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#### Regular Article

# Using the Technique of Mind Maps to Enhance Preparatory School Students' EFL Vocabulary

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#### **Abstract**

This study aimed at investigating the effect of using the technique of mind maps on enhancing preparatory school students' EFL vocabulary. The quasi experimental design was adopted as there were 60 participants in preparatory grade two. They were randomly divided into two groups; the treatment group (N= 30) and non-treatment group (N=30). The treatment was conducted during the first term of the scholastic year 2021/2022 in one of the preparatory schools at Beni-suef Governorate. The treatment group participants were taught using the technique of mind maps whereas the non-treatment group students received the same course through the usual techniques. The results revealed that there was a statistically significant difference between the mean scores of the treatment group and non-treatment group in the post administration of the vocabulary test in favor of the treatment group. In addition, it was concluded that using the technique of mind maps is effective in enhancing the preparatory school students' vocabulary.

**Key Words:** Mind Maps – EFL vocabulary – Preparatory Stage

#### مستخلص الدراسة

هدفت هذه الدراسة إلى التحقق من أثر استخدام تقنية الخرائط الذهنية في تعزيز مفردات اللغة الإنجليزية كلغة أجنبية لطلاب المرحلة الإعدادية. تبنة الدراسة التصميم شبه التجريبي حيث كان هناك N مشاركًا في الصف الأول الاعدادي. تم تقسيمهم بشكل عشوائي إلى مجموعتين؛ المجموعة التجريبية N ، ومجموعة الضابطة (N = N). تمت التجربة خلال الفصل الدراسي الأول من العام الدراسي N N ومجموعة المدارس الإعدادية بمحافظة بني سويف، حيث تم تدريس التلاميذ المشاركين في المجموعة التجريبية باستخدام تقنية الخرائط الذهنية بينما تلقى تلاميذ المجموعة الضابطة نفس المقرر بالطرق المعتادة. و أوضحت النتائج وجود فرق دال إحصائياً بين متوسطي درجات المجموعة التجريبية والمجموعة الضابطة في التطبيق البعدي لاختبار المفردات لصالح مجموعة التجريبية. بالإضافة إلى ذلك N تم التوصل إلى أن تقنية الخرائط الذهنية لها فعالة في تعزيز المفردات لدى تلاميذ المرحلة الإعدادية

الكلمات المفتاحية: خر ائط الذهنية - مفر دات اللغة الإنجليزية كلغة أجنبية – المرحلة الاعدادية

#### Introduction

The main reason of learning a foreign language is understanding and communicating with the people who use that language. Besides, it is known that there are two ways of communication; they are verbal and non-verbal ways. The verbal communication is the more one of the two. Therefore, it depends mainly on identifying and using vocabulary. Furthermore, vocabulary is considered the corner stone of learning a foreign language and it is the body of words used in the language. (Abdul Aziz, 2016) mentioned that adequate vocabulary is important for learners to understand others and express their own ideas and creativity. On the other hand, teaching languages relies basically on learning vocabulary as it is the basis of the speech (Shafaei & Nejati, 2010, p. 32).

It is necessary for the students to know how, when, where to use the vocabulary items meaningfully. Consequently, the aim of teaching vocabulary is to help students to be independent learners to infer or learn meanings of unknown words (Cooper, Kiger, Robinson & Slansky, 2011, p. 228). Therefore, the students are advised to recognize the synonyms, antonyms, parts of speech and the meaning of words and how to select the proper words to convey the message according to the situation, for

example the word "can", the students should know its meaning, what part of speech it is, and how to use it in a sentence like "I can write English essays.", the word "can" in that sentence is a verb and it means to "be able to", but "I want a can of lemonade." the word "can" is a noun which means "a metal container".

In other words, unless the learners recognize and acquire various vocabulary items, they cannot speak, write, or even read English. That is why, enhancing vocabulary is a big challenge that learners face while learning a foreign language. This is because the teachers do not give the learner a lot of opportunities use the items of vocabulary they are learning (Nation & Hunston, 2013). That is why, it is important to find and use effective and organized techniques such the technique of mind maps that may help enhance the students' vocabulary skills.

A mind map is a technique through which thoughts, information, details are graphically represented in branches and sub-branches supported with key words and images. According to Evrekli et al., (2010) mind maps were originally created by Tony Buzan at the end of the 1960s and then they were used in many different aspects. (Şeyihoğlu & Kartal, 2010) added that Tony Buzan showed the technique of mind maps in his books and developed a system which might make it easier to be utilized in different areas.

