People's Democratic Republic of Algeria

Ministry of Higher Education and Scientific Research

Mohamed Kheider University of Biskra

Faculty of Letters and Languages

Department of Foreign Languages

Section of English

The Impact of Using Crossword Puzzeles on Enriching Students' Vocabulary

Case study: Second-year scientific branch at ''Saiid Eibidi ''Secondary

School Biskra

A Dissertation Submitted in Partial Fulfillment of the Requirements for the

Master's Degree in Science of Languages

Supervised by: **Submitted by:**

Mrs. Mebarki Amina Zohra   Miss Elouechma Halima

Board of Examiners

Dr. Rezig Nadia... **Chairperson**
Mrs. Moussaoui Najat.. **Examiner**

2016/2017

Dedication

In the Name of God, Most Gracious, Most Merciful, All the Praise is due to God alone, the Sustainer of all the worlds

Firstly, and foremost, I would give my profound dedication to the undeniable and sparkling light of my life "my mother" and to the great man "my father" who forget their lives between the pages of my life to make my dreams come true, through providing me with the unlimited and uncounted supports and encouragements. I am so grateful for you my parents for giving me nothing but the best.

Special massive thanks to the sweet heart who guided me to finish this work "my supervisor"

I dedicate this work to my soul mates "my sisters and my brother" I can never forget your impatience to see my success, thanks for your constant love and encouragement. Further thanks to all my friends and my relatives for being around me , and finally to you, dearest reader.

Abstract

English vocabulary is a very hard task in the process of teaching and learning. In this context, the current research attempts to investigate the impact of using crossword puzzles on enriching students' knowledge of vocabulary. This study aims to explore the correlation between using crossword puzzles and vocabulary improvement. For the sake of achieving the major objectives, an experimental study is conducted.

In this research, we relied on selecting two groups, the experimental and the control group where both of them have a pre-test, we were giving a treatment uniquely to the experimental group through solving eight crossword puzzles; meanwhile, the control group was taught through the traditional method. Once the treatment finished, a post-test was distributed on the two groups to compare the results so that we can measure the degree of progress and test the effect of the treatment. The outcomes revealed that crossword puzzles are more effective than the other method in terms of improving vocabulary proficiency. Accordingly, this study recommends integrating crossword puzzles as a method for enhancing vocabulary.

List of Abbreviations and Symbols

SPSS: Statistical Package for Social Sciences

CG: Control Group

EG: Experimental group

CW: Crossword

N°: Number

L1: First language

L2: Second language

R: Range

RL: Receptor language

SL: Source Language

St.dev: Standard deviation

∑n: Total number

∑xy =Sum of products of of paired scores

∑x=Sum of x scores

∑y =Sum of y scores

$\sum x^2$ =Sum of squared x scores

$\sum y^2$=Sum of squared y scores

$\bar{x}$: Mean

%: Percentage

List of Figures :

List of Tables

List of Graphs

Table of Contents

General Introduction

Vocabulary learning is considered as one of the most vital skills and an essential step to master the English language, since it links the four English skills all together. In this sense , Robbins (1991) pointed out that "People with an impoverished vocabulary live an impoverished emotional life, people with rich vocabularies have a multihued palette of colors with which to paint their experience, not only for others, but for themselves as well" (p.01) . However, many students see that learning, retaining, recognizing, and memorizing new words is hard and boring task, thus learning English new vocabulary items needs more efficient techniques and methods by which their vocabulary level can be progressed. Hence, educators and teachers are in charge to choose appropriate and practical methods that enable them to transfer the new vocabulary to their students correctly and easily. Accordingly, activities that encourage students to practice the target language in amusing classroom atmosphere are required such as language games especially crossword puzzles.

Although some teachers think that crossword puzzles are a waste of time, and they prefer not to use them in classroom, conversely, other teachers see that this sort of puzzles offers hundreds of ideas that create environment filled of active engagement that helps students to recognize and remember the new words. As result students vocabulary will be enriched and their fluency will be generated .Such building games are proposed not only to introduce the new concepts and words, but also to teach how to apply them within meaningful context, besides, crossword puzzles may decrease frustration and anxiety, and promote receptive and expressive language that enhances students' vocabulary.

Considering the magnitude of vocabulary, the mastery of this skill should be ensured and improved, otherwise, it will be limited and students will face difficulties during the process of learning, teachers should know how to use and choose the

appropriate crossword puzzles in the suitable time and integrate them into the lesson to scaffold and improve students' vocabulary knowledge.

I.   Statement of the Problem

It is noticeable that most of the Algerian secondary school students face many difficulties in learning English language generally and vocabulary particularly. Vocabulary retention and its use appropriately in context is one of the obstacles that students struggle from . Researchers as Uberman (1998) indicated that learners suffer from boredom, and tired from spending lengthy hours attempting to learn new terms using the same habitual techniques such as searching in dictionaries, rehearsing words, writing them on notebooks, or memorizing by heart long lists of words without even knowing the exact meanings behind them. This passive learning enables language learners to recognize few words but disables them to use those words properly and pronounce them correctly. Moreover, it is well known that the majority of the Algerian students use English only during the lesson and inside the class; hence they do not practice it sufficiently. Vocabulary requires a learning environment that e prevents forgetting and enhances remembering thus new strategies are suggested to be included in English courses such as crossword puzzles that create fun, and active learning in class in addition , they make students closer to the target vocabulary items.

II.   Significance of the study

This study is significant since it is suggested to offer new pedagogical applications for teachers to enable them to extend their students vocabulary knowledge through providing variation in activities and breaking the routine in classroom. Deciphering crossword puzzles is considered as one of the activities that develop words recognition and help to use them effectively in context as well as practicing language and learning actively rather than passively , hence this thesis is

expected to facilitate the process learning new words and raise the degree of recalling them.

Widaningsih (2009) learners get pleasure when they use crossword puzzles in the classroom since crosswords create a productive competition among them, thus they can profit from each other. This kind of puzzles does not only promote learners discovering and learning new words, but also it creates a bonding between teachers and learners. In similar way, it decreases inhibition and embarrassment among weak learners and gives them more opportunities to participate; besides a well-selected crossword puzzle can improve and scaffold students' vocabulary.

Consequently, this study enables to test the long-term retrieval of vocabulary items as well as delayed and immediate effects and help textbooks developers and teachers to integrate several kinds of games and different skills in the syllabus of books and courses.

III. Aims of the study

This study aims to:

* Describe the process of teaching English vocabulary through crossword puzzles.
* Investigate the impact of using crossword puzzles as a teaching method on enriching students' vocabulary in Biskra secondary schools.
* Establish the positive correlation between language games and vocabulary improvement.
* Show the necessity of having enjoyable and pleasant atmosphere in vocabulary enhancement.
* Suggest a new technique for improving the process of teaching English vocabulary in Biskra secondary schools.

IV.   Research Questions

The objectives of this study are guided by answering the following proposed questions:

* To what extent does the implementation of crossword puzzles in secondary school lectures enhance students' vocabulary?
* How would the integration of crossword puzzles in secondary school classes enrich students' vocabulary?

V.   Research Hypothesis

In the light of the raised questions, the following hypothesis is proposed to be tested

* If crosswords are implemented in Secondry School classes, Students will be encouraged and motivated to learn vocabulary in the same time will have a competition that helps to enhance their vocabulary highly.

VI.   Research Methodology

In order to answer the previous questions, obtain the data required, and achieve the research objectives an experimental method will be the most appropriate one. Firstly, a pretest will be conducted to assess students existing level of vocabulary, both groups are concerned with the pre-test that constitutes of filling the gaps paragraphs. Secondly, only the experimental group will have the chance to be exposed to a treatment which consists of the manipulation of the independent variable (crossword puzzles). In more accurate terms, eight crossword puzzles that embody a specific register "budding scientist" will be given to this group during the period of eight sessions. Meanwhile, the control group will be taught using the traditional habitual method. Finally, a post-test will be undertaken by the end of the treatment in the purpose of measuring the extent to which the students have benefited from the

treatment, also to test the effectiveness of using crosswords as a method of enhancing students' vocabulary.

VII.   Population and Sampling

The sample of this study is randomly opted from second year scientific branch of El-Saiid Ebidi Secondary School Biskra. One class (N=38) was selected to be divided into two groups a control group (N= 16) and an experimental group (N= 16), the participants have the same educational background with mixed genres and abilities.

CHAPTER ONE: Teaching and Learning Vocabulary

Introduction:

Vocabulary learning it is not only important, but also crucial in learning any foreign language since it affects positively and directly students' capacity of developing language proficiency. Thus, viewing vocabulary learning as nothing more than mere mechanical memorization of unlimited series of words should be discarded. It would be better to view it as bedrock on which students build up their language achievement, therefore; recent studies were based on investigating effective techniques and strategies that can provide appropriate learning environment.

This chapter sheds the lights on learning and teaching vocabulary in the classroom as well as giving a clear explanation of vocabulary concept and its types; it includes the selection of vocabulary, strategies and techniques used to present new vocabulary.

1.1   Vocabulary Definition

Vocabulary is an umbrella term that refers to the stored words and their meanings. According to Wilkins (2002) ,"without grammar, very little can be conveyed; without vocabulary nothing can be conveyed" (p.13) this means that Constructing sentences that are grammatically correct is not enough to convey messages or to communicate, but it requires having a rich vocabulary; that's why people tend to travel holding dictionary, not a grammar book. Besides; Hornby (1986) defined the concept vocabulary as "Total number of words, which (with rules for combine them) make up the language" (p.959). In this sense, vocabulary refers to the set of words that connected grammatically to be used by people. Moreover; Webster (1966) stated that vocabulary" is a sum or stock of words employed by a language, group, individually or in work, in relation to a subject" (p.2560) which implies that vocabulary is unlimited list of words that have meanings, to be used by people in the process of communication.

In addition, vocabulary is defined according to Oxford dictionary (2007) as the body of words used in a particular sphere and as the total number of words that make up

a language. Whereas in Longman dictionary (1995), it is defined as the entire words used, knew or learned by people. In similar way, the linguists Hatch and Brown (1995) believed that the term vocabulary refers to a specific set of words that every person might use to communicate in a particular language. All the mentioned definitions may signify that the term vocabulary is very simple. However, it is not that straightforward, due to the fact that it is not only one unique word but it also encompasses all thee multiword phrases, sentences and even idioms, also the totality items of vocabulary are known as lexis (Barcroft, 2008). Furthermore Lehrer (2000) stated that the meaning behind the term vocabulary is the comprehension of words meanings, he clarified as well that vocabulary can be receptive or productive as well as it comes into two forms oral and written.

Burns, Griffin, & Snow (2005) provided extra information about the term vocabulary, they declared that vocabulary refers to a set of different meanings since teachers use this term to indicate sight-word vocabulary (the first immediate recognition of the written word) , unlike those teachers who use the term vocabulary to refer to students listening of the spoken words. In addition, content teachers refer to the academic vocabulary including conceptual knowledge of words that exceeds the simple definitions of dictionaries.

1.2 Vocabulary Types

The term vocabulary can be divided into various types, it comes in two forms either orally or printed. The oral form refers to all words meanings that we recognize and use during the process of listening and speaking, whereas the print form refers to all words meaning recognized and knew in the process of reading and writing. (Michael L Kamil., 2005)

In addition, vocabulary has other criteria in terms of productivity and receptivity, receptive vocabulary represents the set of words that we receive when we read or listen

while the productive vocabulary is represented in the words that we product and use during the process of speaking and writing. Carter and McCarthy (1988) pointed out that vocabulary comprehension precedes its production; the denotation here is that receptive vocabulary is strongly related to productive one. In the same context, Ringbom (1985) stated that "items pass from the learner's receptive vocabulary store to his smaller productive one all the time, some items perhaps moving back again from the productive to the receptive one"(p.168), this confirms that losing the control in productive vocabulary means moving back to the receptive vocabulary. Simplistically, when the vocabulary item is leant productively, it would be rationally recognized receptively as well.

On the other hand, Fincchiaro (1974) stated that vocabulary is classified into two kinds; "active and passive vocabulary" (p.73), the former kind consists of the group of words understood and pronounced in correct way when students speak or write in contrast the passive vocabulary refers to the words meaning that students understand implicitly when they read or listen but they are not able to use those vocabularies in speaking and writing.

1.3 Word Knowledge

Vocabulary achievement requires recognition of word knowledge, various studies afforded plenty of diverse definitions concerning this expression where Vygotsky (1986) stated, "A word is a microcosm of human consciousness" (p.256). More clearly; words are the building blocks by which ideas, messages and meanings are conveyed. In addition, they are known as a unit of sound or a mixture of different sounds, which help symbolizing and communicating meaning. Mastering a word does not require only learning its meaning but also requires learning its form and use; these properties are called "word knowledge" (Schmitt, 2000).

Scholars have proposed some factors needed for word knowledge where Richards (1976), suggested that seven features of word knowledge including semantic

value, syntactic behavior, different meanings, underlying form, derivations, associations and limitations on use are crucial in knowing a word. Pavičić (2008) as well added further frameworks concerning this expression he clarified that knowing a word needs knowing its "phonological, orthographic, morphological, syntactic and semantic" aspects (p. 10). Nevertheless, the factors presented by Nation (2000) are considered as the most comprehensible ones. The table below summarizes the factors of word knowledge as suggested by (Nation, 2000).

