 2. Check students' presence and make sure they can hear me clearly.
Lead in (7 minutes)	1. The Teacher introduces herself and her job as an English teacher. 2. Play English song "Be what you wanna be" Doctor, actor, lawyer or a singer; Why not president? Be a dreamer; Police man, fire fighter or a post man; Why not something like your old man; You can be just the one you wanna be ......

Stage & Duration	Activities
Discussion (8 minutes)	1. The teacher shows pictures people from all walks of life and to teach new words. Such as, cook, doctor, pianist. 2. Then the teacher asks the students some questions about jobs. (1) Do you know any other job? (2) What is the main content of their job? (3) What do you want to be when you grow up? (4) What should you do now to become the person you want to be?
Practice-drawing mind mapping (10 minutes)	Drawing a mind mapping can help students consolidate what they have learned today and expand on the relevant content of the topic. 1. The teacher shows an incomplete mind mapping drawn before class, allowing students to fully utilize their imagination to supplement. 2. Encourage students to brainstorm. Think of content related to "job" to continuously expand the content of mind mapping. Such as, driver-drive-car/bus, teacher-teach-students.
Consolidation-play game (12 minutes)	Play a game: pointless (1) The teacher introduces the game rules of "pointless" to the students. (2) The teacher organizes and leads students to carry out game orderly. (3) During the implementation of the game, the teacher should always observe the students' state and try to ensure that every student can fully participate in the game.
Summary (5 minutes)	Summary: The teacher asks students to summarize what they have learned in this class, and the teacher will give a timely supplement. Homework: 1. Enable students to improve their mind mapping drawn in class. 2. Memorize the new words and phrases learned in class.

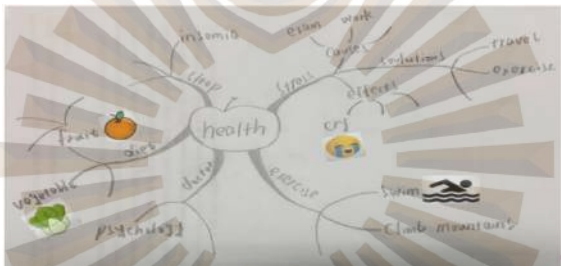| Session 2 (45 minutes)	
Stage & Duration	**Activities**
Greeting and Checking (5 minutes)	1. Teacher and students greet each other. 2. Check students' presence and make sure they can hear me clearly.
Lead in (5 minutes)	1. The teacher should ask the students if they remember what they learned in the previous lesson, and then choose a student at random to retell it briefly. 2. The teacher check the homework.
Mind mapping presentation (15 minutes)	1. Students are encouraged to present their completed mind mappings boldly and confidently. 2. Students present their mind mappings and discuss their main features. The teacher invites students to make comments and provides helpful suggestions.
Consolidation-play game (15 minutes)	Play a game: pointless (1) The teacher introduces the game rules of "pointless" to the students. (2) The teacher organizes and leads students to carry out game orderly. (3) During the implementation of the game, the teacher should always observe the students' state and try to ensure that every student can fully participate in the game.
Summary (5 minutes)	Summarize the content taught in class. Encourage students to work hard to become the people they want to be when they grow up.

Lesson Plan 2

Lesson Plan 2 (Session:3&4)
Subject: English vocabulary
Topic: Where did you go on vacation?
Grade: 8
Number of students: 30 students
Time: 90 minutes (45 minutes/1 session)
Students' background knowledge: Students have been learning English for more than five years and have basic English vocabulary skills.
Teaching and learning strategy: mind mapping and game teaching method
Teaching and learning materials: Multi-media, video, A4 paper, pencil, color pen,
Lesson Objectives: After the courses, students will be able to:
1. Master new words and phrases related to holidays.
2. Associate vocabulary related to the topic, thereby expanding their vocabulary and deepening their memory of words.
3. Encourage students to see the outside world, enriching their life experiences.

