

Application of Mind Mapping in the Vocabulary Learning of Vocational College English

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Abstract

As an important part of China's higher education, higher vocational education is practice-oriented education. Vocabulary learning in higher vocational English courses is a difficult part of English teaching and learning for teachers and students in China's higher vocational institutions. Among the strategies for Chinese students' vocabulary learning, constantly deepening the memorization of vocabulary in the brain is one of the widely used methods. In this paper, with the help of the method of mind mapping, the pre-test and post-test of vocabulary memorization are used as comparisons to show that mind mapping can effectively help students memorize English words among the existing teaching methods. The results of this study show that the method of using mind maps in teaching vocabulary in college English classes in higher vocational colleges and universities is effective. According to the analysis of the results of the study, mind mapping can effectively help students memorize words and improve their ability to master words in college English classrooms in higher vocational colleges and universities.

Keywords: vocational education; mind mapping; vocabulary learning strategy

1. Introduction

Vocabulary is the core of language and indispensable lifeblood of a language. Everybody knows that without the aid of vocabulary, you can not apply the other language skills, and use a language to communicate efficiently. In simple terms, it means you can not listen, speak, read, and write without vocabulary, even if you are proficient in grammar and sentence pattern of language. As the most essential ingredient of English, vocabulary

is a tackle for the teachers and students to solve in higher vocational colleges. The traditional teaching method of English vocabulary in College English class of China has the following steps. To begin with, teachers teach students to read words for several times, pronounce the words correctly, and spell words in sequence; besides, teachers use sample sentences to teach the usages and meanings of the words; to sum up, students do word exercises to practice the words. With the reform of the College Entrance Examination Enrollment System in Guangdong Province of China, the students can enter into the higher vocational college in six different ways easily than before, this reform means the English proficiency of the students in higher vocational colleges will be vary widely. The purpose of learning English for higher vocational college students is to apply English in real work situations. Vocabulary becomes extremely important and the limited vocabulary will make students unable to communicate effectively. It is necessary to change the teaching methods to adapt to the reform especially in the teaching of College English courses. Vocabulary learning is an important issue of English teaching for teachers and students in higher vocational colleges of China. Among the strategies used for vocabulary learning of Chinese students in China, constantly deepen the memory of vocabulary in the brain is one of the widely used methods. One of the most common scenes on campuses in China is that students hold an English book or an English dictionary, with a pen and some papers, start to recite the English words. With the rapid development of science and technology, books, papers and pens were slowly replaced by mobile phones and word learning software, which are the new tools for most of the Chinese students to memorize vocabulary during the process of English learning. Finding a better way of the vocabulary teaching and learning for students is the most important task in vocational College English teaching. Last but not least, for some students, the primary cause of why English vocabulary becomes a big problem is the absence of self-discipline. It is not realistic to require all the students to memorize all the words after class since College English is just one of the common elementary courses in higher vocational colleges. The students have specialized course of their majors. In recent years, there has been increased emphasis on the using of mind mapping in learning in China. Mind mapping, invented by Tony Buzan, connect related knowledge in

the form of images. The form of such images can deepen the memory of knowledge in the human brain and help people sort out debris knowledge. The dispersal of English words made Chinese students forget the words very quickly, and sometimes they repeatedly recited a few words mechanically, but they could not memorize them days later. Mind mapping can explore people's creative thinking and tap people's active learning ability in practice.

The two research questions will be analyzed in this study:

- (1) Is it appropriate for the students of higher vocational colleges make mind mapping to memorize vocabulary?
- (2) Is it effective to use Mind mapping in the vocabulary learning of vocational College English class?