Table 01 Factors of word knowledge (Nation, 2000, p.40-41)

Form	Spoken	R	What does the word sound like?
		P	How is the word pronounced?
	Written	R	What does the word look like?
		P	How is the word written and spelled?
	Word parts	R	What meaning does this word form signal?
		P	What word form can be used to express this meaning?
Meaning	Form and meaning	R	What is included in the concept?
		P	What items can the concept refer to?
	Concept and referents	R	What other words does this make us think of?
		P	What other words could we use instead of this one?
	Associations	R	In what patterns does the word occur?
		P	In what patterns must we use this word?
Use	Grammatical functions	p	What words or types of words occur with this one?
	Collocations	R	What words or types of words must we use with this one
	Constraints on use (Register, frequency…)	P	Where, when and how often would we expect to meet this word?
		R	Where, when and how would we use this word?

This table demonstrated that being knowledgeable about a word entails being familiar with three factors: firstly, knowing the word form, which consists of having

information about t its written and spoken forms which means knowing its pronunciation, its spelling and its different parts. Secondly knowing the meaning behind the given word, where learners are required to investigate the relation that links the word and its meaning more over identify the conceptual meaning and its various referents as well as having a grasp of how this word is associated with other words. Finally, having an idea about how to use the given word and how its applied in the context, besides to being able to identify its grammatical functions and understanding why, how, when, and where this word it is usually used. Schmit (2000) recommends that teachers should prove pictures during the presentation of the first type and they should offer extensive explanation when they present the second type.

1.4 The Importance of Vocabulary

Learning the English language requires being competent in using the four skills especially vocabulary; basically, this skill is seen as the most essential unit which cannot be neglected. Wilkins (1972) illustrated that when learners have insufficient vocabulary, they can never express their thoughts or transmit their messages and ideas. Dissimilar to having insufficient grammar, where students can convey their intended ideas in a way that others can comprehend what they mean. In the same year Wilkins provided further enlightenment about the evidence that vocabulary is a basic skill in communication, due to the fact that language achievement does not depend barely on acquiring grammatical instructions but it depends strongly on being familiar with vocabulary so that conveying messages and expiring ideas become accessible. In the same context, Krashen (1993) postulated that vocabulary importance is undeniable since during travelling abroad or when encountering native English speakers, it is impossible to communicate without having enough vocabulary. Thus, being capable of using correct grammatical structures does not function in communicating unless vocabulary is acquired, pointing that "When students travel, they don't carry grammar

books, they carry dictionaries" (Quoted in www.auburn.edu). Additionally, Fowers (2000) stated that through the acquisition of good vocabulary, learners could communicate effectively and use the language correctly, as result; the stronger vocabulary learners have the more accessibility to talk and understand the targeted language they have. Concerning the importance of vocabulary Schmitt (2010) declared "learners carry around dictionaries and not grammar books" (p. 4). This denotes that students who have low level in grammar but they have good level in vocabulary find it easy to integrate in conversations, they feel comfortable in making dialogues and they can understand others rapidly. Mainly, Voltaire purportedly stated that "Language is very difficult to put into words" (Baumann, Kame'enui, & Ash, 2003, p. 752), he believes that mastering a certain language necessitates having a rich vocabulary, thus vocabulary is a central unit in learning any language, without it languages can never be taught or leant.

Not only this but also vocabulary also allows students to develop the other skills, this fundamental skill has a constructive impact on building the other skills, Nation (1994) pointed out that "Vocabulary is not an end in itself. A rich vocabulary makes the skills of listening, speaking, reading, and writing easier to perform" (p.89). Therefore, students who have good vocabulary, they have greater chance for easy, rapid learning of pronunciation, spelling, and correct listening. To sum up vocabulary is the bedrock of learning any language.

Figure 1 The role of vocabulry in developping the four skills

(www.worddive.com,2013)
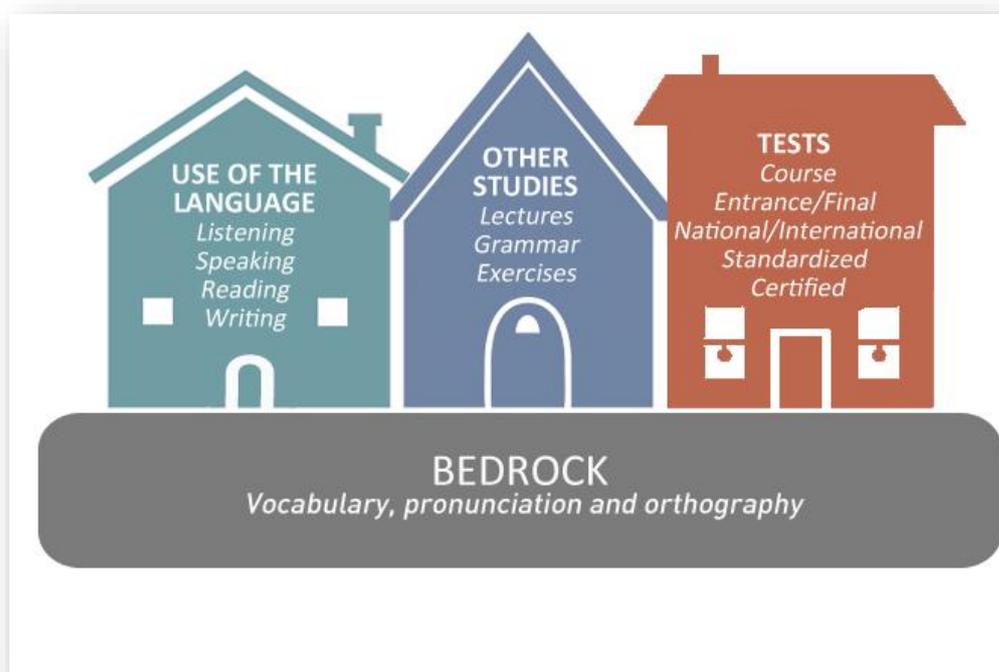
1.5 The selection of vocabulary

What is more difficult than teaching vocabulary is deciding which words, phrases or expressions are worthy of being taught to suit students' level and satisfy their needs, thus teachers should be aware when it comes to vocabulary selection. In order to make it easier to select the vocabulary items, Beck, McKeown, & Kucan (2002) suggested categories known as Tier 1 or general words, Tier 2 or specialized words, and Tier 3 or technical words. Although these categorical systems guided and helped teachers in the process of vocabulary selection, they could not provide them with substantial and tangible information of how to select the vocabulary they need to teach. It's widely agreed that the following categorization can save time and powerfully help teachers to determine which words to be chosen; usefulness, fluency, teachability, and learneability (Graves ,2006; Hiebert and Kamil ,2005; Nagy ,1988). Finally, West (1953) included in

his book « General Service List of English » about 2000 words of high frequency to be used in teaching vocabulary.

1.5.1 Usefulness

The limited time allowed for teaching vocabulary in classrooms bound s students from achieving a high level of proficiency, and hurdles the process of teaching vocabulary thus vocabulary should be taught according to the amount of utility. Moreover, teachers need to be strict in their selections to adopt the most useful words that suits student's needs and that fits the allotted time. To determine words degree of utility and recognize characteristics that make words useful, many interrogations arise, Scott (2002) was able to define the useful words as those words "can be put in immediate use" (p. 34), and this definition was an answer for many questions. In other words, usefulness refers to how often words are used, to what extent learners need them and to which degree of they are important. Hence, words, which are be "sufficiently" used by learners, have the priority of being taught through explicit learning. Elfrieda and Michael (2005) concluded that words usefulness is a considerable aspect, they proposed that the priority of teaching a word in explicit manner is represented in learners' satisfaction, further they illustrated this through providing an example of learners' vocabulary use during the course "pen, board, door, notebook, etc" (p.33).

Consequently, English teachers and syllabus designers should base their decisions about the course content on the needs of their students through selecting the most useful vocabulary elements in the process of teaching.

1.5.2 Frequency

During the process of learning, students encounter unlimited set of words whether in writing, reading, in listening or in speaking, they notice that some particular words are repeated in a large scale, and used in frequent way. Thus,

frequency is considered as essential criteria since learning and teaching this kind of vocabulary is very significant, and time should be considered from both teachers and students, Nation (2000) points out that teachers must devote a sufficient time to their students using different techniques to teach them the most frequent vocabulary. Besides, Hedge (2000) mentioned that the aspect of frequency represents an important part in language teaching and learning since it is intended to design classroom syllabus and prepare the required materials. In addition, Thornbury (2002) was interested in this criterion, he sees that teachers should introduce the high frequently used vocabulary items, due to the degree of help that they provide to students in terms of denoting text content and understanding meanings.

He added that specific techniques are used for teaching this type of vocabulary, including guessing from context in extensive reading or using them in communication (incidental manner), Or they can prepare well planned encounters through reading or via vocabulary exercises either through explaining or peer teaching, (direct manner) also they can teach them using word cards or dictionary (Indirect manner).

These techniques are summarized in the following table:

Table 1 Ways of learning and teachin words of high frequency (Nation, 2000,p.23)

Direct teaching	Teacher explanation Peer teaching
Direct learning Study	from word cards Dictionary use
Incidental learning	Guessing from context in extensive Reading Use in communicative activities
Planned encounters	Graded reading vocabulary exercises

1.5.3- Learnability

Successful learning can be achieved only when the target words are easy to learn and require fewer efforts, to have a clear idea of this kind of aspects Thornbury (2002) stated that learnable vocabulary constitutes of effortless words and easy to be learnt and understood, he clarified as well the factors that make words learnable. He also emphasized the magnitude of word learnability in vocabulary selection of being included in the syllabus. In other terms, teachers provide some specific word collections that enable students to learn easily the collection consists of a set of words that related to a certain domain for instance; "body, skull, blood, heart". In order to enrich student's vocabulary, selection should involve easy understood and clear words that enhance building a solid foundation

1.5.4-Teachability

Teachability is an essential criterion that must be taken into consideration to allow students to better learning. It is known as a term that refers to the set of words that teachers find them easy to teach,

a wide range of studies concerning teachable vocabulary have been involved, mainly Thornbury (2002) and Richards (2001) have controversial opinions about this aspect of selection, they argued that teachable vocabulary explanation and illustration using pictures, objects of real life as a strategy is more effective. Additionally, they declared that the majority of teachable vocabulary items are the concrete nouns rather than abstract ones. As an example, the word computer is easy to be illustrated and taught   in opposite of the word pure. Thus, during the process of teaching, priority should be given to concrete words.

As result, teachers should provide well-selected and organized instructions and present them in various comprehensible ways to enrich student's vocabulary.

1.6 Vocabulary Presentation

A successful and effective vocabulary teaching does not require only appropriate word selection but it also needs a suitable presentation that motivate students to enlarge their vocabulary, to reveal so, some questions arise about how should teachers present the opted vocabulary, and what are the useful techniques used in this representation. To achieve the best vocabulary comprehension and memorization teachers may use some procedures. Meara (2005) demonstrated, she explained that teachers should better make variations in adopting techniques and avoid sticking to the same techniques since students have diverse styles that require different procedures, in spite of the unplanned techniques that may occur during the lesson when encountering unfamiliar vocabulary (Thornbury ,2002). Additionally, Thornbury (2002) provided more clarifications about the procedures that should be undertaken in presenting vocabulary, he explained that presentation is determined by students' styles, levels, capacities and the aim of learning is it for recognition or for producing, and it also depends on the degree of word difficulty, learnability, familiarity and teachability. Hence visual techniques, verbal techniques and translation are means help presenting vocabulary items effectively.

1.6.1-Translation

The translation is a tool of vocabulary presentation used in order to enable students of being familiar with vocabulary words. Thornbury (2002) mentioned that translation allows to link words with their meanings in direct route. In other terms, translation is suitable for teaching incidental vocabulary words since it economizes time. Nevertheless, the over-reliance on translation may refer to learners' failure in building independent language lexicon words, learners always make attempts to learn the L2 vocabulary through L1 equivalents, they also do not want to waste their time or to make efforts to learn new words, thus the learned words are less memorable in this case "no pain, no gain". Moreover, Nation (2000) added that translation waste

learners time, efforts and require much thinking. On the other hand, this tool promotes economizing time to use language effectively in less time. Pavičić (2008) proposed suggestions about how to connect L2 words with their equivalent in L1, he explained that this technique can be used for both checking whether students understand or not, and discovering the similarities and differences founded between L1and L2. Depending on what has been discussed above, it can be deduced that translation is a significant tool but it is not enough, it requires support of other techniques.

1.6.2-Visual techniques

For teaching and learning language in more comprehensible and easier manner, teachers can use gestures, pictures, and demonstrations that are known as

visual techniques, to have more clear idea about how to present words visually, Gairns and Redman (1986), stated that visual techniques in terms of vocabulary presentation work better than translation, since they enhance words retention and remembering. Thornbury (2002) as well explained visual techniques as a tool for words presentation and illustration using visual aids. What is more, is that this type of techniques support students to learn more and more vocabulary and create a motivating environment where students enjoy learning. Visual techniques do not work only as a motivating tool that enhance self-independence   but they also involve students to create mnemonic devices which means that they can remember the learnt words through the image stamped in their minds. In more precise terms, Meara (2005) came with new explanation, she argued that "visual images works as a sort of temporary content; it fixes the physical form of the word, makes it more resistant to forgetting and provides a way of recalling the words via images when you need it" (p. 78).