Session 3 (45 minutes)	
Stage & Duration	**Activities**
Greeting and Checking (3 minutes)	1. Teacher and students greet each other. 2. Check students' presence and make sure they can hear me clearly.
Lead in (7 minutes)	1. The teacher plays a song "Let's travel" to the students through multimedia. 2. The teacher shows photos of herself during vacation travel and marks relevant new words and phrases, leading students to read. Such as went to the beach, went to the mountain, visited the museums.

Stage & Duration	Activities
Discussion (8 minutes)	The teacher said that during this vacation, I went to many places with my friends. Now, let's talk about your vacation. 1. The teacher asks students some questions for discussion. After the discussion, randomly select several students to answer and ask them to answer according to the sentence structure. (1) Where did you go on vacation? I went to...... (2) What did you do on vacation? I stayed at home...... (3) How was your vacation? It was wonderful/exciting...... 2. The teacher introduces to the students what is mind mapping, and how to draw it and how about trying it with the teacher?
Practice-drawing mind mapping (10 minutes)	1. The teacher encourages students to think. In addition to the above questions, what other relevant questions can be thought of when discussing vacation, in order to continuously expand the content of the mind mapping. Such as: Did you buy some souvenirs for anyone? How was the weather there? 2. The teacher encourages students to fully utilize imagination and independently draw mind mapping. 3. During the process of drawing mind mapping, the teacher should frequently conduct inspections and observations in the classroom and provide assistance to students.
Consolidation-play game (12 minutes)	After the students have initially drawn the mind mapping, they have gained a good understanding of the topic. In order to deepen students' impression of vocabulary, games will be introduced into teaching. 1. The teacher introduces the game rules of "clean the blackboard". 2. The teacher organizes and leads students to carry out game orderly. 3. During the implementation of the game, the teacher should always observe the students' state and try to ensure that every student can fully participate in the game.

Summary and Homework (5 minutes)	Summary: Summarize what they have learned today, and the teacher will give a timely supplement. Homework: Further improve bracket map drawn in class; Memorize the new words and phrases learned in class.
Session 4 (45 minutes)	
Stage & Duration	**Activities**
Greeting and Checking (5 minutes)	1. Teacher and students greet each other. 2. Check students' presence and make sure they can hear me clearly.
Lead in (7 minutes)	1. The teacher ask the students if they remember what they learned in the previous lesson, then choose a student at random to retell it briefly. 2. Check students' homework from the previous lesson. Choose 10 students to divide into 5 groups and use the new words and sentence to make conversation.
Mind mapping presentation (15 minutes)	1. Students are encouraged to present their completed mind mappings boldly and confidently. 2. Students present their mind mappings and discuss their main drawing ideas. The teacher invites students to make comments and provides helpful suggestions.
Consolidation-play game (13 minutes)	Based on the mind mapping drawn by students, new vocabulary can be learned and integrated into the game for consolidation. 1. The teacher introduces the game rules of "clean the blackboard". 2. The teacher organizes and leads students to carry out game orderly. 3. During the implementation of the game, the teacher should always observe the students' state and try to ensure that every student can fully participate in the game.
Summary (5 minutes)	Summarize the content taught in class. Encourage students to travel as much as possible, broaden their horizons, and learn various knowledge.

Lesson Plan 3

Lesson Plan 3 (Session: 5&6)
Subject: English vocabulary
Topic: How often do you exercise?
Grade: 8
Number of students: 30 students
Time: 90 minutes (45 minutes/1 session)
Students' background knowledge: Students have been learning English for more than five years and have basic listening, speaking, reading and writing skills.
Teaching and learning strategy: Mind mapping and game teaching method
Teaching and learning materials: Multi-media, A4 paper, pencil, color pen,
Lesson Objectives: After the courses, students will be able to:
1. Master new words and phrases related to exercise and health.
2. Use reverse thinking to think about the causes of unhealthy situations, thereby enhancing their thinking abilities.
3. Know the importance and necessity of maintaining health.