The mind map technique is a note-taking and note-making that literally maps out one's ideas (Masoud & Ibrahim, 2017, p. 182). A mind map is a note-taking technique that helps organize facts and ideas in a map format containing a central image, main themes radiating from the central image, branches with key images and key words, and branches forming a connected nodal structure (Tee et al.,2014).

#### **Context of the Problem**

The researcher noticed during teaching English in the preparatory stage that most of the pupils had several difficulties in their use of vocabulary items because most of the preparatory stage teachers of English use traditional methods and they focus

mainly on how to pass the exams and they also totally ignore engaging the pupils in different vocabulary-based activities through more recent techniques that let the students acquire and use vocabulary items effectively. Hence, the researcher thinks it is important to try new techniques and strategies so as to enhance the vocabulary skills of the students in the preparatory stage, such as the technique of mind maps.

After the researcher had reviewed some of the previous literature and studies, he became sure that most of preparatory students had difficulties in most of vocabulary skills as it is reinforced in many studies like Mustafa (2020), Alashry (2018), Salaam (2016) and Attya et al., (2018) that reinforced the need for developing the vocabulary in the preparatory stage. After that, the researcher conducted a pilot study to make sure of the problem in the field. A vocabulary diagnostic test was prepared and after it was submitted to the jury members, it was administered to 25 students in the first-year preparatory at Beni-Suef Governorate. That diagnostic test was conducted to determine the vocabulary skills that need to be developed for first-year preparatory students. The test involves 20 questions and the total score was 20.

Table (1): Total Statistical Description of the Study Sample in the Diagnostic Test

Mean	N	Median	SD	VARIANCE	Low Score	High	Failed	Passed
						Score		
4.68	25	4.00	2.410	5.810	2	11	23	2

Table (2): Statistical Description of Each Sub-skill of the Study Sample in the Diagnostic

Test

		Antony	Definitio			
	Synonym	m	n	Multiple	Guess	Total
Mean	1.04	1.00	1.12	.92	.60	4.68
N	25	25	25	25	25	25
Std. Deviation	.676	.866	.600	.759	.645	2.410
Variance	.457	.750	.360	.577	.417	5.810
Median	1.00	1.00	1.00	1.00	1.00	4.00
Minimum	0	0	0	0	0	2
Maximum	3	3	2	3	2	11

The results of the diagnostic test showed that the first-year preparatory students have difficulties in vocabulary skills as 92% of the students failed in the vocabulary diagnostic test whereas only 8% of the students could pass the test.

Table (3)

Percentage of vocabulary Subskills Difficulties According to the Results of Diagnostic Test

Vocabulary Skills	Percentage of Difficulty			
Synonyms	74 %			
Antonyms	75 %			
Definitions	72 %			
Multiple meanings	77 %			
Guessing the meaning of	85 %			
unfamiliar words				

Based on the above results, it can be concluded that the preparatory staged students are in need of enhancing their vocabulary skills through using new techniques and strategies. Since the first-year preparatory students have difficulties in vocabulary skills, this study tries to investigate the effect of using the technique of mind maps to enhance first-year preparatory stage pupils' EFL vocabulary skills.

#### **Statement of the Problem:**

The problem of the study can be identified in the students' difficulties of the necessary EFL vocabulary skills that should be enhanced in the preparatory stage. That might be attributed to the traditional methods of teaching English used by most EFL preparatory stage teachers. Therefore, the current study tried to enhance the necessary vocabulary skills for the first-year preparatory through using the technique of mind maps.

#### **Questions of the Study**

The researcher attempted to answer the following main question:

What is the effect of using the technique of mind maps to enhance preparatory school students' EFL vocabulary?

## **Objectives**

- Detecting the effect of using the technique of mind maps in enhancing the firstyear preparatory school students' EFL vocabulary skills

## **Significance**

This study seems to be important for:

## A- the preparatory school pupils as the study helps them to:

- 1- Identify how to practise English vocabulary effectively.
- 2- Recognize how to using suitable vocabulary items while writing or speaking.

## **B- Teachers and Supervisors**

- 1- Providing English language teachers and supervisors with a list of necessary vocabulary skills for preparatory stage students to be taken into consideration in planning and preparing suitable vocabulary activities and drills.
- 2- Detecting how to assess the pupils' vocabulary skills in the preparatory stage.
- 3- Show the teachers how to use the mind maps in teaching and enhancing the students' vocabulary in the preparatory stage.