On the contrary, visual techniques have been criticized as ineffective tool because visual aids like images and videos are not worthy always. Equally Nation (2000) mentioned that illustrating words meanings includes "changing of an idea into

some observable form" (p. 107) may confuse students rather than guide them correctly to the right comprehension and interpretation of the words vocabulary.

As a conclusion of what have been discussed; language teachers should provide integration of different visual techniques to enable their students to have a full understanding of the set of words being learnt and promote memorization.

1.6.3 Verbal techniques

Vocabulary presentation can be also provided through using other different tools known as verbal techniques; this kind of alternative techniques can be used by teachers to illustrate vocabulary patterns, introducing, and clarifying their meanings verbally in significant manner. To have more clear idea Thornbury (2002) pointed out that presenting vocabulary meanings through verbal techniques encompasses providing various examples concerning the new words in different situations; defining words through giving their synonyms, antonyms or introducing the full definition. Verbal techniques include many ways to make words accessible; the most useful way is vocabulary explanation (Uberman, 1998). Besides, Tsui (1995) pointed out that each teacher should pay attention to students' different characteristics and take into consideration both their level and pre-existing knowledge thus they need to discover their level of competence so that they can to select the appropriate manner of explanation that fits their levels, as well as correlate their previous knowledge with the new vocabulary. Students need encouragement and clear explanation to achieve high levels of comprehension and to learn a greater amount of new words.

1.7 Vocabulary Teaching Strategies

During the presentation of the selected vocabulary, teachers are responsible to adopt strategies that deal successfully with the unknown words; two strategies are proposed to overcome students' interrogations and to present the vocabulary lesson in effective way. Seal (1991) suggested two vocabulary strategies (unplanned and planed strategies).

1.7.1 Unplanned Vocabulary Teaching

According to Seal (1991) unplanned vocabulary teaching strategies are used in the cases where unfamiliar words appears in unexpected time, or when teachers fail to convey the exact meanings of the words, he clarified that "teaching of problem vocabulary that comes up without warning in the course of a lesson". (p.298) in movements where students are not satisfied with the explanation of their teacher, and they require more clarifications about the unrecognizable words they encounter in the lesson, teachers are asked to provide further information and improvise more and more till they reach students' full comprehension. In order to satisfy their students' needs, the teacher should adopt three stages for the unplanned strategies, as recommended by Seal (1991), firstly, the stage of conveying meanings, secondly, the stage of checking the meaning, and thirdly, the stage of consolidating the word.

In the initial stage, the teacher attempts to transmit the meanings behind the determined words using various techniques including giving synonyms, presenting the opposites of words, using translation, providing anecdotes or using miming.

In the following stage, the teacher should check whether the meaning of the unfamiliar words is correctly conveyed or not, besides to confirming student's comprehension through proposing certain questions or by giving them some direct activities so that the teacher can guarantee their understanding and to measure the progress. To the last stage is devoted for the consolidation of the given meaning and the transmitted information via asking students to use these words in different contexts and involving them in particular activities so that the learnt information enhances.

1.7.2 Planned Vocabulary Teaching

This type of vocabulary teaching is adopted in cases where the teacher has already taken his decision to teach particular words, and he has sufficiently prepared for introducing the selected vocabulary. Seal (1991) explained that "when the teacher

goes into the classroom with an item or set of vocabulary items that he/she has decided before hand will be taught during the course of the lesson" (p.298), which means that the teacher has planned what will be taught during the lesson. In this sense, Seal stated two different kinds for presenting the planned vocabulary.

In the first type, the teacher prepares for the appropriate way of teaching the words, while the second type is called vocabulary lesson it can be either an independent module or a follow-up to other listening, reading, or speaking activities. Many techniques can be used in teaching planned vocabulary, which are dictionaries, the glossary; and translation.

1.7.2.1 Dictionaries

Through the alphabetical order of words and their meanings, dictionaries enable students to look for the meanings of new words or to confirm what they already know; they also can check their pronunciation, their spelling, and their origins. As stated by Boulmerka (2000) "the dictionary permits readers to obtain the meaning of a word as cannot be divided from the context or word form, as such it is an aid to vocabulary development" (p,131).

1.7.2.2. Glossary

Is a very effective technique that strengthens students' vocabulary especially in literature studies According to Oxford Advanced Learners' Dictionary, a glossary is defined as a set of particular words meanings derived from a given passage. In most times, it is situated at the end of the reading passage.

1.7.2.3 Translation

Is a valuable technique for vocabulary teaching, where (Manser ,1996) viewed translation as the process of switching a spoken or a written pattern into a different language. Nida and Taber (1974) indicated as well that that translation is a useful activity, where the learner or the teacher reproduces from the source language (SL) the

closest equivalent in the receptor language (RL). Briefly, translation is substituting   the words of origin language by the words of the target language with keeping the same meaning.

Conclusion

As far as this chapter is concerned, teaching language vocabulary is an intricate skill in which introducing a list of vocabulary words and their meanings is insufficient, and giving teachers the main role in classroom is ineffective. More precisely, when learners are involved in classroom environment and considered as a main part of the lesson under guidance of their teachers "tell me, I will forget; show me, I will remember; involve me, I will learn" this infers that teaching vocabulary cannot be successful only through activeness and practice. Learners should not keep silent and wait for teachers' explanation with no participation and involvement. Thus, teachers' responsibility is to make variation in techniques that may provide encouragement and create a motivating atmosphere to learn in the same time they provide hints and guidelines for their learner. A strategy known as language games is expected to expand and enrich students' vocabulary.

CHAPTER TWO: Crossword Puzzles

Introduction

Recently, education system has been switched from teacher-centered role to learner-centered instruction where the more responsibility is directed to learners and the teacher plays the role of guide, controller and facilitator (Atkinson, 2003).

Most of students have an inherent desire to play games and puzzles that can turn classroom activities into challengeable and enjoyable environment, in this sense, Danesi (1979) declared that "puzzles may also serve as a needed change of pace to the daily routine of teaching techniques and can perhaps serve to increase students' motivation as a result" (p.7). Moreover, using games as teaching technique enables teachers to sharpen their students' critical thinking and strengthen their capacity of vocabulary retention. In particular, crossword puzzles are one of games formats that help students to explore their previous knowledge about words and recall the new learned ones to be manipulated so that the find the correct word. Although teachers and educators underestimate crossword puzzle effectiveness in teaching and scaffolding vocabulary this type of games still considered as a technique that encourage students' independence, active engagement and creativity therefore they develop vocabulary enhancement.

This chapter will be devoted to discuss language games in general way and how they are integrated in teaching vocabulary, in addition to having a grasp of using crossword puzzle in classrooms, besides to presenting its definitions, its variant types, and its terminology. Also, this chapter includes an overview of crossword puzzles and their history, their types of grids, and their different clues.

2.1 Teaching Vocabulary and Language Games

Teaching vocabulary requires making consistent efforts to reveal good results using the appropriate methods and techniques. Many teachers

select language games as a method that strengthens students' vocabulary, according to Hornby (1995) this type of games sustain students' interest and maintain their attention over the lesson, through decreasing anxiety and increasing comfort that makes the acquisition of vocabulary input more likely. Also, Amato (1988) believed that teaching vocabulary needs a high degree of motivation and entertainment so that students can obtain more opportunities to successfully acquire the new vocabulary. He stated as well that language games method is the most useful one in teaching vocabulary. Moreover, he added that even shy students become more capable to participate in vocabulary lessons when the method used is a game. In addition, Lewis (1999) clarified that using language games for teaching vocabulary items can provide a plausible variation in the classroom environment, since these games give students especially reluctant children an incentive stimulus to react immediately and to reinforce their vocabulary learning. In more technical words , Huyen & Nga (2003) and Bogdan (2009) pointed out that some teachers opt language games to gain larger extent of words and use them correctly and confidently ;for instance, instead of giving students a long list of words related to "fruits" and "vegetable" and asking them to retain and memorize ,teacher can give them some language games to involve their own Pictionary concerning these terms and to bring the target words into the real life .As result ,the chance of memorization raises more.

2.2 Teaching Vocabulary and Using Crossword Puzzles in Classrooms

Receiving crossword puzzles inside the classroom and solving them is not widely used although they are considered as a recreational task, due to the fact that when the learners start their attempts in deciphering the clues, they feel excited and enjoyed in the same time they benefit from learning new vocabulary with the correct spelling. Additionally, learning vocabulary throughout crossword puzzles inside the classroom involves learners directly in the instruction, as well as helps them to see

learning vocabulary as an easy learnable subject rather than a hard complex one, in more precise words, this kind of puzzles makes the classroom atmosphere less intimidating thus students feel less threatened and more comfortable (Bressan, 1970). Generally, teachers who use crossword puzzles in their vocabulary lessons find it easier to control their students, since these puzzles create a challengeable environment that motivate students and attract their interests, thus they gain more words. Besides, these puzzles provide more opportunities to practice, replicate, and use vocabulary (Goh and Hooper ,2007; Franklin et al ,2003). Similarly, those students who find difficulties in learning vocabulary via flashcards, practice tests, or review sessions with teachers see crossword puzzle solving more entertaining and very active, since it keeps them engaged with the learnt material unlike passive types (Wahyuningsih, 2009). In this context, Hill and Popkin (1986) gave some practical propositions of how to integrate crossword puzzles in their vocabulary instructions, and they motioned that they can present them as an individual task, as a pair, or small groups, or as whole-class activity. To sum up, Bressan (1970) pointed out that crossword puzzle is a significant method that enhances vocabulary, builds orthography and improve student's knowledge of morphology.

2.3 Language Games

El Shamy (2001) stated that games were primarily based on physical activities used to celebrate special events, festivals, and religious rituals, nevertheless, after the 19th century; people in Europe attempted to make modifications to their games principles for satisfying the American tastes who consider them as a waste of time. Afterward, games included "educational instruction" to construct the first educational game named as "Mansion of Happiness" (p .3-5). Using games as a teaching technique was unacceptable idea; it was seen as an icon of fun, enjoyment, and competition.

In fact, Advanced Learner's Dictionary (8 th Ed) defined a game as "an activity or sport" directed with rules, that involves competition against others. Besides, El Shamy

(2001) stated that it is a "Competitive activity played according to rules within a given context, where players meet a challenge" to win or to reach a goal (p. 15). Further, she clarified that games are the context where learning material become more interesting and enjoyable. Prensky (2001) also added that games are a source of enjoyment and fun. Additionally, Beak (2010) pointed that games are activities that spread ". . . enjoyment and pleasure" to participants. In other words, Griffiths (2002) stated that games serve a "forum in which learning arises as a result of tasks stimulated by the content of the game" (p.47), thus using language games as a teaching and learning technique does not only provide challenge, mind relaxation, entertainment and breaking the routine, but also helps students to adopt sounds and rhythms, as well as comprehend words and enrich their vocabulary.

2.4 Types of Language Games

Language games consist of various types that are classified according to different criteria and by different linguists.

El Shamy (2001) stated in her book "training games" (p.46) that language games categorization is based on the material used, the participants' activity or on the target theme; in spite of this, she presented her own classification based on the manner of how the game is played, in this framework, El Shamy (2001) stated "Content-focused games, Experiential games, Content-focused frame games and Experiential frame games" (p.47).

Mainly, the content-focused games classification is the most practical one for teaching languages especially for teaching vocabulary, since the major concentration is toward the content and learning comes from manipulating students' existing knowledge where they deal with the target subject directly, hence they enhance and improve their capacities. Here are some different examples of language games used in vocabulary learning, including (Paper and Pencil games, card games, spelling games, Bingo, and Act it out).

. 2.4.1 Paper and Pencil Games

These games are printed, where students use paper and pencil. El Shamy (2001) defined them as a kind of games where participants use paper and pencil to deal with games content, hence they get new knowledge and review the learned information since the participants have to "complete, solve or manipulate" the information relying on the application of the rules (p. 48-50). Moreover, this type of games is easy to make students exposed to different matters; they can be in the form of quizzes, puzzles and other activities.

2.4.2 Card Games

Card games are based primarily on using cards as a tool for learning the content, these cadres are divided into categories, each category is devoted to learn a particular subject. For instance; a certain category that constitutes of definitions, synonyms, opposites and others. El Shamy (2001), clarified that participants are asked to manipulate the given cards by storing them or putting them in the correct order as well as completing a task or answering questions, such games enable students to benefit from different learners' styles (tactile, visual and auditory learners…).

2.4.3. Spelling Puzzle

In this game participants are asked to spell a certain word through reordering letters and linking words spelling to their visual representation. This puzzle strengthens word knowledge and enhances spelling as well as help students to remember the word.