2. Literature review

2.1 Mind mapping

According to Buzan (2006), the mind mapping is the simplest way to put information into your brain and take it out of your brain. Mind mapping can combine the scattered information into pictures, and the pictures have visual effects to enhance the memory in your brain. The human brain is like a warehouse and knowledge is stored and updated everyday. Mind mapping is like a means of transportation, sending knowledge into the brain and sending knowledge out of the brain. Bystrova and Larionova (2015) stated that mind mapping are a way of visualizing the process of thinking processes, in order to abstract semantic links between components that belong to larger assignments, from inspiring to restoring the educational programs and the content. Studies of Alhusein, Meilinda and Wulandari (2023) showed that, in the process of drawing the mind mapping, it can make the original boring knowledge vivid, inspire students' creativity, and draw boring information in a fun and memorable way, which also stimulates students' interest in what they will learn. The use of core words and well-organized lines to form a picture can attract students' attention and make them focus on the content of learning. According to Dong, Liu, Hao and Liu (2020), while mind mapping technology seems to be suitable for the learning courses of problem solving, training with efficiency

is needed to support and motivate students to use mind mapping. Before using the mind mapping, teachers should train students to master the methods in order to effectively use them, and stimulate the interests of using the mind mapping. Choporova (2014) stated that mind mapping construction provides the foundation for the strategies of abstract teaching and learning, as a special tool for representing the key points and perceiving compression, meanwhile, it was one of the basic processes for the mental and creative abstract activities. Mind mapping can be used to form a knowledge system, to visualize and structure ideas, to help people with learning, solving problem and writing; it is an effective way in kinds of fields and it can bring breakthroughs in language teaching and learning, especially at the level of university. (Huang, 2016)

2.2 Vocabulary learning strategy

For the language learners, the interest in learning English reflected in the vocabulary learning. Consequently, the interest in English vocabulary learning of the English learners can be used as a sign of his intense interest in English learning. In addition, this means that if a learner is interested in vocabulary learning, he has already developed some efficient vocabulary learning strategies (Meyretha Putri & Wahyuni, 2019). College English is an elementary language course in higher vocational colleges, students' interests in the theoretical knowledge of a language is far less than the interests in the practical knowledge of professional courses. Therefore, it is necessary to find some vocabulary learning strategies suitable for vocational college students to learn English. Schmitt (2010) stated that making vocabulary learning strategies to be one of the important ingredients of the language learning notions is critical, which have a good influence on language learning in successful way. Finding the vocabulary learning strategy that suits the students is the first step for higher vocational college students in studying College English courses. According to Schmitt (2008), most important of all, students should be proactive in vocabulary learning for a long time, otherwise they can not achieve extensive vocabularies, no matter what quality of the teaching is. Yang, Kuo, Eslami and Moody (2021) pointed out that people's attention is required highly to memorize words, reducing communication with others when students want to gain

more linguistic knowledge, they are less likely to adopt social strategies that need to interact with different people, as well as the cognitive strategies that involve repeat, take notes, and mark out the new vocabulary. Ghalebi, Sadighi and Bagheri (2020) claimed that while most of the language learners can be convinced of a reality that the vocabulary in language acquisition is important, the absence of self-motivation and self-efficacy will lead to the insufficiency of knowledge and capability in vocabulary learning, to the contrary, it will affect learners' performance in vocabulary learning strategies. The self-discipline of students is the second necessary condition for vocabulary learning. The self-discipline of students of Guangdong higher vocational colleges in learning English needs to be improved. Furthermore, for the formation and cultivation of self-discipline in English learning, the role of college English teachers is very important. Tilfarlioglu and Sherwani, (2018) recommended that foreign language teachers need to promote the way learners participate in real situations from the perspective of learners. In this way, learners can recognize that the real and effective language learning tasks with clear objectives and clear results can reflect value; therefore, they will be more willing to participate in language learning tasks. Emphasizing the role of vision in the process of memorizing words is proved to be effective. This view is supported by Nation (2010) who writes that the use of word cards for intentional vocabulary learning is an effective method and the simple vocabulary usage teaching and vocabulary exercises teaching can not have the same effect. If you can cut down the time of vocabulary teaching and finishing vocabulary exercises, and use this time to do reading extensively, the input and output tasks with smooth development and focuses on meaning are more useful. Some researchers' interpretations contrast with that of Nation (2010) who argue that teachers' simplex explanations of words and exercises are not as effective as the accurate vocabulary learning strategies. English teachers should consider the different language proficiency of students and determine which vocabulary learning strategy they can implement among the students, as the effectiveness of vocabulary learning strategy to vocabulary proficiency may vary according to the learner's language ability. (Tilfarlioglu & Bozgeyik, 2012)