## **C- Course Designers**

- 1- Contributing to a rethinking and modification of the teaching methods currently adopted to enhance vocabulary skills in the Egyptian preparatory schools.
- 2- Designing vocabulary tests suitable for the preparatory school students.
- 3- Presenting the vocabulary items via mind maps in the English courses in different formats.

## **Hypotheses**

The current study tried to verify the following hypothesis:

- There is a statistically significant difference between the mean scores of the treatment group and the non-treatment group in the vocabulary pre-posttest in favor of the treatment group after the treatment.

## **Population**

The population of the study included students from the first grade of a preparatory school at Beni Suef Governorate, whose ages ranged from 13 to 14 years old. Directorate enrolled in the first term of the academic year 2021/2022

## **Participants**

Sixty participants were randomly divided into two groups; the treatment group (N=30), and the non-treatment (N=30). The researcher took into consideration that the two groups were equal in some variables such as the age and socioeconomic level to control for these variables so as they may not interfere with the findings of the study.

#### Method

The researcher adopted the Quasi-experimental Design. There were two groups; The treatment group participants (N=30) who were taught by using the technique of mind maps whereas the non-treatment group students received the same course at the same duration by the conventional methods.

## 1.9. Definitions of Terms

## 1- Mind Maps

- 1- The mind map is "a technique used by teachers to present a new topic at the top of the page, followed by the more specific details and explanations arrayed hierarchically below to summarize the relationships between the ideas" Akbar and (Taqi 2017, p. 66).
- 2- It is a creative and logical means of note-taking and note-making that literally "maps out" one's ideas (Masoud & Ibrahim, 2017, p. 182).

## The Operational Definition of Mind Map Technique

The mind map technique is used to teach the first term English course of the first-year preparatory, which is supported with a central topic and main branches that have key words, images, colors and comments. In addition, the main branches may divaricate into sub branches, so the summaries, given ideas or details are logically related.

#### 2- Vocabulary

- 1- Nordquist (2019) defines vocabulary as all the words in a language that are understood by a particular person or group of people.
- 2- Merriam-Webster Dictionary defines vocabulary as "a sum or stock of words employed by a language, group, individual, or work or in a field of knowledge".

#### The Operational Definition of Vocabulary

Vocabulary means the words and phrases which are used to understand and practice the language through identifying the definitions, synonyms, antonyms, multiple meanings, guessing meanings of words in context.

#### **Review of literature**

## **Concept of Vocabulary**

Vocabulary includes the words used to transmit meaning" (Emam, Mohamed, & Abdel Haq, 2020, p.26). Regarding the origin of the word vocabulary, it was firstly presented in the English lexicon in the 1530s and it derived from the word 'vocabularium' that means a list of words (Wollacott, 2022). Moreover, the Cambridge Dictionary defines it as the known and used words in a language or subject. In addition, vocabulary refers to single lexical items words and comprises lexical phrases and multiword expressions (Lessard-Clouston 2021).

## **Vocabulary Sub-skills**

Vocabulary has many subskills such as the synonyms, antonyms, definitions, multiple meanings and guessing the meaning. The synonyms refer to the ability to identify and use similar meanings such as "pleased" and "glad". However, the antonym sub-skill means the capability to identify opposite purport like "remote" and "near".

The subskill of recognizing the prefix which means adding a word, a letter, a group of letters or number before another word to change the meaning, for example, adding "ir" before the word " regular" to become " irrgular" so as to get the opposite.

Oppositely, the suffix that means attaching a letter or group of letters to the end of a word to produce a new word like " -ful" in " helpful" or " -able " in " renewable".

Regarding the sub-skill of guessing the meaning, it is the ability to guess and recognize the meaning of the unknown words by the realizing the relevance of the words and phrases used in context. In other words, it is the capability of reaching a right inference via surmise, chance, or anticipation.

## **Technique of Mind Maps**

Regarding the steps of making a mind map, Buzan (2005, p.4) mentioned them as follows:

- 1- Start from the middle to give freedom to the brain to spread in all directions and to express it more freely and naturally.
- 2- Use a picture for the central idea to become more interesting, and to help students to concentrate, and activate their brains.
- 3- Use colours to make the mind map livelier and attractive.
- 4- Connect the main branches to the central picture, and connect the second and third level of branches to the first and second level, and so on as the brain's work is based on association.
- 5- Draw curved connective lines because the straight lines will bore the brain.
- 6- Determine one key word for each line to give more power and flexibility to the mind map.
- 7- Use pictures to present ideas because each one has the meaning of a thousand words.