Figure 2 Spelling Puzzle (Plumb,1993,p.27)
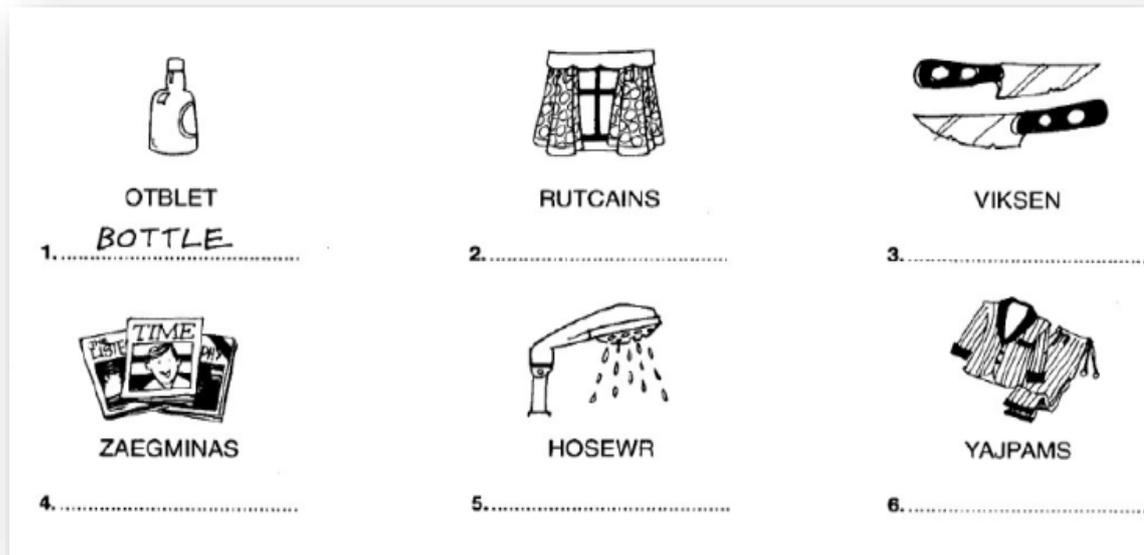
2.4.4 Bingo

Bing is one of the games that keep students exposed to a larger number of words, where teachers ask their students to create a bingo card that includes a wide range of words related to a specific subject; consequently, each card would be different from the other one, after this, the teacher reads all the written words, the first student who scores all the correct words in the column, or the diagonal is the winner (Hansen, Smith and Vásquez ,2010). Bingo does not only enhance establishing a relationship between words and their meanings, but also creates multiple reviews to the word (Hayns and Zakarian, 2010). Further, Pavičić (2008) mentioned that Bongo is a language game that supports "the productive use of words" where words are used appropriately (p.23).

Figure 3 Bing puzzle ("WordDive- a fun way of learning languages online", 2017)

2.4.5 Act it out

"Act it out" is an expression that refers to a specific type of language games where students are asked to figure out the suitable word that fits with definition or the characteristics performed by another person (Klippel, 1983), Furthermore, Hayns and Zakarian (2010) confirmed that that this game has a great significance since it raises interaction, especially in situations where students are required to use more the language, hence their speaking skill is developed. In other terms; this game enriches learners' vocabulary by refreshing their memory and by presenting new words through performing and guessing, which means that students guess a certain word and another student chooses a card and act out the vocabulary elements founded in it. Later, klippel (1983) indicated that it helps teachers to detect weaknesses among their students "language practice with fun and excitement" (p. 31).

2.5 The History of Crossword Puzzles

crossword puzzles came to the world in September 14, 1890 through the Italian magazine "Secolo Illustrato Della Domenicia" that has produced the first crossword which was originated by Giuseppe Airoldi and titled as "Per Passare il Tempo" that

means "to pass the time". Giuseppe's puzzle was created with both horizontal and vertical clues and with no shaded squares. Crucienigmi (2009) pointed that crossword puzzles that embodies the most characteristics was initially emerged in "Sunday supplement" of the New York World on (December 21, 1913), it was created by an Englishman called Arthur Wynne; a journalist from Liverpool ,his first crossword puzzle was initially named as "word-cross" , than its name became "cross-word" ,afterward the hyphen between "cross" and "word" was omitted to take the last name form which is "crossword", it was shaped as a diamond to be switched with time into a square shape. It contained thirty-two clues and involved simple definitions. Briggs (1922),demonstrated that crossword puzzles became widely spread , where it became published weekly in newspapers, such as "Pittsburgh Press" and "Boston Globe",in October 1922, many newspapers published "Movie of a Man Doing the Cross-Word Puzzle" a comic strip created by ClareBriggs. Allen (1931) mentioned that the popularity of crossword puzzles increased in the 20th century when Simon and Schuster created their first crossword puzzle book in 1924, then solving such challengeable game becomes an essential part of their lifestyle.

Furthermore, crossword puzzle term was included in dictionaries in 1930, and newspapers started publishing crossword puzzles in their pages.

Figure 4 The first crossword puzzle in the world (Mollica, Piryulescu, 2008, p.16)
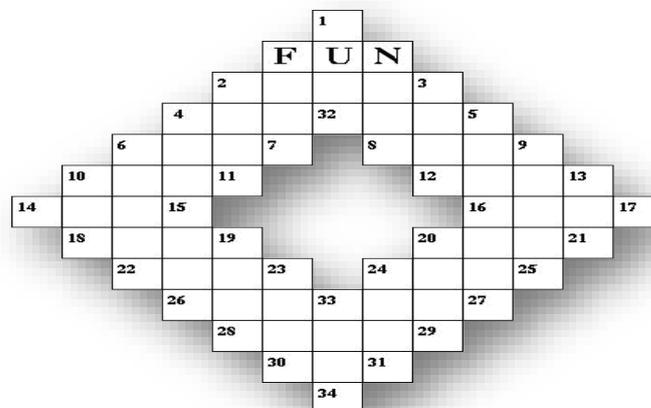
2.6 Definition of Crossword Puzzle

Crossword puzzle is a term that refers to a useful entertaining game that reinforces spelling, reading comprehension, and enhances vocabulary. This type of puzzles requires guessing the right words to fill the empty squares both horizontally and vertically based on the given clues that can be definitions, synonyms or pictures, in regular way; every word crosses at least one other word at common letter. Hornby (1974) defined crossword puzzle as a game that constitutes of range of words classified vertically and horizontally in blanks on dark squares. Moreover, Moursund (2007) explained crossword puzzle as an alternative and challenging game used in the process of learning teaching. Additionally, Heritage Dictionary (2009) indicated that this game is categorized as one of the most popular puzzle games which consists of a set of grids that should be filled with the appropriate letters or words. The player should understand the given clues to be able to determine the right word that fits into the crossword, both across the puzzle and up and down.

Later on, Paul (2003) declared that crossword puzzle is one of the most popular language games in which the player depends on understanding the given clues which can be represented in picture form or in written form to guess the correct words and put them in the empty squares horizontally and vertically. On the other side, Dhand (2008) defined crossword puzzle as a language mystery or enigma that's composed of a number of squares to be filled with the appropriate words, each square should be filled with only one letter.

Furthermore, according to Merriam Webster's (2008) it is defined as a puzzle in which words that are the answers to clues are written into a pattern of numbered squares that go across and down. A crossword puzzle usually takes the form of rectangular grid or square grid it's composed of white cells (also called lights) and black shaded cells (also called darks; blanks and blocks) . Besides, Oxford Learner's dictionary (2003),

crossword is a puzzle in which words are supposed to be guessed from the list of clues provided above and written in squares in a grid. "A puzzle consisting of a grid of squares and blanks into which words crossing vertically and horizontally are written according to clues" (p.103)

In other expressions , the aim of such puzzles is to solve the numbered clues that yield the answers and fill the empty numbered white squares through writing a letter in each square to form the correct which are separated by the shaded squares, In English language the answer words are placed in the grid from the top to the bottom and from the left to the right in addition the given clues, pictures or hints that are represented in a certain enumeration for example, B across and 7 down, in some cases the total number of letters is written in front of the clues. All the previous directions differ from crossword puzzle to other and determine the degree of difficulty and level.

2.7 Terminology

Crossword puzzle encompasses some specific terms that are necessary for solving the puzzles correctly.

- The clues: are the lists of definitions given to find the correct word, they can be synonyms, words, phrases, sentences or pictures. They are numbered so that the player can know which words belong to which squares. (Latorre and Baeza ,1975)

- Answers or Entries: are those lines of white squares (cells) in which answers are written, they can be horizontal and vertical.

- The White squares (cells): they are sometimes called lights, they are the empty squares in which the answer letters are written.

- The Shaded squares (cells): they are sometimes called darks, blanks, blocks, or blacks. The role of shaded squares is to make it easier to construct the crossword puzzle, they also specify the number of the answer words' letters which limits the blanks before and after each answer's letters.

- The Crossed Cell: is the white cell or known also as checked or keyed, it signifies the part of two entries (both cross and down) or it is the cell where two squares are crossed.

- The Unchecked Cell: is the white cell, also named as uncrossed cell, it refers to the part only one entry, and constrained by only one clue (either across or down). (Weyer ,2009)

- Cruciverbalism: the construction and design of crossword puzzles including and their practitioners.

- Cruciverbalist: is the creator, the constructor or the compiler of crossword puzzles. They are called, settlers in Britain. (Collins's, 2017)

2.8 Types of Crossword Puzzle

Crossword puzzle comes into various designs that differ in simplicity, complexity, the shape of grid and clues. These types are classified basically on different principles and skills required in solving crossword puzzles.

2.8.1 Cipher crosswords

This kind of crossword puzzles was invented in Germany and published under different trade names, it also called Code Words, Breakers, Code Crackers, and Kaidoku, instead of giving clues for each entry this puzzle consists of giving clues for each white square of the grid through providing numbers between 1 and 26 in the edge of every square. (Daily Codeword, 2015). The solver's role in this kind of puzzles is to break the cipher code to be able to comprehend the clues and find the correct answer. The cells that have numbers in common should be filled with the same letters, yet it should be taken into account that it is impossible to find two numbers that stand for the same letter throughout the whole puzzle, and that each entry has to be valid word. Finally, this puzzle involves different skills and require cryptographic techniques since they are much closer to codes rather than quizzes (Weyer, 2009)

Figure 5 Cipher crossword puzzle (Daily Codeword,2015)
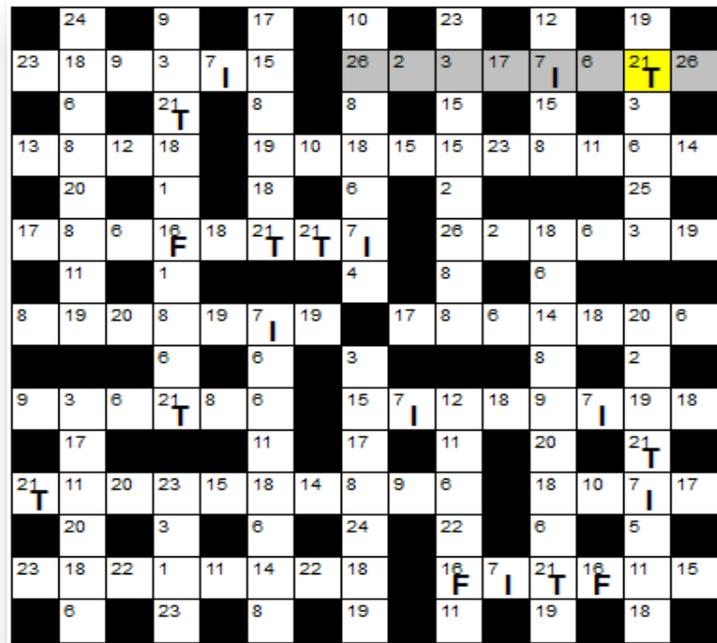
2.8.2 Diagramless Crosswords

"Diagramless" also known as "skeleton" or "carte blanche" is another type of crossword puzzles that was invented in the UK, its dimensions are offered but the locations of the clue numbers and black squares are undetermined. The person who wants to solve this puzzle is obliged not only to find the right answer for each given clue, but he is also obliged to arrange the words into larger arrays in appropriate way through using spaced black squares. In this type of puzzles, the solver cannot find the solution until he can decode both the clue numbers and the symmetry. (Anderson, 2014)

Figure 6 Diagramless crossword puzzle (Dell magazine, 2008, p.01)

ACROSS
1. Upper limb
4. That girl
7. Look at
10. Hot drink
11. Sty resident
12. Fibber
13. Early night
15. Toil (over)
16. Wallet bill
17. Candle topper
18. Shred (cheese)
21. Shut loudly
22. Relieve
23. Popeye's favorite food
26. Make a knot
27. Playground feature
28. Cut (off)
30. Term of endearment
32. Distance unit
33. Ages and ages
34. Foolish prank
35. Wine fruit
37. Automobile
38. Groom's wife
39. Mom and dad
43. Slippery fish
44. Abel's mom
45. "How — you?"
46. Female sheep
47. Mesh snare
48. Lassie's "foot"

DOWN
1. Had dinner
2. Gun (an engine)
3. Actress West
4. Polish (shoes)
5. Sharpen
6. Hen's product
7. Thailand, once
8. Roof edge
9. Before, in poetry
12. Beast of burden
14. Short letter
15. Informal speech
17. Hurl
18. Obtain
19. Sudden attack
20. On the briny
21. Twirls
23. Pigs, collectively
24. Cut short
25. Pit, for one
27. Incline
29. For each
31. Enjoys books
32. Stallion's mate
34. Editor's mark
35. Got bigger
36. Bother
37. Bear's home
38. Buzzing insect
39. Writing tool
40. Snooze
41. — la la
42. Make stitches

2.8.3 Acrostic crossword puzzle

Acrostic crossword puzzle is another type of crossword puzzles it is named also as (Anacrostics or Crostics), it is divided into two sections, the first section is devoted for the numbers of the lettered clues, and each clue has numbered spaces that represent the answer letters. The second section consists of a lengthy chain of numbered blanks that signify a quotation or other passage, in which the answers for the clues fit. In this puzzle, solving the clues and filling in the missed letters of the hidden quotations, helps to provide some other letters for the unsolved clues. (Morris, 2008).

