The Effects of Using Mind Mapping Technique on Enhancing Students’ Vocabulary Acquisition

The Case Study of Second Year Middle School Pupils at Berkani Messaoud Middle School, Oum El Bouaghi

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Master in Language Sciences and Teaching English as a Foreign Language

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Dedication

In the Name of Allah, the Most Gracious, Most Merciful, All the Praise is due to Him alone, the Sustainer of the entire World.

I wish to dedicate this modest work to:

My mother and father, the source of my happiness and success in my life, without them I would not be who I am. I hope they are now proud of me. May Allah bless them.

My deepest appreciation and love to my dear sister ‘Alima ‘and my brothers ‘Fouaz ,Fateh and Ali’, to whom I wish the best luck in their lives.

My husband ‘Fathi’ for all the help and encouragement he provided me with. He is the best man I have ever met.

My dearest young angel baby, my sweet lovely daughter ‘Rahef Sedret el Mountaha’, her smile makes me such a motivated person.

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My parents in law and my sisters in law ‘Samia, Laila,Toucha’.

My friends: Fatlima, Besma,Soumia and Hind.
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Abstract

Teaching English vocabulary could be achieved via different methods. This study attempts to explore the effects of mind mapping technique on vocabulary learning. To fulfill this purpose, thirty students of second year middle school "Berkani Messaoud" in Oum El Bouaghi city are selected from two intact classes. For that, a quasi experimental method of inquiry is adopted in this study for a period of five weeks. All participants are pre-tested to ensure that they are equivalent and homogeneous in their levels and the target words are unknown. The students in class are of mixed ages, gender, abilities and cultural background. We have chosen to work with second year students since they are still at the beginning stages of learning the target language. They also have a lack of a good building repertoire of words. This is why they will probably acquire new lexis through the use of mind mapping technique. For the experimental group, vocabulary is taught by using mind mapping technique such as: colors, keywords, images, shapes......etc. While The control group is taught through the traditional technique such as translation into L1 and provision of synonyms and antonyms. At the end of the treatment, the same test is given to both groups to check their vocabulary achievement. The results indicate that there are significant differences between the experimental and the control group in favor of the experimental group because this latter received mind mapping technique, while the other did not. At the end, we conclude that learning English vocabulary through the use of mind mapping technique could help students learn new English vocabulary.

The key words

English Vocabulary
Mind Mapping Technique
Traditional Technique
EFL Students
List of Abbreviations

**BC**: Before Christ

**Ect**: et cetera

**EFL**: English as a foreign language

**EG**: Example

**EGP**: English for general purposes

**ESP**: English for specific purposes

**GMT**: Grammar Translation Method

**I.e.**: It means that

**L1**: The mother tongue

**L2**: The foreign language

**Vs**: Versus
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GENERAL INTRODUCTION

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GENERAL INTRODUCTION

Word knowledge is an essential element that leads to successful production and comprehension of the second language. Many researchers view lexical competence as the ability to communicate effectively and appropriately. Hatch (1983) stated that “it is the lexical level that adult second language learners claim as the most important. When our first goal is communication, when we have little of the new language at our command, it is the lexicon that is crucial. The words will make basic communication possible” (p. 74). For many years, little attention was given to the learning and the teaching of vocabulary in language programs and there was a focus on the importance of grammar and sound system of language. However, the whole scene changed and vocabulary teaching began to assume its place in language programs. Now it is evident that the lack of vocabulary knowledge creates a barrier that discourages students from learning a foreign language. That is why they should try to find a way to expand their lexis through three distinct processes; they have to fix the meaning of the word in their minds, they have somehow to make the word their own and they have to use the word creatively in a context from themselves (Hadfield, 1999). Based on these descriptions, students need a new strategy in their learning process especially English vocabulary. In order to make words easily remember and broaden new vocabularies, students are going to use maps out their minds; They can write down their new vocabulary based on their imagination. It can be supported with several options such as colors, pictures…etc. The teacher may adopt mind mapping technique to increase his/her students’ vocabulary and try new solution to create an effective note toward vocabulary. Therefore, we attempt in this study to find out the relationship between learning vocabulary and mind mapping technique.
Statement of the problem

Vocabulary is an inseparable part of any language learning process. It would be impossible to learn a language without vocabulary. At the same time, learning and memorizing new terms is a challenging task for EFL students and may not be a preferred activity. Through traditional method, students may not be provided with different vocabulary learning techniques and not be encouraged to use them. So, students have to cope with many difficulties in learning vocabulary, especially in memorizing and recalling the words meanings. It is frustrating when they discover that they cannot communicate effectively because they have lack of vocabulary stock. Besides, they spend most of the time learning vocabulary because they used to write down the words several times and spell them aloud, then formulating sentences using these words.

For that, one technique that could raise students’ repertoire of vocabulary in the second language is called mind mapping. This technique is used as a powerful instrument to make learning new English vocabulary more fun and easy via the use different options to facilitate the knowledge acquisition in EFL classroom settings.

Aim of study

The present study attempts to find the empirical evidence of the effectiveness of using mind mapping technique on the improvement of vocabulary learning among second year middle school English students. Besides, lowering the students’ inhibition and building their confidence. It is vital to find out beneficial and interesting ways to teach vocabulary. Mind mapping is one technique to do so. It facilitates knowledge acquisition and retrieval of information through the use of visual clues such as images, shapes and colors. The study also aims at investigating the extent of the effectiveness of this strategy in stimulating students’ attention to learn more vocabulary in the second language.
Reasearch Question and Hypothesis

This study seeks to answer the following question:

- Will using mind mapping technique in EFL classroom enhance students’ vocabulary learning of the target language?

Considering the stated question, we hypothesize that:

- H1: if mind mapping technique is used in English classroom settings; students will make a significant progress in their vocabulary stock.
- H₀: if mind mapping technique is used in English classroom settings; students will not improve their repertoire of English vocabulary.

Methodology

This study attempts to explore the effects of using mapping technique on vocabulary learning. To fulfill this purpose, we selected a sample of thirty (30) students of second year at ‘Berkani Messaoud’ middle school, they were assigned to an experimental design. This latter is used to test the hypothesis and answer the research question; here two groups are involved, the first group will be the experimental group of the study, it consists of fifteen (15) students. While, the second will be the control one of fifteen (15) students as well. A pre-test is administered to both groups to check their vocabulary knowledge in L2. During the treatment period, the experimental group is taught vocabulary by many mind mapping options such as color, design and images. While, the control group is taught through the traditional technique such as translation into L1 and provision of synonyms and antonyms. Then, a post-test will be administered to the groups to analyze and compare the results. After that, the results of the pre-tests and the post-tests are compared in order to see if there is any effect of the use of mind mapping technique on increasing learners’ vocabulary.
Structure of the study

This dissertation consists of two chapters. Chapter one will be divided into two sections: the first section determines what is meant by vocabulary in foreign language learning, history and Sources of English Vocabulary, memory as a Cognitive Function in Learning Vocabulary. The second section explains some crucial areas concerning mind mapping technique in EFL classrooms and its purpose. While, Chapter two will be devoted to the fieldwork; that is to say, explaining and analyzing the results of the experimental study.
Chapter One

Vocabulary Learning and Mind Mapping

Introduction

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**Introduction**

Learning vocabulary is very important since it is crucial aspect in communication. Vocabulary forms the building block of any language because without sufficient vocabulary students cannot understand others or express their own ideas. Considering that fact, English teachers must adopt new strategies, techniques and methods as the use of mind mapping to develop students’ vocabulary as it is shown in the present study.