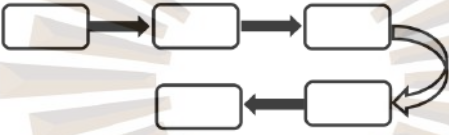| Session 5 (45 minutes)	
Stage & Duration	**Activities**
Greeting and Checking (3 minutes)	1. Teacher and students greet each other. 2. Check students' presence and make sure they can hear me clearly.
Lead in (5 minutes)	1. The teacher shows some pictures on screen and ask students: "Do you like exercise?", lead students discuss. 2. The teacher shows some pictures on screen and ask students: "What benefits can exercise bring us and how can we keep healthy?", choose some students answer.
Discussion (8 minutes)	1. Ask students questions: "Do you have any unhealthy and bad habits? What they are?" Such as, absorbed in computer games, eating junk food, rarely doing exercises, stay up too late. 2. Ask students several questions: Why bad habits should be changed? How to change a bad habit and create good ones?

Stage & Duration	Activities
Practice-Play game (12 minutes)	Play a game: You move and I guess (1) The teacher introduces the game rules of "You move and I guess" to the students. (2) The teacher organizes and leads students to carry out game orderly. (3) During the implementation of the game, the teacher should always observe the students' state and try to ensure that every student can fully participate in the game.
Consolidation-Drawing mind mapping (12 minutes)	Drawing a mind mapping can help students consolidate what they have learned today and expand on the relevant content of the topic. 1. The teacher shows an incomplete mind mapping drawn before class, allowing students to fully utilize their imagination to supplement. 2. Encourage students to engage in reverse thinking. (Regarding health, students generally think of three aspects: diet, exercise, and sleep. The teacher should guide students to engage in reverse thinking and consider the reasons for unhealthy behavior. Students may associate the word 'stress'. What are the main reasons and impacts of students' stress? On this basis, the keywords 'effects' and 'causes' can be extended. In addition, when encountering pressure, one must come up with a solution, which leads to the keyword 'solution'. By continuously dispersing students' thinking and stimulating their potential, a more diverse mind map can be drawn.) 3. During the process of drawing mind mapping, the teacher should frequently conduct inspections and observations in the classroom and provide assistance to students.

Stage & Duration	Activities
Summary and Homework (5 minutes)	Summary: The teacher asks students to summarize what they have learned today, and the teacher will give a timely supplement. Homework: 1. Enable students to further improve bubble map drawn in class. 2. Memorize the new words and phrases learned in class.
Session 6 (45 minutes)	
Stage & Duration	Activities
Greeting and Checking (2 minutes)	1. Teacher and students greet each other. 2. Check students' presence and make sure they can hear me clearly.
Lead in (3 minutes)	1. The teacher asks the students if they remember what they were taught during the previous lesson, and a student at random can be selected to provide a brief retelling. 2. Check the homework.
Presentation (12 minutes)	1. The teacher shows pictures and discuss what do you do on weekends? Such as do homework, help with housework, play on the phone, do exercise, go shopping and so on. 2. The teacher teaches frequency words and helps students distinguish them. Such as, always (100%), usually, often, sometimes, rarely/hardly, never (0%), once a week, twice a week, three times a week, once a month. 3. The teacher teaches students two sentence structures and divides four students into two groups for conversation. (1) What do you usually do on weekends? I often do online shopping. 3. How often do you do online shopping? I do online shopping once a week.

Stage & Duration	Activities
Practice-Play game (10 minutes)	Play a game: You move and I guess 1. The teacher introduces the game rules of "You move and I guess" to the students. 2. The teacher organizes and leads students to carry out game orderly. 3. During the implementation of the game, the teacher should always observe the students' state and try to ensure that every student can fully participate in the game.
Mind mapping presentation (13 minutes)	1. Students are encouraged to present their completed mind mappings boldly and confidently. 2. Students present their mind mappings and discuss their main drawing ideas. The teacher invites students to make comments and provides helpful suggestions.
Summary (5 minutes)	1. Let students know the importance of keeping health and learn to regulate when facing pressure. 2. Let students to know the most important thing is persistence, the difficulty is persistence, and the success lies in persistence.