Figure 7 Acrostic crossword puzzle (Free Printable Acrostic puzzle , 2015)

2.8.4 Crossnumber Puzzle

Crossnumber puzzle is also known as cross-figure, it is composed of interlocked grids (across and down), what differentiates this sort of puzzle from the other ones is that the answers are numbers instead than letters or words. More precisely this puzzle is considered as a numerical analogy of crosswords that constitutes of having the solutions as numbers rather than words and the clues are usually given in arithmetical terms or formulas, however in some cases the clues may come in verbal form of general knowledge where the answer is a date, population, or statistics.

(CROSSNUMBER PUZZLES ,2012)

Figure 8 Crossnumber puzzle (Crossnumber Puzzeles, 2012, p.02)

Across

1 One fifth of $13d$
3 *see 16a, 2d*
6 One less than a square
7 A multiple of $4d$
8 *see 3d, 14d*
10 *see 14d*
13 A multiple of 7
15 $12d - 17a$
    see also 17a, 11d
16 Three times $3a$
    see also 2d
17 $15a + 5$
    see also 15a

Down

1 $5d + 13d$
2 $3a + 16a$
3 A permutation of $8a$
4 *see 7a*
5 *see 1d*
9 The square of $13d$
11 $15a + 12d$
12 *see 15a, 11d*
13 *see 1a, 1d, 9d*
14 A divisor ($10a - 8a$)

2.8.5 Fill-in Crosswords

Fill-in crossword is one of the popular puzzles that enhance vocabulary learning, it has two other names "crusadex" or "cruzadex". In this game, the solver has to fill the grids with the full list of words presented without having any explicit clues, directions or hints about where every word is supposed to be written. Moreover, the solver is challenged to figure out how to integrate the set of the given words within the grids in appropriate way to have the entire insertions of the words valid. This type of crosswords is featured by words that are longer than the habitual ones, and characterized by disregarding symmetry to facilitate the process of solving the crossword. In addition, fitting many words together is better than fitting short words, since they provide fewer possibilities for how lengthy words cross together. Fill-in crossword is highly used for measuring artificial intelligence capacities, such as solving puzzles based on a the number of determined constraints (Mackworth, Poole,2010).

Figure 9 Fill-in crossword puzzle (Mackworth, Poole,2010)

2.9 Types of Clues

The word clue was defined as the fundamental part that the crossword answers depend on (Latorre and Baeza (1975). Besides, Bressan(1970) and Wolfe (1972) proposed a classification for the different types of clues, through dividing them into two categories: direct-definition clues which embrace synonymic, generic, antonymic, and descriptive, whereas cryptic clues consist of anagrams, double meanings, and word inversions. Mainly in second language, crossword puzzles employ the direct-definition clues.

2.9.1 Direct clues:

Bressan (1970) clarified that the direct clues are those simple hints given to solve the crossword puzzles. Also, Beers (1996) indicated that this kind of clues constitutes of some straight simple definitions for helping the reader to find out the correct words that fits the empty squares of the puzzle.

2.9.1.1 Straight or Quick

Straight or Quick clues include simple comprehensible definitions that help to guess the answer words. There should be consistency equivalence between the clues and their solutions in terms of the number and the tense. If the clue is written in the past tense, for instance "closed his eyes to have a rest", the word answer should be in the past tense "slept" rather than "sleep" (Patrick ,2015,p.62). Besides, if the clue is written in the

plural, for instance "domestic animals", the word answer would be also in the plural "cats" or "rabbits" but not "cat" or "rabbit". (Patrick, 2015, p62).Generally, in the American-style crosswords, the straight clues are highly used, although this type of clues is insufficient to differentiate between the probable answers due to the several synonymous answers or homonyms.

2.9.1.2 Crossword Themes

In the American crossword puzzles, there is a category of crosswords that are interrelated in certain degree in terms of themes, kinds of pun, or other elements. A theme consists of a category that refers to all the answer words that belong to one puzzle, it embodies a set of long entries (three to five in a standard 15×15 squares), for instance, a category theme of "anatomy" includes "skull, muscle, bone, veins, blood, skin, teeth, heart…etc". In some cases, the title is written on the top of the crossword, but in other cases, the theme is not mentioned, or not obvious so the solver cannot deduce it immediately, hence the he should read the clues carefully to have a clear idea about the theme. (Johnston, 1989)

Crossword Themes may include quote themes, rebus themes, addition themes (the theme entries are formed by adding letters or words to the existing words or phrases), subtraction themes (the reverse of the previous one, in which letters are omitted to form new words or phrases), compound themes, anniversary or tribute themes (to celebrate a particular person, event, or place. In addition to several other types including puns, homophones, synonym themes, shifted letters, spoonerisms, poems, rhyming phrases, or it may combine two or more types of themes "Identified theme types". (Mollica ,Pirvulescu ,2008).

2.9.1.3 First Entries

This type of clues become one of the most famous clues in British newspapers, it is popular of its quickness, since it combines two or more words to construct a phrase, for example "You, ill, never, travel, with, them" this will be "You'll never travel with them"

or "Dimmer, Allies" will become "Demoralize". This kind of clues helps the solvers to guess the phrase through provid0ing few words that form this phrase. (Powell,1956).

2.9.2 Cryptic (indirect) clues

These clues are frequently used in the United Kingdom; they are totally different from any other clues, since they are based on substituting cipher, and considering the clues themselves as little puzzles. A definition is founded either at the beginning or at the end of the clues, with parentheses that indicate the length of the answer; this is especially helpful in selecting the correct answer among the multi-word answers. (Wolfe,1972)

The Cryptic crossword clues involve anagrams and some kinds of wordplays like homophones. Unlike the other crossword puzzles that require only having a grasp of the given clues to deduce the answer, Cryptic puzzles need deciphering the clues even before attempting to guess the answers.

Although, students find it very difficult to decode the clues and solve such puzzles, cryptic crossword is the most effective type that strengthens and enriches their vocabulary, develops their comprehension capacities, as well as teaching them how to make inferences through exposing them to different skills. To sum up, Cryptic Crosswords clues are frequently adequate to delineate the exact correct answers with no need to use the grids (Holmes, 2001).

2.9.2.1 Double Clue Lists

There are some crossword grids that can be filled by figuring out the answers of two lists of clues rather than only one, in most of the cases, the clues are both straight and cryptic which may involve the same solution that reinforces cryptic clues. Usually the straight clues link the straight part of the cryptic clues, for example; the solution of "apartheid" can be clued as "Bigotry aside, I'd take him (9)" in the cryptic list, and "Racial separation (9)" in the straight list. The double clue lists are devoted for all the levels, from beginners to experts. (Gettinby ,2009)

2.9.2.2 Meta-puzzles

Meta-puzzle is one of the indirect clues where the player's job is to decode the clues to find the solution, which outlines another puzzle, for example, the puzzle "Eight " requires more clues, thus the designer provides the following clues: The answer of the Meta-puzzle is composed of three-word phrases in which the middle word is "or." The initial crossword solution contains the entries "BROUGHT TO NAUGHT", "MIGHT MAKES RIGHT", "CAUGHT A STRAIGHT", and "HEIGHT AND WEIGHT", all if these three-word phrases includes two words ending in "ght". Thus, the solution of the Meta is supposed to be a similar phrase where the middle word is "or" and the other two words must end with "ght". therefore, the answer of the Meta-puzzle here is «FIGHT OR FLIGHT". (Gaffny, 2015)

2.9.2.3 Schrödinger or quantum puzzles

This kind of puzzles is known of its clues that have multiple correct answers, it is named by Joon Pahk as "Schrödinger or quantum puzzle" referring to the Erwin Schrödinger's pathetic cat , which was so sick because of the strange quantum that impinged on her prosaic cells, hence it was both dead and alive in the same time. (Pahk, 1978). Many newspapers and websites started publishing this sort of puzzles, including the daily New York Times that has published one of the most famous quantum puzzles, which was created in conjunction with U.S. presidential elections, it was entitled as "Lead story in tomorrow's newspaper (!)», thus the answer can be either "BOB DOLE ELECTED" or "CLINTON ELECTED". (Farrell, 1996).

2.10 Types of Grids

Generally, crossword puzzles come in the form of square grids of white and black squares; however, it can be designed in other shapes of grids.

There are four types of grids; the American, the British, the Japanese and the Swedish style grid.

2.10.1 American Style Grid

The American style crosswords are published in America, they are relatively composed of few dark squares and full of checked squares, thus it's tentatively possible to find all the answer words by only decoding the down clues (Denise,2013). Additionally, crosswords are characterized by" interlinking letter" where each letter in the puzzle is the same one in a part of both across word, and a down word. In this style of grids, the answer should not contain less than three letters, and the black squares are limited to one sixth of the total grid. This style is easy to solve since complexity is reduced due to the help of the previous founded letters besides to the words that overlap with each other. Another feature of this type of grids is the "rotational symmetry" which signifies that the crossword puzzle grid remains the same even when it is turned upside down, in other expressions, if it is turned 90° or 180°, the patterns of the blocks appear exactly the same. (Weyer,2009)

Figure 10 American style grid (Piscop, & Gordon, 1998, p32)

DOWN

1 Rainbow in the middle of March (3)
2 Physician and physicians' group in *General Hospital*, for one (5)
3 Fish dish from South America and Hawaii (5) [Watch it. There are three bits and pieces here!]
5 Notice in southeast and east (3)

ACROSS

1 Second of May—bad day for Caesar and assistants (5)
4 School periods for 100 young women (7)
6 Austria's leader bugs Carroll heroine (5)

2.10.2 British Style Grid

This style of grids appears in the Commonwealth of Australia, New Zealand, Canada, South Africa, and other English-speaking nations. It is similar to the previous one because both of them are 180° rotational symmetry, however, they differ in some points such as the shaded squares which occupy a higher percentage and the uncrossed squares are basically used. For instance, when the first line of the crossword puzzle is in an across manner, then, there will be no across in the second line, as illustrated the following figure (Denise,2013)

Figure 11 British style grid (Denise, 2013)
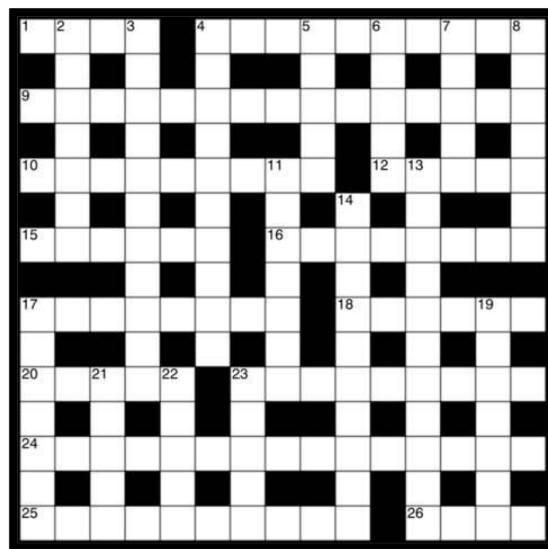
2.10.3 Japanese Style Grid

The Japanese grid is characterized by a couple of additional rules:

1. The squares in the angles must be white.

2. The dark squares are not formed next to each other, but designed diagonally. (Weyer,2009).

Figure 12 Japenese style of grid (Weyer,2009)
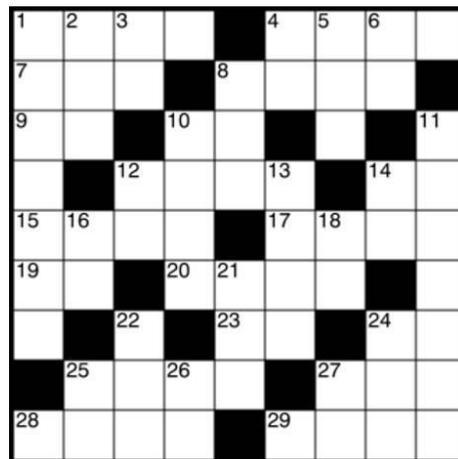
2.10.4 Swedish Style Grid

The last type of grids is totally different from all the aforementioned grids since it is not a rotational symmetry. Mainly, the clues are written inside the blackened squares, rather than being classified with numbers, they are directed by arrows that indicate the answer which should be written (across or down). The black cells may be replaced with pictures that facilitate finding the answer. This grid is not used only in Sweden, but it is also popular in Algeria. (Wikipedia).