In this chapter, some light is going to be cast on one of the most important aspect of English which is vocabulary as well as the use of mind mapping technique to learn/teach lexis in EFL classrooms. For this regard, the first part deals with the history of vocabulary, some basic knowledge about its definition, as well as the cognitive process which is memory as a part of learning vocabulary. It also deals its importance, ending the trip of the first part with providing the steps of teaching and learning vocabulary and some issues about traditional method. The second part is devoted to the use of mind mapping technique to learn vocabulary. It begins with an explanation for this technique, types and characteristics. Finally, advantages and disadvantages of mind mapping technique.
1.1. Main Issues about ‘Vocabulary’

1.1.1. History of English and Sources of English Vocabulary

English today is the native language of many nations in the world. It is the spoken language in America, Australia, Canada, England, Scotland, Wales and so on. Its history is huge; centuries ago, people were transferring this language from one place in the world to another, passing through major cultural and political events which left their linguistic traces to shape the English language. Moreover, English has gone through a series of changes in grammar, pronunciation and most of all in vocabulary. The stock of English vocabulary was formed through the borrowings from many other languages at that time, such as: Latin, Greek, Norse and French. In this study, we are going to review the major historical stages that shaped the field of English language and the sources of vocabulary used by English speaking communities today. These major historical stages are stated by Dening, Kesseler and Leben (2005) as follows: the Indo-European stage, the Prehistoric stage, Old English, Middle English and Modern English.

Linguists have discovered that English is related to dozens of other languages, the family name of those languages is called **Indo-European**. This latter was itself divided into other dozens branches of languages. One of these branches is **Germanic** (before CA.450). When the Roman Empire bordered Germanic, this latter borrowed from Latin several words, most of them were words related to everyday objects and they were new to the Germanic people. Among these earliest vocabularies that are still present in English are: “wine, street, mile, pit, cheese, chalk, kitchen, dish, pepper, kettle, cheap, pound, tile and mint”. (Dening, et al, 2005, p.24)

The fifth century indicates the appearance of **the Prehistoric stage** (CA.450-700). In fact, there are few written records about this stage concerning English language; most of them
were written on materials like wood. However, it was found that England at this stage was seeking to Christianization because Latin was the original language of the church. The fact that England was converted to Christianity, new ecclesiastical vocabulary emerged e.g. “abbot, mass, pope and priest, in addition to everyday words like: candle, cap, fennel, school and spend”. (Dening, et al, 2005, p.24)

Around the year 700 till 1100, there was the appearance of what is called Old English, which is the source of the English vocabulary spoken today. In this period, Studies indicated that some terms have not changed much, while others are rather different due to numerous factors. On the other hand, from the ninth to the tenth century, the language grew and changed with every new cultural, technological, religious and scholarly development especially in vocabulary. Moreover, throughout the eleventh century, England was invaded by the Vikings which led to the borrowing of new words. Some of them had already existed in Old English, but they were often different in pronunciation and meanings, among them: “ill, till, flat, they, skin, and egg”. (Dening, et al, 2005, p.28)

The following period is Middle English which is defined by centuries from 1100 to 1500. This stage was known with an intensive borrowing of vocabulary from French, especially terms related to law, government, military and higher cultures. These terms include: “peace, enemy, arms, battle, moat, court, duke, baron, county, crown, trial and village, in addition to other terms such as: gown, robe, emerald, diamond, feast, savory, cream and sugar” (Dening, et al, 2005, p.29). However, the fact that some French words are themselves borrowed from Latin, the process of borrowing became a bit complicated. Virtually, during the entire Middle English period, people started to use the language more widely, even for literary purposes.

The last stage of English development is Modern English, which is said to have begun from 1500 to present. At this stage, English has had contact with different languages in Europe, Asia, Australia, Africa and America which led to the borrowing of scientific
vocabulary and many neologisms. Among these words are names for animals and places e.g. “moose, skunk, woodchuck, Michigan, Chicago and Manhattan borrowed from the American Indian languages. Food terms like: yam, gumbo and banana had been borrowed from African languages. Finally, words related to weather phenomena and customs e.g. typhoon, kowtow were coined from Chinese and many others”. (Dening, et al, 2005, p.32)

In brief, as reviewed by Dening et al (2005), English as a language has gone through major stages for decades such as: the Indo-European stage, the Prehistoric stage, Old English, Middle English and Modern English. In addition, there were intensive borrowings of new vocabulary from many other different languages during each stage namely Latin, Greek, Norse and French. These historical and cultural events enabled English readers to understand the current stage of the spoken English today.

1.1.2. Conceptual Definitions of Vocabulary

As a concept, vocabulary is defined differently by many scholars; for Nash and Snowling (2006, cited in Hansen, 2009), it is “the knowledge of words and their meanings” (p. 336). According to Beck, McKeown and Kucan (2008, cited in Athans and Devine, 2010), vocabulary means “learning meanings of new words” and “words that a reader recognizes in print” (p.1). Another definition given by Sheehan (2002, cited in Hansen, 2009) which is that vocabulary is using and understanding words for the sake of communication and learning.

The previous definitions lead to one major understanding of the concept vocabulary, which all words known and used by a particular person to communicate or gain knowledge, or the stock of words that are understood and known by individuals of a certain spoken language community.

However, the term vocabulary was not only defined by scholars, but it was also well explained and illustrated in many different English dictionaries which are likely to be used by
most learners. Webster’s Ninth Collegiate Dictionary (1978) for instance defines Vocabulary as:

1. A list or collection of words and phrases usually alphabetically arranged and explained or defined.
2. A sum or stock of words employed by a group or individual in work or in a field of knowledge.
3. A list or collection of terms or codes available for use (p.1320).

Moreover, the Collins Co-build English Language Dictionary (1989, cited in Campillo, 1995), states that “the vocabulary of a language is the total number of words in it” and “someone’s vocabulary is the total number of words in a language that he or she knows” (p.1629). Again, vocabulary is the set of words within a language that are familiar to a particular speech community. However, getting to know the meaning of words alone is not enough. Cohen (1986, cited in Asgari and Mustapha, 2010) declared that "each exposure to a word has the potential of increasing learner's depth of knowledge about that word" (p.146). That is to say, acquiring a word is not just linking its form with a translated meaning, but rather acquiring other specific information about its written and spoken form.

1.1.3. Vocabulary Descriptive

According to Linda Taylor (1990 cited in Campillo, 1995), to know a certain word means to know about its knowledge, which implies on attaining information about different types of this knowledge. First, knowledge of frequency of occurrence of a particular word in a particular language, in the sense that some words are likely to appear in speech rather than writing and vise versa. Second, knowledge of style, register and dialect is relevant too. Referring to style means referring to the level of formality; i.e. slang, colloquial, formal, informal…etc. Concerning register, it mainly has to do with languages used for specific
purposes, e.g. the language of medicine, the language of law…etc. However, dialect is about differences in geographical variations such as: American English, British English, Scottish English…etc. Third, **knowledge of collocation**, a collocation is a sequence of words which occur together naturally and frequently, like: run out of money, fast food… etc. Fourth, **knowledge of morphology**, i.e. knowing about the form of a word and its derivations, e.g. happiness, unhappy from happy. Fifth, **knowledge of word classes**, word classes are words that belong to one of the eight classes of language (nouns, verbs, adjectives, adverbs, pronouns, prepositions, conjunctions or determiners). Sixth, **knowledge of semantics** which refers to knowing the specific meaning of a word including its connotations (positive, neutral or negative), e.g. slim (positive), thin (neutral), or skinny (negative). Seventh, **knowledge of polysemy** which indicates that a word may have more than one meaning like the word ‘Crane’ which may mean a bird, a type of construction equipment or means to strain out one's neck. Eighth, **knowledge of a word’s translation** in the mother tongue i.e. knowing about the similarities and differences between L1 and L2. Ninth, **knowledge of Synonyms and Antonyms**, Synonyms are words that share the same meaning. Thornbury (2008) has given the example of (old, ancient, antique, aged) as being synonymous in the sense that they have common meanings of not young or new. On the other hand, antonyms are words with opposite meanings like old and new. Finally, **knowledge of lexical fields**, a lexical field denotes a segment of reality symbolized by a set of related words share a common semantic property. Most often, fields are defined by subject matter, such as body parts, land forms, diseases, colors and foods. Let’s consider an example of lexical fields, e.g. the field of water forms: ice, steam, vapour, sleet, rain, snow, and hail…etc.