2.3 Mind mapping in vocabulary learning

In the study of Al Shdaifat, Al-Haq and Al-Jamal (2019) , they found that a strategy with significant effects was found in the memory strategy: imagery strategy. The learner's vocabulary learning is influenced by the imagery strategy and significantly improved through this strategic guidance. The memory strategy of the vocabulary learning involves the deep processing of learners, so that vocabulary memory can be better preserved. Mind mapping is one of the common ways that can be used to deepen vocabulary memory. Alsuraihi (2022) indicated that mind mapping is one of the useful ways to introduce new concepts, provide a large research project for the whole class, and test students' learning. At the same time, mind mapping adds an extra option for student assignments and tasks. Since mind mapping can help the students effectively organize their ideas, they can easily comprehend the writing topics and related information. The students can effectively associate and develop more detailed information of the writing topics. Therefore, the technology of mind mapping seems to be an useful method to assist students plan and organize the writing tasks, inspiring students to fully or deeply understand the subject of writing (Yunus, & Chien, 2016). Moreover, according to Vijayavalsalan (2016), mind mapping, a strategy of positive effect for the essay writing, can improve students' thinking abilities and confidence in the essay writing. Maslakhatin (2015;2016) concluded that, after the teacher has taught the vocabulary, the mind mapping can be used as a technique to activate the student's background knowledge of the passage being discussed and to help students comprehend the text they are reading. When the mind mapping is used for reading and writing in English, it is also the process of learning English vocabulary. The mind mapping can be used to learn English vocabulary appeared in English reading and writing. Teachers can choose appropriate vocabulary learning strategies to attract students' interests and help students to memorize words. Lin and Mubarak (2021) made a survey and the result shows that the application of mind mapping technology in language teaching provides a positive role for students, while teachers become facilitators and coordinators to help the students. The most important results of the study suggested that mind maps can be

used to solve problems, brainstorm ideas, learn new vocabulary, take notes, improve reading skills, and prepare for the presentations. Summarizing the results of individual teaching experiences and findings, it can be concluded that mind mapping techniques can be successfully implemented in language classes, mind mapping is a creative and useful tool for students, educators, and education experts (Buran, & Filyukov, 2015). The knowledge of language is fragmented, just like the English vocabulary, mind mapping can connect the scattered word systematically in order to improve students' learning efficiency and learning ability (Liu, 2016).

The use of mind mapping for vocabulary learning is to use people's divergent thinking, put single words together, and compose a big vocabulary tree, so that the branches of the big tree are full of words, this is the first time to process words. But each single word is not randomly hanged on the branches, but in a certain order of semantics, and the tree is with many colors and eventually put into the brain. At this time, the human brain will recognize the words on the tree again and do the processing for the second time. When the word is used again, the human brain will have a deep impression of the word, and it is easier to find where the word is and what the word means, this is the third time of process. According to Odaryuk (2021), the result of the studies shows that mind mapping can encourage students to learn vocabulary, broaden the vocabulary, develop way of thinking, and enhance students' self-confidence in learning vocabulary, most of the students believe that mind mapping have these functions.

3. Method

3.1 Participants

In this study, the participants consisted of forty-six students from a higher vocational college, Guangzhou City Construction College in Guangdong Province of China. All the participants were non-native English speakers, majored in Accounting, of six male and forty female. Before joining this study, they have learned College English for three months. Participants' English proficiency is in the medium level of English based on the pass rate of an authoritative English proficiency test in higher vocational colleges in China. The test is Practical English Test for Colleges Band B (shorted for PRETCO-B). The

passing grade is 60 points, and the full mark is 100 points.