Figure 13 Swedish Style of Grid (Andres, Dezso &Nyatrai ,2014, p.29)
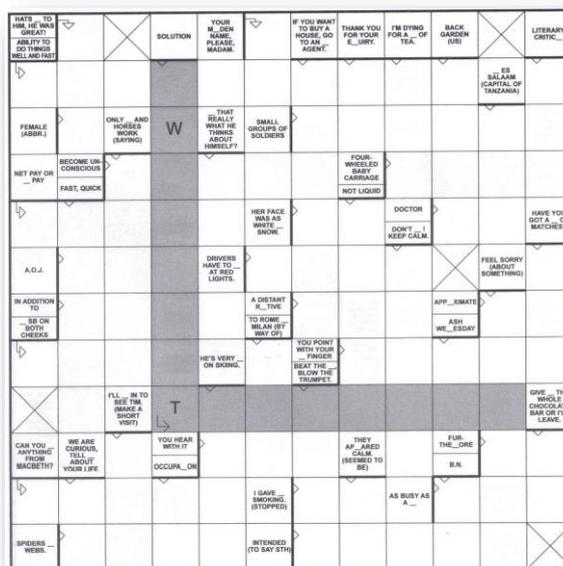
Conclusion

Vocabulary learning is a hard task where efforts are required at every moment and must be maintained over a long period of time. Crossword puzzle encourages many learners to sustain their interest and give them opportunities to be active and capable learners who rely on themselves to develop self-confidence and achieve desirable results.

In other words, this type of games combines both fun and benefits, hence it expands students' vocabulary through playing with words and letters. consequently, learning languages using such enjoyable tool is very useful in terms of enhancing mind activeness, involving live participation and remembering vocabulary terms.

CHAPTER THREE: FIELD WORK AND DATA ANALYSIS

Introduction

This chapter is designed to practically depict the correlation between solving crossword puzzles and vocabulary expansion through a systematic study. Moreover, it is drawn to assemble the verifiable required data that corroborate the suggested hypothesis and tackle the proposed questions. In this fieldwork, the empirical method was used to measure the validity of crossword puzzles in enriching students' vocabulary.

Firstly, the procedure of the experiment was described with a comprehensible explanation to its steps and tools. Secondly, the outcomes of the collected numerical data were stated and described as well as discussed and interpreted.

3.1 The Choice of the Method

The selection of the appropriate research method depends on the variables to be treated as well as the questions to be answered and the hypothesis to be tested. As long as this research is concerned with the investigation of the impact of using crossword puzzles on enriching students' vocabulary ,and deals with the detection of correlation between the variables ,the experimental method was the optimal method to meet the research objectives .Thus it was composed of a pre-test that was done to test students' existing level, a treatment was made only for experimental group students (crossword puzzle method) during eight sessions , and a post-test that was made to measure the progress of students. After having the data collected, they were analyzed via SPSS.

3.2 Population and Sampling

The actual study is concerned with the population that was selected randomly from second year scientific stream of El-Saiid Ebeidi Secondary School Biskra, in the academic year 2016/2017, More precisely ,the sample of thirty-six students was chosen at random ,then it was divided into two groups ;the experimental group that

consisted of eighteen participant who had the chance to be exposed to crossword puzzles during a period of eight sessions , meanwhile the control group which consisted as well of eighteen participant was taught via the traditional method during the same number of sessions because of the constraints of time and to avoid boredom of having extra sessions.

3.3 Research Tools

This research imposed using an experiment that included a pre-test, a treatment, and a post-test.

3.3.1   Students' Experiment

To gather the needed data about the students' acquaintance in the area of vocabulary using crossword puzzles technique, a pre-test and post-test were done to the selected sample.

3.4 Description of the Experiment

The present study was established under two main kinds of research; the co-relational research that investigates the correlation between the two variables, and the experimental research that aims to measure the impact of one variable on the other. Further, the current experiment was composed of three main phases; Pre-test, Treatment and Post-test.

3.4.1 Description of the Pre-test

One session was devoted for undertaking the pre-test which was directed to all the members of the selected sample, both the experimental group and the control group were involved in this phase, before the pre-test students received an overview and an explanation about the unit they were going to study. The teacher introduced the unit to enable students to have a grasp of its content and to get an idea about the words they were going to encounter in this unit. After observing the participants'

performances in identifying and memorizing vocabulary, and having an idea of their existing level in terms of vocabulary, we were able to design the appropriate pre-test that fit their level and serve the research.

In the second session, the pre-test papers were distributed to students, they constitute of "filling the gaps" where each student was asked to fill the paragraphs' twenty empty spaces with the correct words. All the words embody one specific theme which is entitled as "Budding Scientist" i.e. words like "geometry, blood, burn, oxygen, reflex, experiment, scientist, rub, scale, degree, etc" were included in the answers. This step is crucial, since it permits to measure the changes and compare the variables' outcomes.

3.4.2 Description of the Treatment

Eight sessions were devoted to undertake the treatment. Both the experimental group and the control group were exposed to the same vocabulary, the same teaching facilities and the same allowed time, the only variation was in the method of vocabulary instruction.

More precisely; the control group received the instructions traditionally using the lexical method in which the underlined vocabulary items were written by the teacher on the whiteboard to be explained loudly as the students listened and took notes, also the teacher offered the dictionary meanings and some sentence examples. On the other hand, the experimental group was instructed using crossword puzzles these latter were created by "Crossword Puzzle Compiler 10 Demo" designed according to students' abilities and included the underlined words that belongs to the vocabulary of "budding scientist". Moreover, eight crossword puzzles were distributed to students, each session they solve one puzzle where in the first twenty minutes they are asked to solve them alone with providing some hints and clarifications, after finishing, their papers were collected. Afterward, the correction was done together on the table, many answers were suggested, and thus the session turned to a challengeable competition.

As result, the students of the experimental group were actively involved in solving the puzzles, and they showed a noticeable interest, their teacher said, "Even students who never participated in the class, they are now participating and attempting to answer".

The test aims to scrutinize the correlation between the dependent variable (the development of vocabulary) vis-à-vis the independent variable (crossword puzzles).

3.4.3 Description of Post-test

One single session was specified for the post-test, where each student of both the experimental group and the control group were asked to fill in gaps of the given paragraphs, which were written on the basis of the targeted vocabulary, they included the underlined words that they studied through the crossword puzzle method or through the traditional method. The goal intended of the post-test is to evaluate the success percentage of using crossword puzzles as an approach as well as to witness what extent students can be benefited from playing such game in terms of vocabulary enhancement.

3.5 Data Analysis:

The scores of the pre-test, the treatment (crosswords) and the pos-test were generated and analyzed sequentially using the Statistical Package for Social Sciences (SPSS) to establish whether there was any relation between the use of crossword puzzles and vocabulary enriching. The data were further analyzed in terms of mean, standard error mean standard deviations and *t*-test

3.6 Pre-test analysis

After having the pre-test papers corrected according to a certain scale and noted on twenty (. /20), the scores of EG and CG were analyzed separately and sequentially. Firstly, the scores of all the students were stated in a table, then the minimum score, the maximum score, the total, the mean, the Std deviation and the Std error mean were calculated to be analyzed as well as interpreted and discussed.

The following formulas can be drawn to determine:

$$\text{Mean:} \bar{x} = \frac{\sum \text{x}}{\text{n}}$$

$$\text{Standard Deviation: SD} = \sqrt{\frac{\sum (x - \bar{x})^2}{n-1}}$$

$$\text{Standard Error Mean: SE } \bar{x} = \frac{S}{\sqrt{n}}$$

3.6.1 Analysis of Experimental Group Scores in Pre-test

The experimental group obtained the following results.

Table 03 The EG scores in the pre-test

Number of EG student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Score ../20	12	12	10	8	14	11	9	10	12	15	9	13	15	13	8	7	14	7
Minimum	15																	
Maximum	7																	
Total $\sum$n	199																	
Mean $\bar{x}$	11.05																	
Std Deviation	2.66																	
Std Error Mean	0,62868																	

This table summarized the scores got by EG in the pre-test, it was remarked that students failed to gain high scores in this phase. Moreover, the minimum score was "7" while the maximum score was 15. Besides, the mean of the total score "199" was 11.05 which indicated that the EG level was low. In addition, this table included the standard deviation that measured how spread out a set of data was. In this case, the Std deviation was 2.66 which inferred that the values in this statistical set of data

were close to the mean resulted in this group, finally the std error mean was low "0.628".

3.6.2 Analysis of Control Group Scores in Pre-test

The outcomes of the pre-test that CG has done were summarized in the table drawn bellow:

Table 04 The CG scores in the pre-test

Number of CG student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Score ../20	11	6	16	13	12	8	9	12	13	9	11	10	11	10	11	12	8	14
Minumum	6																	
Maximum	16																	
Total ∑n	196																	
Mean $\bar{x}$	10.888																	
Std Deviation	2.39																	
Std Error Mean	0,56527																	

The preceding table illustrated that the majority of students were disable to gain high scores in this phase since the mean of the total "196" was 10.888, this low average indicated that CG level was not good; Also, this table demonstrated that the highest score "16" and he lowest score "6 "as well as demonstrated that the Std error mean was "0,565 » and the std deviation was about 2.39 which means that the scores were closely clustered around the mean.

3.6.3 Comparing Students' level before the treatment

To measure the EG and CG participants levels and to limit their abilities of identifying, remembering and using the appropriate vocabulary with a correct spelling, it was essential to make a comparison between the two groups.

The following table embraced a comparison of the scores earned by participants of EG and the participants of CG in the pre-test:

Table 05 Comparison between EG and CG scores in the pre-test

	Pre-test	
	EG	CG
The number of participants (n)	18	18
Minimum	7	6
maximum	15	16
Mean ($\overline{x}$) : $\frac{\sum x}{n}$	$\overline{x}_1$=11.055	$\overline{x}_2$=10.888
Standard Deviation	2.66	2.39
Std Error Mean	0.628	0.565
Total	199	196

The table illustrated above explained the similarities and t1he differences between the two groups. It was observed that the undertaken calculations estimated that "15" was the maximum score of EG which was lower than CG maximum score "16", In similar way the minimum score of EG was "7" which was higher than the one obtained by CG which was "6". This table also indicated that all the participants similarly earned low average, where the EG mean was "11.055" and the mean of the CG was not more than "10.88". it should be mentioned also that the std error mean of EG was "0.628" which was higher than the CG std error mean "0.528", in parallel way the standard deviation of the CG was "2.39" which was slightly different from the one of the EG which was "2.66".

3.6.4 Independent sample t-test of the post-test

To determine whether there is a significant difference between the EG and CG scores, and to provide more detailed comparison between the degree of vocabulary improvement using the traditional method, and using the crossword puzzle method

,an independent samples t-test was conducted and the results attained were illustrated in the next table:

Table 06 Independent sample t-test for the pre-test

		Pre-test	
		*Equal Variances Assumed	*Equal Variances Not Assumed
Levene's Test for Equality of Variances	F Sig	1,034 0,316	
T-test for Equality of Means	t	0.197	0.197
	df	34	33.623
	Sig (2-tailed)	0.845	0.845
	Mean Difference	0.16667	0.16667
	Std.Error Difference	0.84545	0.84545
	95% Confidence Interval of the Difference — Upper	-1,55149	-1,55149
	95% Confidence Interval of the Difference — Lower	1,88482	1,88482

According to the independent sample t-test results shown above, it was deduced that there were no significant differences between the two groups since the sig value for Levine's test was 0.316≥ 0.05 so the equal variance was assumed, besides the t-value was 0.197 and the p-value (sig 2. tailed) was 0.845≥0.05 which confirmed the insignificance of differences among EG and CG. Moreover, the 95% confidence interval estimate for the difference between the EG and CG was (-1.551 and 1.884) and the extent of differences in the mean (mean difference) was 0.166. Therefore, the t-test failed to reveal reliable differences between pretest scores obtained by CG and scores obtained by EG because the t (34) =0,197 and the std error difference = 0.845

The following histogram provides a clear vision of the scores obtained by EG and CG:

Graph 1 Comparison between EG and CG in the pre-test
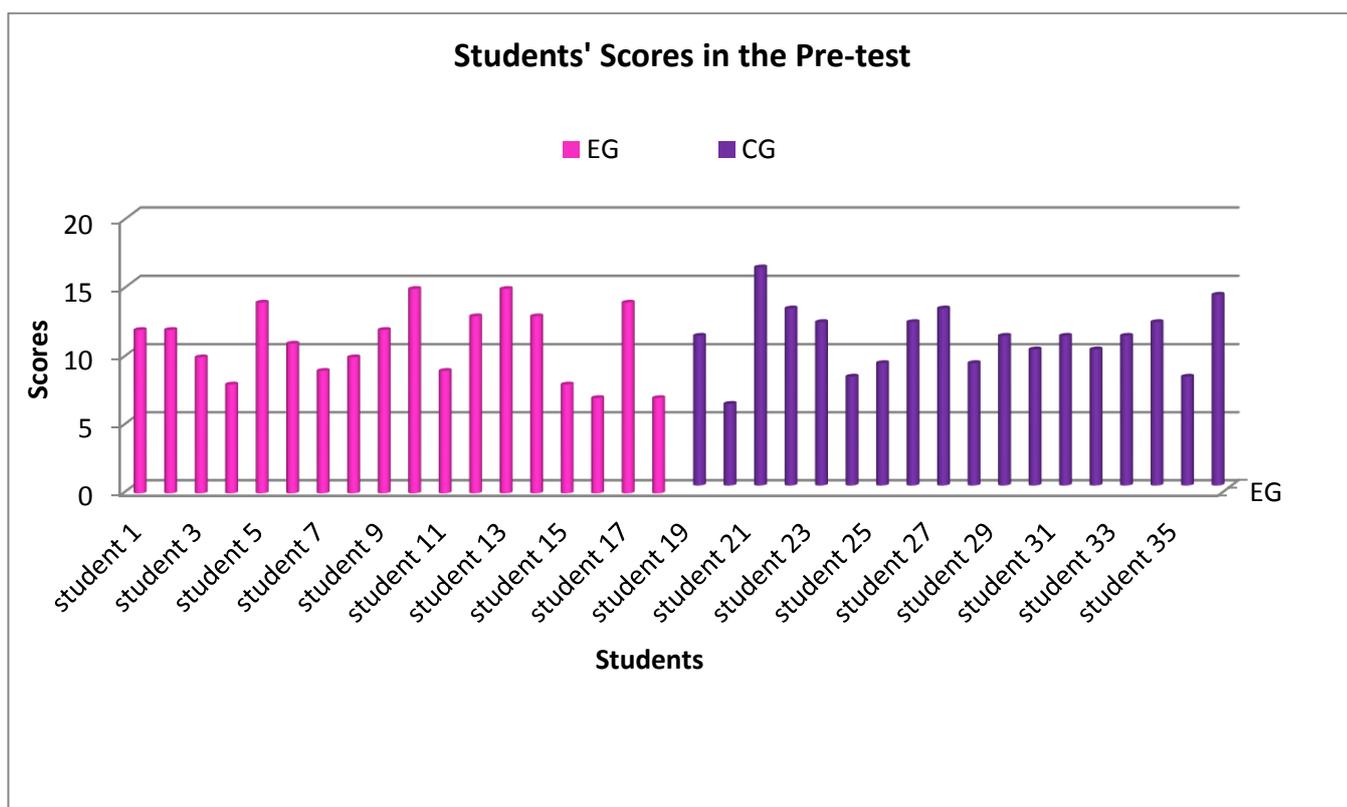
The graphs presented above offered better description of the scores that participants gained in their pre-test, the pink histograms drawn on the left side represented the scores of EG. On the right side, the purple histograms represented the participants of CG.