1.1.4. Memory as a Cognitive Function in Learning Vocabulary

Memory is a very important part in learning a foreign language vocabulary. Takač (2008) states that “the role of memory is crucial in any kind of learning and vocabulary is no
exception” (p.10). In order to comprehend this quote, it is important to clarify what the term memory refers to. Ashcraft (1994, cited in Mendonça, 2003) views it as “the mental processes of acquiring and retaining information for latter retrieval, and the mental storage system that enables these processes” (p.15). In other words, memory is the process in which an individual stores and retrieves everything he/she has learned from the outside world including the language. According to the model of Atikson and Schiffrin (1986, cited in Baddelley, 2006), they provided us with a process that represents how external inputs are stored in our memories. This process was exemplified in a model known as The Stage Model of Memory. This stage is divided into three main sub-stages. The first stage is called sensory memory; during this stage, students perceive external information through their senses, such as: auditory information (sounds) or visual information (images). For that, it is said that visual input lasts no more than one second, while the auditory one lasts between two to three seconds (Lutz and Huit, 2003). By the aid of attention, the previous knowledge would be transferred to the next stage which is short-term memory, also known as working memory. Schmitt (2000) argues that this latter is “used to store or hold information while it is being processed” (p.131). Baddely (2006) considers it as a moderator between sensory memory and long-term memory. Furthermore, it guarantees the transformation of inputs to long-term memory by the aid of rehearsing, i.e. the more an item is rehearsed, the more it is transferred from short-term memory to long-term memory. This latter is the last stage and it is the one responsible for storing information for future use as it has an unlimited storage capacity (Schmitt, 2000). The fact that forgetting can occur in any stage should not be ignored, even if a word is well known, it mainly occurs when the language is not used for a long time or when one stops attending language courses; this is referred to as attrition (ibid). Vocabulary in the first place is more prone to attrition among other linguistic aspects such as grammar and phonology, because unlike grammar and phonology which are made up of rules, vocabulary is
made up of individual units (ibid). Bahrick (1984, cited in Murtagh, 2011) argues that “although attrition starts within the first few years, it levels off after six years or so, and proficiency subsequently remains for a period of 25 years” (p.139). Therefore, forgetting is always there, for that, Schmitt (2000) noticed that when learning new information, most forgetting occurs right after the end of the learning course then it gradually decreases after losing a certain amount of vocabulary. Hence, he suggested that it is critical to have a review session immediately and shortly after the learning course in order to increase the rehearsal and thus, decrease the intervals gradually. The review may firstly take five to ten minutes after the end of the course, twenty four hours later, one week later, then one month and finally six months later (Russell, 1979, cited in Schmitt 2000). Schmitt (2000) indicates that learners should test themselves to check the new words they learned, in case the words are reviewed, they should increase the interval before the next review, if not, they should decrease it. This way is believed by Schmitt to be efficient to minimize the forgetting.

In brief, understanding the way vocabulary is acquired and stored can help L2 learners get as much vocabulary as possible and minimize the forgetting in order to express oneself effectively and adequately in the target language.

1.1.5. The Importance of Learning Vocabulary

Vocabulary is the basis of the target language and it is of high importance to the typical language learner (Zimmerman, 1997, cited in Coady and Huckin, 1997). For someone who looks educated and honored, it is shameful and even shocking when he/she opens his/her mouth saying inappropriate vocabulary, because what people say and how they say it show who they really are. That is why vocabulary learning is meant to be a vital part of schooling and even a basis in formal education. McCarty (1990, cited in Campillo, 1995) emphasizes how vocabulary is important, arguing that although the importance of other elements of language such as grammar and phonetics, obviously, vocabulary still the basis for
communicating and thus learning a foreign language. The same idea defended by many other scholars like Wilkins (1972, cited in Murtagh, 2011) who states that “without grammar very little can be conveyed, without vocabulary nothing can be conveyed” (p.111). Moreover, Harmer (1991, cited in Mirkamali, Maghsoudi and Azizmohammadi, 2013) shared the same idea that “If language structures make up the skeleton of language, then it is vocabulary that provides the vital organs and the flesh. An ability to manipulate grammatical structures does not have any potential for expressing meaning unless words are used” (p.53). Yet, vocabulary still the most neglected of all the aspects of learning a second language, not only in English for general purposes (EGP), but also in English for specific purposes (ESP) as well (kennedy and Bolitho 1985, cited in Campillo, 1995). Therefore, it is crucial to take into consideration the importance of this element for sake of its numerous benefits. On one hand, vocabulary gives you the ability to say what you mean, and be explicit and direct when sharing your thoughts and opinions or simply making conversations. This will raise the chances of having other people understand what you wish to express; hence, it leads them to make a good impression on you based on the vocabulary you use. On the other hand, vocabulary helps you understand what you read and get to comprehend words you are unfamiliar with and as a result, grasp new concepts and enhance the desire to build vocabulary skills. So no matter what it takes to learn or acquire new words, it is still a basic skill which is in need to be mastered.

1.1.6. Steps of Teaching and Learning Vocabulary

Concerning Steps of teaching vocabulary, Coady and Hucking (1997) proposed that the teacher must take into consideration how vocabulary should be selected and how it should be presented. For selection, early researchers provided lists of the most widely used words in the teaching process. The most appropriate teaching strategy here is selective attention, i.e, the teacher should stimulate the leaners’ concentration through hilighting or bold-facing. The
other step in the teaching process is sequencing. This latter is divided into two main sequences in which teaching vocabulary is based on. The first one is levels of vocabulary which is sub-branched into three levels itself as it is shown in the table below.

Table 1

*Levels of Acquiring Vocabulary (Coady and Huckin, 1997, p. 239)*

<table>
<thead>
<tr>
<th>Levels</th>
<th>Number of Words</th>
<th>Text Coverage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Frequency Level</td>
<td>2000</td>
<td>41</td>
</tr>
<tr>
<td>Academic Level</td>
<td>800</td>
<td>16</td>
</tr>
<tr>
<td>Technical vocabulary</td>
<td>2000</td>
<td>41</td>
</tr>
<tr>
<td>Total</td>
<td>4800</td>
<td>100</td>
</tr>
</tbody>
</table>

At the very begining, the learner acquires heigh frequent words, then he moves to the next level which is the academic level. After that, the learner may learn technical vocabulary for the sake of english for specific purposes such as: law, medicine, chemistry… etc. The second one is grouping and ordering of words, it means that it is easier to learn unrelated words than learning items that are near synonyms or opposites. On the other hand, ordering is very important in teaching a second language, i.e, there must be a link between the learned words to form meaningful sentences. Another step that a teacher must take into account in teaching settings is presentation. He may present vocabulary explicitly or implicitly. In a direct approach, the teacher may use crossword puzzles activities, matching words with various types of definitions …etc. While, in an indirect approach, the teacher may teach vocabulary via communicative activities, listening to stories, information gap activities…etc.
The teachers must not only consider steps of teaching vocabulary, but also steps of learning vocabulary. They must be more interested in how learners should acquire the language. This can happen through four steps which are suggested by Hutch and Brown (1995). The first step is **encountering new vocabulary** may be via reading books, magazines, stories, newspapers, listening to radio, television or even songs. Also, there are some factors that have effects on learners’ acquisition of words such as: interests, motivation and learners’ needs. The second step for vocabulary learning is getting the **word form-spelling, pronunciation** or both. Getting the word form is very crucial especially when learners are asked to define words. The third essential step is getting the **word meaning** by asking the teacher about it, checking dictionaries or translation into the L1. The final step is using the **word**. Some believe that this step is not necessary if the acquired knowledge is only receptive. However, if the learner’s aim from knowing the knowledge is productive, word use is essential to test the learners abilities in that knowledge. Thus, learners should be supplied with a large amount of vocabulary which enable them to discuss any topic.