Table 1. Descriptive Statistics of PRETCO-B

Scores of Practical English Test for Colleges Band B						
	Sample size	Minimum	Maximum	Mean	Std. Deviation	Median
Score	46	38.000	83.000	68.457	10.355	71.500

3.2 Materials

The teacher selected twenty English words of a passage titled *How Travel Transformed Me* of the course textbook in the College English as the content of the vocabulary test (pre-test and post-test). The meaning of *How Travel Transformed Me* is the author who encountered a person who made him realize the true meaning of travel in Tibet of China. The author used personal experience to tell everyone that the meaning of travel is the impact of people and things encountered on the journey of your traveling.

Table 2. Twenty English words used for Pre-test and Post-test

How Travel Transformed Me (vocabulary list)						
transform	6	border	11	sting	16	shed
reality	7	eventually	12	picture	17	luxury
unique	8	genuinely	13	realize	18	fancy
uphold	9	salty	14	meanwhile	19	souvenir
highlight	10	sink	15	afford	20	registration

3.3 Procedure

Participants did not use the mind mapping to memorize words in the College English classes and the teacher did not inform the participants of any information about this study before conducting this study.

3.3.1 Pre-test

The participants have a vocabulary test as the pre-test immediately after they learned the passage, they did not know the next will be followed by a vocabulary test (pre-test).

In the process of the explanation, the teacher only explained the meaning of the passage in detail, and did not explain any skills of memorizing the vocabulary list (twenty English words) appeared in the passage. As the pre-test, all the participants joined the vocabulary test, the teacher read the Chinese meaning of the vocabulary list and the participants used paper and pen to write down the English words corresponding to the Chinese meaning. The interval between the pre-test and the post-test is one month, so as to lighten the participant's impression of the vocabulary list. In this month, the teacher avoided teaching these twenty words during the teaching process of College English classes.

3.3.2 Training of the method of mind mapping

For the purpose of making the participants familiar with mind mapping, the teacher used a simple warm-up training method related to the participants' personal experience to arouse the interests of the participants and illustrate how to use mind mapping to remember words. The teacher wrote the name of the monitor, a 18 years old girl, on the blackboard. The stages of her whole life were the backbone of the mind mapping, the infancy, the childhood, the adolescent, the adult and the old age, and the English words related to the life of a person will be written as kinds of branches. When a participant thinks of a certain stage of life, he or she can connect the words on a branch in the mind mapping.

Infancy: baby's bottle, diaper, milk powder, crying, crawling, falling, smiling, child language

Childhood: buying toys, losing temper, throwing things, eating independently

Adolescent: rebellious, quarrel with parents, independence, university, love

Adult: work, family, childbirth, housework, tourism

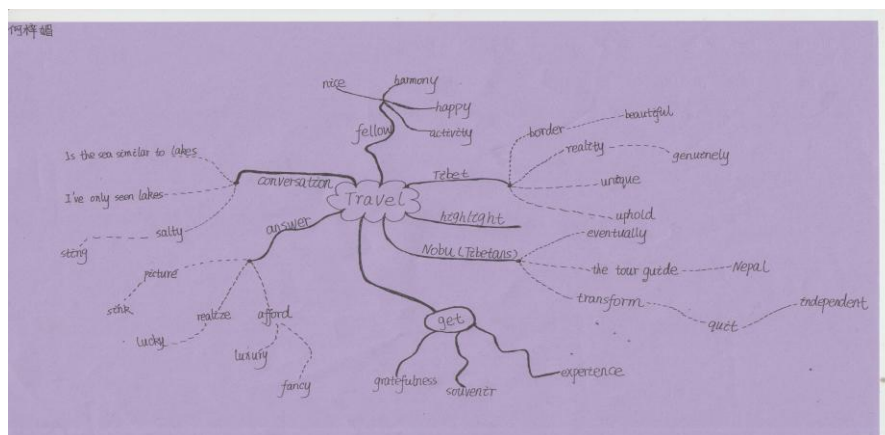
Old age: white hair, wrinkle, watching TV, sleeping, happy