Depending on to the results illustrated above, it is clearly that the total marks mainly the mean and the standard deviation resulted in the two groups were slightly similar, which denoted that all participants could not gain high scores since they could not recognize the vocabulary words and they failed to figure out the correct words that fit into the gaps founded in the given paragraphs. Furthermore, the pre-test analysis enabled us to determine the CG and EG present level and competence in terms of vocabulary acquisition, identification, use and retention, besides it demonstrated that the two participants' level was parallel and both of them had weaknesses in vocabulary. Consequently, CG will be taught using the same traditional technique, while a different technique which is "crossword puzzle "will be used with EG as a

treatment to assess the effectiveness of using crossword puzzle on enhancing students' vocabulary.

3.7 Crossword puzzles Analysis:

Eight was the number of the sessions devoted for teaching vocabulary using crossword puzzles, only the participants of the experimental group had the chance to be benefited from solving such puzzles. In addition, crossword puzzles were designed according to students' level and abilities in order to guarantee comprehension, enjoyment and benefit, besides to introducing some hints during each session to make it easier to decode the clues and guess the correct words.

3.7.1 Analysis of Crossword Puzzle number (1)

The first crossword puzzle was a model for students to make things clear for them. In other expressions, the tutorials of how the crossword puzzle should be solved were explained to participants. Also, two answers were given to help students to complete decoding the other clues and to fill the rest of empty squares.

The following table summarizes the results obtained in the first session:

The scores of Crossword Puzzle (1)

The scores, the mean and the standard deviation of Crossword Puzzle (1) are presented in the following table:

Table 07 Scores of Crossword puzzle N° 01

Number of student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Score	8	8	12	10	12	10	8	4	6	8	14	6	8	12	8	8	12	14
Mean	9.333																	
Standard deviation	2.828																	

The data stated in this table showed that the first crossword puzzle was difficult for the majority of students, since the mean of CW (1) was "9.333" which was under

the average and the standard deviation was "2.828" which means that the scores were close to the mean. The graph presented bellow gave farther explanation.

Graph 2 Scores of crossword puzzle N°01
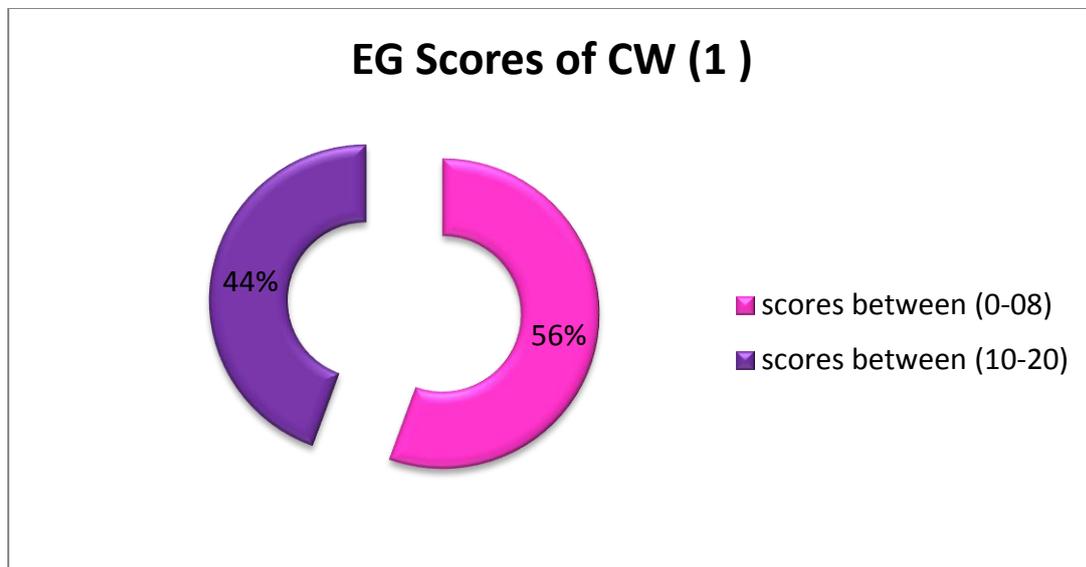
Despite this graph, it was deduced that 56% was the percentage of students who gained scores higher than "08" and only 44% student could gain scores higher than "10".

3.7.2 Analysis of Crossword Puzzle (2)

The results obtained in crossword puzzle (2) are shown in the table below

Table 08 Scores of crossword puzzle N° 02

Number of student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Score	8	10	12	8	8	10	10	12	12	14	10	10	8	10	8	14	10	14
Mean	10.444																	
Standard deviation	2.120																	

In the second treatment session, the picture became clearer for students, since the resulted mean was "10.444" and the Std deviation was "2.120" this inferred that

the participants found the CW (2) easier than the first one. The following graph offers

the percentages of CW (2) scores.

Graph 3 Scores of crossword puzzle 2
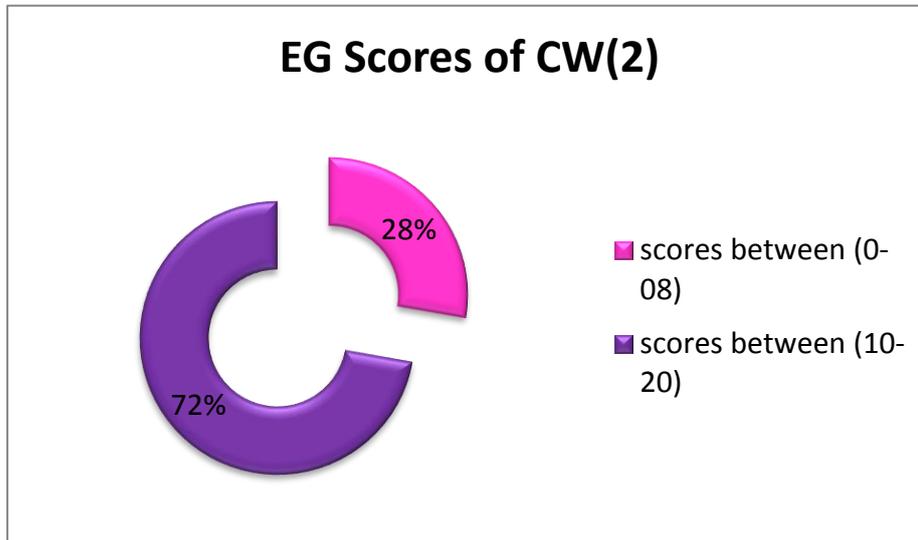
This graph indicated that 72% of students obtained scores higher than "10",

while the rest of students could not gain more than "08".

3.7.3 Analysis of Crossword Puzzle (3)

EG students' results in crossword puzzle (3) are stated in the following table:

Table 09 Scores of crossword puzzle N°03

The   third table included the

Number of student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Score ./20	12	14	16	8	14	12	10	8	10	4	10	12	8	14	12	14	8	14
Mean	11.111																	
Standard deviation	3.084																	

results of CW (3) , It is remarked that students' scores were similar to the scores of

the CW(2) because the mean was "11.111" and the Std deviation was "3.084", hence

the participants showed improvement in solving CW puzzles and in identifying vocabulary.

Graph 4 Scores of crossword puzzle N° 03

EG Scores of CW(3)

28%

72%

- scores between (0-08)
- scores between (10-20)
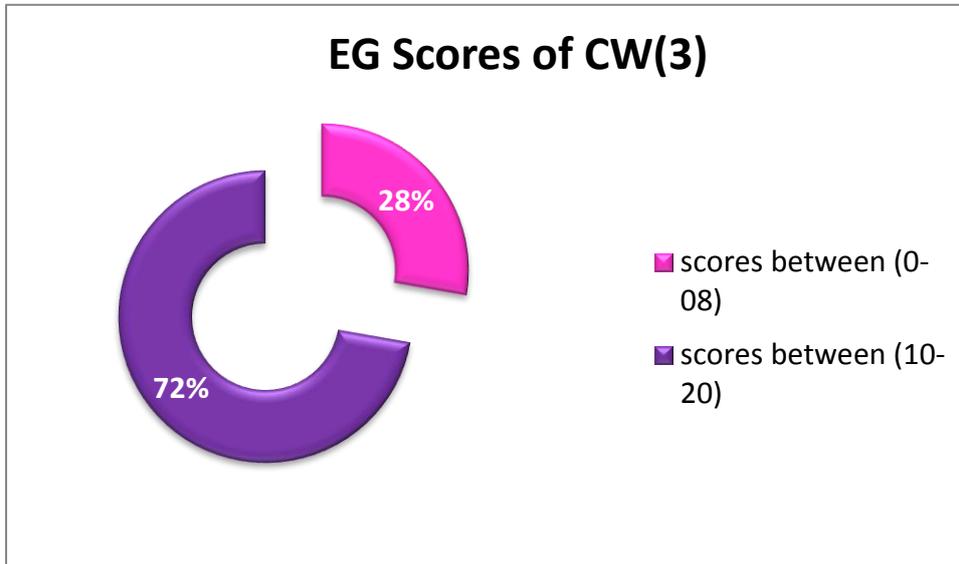
Likewise; the graph of CW (3) remained the same of CW (2), thus we deduce that the percentages were the same.

3.7.4 Analysis of Crossword Puzzle (4)

Crossword puzzle (4) outcomes are summarized in the following table:

Table 10 Scores of crossword puzzle N° 04

Number of student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Score ./20	12	16	14	8	14	10	10	8	8	8	14	12	10	12	16	14	10	14
Mean	11.666																	
Standard deviation	2.765																	

The results obtained in CW (4) demonstrated that EG scores were improved , since the calculated mean was "11.666" and the Std deviation was "2.765". as result; students became more familiar with solving such puzzle and it became easier for them to guess the correct words.

Graph 5 scores of crossword puzzle N° 04
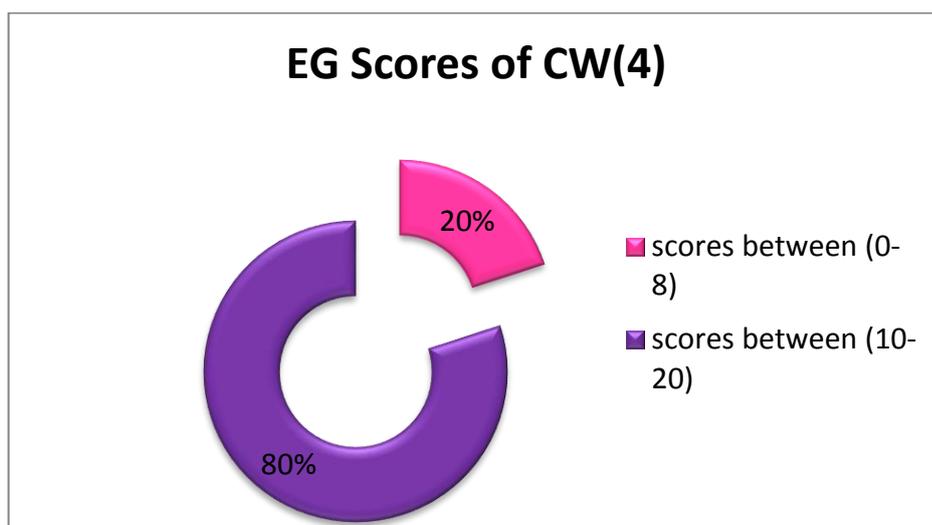
The given graph showed that 80% of students were capable to gain scores higher than "10", and only 20% of students failed to get scores over "10", these percentages inferred that the majority of students could figure out the appropriate vocabulary that fit into the empty squares, however some students still facing difficulties in identifying vocabulary.

