

# The Use Of Mind Maps As An Outside Class Learning Tool

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## **Abstract:**

Vocabulary learning is one of the most important parts of language learning, which was not the focus of teachers and learners in the past. Recently, the role of vocabulary has been reinforced with the introduction of many papers about ways to teach and learn vocabulary. Mind maps are significant among these methods because of the benefits they provide learners; however, the number of studies about receptive vocabulary knowledge is limited, especially in the Vietnamese context. This study aimed to examine the effect of mind maps on students' English receptive knowledge. Sixty high school students participated in this quasi-experimental study in 12 weeks. The results indicated that the experimental group, who used mind maps to learn English vocabulary, outperformed the control group, which used the traditional way of study.

**Key Word:** mind maps, Goggle, receptive, Vietnam.

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## **I. Introduction**

Vocabulary is one of the most important aspects of fostering English learners; without grammar, little information can be conveyed, and without words, nothing can be conveyed (Wang & Dostál, 2018). Therefore, learning vocabulary is one of the most essential parts of the English learning process that should be focused on by both teachers and learners. However, learners often find it difficult to remember many words to become fluent in English, even those who reach a certain level of proficiency.

The combination of graphics and texts in mind maps helps to promote the memory and cognition of learners, which is beneficial for language learning (Wu & Zheng, 2023). With a mind map, new information is automatically connected with existing information to build the bridge for remembering. Therefore, mind maps regularly get their place in education to help students connect knowledge, especially in language learning. Although studies were conducted to examine the effect of mind maps on learners' English vocabulary knowledge, few studies focused on the receptive dimension of vocabulary, especially in Vietnam.

This study was implemented to investigate the influence of using mind maps to learn English vocabulary outside the classroom.

## **II. Literature Review**

### **Vocabulary**

Henriksen (1999) divided vocabulary into three dimensions and suggested different tests to assess them. The first dimension is partial-precise knowledge, which relates to the ability to translate words into the first language; word recognition or checklist tasks without the requirement to reflect on the meaning of the words can be used to examine this dimension. The second dimension is the depth of knowledge, which is the complete understanding or a rich meaning presentation of a word; tasks that ask to determine the antonym, synonym, and collocations of words are used to measure this dimension. The third dimension is receptive-productive, which refers to the ability to use words in comprehension and production; the multiple-choice vocabulary test in the TOEFL is suggested to evaluate the receptive vocabulary, while the recommendation for productive vocabulary is the Peabody Picture Vocabulary Test.

Vocabulary can be learned through both implicit and explicit teaching. Although implicit teaching is effective in improving students' vocabulary, explicit teaching should focus on teaching students vocabulary to facilitate their recognition and knowledge of English vocabulary. In addition, apart from diverse methods of teaching vocabulary in class, learners should be provided with opportunities to practice vocabulary outside the classroom to increase their exposure to target words (Al Shdaifat et al., 2019).

Al Shdaifat et al. (2019) carried out quasi-experimental research with the participation of two groups, one using mind map software to draw mind maps to teach vocabulary to grade 7th students. The findings

indicated that the group who learned vocabulary with mind maps outperformed the group who learned with a traditional approach.

The literature implied the effective role of mind maps in explicit vocabulary instruction in improving students' vocabulary knowledge.

### **Mind maps**

Buzan (2024) defined mind maps with three main components; the center is an image of the main topic. The thick branches with different colors radiate from the central image, presenting the topic's key themes. More subsidiary branches can be added to the second or third-level branches to discuss ideas relating to the topic. On each branch, a single key image or word is placed. He highly recommends mind maps for language development. These days, the advancement of technology allows the drawing of different types of mind maps in software; among these types, word maps are revealed to be prominent in developing the vocabulary of learners through the connection among words (Alba, 2022). According to Wu and Zheng (2023), there are three types of mind maps that can be used to learn vocabulary, including situational maps, which connect words in specific contexts; synonym maps, which compare and contrast words; and root and affix maps, which help to understand the components of words. In this study, situational maps were used to help students make the connection among words in the reading texts.

### **Previous studies**

Alba (2022) examined the influence of mind map software on students' vocabulary in a quasi-experimental research. The treatment was the use of mind maps in the reading class. The findings indicated that students who use mind maps to learn vocabulary outperform those who use the traditional approach.

Wu and Zheng (2023) conducted a study investigating the effect of mind maps on English vocabulary. The results showed that on-site teaching with mind maps helped increase students' vocabulary retention and use.

Shi and Tsai (2024) mainly focused on the effects of the mind map app MALL on vocabulary learning outcomes and the perspectives of students about technology use of students in Taiwan. The finding indicated that using the mind map app MALL increased students' vocabulary learning regarding word recognition and retention.

Tran et al. (2024) used Coggle to create a mind map when teaching vocabulary to university students. The results showed that this application significantly enhanced students' vocabulary in terms of depth.

The literature shows that the use of mind maps is helpful for the development of vocabulary knowledge. However, limited studies focus on using mind maps outside the classroom, mainly on productive vocabulary. In order to fill this existing gap, this study aimed to investigate the effect of mind maps outside the classroom on students' English vocabulary knowledge. Therefore, the study sought to answer this research question: *How does using mind maps to practice outside the classroom affect the receptive vocabulary of students?*

## **III. Methodology**

### **Study design**

This quasi-experimental research study investigates the influence of using mind maps to practice vocabulary outside the classroom on students' receptive vocabulary.