3.3.3 Make the mind mapping

The teacher made the mind mapping with the vocabulary list (twenty English words) at the College English class as an example, showed it to the participants and then closes it. The participants made the mind mappings, which was structured as Figure 1. The teacher gave each participant a piece of colored paper and encouraged the participants

to make the mind mapping with a colored pen.

Figure 1. One of the mind mappings made by the participants



3.3.4 Post-test

The participants were informed to make a mind mapping of the vocabulary list of a passage titled *How Travel Transformed Me*, and they did not know the next will be followed by a vocabulary test (post-test). In the process of making mind mappings, the teacher guided them and answered the questions besides them, without emphasizing the memory the words in the vocabulary list. Ten minutes after the completion of the mind mapping, the teacher used the vocabulary list (twenty English words) from the mind map drawn by the participant to do the post-test.

3.4 Fill out questionnaire

The questionnaire for this study was designed according to the research questions. The questions of the questionnaire were centered on vocabulary learning and mind mapping. In addition to the multiple-choice questions, there is a question and answer question that needs to be answered. After completing the vocabulary test (post-test), the participants filled out the questionnaires about the application of mind mapping in the vocabulary learning of vocational College English classes published by the teacher on the questionnaire software according to the real experiences.

4. Data analysis and discussion

The teacher collected the answers of the vocabulary test (pre-test and post-test) from

the participants, and then manually to correct the answers. The scores of the two tests were sort out into data of electronic version. The questionnaires and answers were collated and analyzed. All data results for this study are shown in the form of Table 3, Table 4 and Figure 1, Figure 2. Referring to Table 3, it shows a significant difference between the Pre-test and the Post-test (P is less than 0.05 or 0.01). Research Question 1 and 2 can be answered, the students of higher vocational colleges can make mind mapping to memorize the vocabulary, and using mind mapping in the vocabulary learning of vocational College English class is effective.

The vocabulary test (Pre-test and Post-test) consisted of twenty words selected from the vocabulary list of the passage, the total score was 100 points and one word for 5 points. The average score of the Pre-test (Mean) is 48.370 points, and the average score of Post-test (Mean) is 73.370 points. In comparison with these two tests, the difference in score is 25, which is equal to 5 words. According to the Minimum, Pre-test is 5 points and Post-test is 15 points. The Minimum of Pre-test indicates that the English proficiency of some participants is far from the overall average English level. It also indicates that some participants focused on the meaning and sentences of the passage instead of the vocabulary list. The Minimum of Post-test indicates that some participants did not pay attention to the vocabulary list when making the mind map, but focused on the process of making the mind map. With regard to the Maximum, the Pre-test is 85 points and the Post-test is 100 points. Both scores are good performances. Some participants have got a good English proficiency, and they can complete the corresponding learning tasks well in different teaching designs.

Table 3. Analysis results of single sample T test

	Amount	Minimum	Maximum	Mean	Std. Deviation	Median	t	p
Pre-test	46	5.000	85.000	48.370	23.335	45.000	14.059	0.000* *
Post-test	46	15.000	100.000	73.370	23.829	80.000	20.883	0.000* *