### 1.1.7. Issues about Traditional Method

The target language is learned and taught via different methods. One of them is Grammar Translation Method (GTM), which is still used by many teachers in EFL classroom. It involves the translation of texts in the students’ native language. According to Allen and Corder (1975), GTM is "the most deductive approach" (p. 13). Brown (2001) admits that GTM is widely used because it does not require much efforts and skills on the part of the teachers because they use their mother tongue and even those who are less fluent in English can teach via this method. Teachers were the only source of information in the traditional environment. Therefore, their learners were passive, with no participation in the learning process. i.e. doing what they were asked and memorizing what the teacher gave.
White (1988, cited in Viera, 2008) states that “vocabulary is learned as isolated items and words are combined according to rule” (p. 8). In addition, Xu (2008, cited in Viera, 2008) specifies the way of learning new vocabulary and using it according to the grammatical rules by stating that “vocabulary lists, printed grammar rules, and sample sentences are provided for the students to translate” (p. 13). In other words, students explain the context; they receive lists of isolated words and they are expected to translate sentences and create the correct forms. Richards (2008, cited in Viera, 2008) states that GTM entails techniques that were often adopted such as: memorization of dialogs, question and answer practices, substitution drills and other various forms. For that, teachers attempt to explain a foreign word or a sentence by giving the synonym in the L1. This means that translation has been used to acquire the new words, but not always the exact translation from one language to another is possible. That is why students usually suffer from remembering these new words.

1.2. Main Issues about Mind Mapping

1.2.1. A Brief history of Mind Mapping

According to Kurniawati (2011), mind map was first found in the 3rd Century BC and was first popularized by the British psychology author Tony Buzan. In ancient times, mind map was presented in graphic designs to express various concepts, words and ideas that are related to a central thought. It was used for learning, brainstorming, memory, visual thinking, and problem solving by educators, engineers, psychologists, and others. Porphyry of Tyros, is claimed to be using one of the earliest examples of mind maps to easily convey concepts, ideas, and meaning. He applied mind maps to visualize Aristotle’s concept of categories. The visualization method made it easier to grasp the complex thinking of Aristotle and encouraged discussion and problem solving surrounding a focal subject. Then, the historiographers of mind mapping point to another philosopher who used predecessors of mind maps as a
comprehension booster. Ramon Llull, a Spanish philosopher of the 13th century, enlightened the Dark Ages with his creative visualizations. One of his diagrams is referred to as the Tree of Knowledge, another as The Tree of the Philosophy of Love. Towards the end of the Middle Ages and at the beginning of a new era of science and art, Leonardo da Vinci, one of the world most versatile and well-known artists and scientists, is often referred to as a forebear of mind mapping. He used images and writing in a non-linear way for note taking (ibid). Finally, in the Blossoming Period, there are a number of other close relatives of today’s mind mapping concept documented throughout history. While these are no less important to the overall development of mind mapping, for the purpose of this brief history, let’s fast forward a few hundred years to modern times. It took until the late 1950s when Alan Collins and Ross Quillian developed the concept of semantic networks as a way to understand and describe human learning and creativity and how they relate to the functions of the brain. One can easily claim that creativity and innovation are the companions of the usage of mind maps, independent of the pertinent topic matter. Nonetheless, there seems to be a historic progression from the early use of mind maps to illustrate and communicate innovative thinking to its pragmatic usage in learning, project management, brainstorming, creative thinking, designing, and communication (ibid).

1.2.2. Definition of mind mapping

Buzan (2006, cited in Kurniawati, 2011) argues that mind map is based on shining thinking, a concept which describes how the human brain processes various ideas and information that are associated to each other through relationship hooks.
As Budd (2004) mentioned, mind maps are pictorial techniques which facilitate knowledge acquisition and retrieval of information through the use of visual clues such as images, shapes and colors.

Al-Jarf (2011) defined the concept of mind map as follows:

A mind map is a graphic organizer in which the major categories radiate from a central idea and sub-categories are represented as branches of larger branches. It is a visual tool that can be used to generate ideas, take notes, organize thinking, and develop concepts. Teachers can use it to enhance learning. It is helpful for visual learners as an illustrative tool that assists with managing thought, directing learning and making connections. It is a skill that cuts across ability levels and encompasses all subject matters. It enables students to better organize, prioritize, and integrate material presented in a course. (p.4)

Similarly, Hofland (2007) claimed that mind mapping is a way that provides L2 learners with more meaningful repetitions and retention of the new words in any target language. By using pictorial and graphical design, mind mapping can provide a more vivid teaching atmosphere which promotes memory retention as well as the motivation of the learners (Liu, Zhao, & Bo, 2014).

Mind maps are specifically beneficial for young learners to recall their memories. Based on Miao (2007), teaching and learning a foreign language by the use of the mind mapping is very effective and enjoyable, because they aid to motivate L2 learners to study and employ new words, concepts, notions and themes regularly and effortlessly.

In other words, mind map presents a single word or text placed in the centre, to which associated ideas, words and concepts are added. It helps one to distinguish words or ideas often with colors or symbols and allows creativity to take place when recording ideas and information, as well as helps the note taker to associate words with visual representations.
The following figure was presented by Gairns and Redman (1986), it illustrates mind maping as an effective way of getting information in and out of the brain in order to create note taking and note making that maps out the ideas.

![Mind Map of Bedroom Items](image)

**Figure 1 Items in bedroom Gairns and Redman (1986, p.52)**

1.2.3. Types of Mind Maps

According to Svantesson (2004, cited in Kurniawati, 2011), there are three types of mind map such as: hayfork, thorn fish and clustering. First, **hayfork** can be made by creating a main topic in the centre, then, connected with lines. In addition, submit new lines and write the words below the lines.
Figure 2 Svantesson’s first kind of mind map "hayfork" (2004, p.62)

The Second kind is thorn fish, this model could be seen in the figure below:

Figure 3 Svantesson’s second kind of mind map "thorn fish" (2004, p.62)

The third kind is clustering, this model looks like waves; in the sense that the main idea is shaped in the centre and then branches are added in which every branche contains a word to avoid confusing.

Figure 4 Svantesson’s third kind of mind map "clustering" (2004, p.62)
1.2.4. Mind Mapping Strategies for Teachers

Leyden (2015) suggested mind mapping strategies for teachers as follows: pre-class, in-class, and out-of-class strategies. **Pre-class** mind-map strategies include strategies such as planning, organizing, preparing the materials for learning, setting the ground for classroom discussion, encouraging the learners to study before attending the class and activating the previous knowledge about a specific topic which is the focus of the L2 class. **In-class** teaching strategies can enhance L2 learners acquisition of the target language which promote creativity, motivation, enthusiasm, cooperation, focused learning and authentic interaction between learners. **Outside class** strategies include collaboration, assessment and comprehension. Students can easily work together on group projects or assignments such as exam time where they can share their mind maps with classmates.

1.2.5. Mind Mapping Strategies for Students

Buzan (1993, cited in Indrayani 2014) has presented some strategies for students to start mind mapping in order to get better results, improve their memory and spend less time when learning as follows:

1. **Making Notes**

Mind Map helps students to note down only the most important information using key words, and then make connections between facts and ideas visually in order to make all of the topic thoughts together on one sheet.

2. **Brainstorming**

Mind map is a great tool to draw the thoughts to prepare for an exam, an essay or any other creative task will help you retrieve information from your memory and come up with
new ideas by association. Once you have accumulated enough information, you can rearrange your ideas until you have developed the perfect structure.