### **Participants**

A total of 60 high school students participated in this study; before the study, the researcher asked for the oral agreement of the school manager where the researcher was working to collect the data. A letter of introduction about the study and invitation to participate with the link to take the Oxford placement test was sent to 400 students in grade 11 (16-17 years old); after 2 days of delivery, 154 answers were collected, among them 60 students at B1 level was chosen randomly for the study because a higher level of English proficiency is proved to have a higher level of self-directed study which is suitable for outside classroom learning (Soruç et al., 2024). The students were divided into experimental and control groups, with 30 students each, 15 males and 15 females.

### **Data collection instrument**

The test was used to collect data for the research question. It is a TOEFL vocabulary test with 20 multiple-choice questions, each worth 0.5 points. The questions were taken from the TOEFL test, and students were provided with words covering the topic to do the mind maps. One test was used for both the pre-test and the post-test. To avoid the memory of the pre-test, the question order of the post-test was changed.

**The study procedure**

Students in the control and experimental groups were given a reading topic of around 400 words each week. The experimental group was asked to create a situational mind map with the center of the topic of the reading text; the branches were the related words (maybe new words to students; students could use the dictionary for meaning clarification). The students could use handwriting or software to draw mind maps; the researcher introduced the Coggle, a free online platform for students if they prefer using software rather than hand drawing. The weekly mind maps of students were sent to a shared Google Drive so that all students could upload their work. The control group was also sent the same topic as the experimental group; however, they were asked to make a list of new words, and they could use a dictionary for meaning checking. Another Google Drive file was created for this group, and they could upload their weekly word on that file.

**Data collection procedure**

The pre-test was administered to students in both groups at the beginning of the study; after 12 weeks of the study, the students sat the post-test. The pre-test and post-test were both in paper-based form; the total time of the tests was 25 minutes in the same room at school so that students could avoid the effects of the surrounding environment. The researcher marked the pre-test and post-test twice with the answer key designed with the test. All the test papers were kept in the private research room at school and were damaged after the study 1 year.

**IV. Findings And Discussions**

The results of the pre-test and post-test were collected and entered into SPSS version 26 for analysis. Descriptive statistics were used to evaluate the test scores of both groups. The independent T-test was employed to compare the test scores of the experimental group and the control group.

**Table 1**  
Descriptive statistics and Independent sample test of the pre-test and post-test

	Descriptive statistics				Independent Samples Test				
	Group	N	Mean	Std. Deviation	Levene's Test for Equality of Variances	Sig.	t-test for Equality of Means	df	Sig. (2-tailed)
					F		t		
Pre-test	Experimental	30	4.45	.46	.002	.97	.57	58	.57
	Control	30	4.38	.45					
Post-test	Experimental	30	5.32	.40	.507	.48	5.60	58	.000
	Control	30	4.70	.45					

In the pre-test, the experimental group had an average score of M=4.45 (SD=0.46), which was slightly higher than that of the control group, M=4.38 (SD=0.45); in the independent t-test indicated that this difference was not significant with  $p=0.57 > 0.05$ . In the pre-test, the scores of the two groups were not significantly different. In the post-test, the experimental group (M=5.32, SD=0.40) outperformed the control group (M=4.70, SD=0.45); the independence sample t-test showed that this difference was significant with  $p < 0.05$ . It can be concluded that the average score of the experimental group was significantly higher than that of the control group in the post-test.

The pair sample t-test was conducted to examine the test scores of both groups before and after the study (Table 2).

**Table 2**  
The paired sample T-test of the pre-test and post-test

	Paired Samples Test							Paired Samples Effect Sizes	
	Paired Differences					t	df	Sig. (2-tailed)	Cohen's d
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
Experimental group	-.87	.66	.12	-1.11	-.62	-7.24	29	.000	1.32
Control group	-.32	.61	.11	-.54	-.09	-2.85	29	.008	.52

The pair sample t-test showed that both groups' scores increased significantly with  $p < 0.05$ ; however, the experimental group had a large effect size, while the control group had a medium effect size. These results revealed that using mind maps to learn English vocabulary outweighed the traditional learning method.

In short, the study results revealed that using mind maps to learn English vocabulary outside the classroom significantly increased the vocabulary receptive knowledge of the students. In this study, students had the opportunity to explore the new words on their own, look for the meaning in the dictionary, and develop the mind map of the given topic, which increased their time exposure to the vocabulary and create links between old and new words which promoted the development of vocabulary knowledge. This finding is in line with the conclusions of Al Shdaifat et al. (2019), Alba (2022), Shi and Tsai (2024), and Tran et al. (2024), who confirmed that the use of mind maps helped to develop learners' English vocabulary in various aspects.

## **V. Conclusion**

The study sought to answer the research question about the influence of using mind maps to learn English vocabulary outside the classroom. The findings revealed that using mind maps helped increase students' English receptive vocabulary significantly at a large size effect. This finding implied the potential of using mind maps to teach vocabulary to students both in and out of the classroom. In addition, teachers can use mind maps to develop students' English skills and motivate their self-directed learning.

There are some limitations of the study that should be mentioned for future studies. Firstly, the study mainly focused on receptive knowledge; productive knowledge should be addressed in other studies. Secondly, the conclusion of the study was based on quantitative data; it is advisable to collect more qualitative data to have a well-rounded conclusion of the research problem.

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