The specific proportion of the distribution of participants' scores in the pre-test and post-test is shown in Figure 1 and figure 2. In the pre-test, the participants didn't have a good performance in it. It can also be seen from the Figure 1 that the individual differences of the participants are large, and most of the proportions are similar, indicating that the participants' English level is unstable. 52.1% of the participants only scored 45 or less, indicating that they only wrote 9 or fewer words. The vocabulary learning needs a strategy and teacher's guidance. Before conducting the pre-test, the teacher focused on explaining the paragraphs of the passage, instead of the vocabulary list. The attention of the participants was guided on the understanding of the passage. In the post-test, the process of making mind mapping is actually to re-understand the passage for one more time. On this basis, teacher informed participants to put the related vocabulary list in the mind mapping, the participants focused on the vocabulary finally. As it can be seen from Figure 2, 80.4% of the participants can memorize 12 words and more than 12 words, indicating that most of the participants were able to understand and memorize words through the way of mind mapping. The most remarkable thing in Figure 2 is that in the post-test, 21.7% of the participants scored 100 points and wrote 20 words completely correctly. The vocabulary list was put into the brain for deep processing when making mind mapping for these participants, which reflected efficient learning. After using the mind map to memorize English words, participants will continue to use it in English learning or other subjects probably. The significant differences between pre-test and post-test will make them realize that the accurate vocabulary learning strategy is beneficial for them to memorize words and continue language learning.

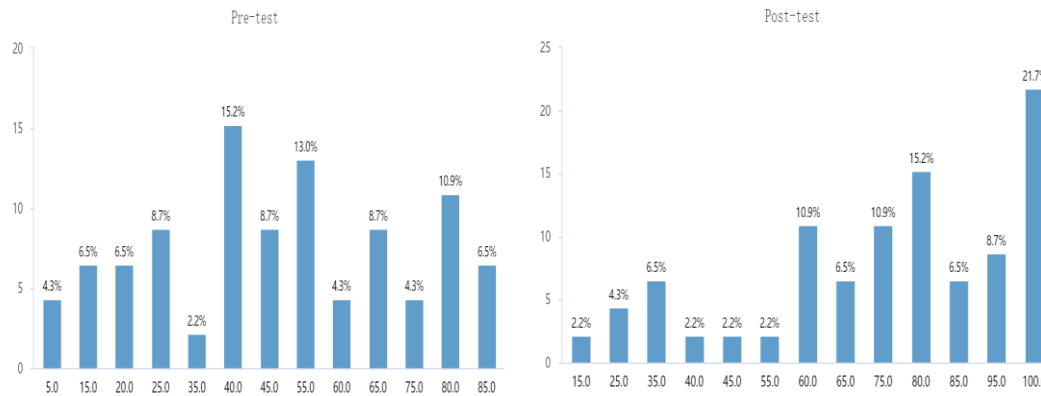


Figure 2. The distribution of scores in Pre-test Figure 3. The distribution of scores in Post-test

It can be seen from the questionnaire that 52.17% of the participants believe that the word learning strategy is very important and need to find a strategy that is suitable for the participants' English proficiency. And 47.83% of the participants focused on the structural characteristics of the English words, which made vocabulary learning a difficulty. They believed that scattered and unconnected words were the biggest problem in memorizing English vocabulary. In addition, as it can be seen from the results of the questionnaire, after using the mind mapping for vocabulary learning, 69.57% of the participants were interested in mind mapping, and 65.22% thought it was simple to use the mind mapping for vocabulary learning. 97.83% of the participants thought that the mind mapping could be applied in the College English classes. The most important point was that after participating in the study, 91.3% of the participants thought that the mind map increased their interests in learning English. The last question needed to be answered in the questionnaire is: What do you think about memorizing words in mindsets in college English classes? Here are some views from several participants. The vocabulary has increased, and they got a new way to learn new words effectively and quickly; they can memorize words according to relations among the words and mind mapping can enhance efficiency; a new way to memorize words, understand the meaning of words more accurately; memorizing words becomes logical, which deepens the memory of words in the brain and makes it easy to understand the meaning of words. The experiments on mind mapping and vocabulary learning conducted in this study were conducted to testify whether it is feasible and effective to use vocabulary learning