3. Memorization

Mind map can help you memorize all kinds of information and data, from vocabulary of a second language to complex physical concepts. Mind maps are so great for memorization as Buzan (2013, cited in Indrayani 2014) explained “Mind maps utilize all our cortical skills and activate the brain on all levels, making it more alert and skillful at remembering. The attractiveness of mind maps makes the brain want to return to them, and again encourages the probability of spontaneous recall”. (p.87)

4. Revising lessons

Use a mind map to revise material covered in class. Every time you look at the map, you will memorize its content a little more. Even working on your map (improving it with colors, pictures and the like) will intensify your knowledge of its content. The same applies to material you are trying to study for an exam.

1.2.6. The Purposes of Mind Mapping

Davis (2010, cited in Indrayani 2014) stated that the purpose of using mind mapping is to associate between ideas, topics or things. On the other hand, Buzan (2013, cited in Indrayani 2014) claimed that there are several specific purposes of mind mapping as stated below:

1. Mind mapping activates the whole brain.
2. Mind mapping fixes the mental complications.
3. Mind mapping lets the students focus on main explanation.
4. Mind mapping helps to show the relationship between the separated information parts.
5. Mind mapping gives clear description specifically.

6. Mind mapping allows the students to group the concepts and compare them.

7. Colors have the same role as pictures, the brain will stimulate an idea through colorful form. It gives mind map more alive and adds creative thinking energy for the students.

8. Pictures have thousand meanings as same as the central picture.

Based on the explanation above, the main purpose of mind mapping is hoped to help the students in getting better learning process. By activating the whole brain activities, it can be concluded that mind mapping is expected to make it easier for students to comprehend the subject matter.

1.2.7. The Advantages and Disadvantages of Mind Mapping

Mind mapping technique has advantages and disadvantages in its use. On one hand, DePorter and Hernacki (2008) described some advantages of using mind mapping technique, firstly, flexible; We can put the category of something based on our own opinion anywhere in the mind mapping easily, it may help people to see other connections and similarities in the received information. Secondly, concentrate on the topic; keep focus on the keyword can help our brain to store and retrieve information and it does not waste time. It helps to concentrate on information structure and enables the user to see the big picture. Thirdly, increasing comprehension; mind mapping as a simple think pattern, it makes revision easier and condenses material into a concise memorable formation. Also, it delivers the students to focus on the ideas. Hence, this way facilitates the students to understand what they have learned. Lastly, enjoyable; by using pictures and colors, mind mapping makes the brain enjoyed and excited, so it can be funny to learn. Nevertheless, mind mapping guides the students to plan, communicate, be inventive and explain the ideas fastly and efficiently when they work with others. On the other hand, mind mapping may be so personal and difficult for
others to understand. In addition to that, students may want to redraw the maps later but that will not help them remember the material later.

From those explanations above, it can be concluded that mind mapping is just a technique which has both positive and negative sides. The learners can take the advantages through this technique, however; the disadvantages cannot be separated from its use. Hence, it depends on the user to increase the advantages of using mind mapping.
Conclusion

The objective of this chapter is to analyze the importance of mind mapping technique on developing students’ vocabulary; looking for more practical ways to make vocabulary learning interesting in EFL settings. Moreover, the goal of vocabulary teaching must be more than simply covering a certain number of words on a word list. Hence, it is a necessity to look for how the teaching/learning mind mapping technique can help the learner realize what is meant by knowing a word, which is our interest in the coming chapter.
Chapter Two

The Fieldwork

Introduction

2.1. Description of Research Design

2.1.1. Choice of Method
2.1.2. Population and Sampling
2.1.3. The Target Structure
2.1.4. The Research Design

2.1.5. Procedures

2.1.5.1. Pre-test Phase
2.1.5.2. Treatment period

2.1.5.2.1. Experimental Group Instruction
2.1.5.2.2. Control Group Instruction

2.1.5.3. Post-test Phase
2.1.5.4. Scoring

2.2. Data Analysis

2.2.1. Results of the Experiment

2.2.1.1. The Control Group Vs the Experimental Group Scores of the Pre-tests
2.2.1.2. The Control Group Pre-test Vs the Control Group Post-test
2.2.1.3. The Experimental Group Pre-test Vs the Experimental Group Post-test

2.2.1.3.1. The Paired-Samples t-test of The Experimental Group
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2.2.1.4.1. The Independent Samples t-test
2.2.1.5. Discussion of the Results

Conclusion
Introduction

This chapter is devoted to the fieldwork of our research study, which aims at investigating the efficacy of using mind mapping as a learning technique for learners to enlarge their vocabulary repertoire in the target language. Also, it deals with some procedures of the study such as: the choice of methods, the description of the sample, the tools used to carry out the study, the description of the pre-test and the post-test. The chapter ends up discussing the analysis and the results.
2.1. Description of Research Design

2.1.1. Choice of Method

In fact, the choice of the method in any research study mainly has to do with the nature of the subject being investigated, the sample under investigation, the aims set behind and the data collected as well. For this reason, the chosen method to achieve this work area is a quasi experimental design. Typically, the experiment is supposed to take a longitudinal study, i.e. six months to a year at least. However, because of time constraints, it is conducted within five weeks. The experiment is used as the main research tool in order to see the extent to which the results are consistent.

2.1.2. Population and Sampling

The population is of two hundred (200) second year middle school students at Berkani Messaoud year 2016/2017. The sample is of thirty students (30), fifteen students (15) for the control group and fifteen students (15) for the experimental group. We have selected the number fifteen (15) because some students are usually absent and others suffer from lack of vision. We have chosen to work with second year students because they are still at the beginning stages of learning and they have little of the new language at their command.

2.1.3. The Target Structure

The language aspect chosen to be the target for this study is ‘vocabulary’, as it is considered the student’s main package to master the foreign language. Vocabulary in this research study is to be taught through mind mapping technique to enlarge their lexis.

2.1.4. The Research Design

The design used to conduct this study is a “quasi-experimental design”; here is how it looks like:
Table 2

*The Quasi-experimental Design (Salkind, 2000, p. 243)*

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
<th>Step 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants are assigned</td>
<td>A pre-test is administered</td>
<td>A treatment is administered</td>
<td>A post-test is administered</td>
</tr>
<tr>
<td>To the experimental group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participants are assigned</td>
<td>A pre-test is administered</td>
<td>No treatment is administered</td>
<td>A post-test is administered</td>
</tr>
<tr>
<td>to the control group</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In order to measure the effects of using mind mapping technique on learners’ vocabulary, the following question is raised:

- Is mind mapping effective to improve students’ vocabulary learning?

Two tests were performed to investigate the proposed hypothesis in respect of research question. Thus, statistically speaking, this question can be reformulated in the following way:

Is there a significant difference in acquiring English vocabulary between learners who receive the mind map technique and those who do not?

Therefore, the following hypothesis can be formulated:

1. The Alternative Hypothesis:

   \( (H_1) \): If mind mapping technique is used in English classroom settings; students will make a significant progress in their vocabulary stock.

2. The Null Hypothesis:

   \( (H^0) \): If mind mapping technique is used in English classroom settings; students will not improve their repertoire of vocabulary in the target language.

### 2.1.5. Procedures

#### 2.1.5.1 The Pre-Test Phase

This study started by pre-testing both groups for the purpose of finding out to what extent those groups are familiarized with the new vocabulary and the meaning of the new items. The
pre-test takes forty five minutes and it consists of three main tasks. The first one is about matching four terms with their appropriate terms. Then, students are asked in the second task to fill in the gaps. Finally, students are asked to cross the odd words. The aim is to test students’ prior knowledge of English vocabulary.

2.1.5.2. The Treatment Period

The treatment period is of three sessions, each session takes thirty minutes. The experimental and the control group were given the treatment by the researcher with the aid of the instructor who made the tasks as part of the original lessons. The experimental group is taught vocabulary through mind mapping technique, while the control group is taught through traditional way.