## **Teaching Via Mind Maps**

There are various studies and researches that reinforced the effectiveness of using mind maps in teaching such as Khalifa (2019) that proved the effectiveness of using mind maps in developing EFL preparatory stage students' reading comprehension skills. The study adopted the quasi-experimental design. The participants were 80 female students from EFL first year preparatory stage students at Belqas Preparatory School for Girls, Al-Dakahlia. The results of the study showed

that the treatment group outperformed better than the control group due to using mind maps. This study also provided evidence that using mind maps were substantially effective in developing the students' English reading comprehension skills.

Also, Masoud and Ibrahim (2017) conducted a study to investigate the effectiveness of using an e- Mind Mapping Software based program in developing vocabulary acquisition and use of second year English majors at the Faculty of Education, Minia University. Sixty students were randomly divided into two groups: the treatment and the non-treatment groups. The data were obtained through two tests; one of them was for vocabulary acquisition and the other one was for vocabulary use. The results revealed that the treatment group significantly surpassed the non-treatment one in the post-performance of the tests. The findings also showed that Mind-Mapping was an effective technique for facilitating vocabulary acquisition and use through providing an alternative way for students to learn new words instead of rote memorization.

Mohaidat (2018) investigated the impact of the electronic mind map (IMindMap) on developing the ninth-grade students' reading comprehension in Jordan. There were 60 participants from two public schools in Irbid during the academic 2016-2017. The participants were divided into two groups; the treatment group (N=30) and control group (N=30). The treatment group was taught by using the electronic mind mapping strategy while the control group was taught via traditional methods. The study data were collected using a reading comprehension test. The results showed that there was a statistical difference at the level of ( $\alpha$ =0.05) between the mean scores of both groups in favor of the treatment group. Also, the findings revealed that the electronic mind maps had a medium effect in developing the reading comprehension.

Furthermore, Akbar and Taqi (2017) used the mind maps for students of the English Department at the College of Basic Education to overcome their linguistic

problems. The participants were fifty third/fourth years English language students. The students were divided into two groups and trained to use two different note taking techniques. Findings of the study suggested a higher level of performance when the students learn their study material using mind maps.

#### **Instruments**

The instruments and materials used for the present study were a vocabulary preposttest and a teacher's guide for teaching the first term English course in the light of using the technique of mind maps, which were prepared and submitted to the jury members. The necessary modifications were made.

#### The Objective of the Vocabulary pre-posttest

The test was designed to measure the actual level of vocabulary for the treatment group and the non-treatment group before and after the treatment.

#### **Constructing the Vocabulary Pre-posttest**

To construct the test, the researcher referred to the directives of the Ministry of Education particularly vocabulary section of preparatory stage and reviewed literature and related studies regarding vocabulary skills.

## **Test Specifications Table**

## 3.6.1. The Aim of the Test Specification Table

The researcher designed this table to determine the type of questions and the items which he wanted to assess by these questions.

## **3.6. 2. Constructing the Test Specification Table**

To construct the table, the researcher determined the types of questions which he would use in the vocabulary test. He constructed two types of questions as it follows:

- 1- Choose the correct answer from a, b, c or d (10 Marks).
- 2- Correct the underlined words (10 Marks).
- Vocabulary items:
- A- Synonym
- B- Antonym

C- Prefix

**D-Suffix** 

**E- Guessing** 

#### Vocabulary pre-posttest Validity and Reliability

## **Test Validity**

To check content validity of the pre-post vocabulary test, it was submitted to jury members in the field of TEFL to achieve validity and to assess what the test is designed for. The researcher also calculated the Pearson Correlation Coefficient in order to check validity of the internal consistency of the pre-posttest (See Table 3)

Table (3)

Pearson Correlation Coefficients Between Each Question and the Total Score of Each Axis

(Internal Consistency Validity)

	Synonyms	Antonyms	Suffixes	Prefixes	Guess
Pearson Correlation	.740**	.886**	.812 <sup>**</sup>	.775**	.727**
Sig. (2-tailed)	.000	.000	.000	.000	.000
N	20	20	20	20	20

Note: (\*\*) means significant at the) 0.01 level of significance or less

Note: (\*) means significant at the) 0.05 level of significance or less

## **Testing Hypothesis**

The hypnosis predicted that "There is a statistically significant difference between the mean scores of the treatment group and the non-treatment group in the vocabulary pre-posttest of in favor of the treatment group after the treatment." After the treatment, the vocabulary pre-posttest was administered to the two groups, the results are shown in table (4).