in college English classrooms in higher vocational colleges. According to the research results, this assumption is feasible and effective. The dispersing characteristics of English vocabulary make participants think that it is difficult to memorize words. Mind mapping can collect scattered knowledge points into one picture. When participants think of a key word, they will think of other words related to it on the branches, therefore, it can expand the vocabulary of the participants. Participants in the pre-test were selectively neglected on difficult tasks such as vocabulary memory, focusing on the understanding of passage, since the teacher did not make any guidance to memorize the vocabulary list. In the procedure of the mind mapping training, because the training sample was related to the participants' real life, participants' feedback in the class seemed to be very positive. The feedback of the participants indicated that they have already been interested in mind mapping. During the post-test, the participants took the interest of mind mapping to do the task of vocabulary list, and their attention was naturally concentrated on the vocabulary, this kind of interest helped them to memorize words unintentionally.

According to the research results, the use of mind mapping may have a misunderstanding in use. Some participant put the vocabulary list in the mind mapping and made it simply without deep thinking about about the meaning of the vocabulary. The teacher's careful design and patient guidance are required, and the students need to concentrate on learning and use the mind mapping in depth to stimulate the internal function of mind mapping. From the results of the questionnaire, most participants like to choose mind mapping as a strategy in vocabulary learning. Mind mapping can stimulate the interest and initiative of most of the participants, but a few participants could not memorize the vocabulary in the task of vocabulary learning with mind mapping. The reason for this circumstance is the English level of some participants can not be equal to the others. The teacher should figure out this question about how to improve the interest of participants with lower English proficiency. Teachers can take the following methods: select English vocabulary suitable for participants with lower English proficiency to stimulate their interests, let them have self-confidence in learning English; slowly deepen the difficulty of English vocabulary; design the mind mapping

tasks in the form of group, cooperation is a good way for language learning.

Table 4. Results of the frequency analysis of the questionnaires

Item	Option	Frequency	Proportion (%)
What do you think is the biggest problem for vocabulary learning?	no connection between words	11	23.91
	irregularly arranged letters	11	23.91
	can not find a suitable vocabulary learning strategy	24	52.17
Have you used “mind map” in your English study?	Yes	20	43.48
	No	26	56.52
Are you interested in “mind map” ?	Very interested	6	13.04
	Interested	26	56.52
	Not interested	14	30.43
Do you think that the “mind map” can be used in College English courses?	Yes	45	97.83
	No	1	2.17
Do you think it is easy to work out “mind map” of memorizing vocabulary?	Yes	30	65.22
	No	16	34.78
After using the “mind map” in the English class, is it helpful for you to memorize vocabulary?	Yes	42	91.3
	No	4	8.70
Can “mind maps”	Yes	42	91.3

increase your interest in learning English?	No	4	8.70
Total		46	100.0

5. Conclusion

The results of this study suggest that it is effective to use the method of mind mapping in the college English class of higher vocational colleges to carry out vocabulary teaching and learning. This strategy requires the cooperative efforts of both teachers and students to achieve good results. Teachers need to carefully design and guide the implementation of mind mapping. Students need to invest time and patience to memorize words through this strategy. As a College English teacher in a higher vocational college, the greatest relief of each class is to teach students to memorize some words and speak some English sentences. According to the analysis of the research results, the mind map can effectively help students to memorize words and improve students' abilities to master words in College English classes in higher vocational colleges. However, the application of mind mapping in vocabulary learning has the following things to note: the color of mind mapping can be used in a various ways, as a student of higher vocational colleges, they like to experience and practice new things; colored pictures will attract them to focus on learning tasks and stimulate their creativity and imagination; the teacher needs to make a detailed teaching plan for the mind mapping class and calculate the time spent on each step; the teacher needs to give an example of how to make the mind map, how to use it for memorizing the words in vocabulary learning, and answer the questions raised by the students and guide them at any time. According to the research results, mind mapping can be used well in English learning, not just in vocabulary learning, but also in reading and writing probably.

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