2.1.5.2.1. Experimental Group Instruction

The experimental group was given three separated lessons about English vocabulary according to their level, in which they participated in mind mapping activities. In the first lesson, the researcher explained what mind mapping is and how it looks like. Then, she started warming up the lesson by introducing the topic which is about fruits. The researcher drew a large circle on the board that entails the word fruits and asked the students to think of words that might be related to the topic. Next, she listed the words given by the students on the side of the board and then she gave them incomplete mind mapping. After that, the students are asked to categorize their listed fruits in the incomplete map. The researcher helped them by using four colors such as red, yellow, orange, and green, in which each color represents some fruits. They are listed as follows: banana, apple, kiwi fruit, grapes, cherry, orange, peach, strawberry, mango, lemon, lime, mandarin. In the second lesson, the researcher adopted the same way of presenting the first topic but instead of using colors, the researcher used images. The topic is about
face parts such as: forehead, eye, ear, cheek, nose. In the last session, the researcher drew the central keyword in the middle of the board which is seasons. Then, four images that express these seasons are associated to that word and the student are asked to guess the right season. At the same time, they are supposed to discover the months that belong to each season, such as: autumn (September, October, November), winter (December, January, February), spring (March, April, May), summer (June, July, August).

2.1.5.2.2. Control Group Instruction

The control group is taught via traditional method of learning new vocabulary, e.g. providing Arabic equivalents, English definitions, using dictionaries...etc.

Concerning the tasks to be answered, they are the same as those provided to the experimental group in order to compare the results of both groups.

2.1.5.3. The Post Test Phase

The post test is the last step in the study after the treatment. It takes the same form of the pre-test, as it was explained before. The aim behind administering it was to see the effectiveness of the treatment period and to check whether students’ repertoire is enlarged or not. Both tests are corrected in order to analyze and compare the results in the part of the findings. Finally, the main purpose is to either confirm or reject one of the research hypothesis.

2.1.5.4. Scoring

The total score is twenty points. The first task consists of four (04) English vocabulary terms in which students are asked to match them with their appropriate answers (12 items). It is scored on six (06) points, i.e. (0.50) point for each correct answer. In the second task, students are supposed to cross six (06) odd words from a list of fifteen (16) words; each odd
word crossed is scored on (01) point, this task is scored on six (06) points. The last task is scored on eight (08) points, here students are supposed to fill in the four (04) gaps, which means (02) points for each correct answer.

Giving marks is only based on shedding the light on the correct answers, not on the grammatical and writing mistakes that have been committed by students.

2.2. Data Analysis

2.2.1. Results of The Experiment

In this section, we are going to present and analyze all the data obtained from both groups in the pre-test and post-test through statistical procedures. On one hand, the paired sample t-test is used to compare the means (d) of the same group before and after the period of treatment, it would prove whether the improvement obtained is attributable to the effectiveness of the independent variable or not. On the other hand, the independent t-test is used to compare the means (d) of two different groups (the control group and the experimental group) to indicate whether the use of mind mapping technique is better than without it.
The following table shows the scores gained by the students of both groups in both tests:

**Table 3**

*The Experimental Group Vs the Control Group Scores of the Pre-tests and Post-tests*

<table>
<thead>
<tr>
<th>Individual Student</th>
<th>Experimental Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-test</td>
<td>Post-test</td>
</tr>
<tr>
<td>01</td>
<td>01</td>
<td>12</td>
</tr>
<tr>
<td>02</td>
<td>03</td>
<td>14</td>
</tr>
<tr>
<td>03</td>
<td>04</td>
<td>13</td>
</tr>
<tr>
<td>04</td>
<td>04.5</td>
<td>13</td>
</tr>
<tr>
<td>05</td>
<td>03</td>
<td>14</td>
</tr>
<tr>
<td>06</td>
<td>04.5</td>
<td>13.5</td>
</tr>
<tr>
<td>07</td>
<td>07.5</td>
<td>15</td>
</tr>
<tr>
<td>08</td>
<td>04</td>
<td>14</td>
</tr>
<tr>
<td>09</td>
<td>07</td>
<td>12</td>
</tr>
<tr>
<td>10</td>
<td>05</td>
<td>14</td>
</tr>
<tr>
<td>11</td>
<td>04</td>
<td>13</td>
</tr>
<tr>
<td>12</td>
<td>08</td>
<td>14</td>
</tr>
<tr>
<td>13</td>
<td>10</td>
<td>13.5</td>
</tr>
<tr>
<td>14</td>
<td>04.5</td>
<td>15</td>
</tr>
<tr>
<td>15</td>
<td>06</td>
<td>14</td>
</tr>
</tbody>
</table>
2.2.1.1. The Experimental Group Vs the Control Group Scores of the Pre-test

Figure 5 Frequency Distribution of The Pre-test of The Control and The Experimental Group

In figure 5, we deduce that the experimental group’s frequency distribution begins at 01 (the lowest score) and ends at 10 (the highest score). 04/04.5 are the most frequent scores, in statistics it is known as the Mode. Whilst the control group’s frequency distribution starts at 03 (the lowest score) and ends at 12 (the highest score) with a mode at 09 (the most frequent score).

2.2.1.2. The Control Group Pre-test Vs the Control Group Post-test

Figure 6 Frequency Distribution of The Pre-test and The Post-test of The Control Group
In figure 6, we notice that while the pre-test scores have only one peak at 12, the post scores have also one peak at 11. Furthermore, the score 09 presents the mode of the pre-test, while the score 05 presents the mode of the post-test. Apparently, students could not infer the meaning of vocabulary items.

2.2.1.2.1. Paired Sample T-test of the Control Group

The paired t-test is used to compare the mean scores of two samples, in which a participant of the same group contributes in two tests. However, in between these tests there is what is known as an ‘intervention’ or a ‘treatment period’. This latter appears to have or to have not an effect through applying the t-test. In other words, the t-test is supposed to prove whether the differences obtained from the tests are due to the impact of using mind mapping technique or merely due to chance or due to some other external factors, like learning styles… etc. Therefore, we are likely to test the null hypothesis, in the sense that if the mean difference of the scores before and after the period of treatment was equal to zero, then the null hypothesis is approved.
### Table 4

**Paired Sample T-test of the Control Group**

<table>
<thead>
<tr>
<th>Paired Samples Statistics</th>
<th>Mean</th>
<th>N</th>
<th>Std Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Group Pretest</td>
<td>7,933</td>
<td>15</td>
<td>2,7572</td>
<td>.7119</td>
</tr>
<tr>
<td>Pair 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Group Posttest</td>
<td>6,933</td>
<td>15</td>
<td>2,0342</td>
<td>.5252</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Paired Samples Test</th>
<th>Paired Differences 95% Confidence</th>
<th>Sig.(2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Std. Mean Difference Interval of the</td>
<td>t</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation Std. Error Lower Upper</td>
<td></td>
</tr>
<tr>
<td>Control Group Pretest</td>
<td>1,000 2,3223 ,5996 -.2860 2,2860</td>
<td>1,66</td>
</tr>
<tr>
<td>1</td>
<td>Control Group Posttest 0</td>
<td>8</td>
</tr>
</tbody>
</table>

On the one hand, the control group recorded a post-test mean Xpo = 6.933 lower than the pre-test Xpr = 7.933. Therefore, in order to measure the extent of improvement from pre-test and post-test, we shall calculate the difference score between the means of both tests: d = Xpo - Xpr = -1. On the other hand, the P value is greater than 0.05. So, we failed to reject the null hypothesis. i.e, there is no significant difference between the means.
2.2.1.3. The Experimental Group Pre-test Vs the Experimental Group Post-test

In figure 7, we deduce that in the pre-test three students got the scores 04, and three others got the score 4.5. That is, the scores 04/04.5 are the mode of the pre-test. While, the mode of the post-test is 14, it was gotten by six students. Furthermore, the peak of the pre-test is 10 and the peak of the post-test is 15. After all, the scores of the experimental group of the post-test show real significant progress after the treatment period. Apparently, students were able to grasp the meaning of new vocabulary that are presented by using mind mapping technique. As a result, using mind mapping did enlarge their vocabulary repertoire.
2.2.1.3.1. The Paired-Samples T-test of The Experimental Group