Table (4)
t- Test Results of Vocabulary Pre-posttest After the Treatment

No	Skills	Groups	N	Mean	Mean	Std.	T	Sig.	Effect
					Difference	Deviation	value		size
1	Synonyms	Non- treatment	30	7.367	9.1000	2.3851	13.515	.000	.759
		Treatment		16.467		2.8129			
2	Antonyms	Non- treatment	30	5.667	10.2667	1.0613	19.607	.000	.869
		Treatment		15.933		2.6644			
3	Prefix	Non- treatment	30	8.233	8.8667	1.0400	20.295	.000	.877
		Treatment		17.100		2.1552			
4	Suffix	Non- treatment	30	6.000	8.6667	1.9476	13.137	.000	.748
		Treatment		14.667		3.0437			
5	Guessing	Non- treatment	30	6.800	9.0667	1.5625	17.398	.000	.839
		Treatment		15.867		2.3887			
Tota	al	Non- treatment	30	34.067	45.9667	4.5557	21.430	.000	.888
		Treatment		80.033		10.8293			

The results presented in table (4) proved that the hypothesis is correct as there is a statistically significant difference at the level of (0.01) between the mean scores and the standard deviation of the treatment group and the non-treatment group in the post administration of vocabulary test in favor of the treatment group as follows:

- In the first skill (Synonym), it is shown that the mean of non-treatment group is (7.367), whereas, the mean of the treatment group is (16.467) which mean the scores of the treatment group pupils were higher than the non-treatment group pupils. Dealing with standard deviation, the non-treatment group, it is (2.3851), while the treatment group, it is (2.8129). The effect size of this skill is (.759)
- In the second skill (Antonym), the mean of control group is (5.667), whereas, the mean of the treatment group is (15.933) which means the scores of the treatment group pupils were higher than the non-treatment group pupils. Dealing with

- standard deviation, the non-treatment group, it is (1.0613), while the treatment group, it is (2.6644). The effect size of the second skill is .869
- In the third skill (Suffix), the mean of non-treatment group is (8.233), whereas, the mean of the treatment group is (17.100) which means the scores of the treatment group pupils were higher than the non-treatment group pupils. Dealing with standard deviation, the non-treatment group, it is (1.0400), while the treatment group, it is (2.1552). The effect size of the second skill is (.869)
- In the fourth skill (fluency), the mean of non-treatment group is 6.000, whereas, the mean of the treatment group is (14.667) which means the scores of the treatment group pupils were higher than the non-treatment group pupils. Dealing with standard deviation, the non-treatment group, it is 1.9476, while the treatment group, it is (3.0437). The effect size of the fourth skill is (.748)
- In the fifth skill (Guessing), the mean of non- treatment group is (6.800), whereas, the mean of the experimental group is (15.867) which means the scores of the treatment group pupils were higher than the control group pupils. Dealing with standard deviation, the non- treatment group, it is (1.5625), while the treatment group, it is 2.3887. The effect size of the fifth skill is (.839)
- The total mean of the treatment group is (80.033) versus the total the mean of the non-treatment group is (34.067) and the total effect size (.888).

#### **Conclusions**

Based on the study results, the following conclusions have been drawn:

- 1- The present study provides evidence that using the technique of mind maps has a large effect size on enhancing the preparatory school students' EFL vocabulary skills.
- 2- The technique of mind maps provides systematic steps to teach EFL vocabulary skills for preparatory school students as well as that increases students' motivation and positive attitudes towards learning EFL vocabulary.
- 3- There is an indication that introducing the technique of mind maps can foster students' vocabulary proficiency.

4- The technique of organized mind maps, supported by keywords and images which is like the way the human uses while thinking, makes learning more effective and increases students' attention during explanation.

#### **Recommendations**

Based on the findings of this study, the following recommendations are made:

- 1- Teachers of English Language are recommended to motivate the students to learn and practise the vocabulary items through an organized technique like the technique of mind maps.
- 2- The teachers should train the pupils on how to use English vocabulary to express their ideas, feelings, opinions and so on.
- 3- Curriculum developers should put into consideration the technique of mind maps and provide drills at the end of each unit to revise and practise the vocabulary items of the whole unit.

## **Suggestions for Further Research**

The following suggestions are addressed in future research as an extension of the current research:

- 1. Researchers may investigate the effect of the technique of mind maps to enhance the critical thinking of the preparatory stage students.
- 2. Research may investigate the effectiveness of a program based on using mind maps in enhancing the grammatical proficiency of the students in different stages.
- 3. Researchers may investigate the effect of using mind maps on developing the critical reading.
- 4. A new study is needed to investigate the effect of using the technique of mind maps in developing writing skills.

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