Lesson Plan 4

Lesson Plan 4 (Session:7&8)
Subject: English vocabulary
Topic: How do you make a banana milk shake?
Grade: 8
Number of students: 30 students
Time: 90 minutes (45 minutes/1 session)
Students' background knowledge: Students have been learning English for more than five years and have basic listening, speaking, reading and writing skills.
Teaching and learning strategy: mind mapping method, "vocabulary spelling" game
Teaching and learning materials: A4 paper, pencil
Lesson Objectives: After the courses, students will be able to: 1. Master new vocabulary and phrases related to cooking. 2. Accurately describe the steps of making a milk shake using new words, and can make a milk shake in real life.

Session 7 (45 minutes)	
Stage & Duration	**Activities**
Greeting and Checking (2 minutes)	1. Teacher and students greet each other. 2. Check students' presence and make sure they can hear me clearly.
Lead in (5 minutes)	1. The teacher shows some pictures on screen and ask students: "What is your favorite fruit?", lead students discuss. 2. The teacher shows some pictures on screen and ask students: "What is your favorite drink?", choose some students answer.
Discussion (13 minutes)	1. The teacher shows the picture of banana milk shake and ask students "Do you know how to make a banana milk shake?" 2. The teacher shows a video of how to make a banana milk shake, then use pictures to teach the new words. Such as, blender, peel. 3. Then let students try to describe the process of making banana milk shake according to the pictures.

Stage & Duration	Activities
Practice-Play game (12 minutes)	Play a game: vocabulary spelling 1. The teacher introduces the game rules of "vocabulary spelling" to the students. 2. The teacher organizes and leads students to carry out game orderly. 3. During the implementation of the game, the teacher should always observe the students' state and try to ensure that every student can fully participate in the game.
Consolidation-drawing mind mapping (8 minutes)	Draw the correct flow map according to the disrupted steps below: Turn on the blender, cut up the bananas, drink the milk shake, pour the milk into the blender, put the bananas and yogurt in the blender, peel three bananas.
Summary and Homework (5 minutes)	Summarize the steps for making a banana milk shake and be able to write them down.

<div align="center">Session 8 (45 minutes)</div>

Stage & Duration	Activities
Greeting and Checking (3 minutes)	1. Teacher and students greet each other. 2. Check students' presence and make sure they can hear me clearly.
Lead in (5 minutes)	1. The teacher randomly selects three students to say the steps of making a banana milk shake. 2. The teacher asks questions based on the content of the steps, such as: "How many bananas do we need?" "How much milk do we need?"

Stage & Duration	Activities
Presentation (12 minutes)	1. The teacher uses pictures and asks students to distinguish the number of things in the pictures. 2. The teacher teaches students two sentences: "How much…." "How many…." and teach the difference between them. (1) How many bananas/tomatoes do we need? We need three bananas/tomatoes. (2) How much yogurt/water do we need? We need one cup of yogurt/a bowl of water. 3. Teach students the differences between the countable nouns and uncountable nouns, and give examples and practice with things which can see in the classroom.
Practice-Play game (10 minutes)	Play a game: Vocabulary spelling 1. The teacher introduces the game rules of "vocabulary spelling" to the students. 2. The teacher organizes and leads students to carry out game orderly. 3. During the implementation of the game, the teacher should always observe the students' state and try to ensure that every student can fully participate in the game.
Consolidation-drawing mind mapping (10 minutes)	Draw a mind mapping with the theme of "Countable noun and Uncountable noun" to consolidate the learning of this knowledge point. Countable noun: apple, banana, book... Uncountable noun: (1) tea, milk, water, yogurt, blood... (2) anger, progress, curiosity, darkness...
Homework (5 minutes)	Students apply what they have learned in daily life according to their own perception to conduct conversation. And share their point of view to their parents and friends.

BIOGRAPHY

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