Table 5

Paired Sample T-test of the Experimental Group

<table>
<thead>
<tr>
<th>Paired Samples Statistics</th>
<th>Mean</th>
<th>N</th>
<th>Std Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group Pretest</td>
<td>5,067</td>
<td>15</td>
<td>2,2824</td>
<td>.5893</td>
</tr>
<tr>
<td>Pair 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental Group Posttest</td>
<td>13,600</td>
<td>15</td>
<td>.8904</td>
<td>.2299</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Paired Samples Test</th>
<th>Paired Differences</th>
<th>95% Confidence</th>
<th>Sig.(2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Std. Mean Diff.</td>
<td>Std. Error Diff.</td>
<td>Interval of the Mean Difference</td>
</tr>
<tr>
<td>Pair 1</td>
<td>Experimental Group Pretest</td>
<td>2,2478</td>
<td>.5804</td>
</tr>
<tr>
<td></td>
<td>Experimental Group Posttest</td>
<td>8.5333</td>
<td>.5804</td>
</tr>
</tbody>
</table>

On the one hand, the experimental group recorded a post-test mean $X_{po} = 13.600$ higher than the pre-test $X_{pr} = 5.067$. Therefore, in order to measure the extent of improvement from pre-test and post-test, we shall calculate the difference score between the means of both tests: $d = X_{po} - X_{pr} = 8.533$. On the other hand, the $P$ value $= 0.000$ is less than 0.05. So, we reject the null hypothesis and we accept the alternative one. Consequently, there is significant difference between the means.
Figure 9 The Experimental Group Scores Differences

2.2.1.4. The Experimental Group Vs the Control Group Post-test

In figure 10, we deduce that the experimental group’s frequency distribution begins at 12 (the lowest score) and ends at 15 (the highest score). 14 is the most frequent score which is gotten by six students. Whilst the control group’s frequency distribution starts at 4.5 (the lowest score) and ends at 11 (the highest score) with a mode at 05 (the most frequent score).

For the sake of comparing the difference between the previous groups’ post-tests mean scores, we are to apply the following test:
2.2.1.4.1. The Independent Sample t-test

The independent sample t-test is mainly used to check whether there is any statistically significant difference between the mean scores of post-tests of both groups of our study for each participant and to examine the effects of the independent variable on the dependent variable.

**Table 6**

**The Independent Sample T-test of The Experimental Group**

<table>
<thead>
<tr>
<th>Group Statistics</th>
<th>N</th>
<th>Mean</th>
<th>Std Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posttest</td>
<td>15</td>
<td>13,600</td>
<td>,8904</td>
<td>,2299</td>
</tr>
<tr>
<td>Experimental</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group Posttest</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Group</td>
<td>15</td>
<td>6,933</td>
<td>2,0342</td>
<td>,5252</td>
</tr>
<tr>
<td>Posttest</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Independent Samples Test**

<table>
<thead>
<tr>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Std Error</td>
</tr>
<tr>
<td>Sig</td>
<td>Mean Different</td>
</tr>
<tr>
<td>T</td>
<td>Tailed</td>
</tr>
<tr>
<td>Df</td>
<td>95% Confidence Interval of the Difference</td>
</tr>
<tr>
<td>Score Equal variances assumed equal variances</td>
<td>Mean Different</td>
</tr>
<tr>
<td>9,296,005</td>
<td>28,000</td>
</tr>
<tr>
<td>28</td>
<td>6,6667,5733</td>
</tr>
<tr>
<td>5,4922</td>
<td>7,8411</td>
</tr>
</tbody>
</table>
| On the one hand, the experimental group recorded a post-test mean Xpo= 13.600 higher than the post-test of the control group Xpo=6.933. Therefore, in order to measure the extent of improvement from both post-tests, we shall calculate the mean difference score between the means of both tests 6.6667. On the other hand, the P value = 0.000 is less than
0.05. So, we reject the null hypothesis and we accept the alternative one. After all, the difference between the experimental and the control group post-tests ‘means is proved to be significant. Therefore, it must be noted that the null hypothesis and the alternative one is approved.

2.2.1.5. Discussion of the Results

The current study is an attempt to examine the efficacy of using mind mapping technique on English vocabulary increasing. Our research question is:

Will using mind mapping technique enhance students’ vocabulary learning of the target language.

In an attempt to answer this question, it is predicted that:

H1: If mind mapping technique is used in EFL settings; students will make a significant progress in their vocabulary stock.

H0: If mind mapping technique is used in EFL settings, students will not improve their repertoire of English vocabulary.

The analysis findings proved that the first hypothesis is confirmed and the second one is rejected. The descriptive statistics also showed that the two groups before the treatment period scored nearly a similar average: \( \bar{x}_E = 5.067 \) for the experimental group and \( \bar{x}_C = 7.933 \) for the control group who performed a little higher than the experimental group, this tiny difference which equals -2.8667 is not statistically significant.

In other words, both groups’ initial knowledge about the target words before the experiment is nearly similar. However, after they are taught new vocabulary items through mind mapping technique, both groups show a differing improvements to the above level; \( \bar{x}_E = 13.600 \) for the experimental group which is significantly higher than that of the control group \( \bar{x}_C = 6.933 \). The improvement of vocabulary knowledge in the experimental group indicates that students did not only gain new vocabulary items, but also succeeded in
remembering them accurately when answering the post-test. The responses revealed from this study suggest that students can learn new words they encountered for the first time from the use of mind mapping technique in the classroom, and thus it can be adopted in EFL classroom.

**Conclusion**

The method applied in the study has been presented with descriptions and justification of the selection of the subject matter, the instrument and the process of data collection as well as the analysis and the discussion of the results. The chapter ends with discussing this latter deduced from the experiment as follows: it can be argued that the use of mind mapping technique has helped the participants to develop their vocabulary knowledge. The findings of this study should incite this method of language teaching to be included in curriculum.
GENERAL CONCLUSION

The study is conducted to examine the effectiveness of mind mapping technique on enhancing Algerian EFL learners’ vocabulary. Selecting the sample from the middle school of Berkani Messaoud in Oum El Bouaghi. Students are tested through an experiment to evaluate their level of English knowledge. The experimental group is taught via mind mapping technique; however, the control group is taught through the traditional way. The scores taken from the experiment helped in realizing that there is a significant difference between the two groups. With reference to the statistical results, it is proven that the presence of mind mapping technique helped students acquire new vocabulary items easily.

Limitations of the study

In our attempt to investigate the effects of using mind mapping technique on learners’ vocabulary increase, we have encountered some limitations such as the lack of time to conduct the experiment, students absences and careless. In addition to that, we had to work with students who are unfamiliar with the second language, so that we can measure their vocabulary improvement of new words after the experiment.

Recommendations

The use of mind mapping technique is proved to be crucial for teaching and learning process. Therefore, adopting such technique in EFL classrooms should be taken into account. Both students and teachers would find it an inspired method to maintain stimulation and concentration during the lesson, its use is not only restricted to vocabulary, but also for further uses such as: memorizing, revising for the exams,presentations…ect. Further research can be conducted to examine the effects of using mind mapping technique on other aspects of language such as: writing and reading.
References


Appendices

Appendix A: Pre-test

Appendix B 1: Treatment Phase One

Appendix B 2: Treatment Phase Two

Appendix B 3: Treatment Phase Three

Appendix C: Post Test
Appendix A

Pre-test
Dear student,

This pret-test is administered in order to collect data for completing a part of a research work. It aims at investigating your stock of English vocabulary. I would be so grateful for your collaboration. Therefore, I would like you to attempt to do the following activities, and try to answer these three tasks please.

Again, thank you for your help.

Miss. KHIAT Amel
Faculty of Letters and Languages
Department of English
Laarbi Ben M’Hidi University
Oum El –Bouaghi
Task one:

Match the words in column A to the appropriate answer in column B:

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red fruits</td>
<td>Banana</td>
</tr>
<tr>
<td></td>
<td>Apple</td>
</tr>
<tr>
<td></td>
<td>Kiwi fruit</td>
</tr>
<tr>
<td>Yellow Fruits</td>
<td>Grapes</td>
</tr>
<tr>
<td></td>
<td>Cherry</td>
</tr>
<tr>
<td>Orange Fruits</td>
<td>Orange</td>
</tr>
<tr>
<td></td>
<td>Peach</td>
</tr>
<tr>
<td>Green Fruits</td>
<td>Strawberry</td>
</tr>
<tr>
<td></td>
<td>Mango</td>
</tr>
<tr>
<td></td>
<td>Lemon</td>
</tr>
<tr>
<td></td>
<td>Lime</td>
</tr>
<tr>
<td></td>
<td>Mandarin</td>
</tr>
</tbody>
</table>

Task 2:

Cross the odd words from the list below:

Task3:

Fill in the gaps using the following words: autumn, summer, spring, winter

1. .......... generally begins in june and ends in the late of august and it is the season that follows spring. It is considered the sunniest time of the year.

2. .......... starts in september and ends in the late of november. In this season, the colors of the leaves begin to change and fall off the trees.

3. .......... starts at the begining of december and ends at the late of february. It usually snows. It is the coldest season of the year.

4. .......... Starts in march and at the end of may. It is the season follows winter in which a lot of flowers and greenery begin to appear.

Good Luck!
Appendix B 1

Treatment Phase

One
The first lecture is about "fruits"

- **Yellow fruits**
  - Banana
  - Lemon
  - Mango

- **Green fruits**
  - Grapes
  - Lime
  - Kiwi fruit

- **Orange fruits**
  - Orange
  - Mandarin
  - Peach

- **Red fruits**
  - Apple
  - Cherry
  - Strawberry
Appendix B 2

Treatment Phase Two
The second lecture is about "face parts"
Appendix B 3

Treatment Phase

Three
The third lecture is about "seasons"

- **Autumn**
  - September
  - October
  - November

- **Spring**
  - March
  - April
  - May

- **Summer**
  - Juin
  - July
  - August

- **Winter**
  - December
  - January
  - February
Appendix C

Post Test
Dear student,

This pre-test is administered in order to collect data for completing a part of a research work. It aims at investigating your stock of English vocabulary. I would be so grateful for your collaboration. Therefore, I would like you to attempt to do the following activities, and try to answer these three tasks please.

Again, thank you for your help.

Miss. KHIAT Amel
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<tr>
<td>Grapes</td>
<td></td>
</tr>
<tr>
<td>Cherry</td>
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</tr>
<tr>
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<td>Orrange Fruits</td>
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<td>Strawberry</td>
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<tr>
<td>Lime</td>
<td></td>
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<td></td>
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Task 2:

Cross the odd words from the list below:

Task3:

Fill in the gaps using the following words: autumn, summer, spring, winter

1. ........... generally begins in June and ends in the late of August and it is the season that follows spring. It is considered the sunniest time of the year.

2. ............ starts in September and ends in the late of November. In this season, the colors of the leaves begin to change and fall off the trees.

3. ............ starts at the begining of December and ends at the late of February. It usually snows. It is the coldest season of the year.

4. ............ Starts in March and at the end of May. It is the season follows winter in which a lot of flowers and greenery begin to appear.

Good Luck!
Résumé

L’enseignement du vocabulaire anglais pourrait être effectué grâce à de différentes méthodes. Notre étude a pour but d’étudier le rôle que la technique de la carte heuristique dans l'apprentissage du vocabulaire. Pour cela nous avons sélectionné trente élèves ; de deux classes différentes du CEM Berkani Messaoud- Oum E Buoghi, dont les tranches d’âge, les compétences et les cultures se varient. La raison pour laquelle nous avons choisi de travailler avec des élèves du niveau secondaire se résume dans leur bagage médiocre en termes de vocabulaire, car ils sont aux premières étapes d’apprentissage de la langue anglaise. Ainsi nous avons opté pour une étude expérimentale au long d’une période de cinq semaines ; comme une première étape nous avons élaboré un avant teste à fin de nous assurer que les niveaux des élèves sont homogènes et qu’il n’y a pas une grande différence dans leurs niveaux, ainsi que de s’assurer qu’ils n’ont pas une pré-acquisition du vocabulaire sur lequel on comptait travailler lors de notre étude. Nous avons devisé les trente élèves en deux groupes, dans le premier groupe, qui est expérimental, nous avons utilisé la technique de la carte heuristique en ce qui concerne les couleurs, les mots clés, les images, les formes,…etc., Tandis que pour le deuxième groupe, qui est ‘contrôlé’, nous avons opté pour la technique traditionnelle d’enseignement comme l’utilisation de la traduction, des synonymes et des antonymes. A la fin du traitement, les mêmes exercices sont redonnés aux deux groupes pour tester leur performance. Les résultats du test final ont démontré une différence considérable au niveau du vocabulaire des deux groupes en faveur du groupe expérimental, grâce à l’utilisation de la carte heuristique. Au final, nous avons conclut que l’apprentissage du vocabulaire anglais en utilisant la technique de la carte heuristique peut mieux aider à enrichir le bagage linguistique des élèves.
Les mots-clés

La technique de cartographie mentale

Une technique traditionnelle

Vocabulaire

Apprenants de la langue étrangère
مث لغة

تدريس المفردات الإنجليزية يمكن أن يتحقق عن طريق أساليب مختلفة. هذه الدراسة حاولت استكشاف تأثير تقنية رسم الخرائط الذهنية على تعلم المفردات. وتحقيق هذا الهدف، تم اختيار ثلاثين طالبا للسنة الثانية بمتوسطة "ب" بركاني مساعد في مدينة أم البواقي من فتيين. لذلك، تم اعتماد طريقة تجريبية لتحقيق في هذه الدراسة لمدة خمسة أسابيع. تم اختبار جميع المشاركين مسبقاً للتأكد من أنهم متكافئين ومتجانسين في المستوى الدراسي والكلمات المستهدفة غير معروفة للطلاب في الصف هم من مختلف الأعمار والجنس والقدرات وثقافات مختلفة. لقد اختبرنا العمل على طلاب السنة الثانية لأنها لا تزال في المراحل الأولى من تعلم اللغة الإنجليزية. أيضاً ليس لديهم مرجع بناء جيد من الكلمات. بالنسبة للمجموعة التجريبية، تم تدريس المفردات باستخدام تقنية رسم الخرائط الذهنية مثل: الألوان، الكلمات الرئيسية، الصور، الأشكال... الخ. في حين تم تدريس المجموعة الأخرى من خلال التقنية التقليدية مثل الترجمة إلى اللغة الأم وتوفير المترادفات والمضادات. في نهاية التجربة، فمما نفس الاختبار لكلا المجموعتين للتحقق من إنجاز المفردات الخاصة بهم. أشارت النتائج إلى وجود فروق ذات دلالة إحصائية بين المجموعة التجريبية والضابطة لصالح المجموعة التجريبية لأنها حصلت على تقنية رسم الخرائط الذهنية، في حين أن المجموعة الأخرى لم تفعل ذلك. في النهاية، نأتي إلى استنتاج مفاده أن تعلم المفردات الإنجليزية من خلال استخدام رسم الخرائط الذهنية يمكن أن يساعد الطلاب على تعلم مفردات جديدة في اللغة المستهدفة.

المفتاح

المفردات اللغوية
تقنية الخرائط الذهنية
التقنية التقليدية
لمتعلمين اللغة الإنجليزية