3.7.5 Analysis of Crossword Puzzle (5)

In crossword puzzle (5) the scores are calculated and organized in the following table:

Table 11 Scores of crossword puzzle N°05

Number of student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Score ../20	14	14	8	12	16	14	16	10	12	8	12	14	12	10	12	12	8	12
Mean	**12**																	
Standard deviation	**2.473**																	

This table included the scores obtained by EG students in CW(5) where "12" was the mean resulted in this session and "2.473" was the Std deviation of the fifth CW , it was observed that students scores kept increasing which means that their level in terms of vocabulary was inhanced because they became more competent in solving this kind of games.

Graph 6 Scores of crossword puzzle N°05

EG scores of CW (5)
- 17% Marks between (0-8)
- 83% Marks between (10-20)
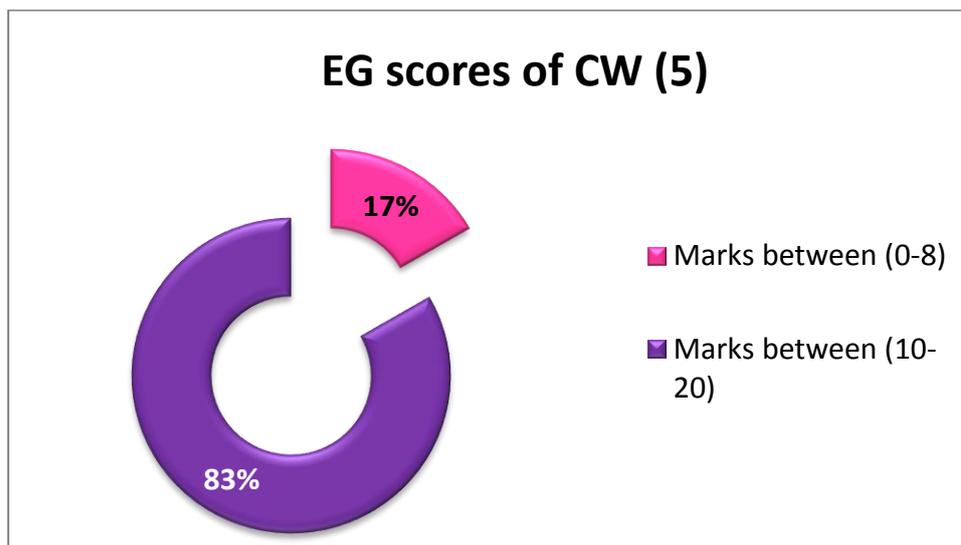
The scores attained in th fifth treatement session were presented in the previous graph, scores between (10-20) were obtained by 83% of students , while the rest of

students (17%) could not obtain more than (08). Therfore the use of crossword puzzle as a method started to show its effectiveness in inhancig vocabulary.

3.7.6 Analysis of Crossword Puzzle (6)

The calculations of the scores, the mean and the Std deviation were written in the table drawn below:

Table 12 Scores of crossword puzzle N° 06

Number of student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Score ./20	16	16	12	12	18	16	12	8	10	18	10	14	12	12	8	12	10	14
Mean	12.777																	
Standard deviation	3.078																	

In this table of results, the mean was "12.777" and the std deviation was "3.078" this inferred that both the mean and the std of CW (6) had increased since students became able to decode the given clues and find the answer words.

Graph 7 Scores of crossword puzzle N°06
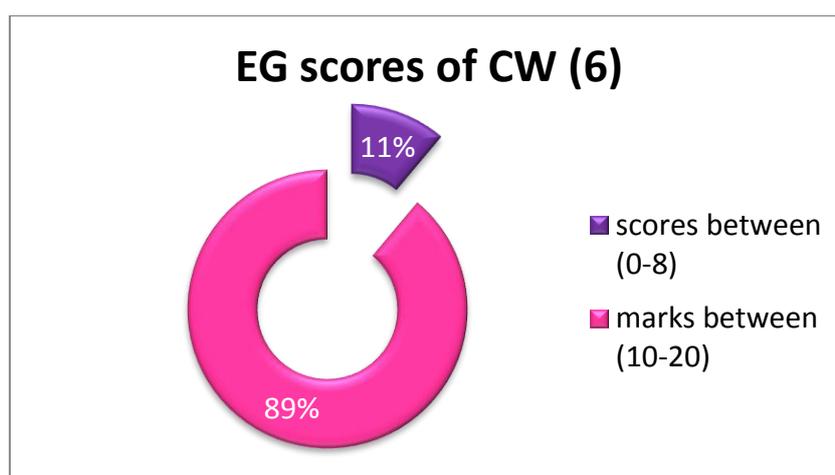
The graph of CW (6) demonstrated the percentages of EG student scores; where we notice that students were having better scores since 89% of them won scores over

"10" and less than 12% could not score more than "08". Besides, it is remarked that some students who used to get weak scores, became able to get good scores.

3.7.7 Analysis of Crossword Puzzle (7)

Crossword puzzle (7) scores as well as the mean and the Std deviation were organized in the table below:

Table 13 Scores of crossword puzzle N° 07

Number of student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Score ./20	14	16	16	8	18	16	14	12	8	12	16	14	14	12	18	14	14	20
Mean	14.222																	
Standard deviation	3.135																	

The previous table contained the scores attained by each participant in the seventh session of treatment as well as the total mean and the std deviation. Excellent scores appeared in this session such as "20" and "18", also the resulted mean "14.222" and the std deviation "3.135" were highly increased which referred to the degree of students' development in terms of vocabulary.

Graph 8 Scores of crossword puzzle N° 07

EG Scores of CW (7)

6%

94%

■ scores between (0-8)

■ scores between (10-20)
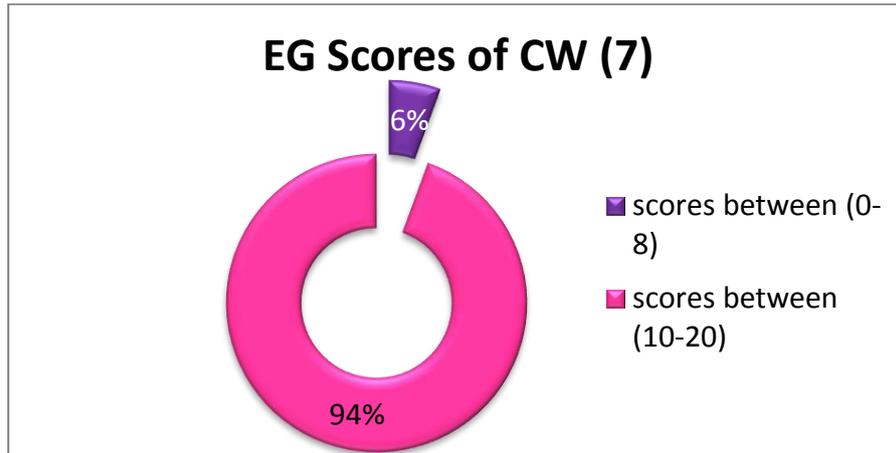
The graph of CW (7) showed that 94% of participants were able to gain scores higher than "10" ,only 6% of participants were disable to gain scores higher than "08". Therefore, it was deduced that the majority of EG students had been improved in vocabulary identification due to the effectiveness of crossword puzzles in enhancing this skill.

3.8.8 Analysis of Crossword Puzzle (8)

The next table comprised the scores, the mean and the std deviation of EG participants in the last treatment session:

Table 14 Scores of crossword puzzle N°08

Number of student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Score ../20	16	16	18	14	20	14	14	14	12	14	14	12	14	16	14	12	18	20
Mean	15.111																	
Standard deviation	2.494																	

In the final treatment session, EG students showed remarkable amelioration in scores, where excellent scores such as "18" and "20" that were obtained by four students besides to the mean that had been increased "15.111" and the std "2.494". Thus, it was realized that crossword puzzle was a useful technique that could help students to activate, refresh and enlarge their vocabulary

Graph 9 Scores of crossword puzzle N°08
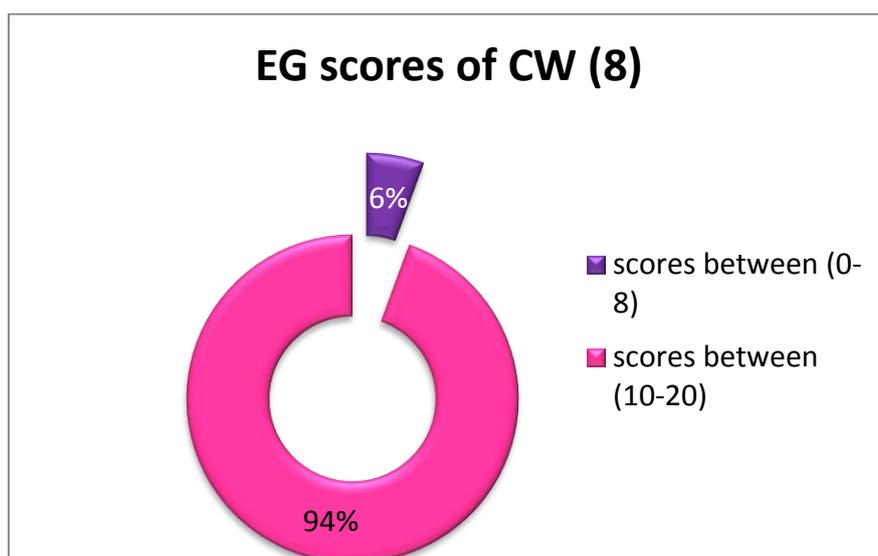
The graph of the last crossword puzzle remained the same of the CW (7) graph which means that students kept good scores and did not lose scores, thus students became more able to decipher clues and figure out vocabulary.

3.8 Tracking students' vocabulary development

Crossword puzzles scores' development was tracked through a comparison between the mean of each crossword puzzle, it is clearly mentioned in the following chart.

Graph 10 Tracking Students' Vocaabulary Development
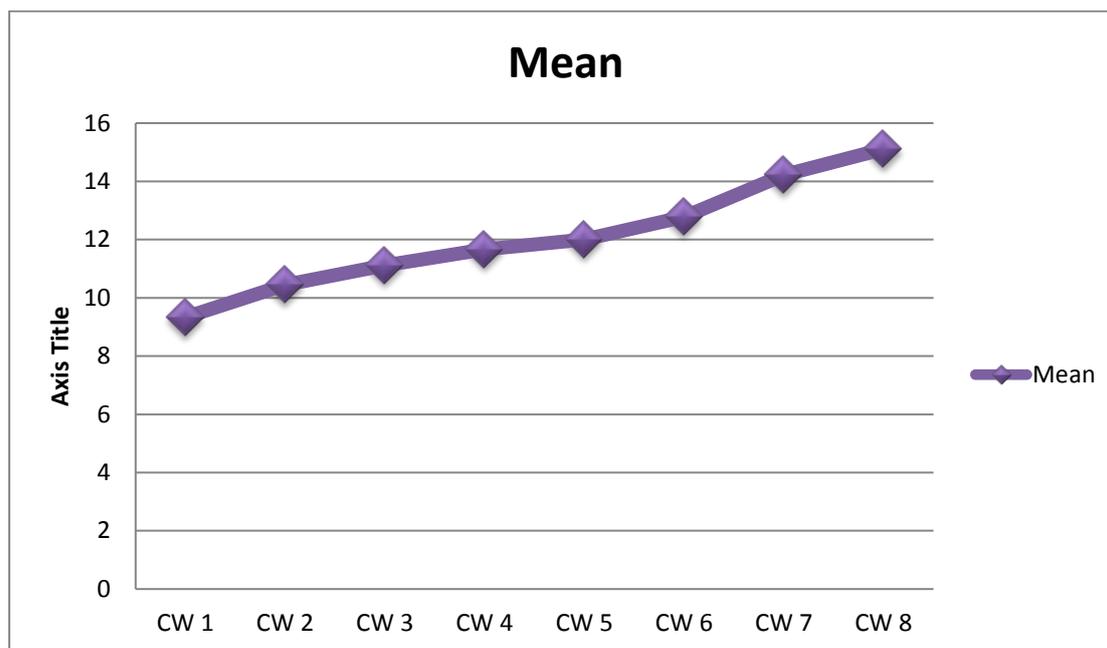
Depending on the illustrated chart, it is noticeable that the scores of crosswords are improved, the CW 1 (mean=9.333) was better than CW 2 (mean=10.444), and the CW 3 (mean=11.111) was better than the CW 2 (mean =10.444), crosswords scores were improved in this stream. This inferred that students' vocabulary was developing each time they solve new crossword puzzle.

3.9 Analysis of Post-test

After having the eight treatment sessions finished, it was time to analyze the post-test that has been undertaken during the session number nine, for the sake of measuring the EG and the CG progress. testing the hypotheses and the difference significance.

Firstly, the mean, std deviation and std error mean were calculated using EXCEL for the purpose comparing the two groups, then SPSS was used to find out the Pearsons' correlation and the independent t-test.

.

3.9.1 Analysis of Experimental Group Scores in Post-test

To be able to assess the outcomes resulted in EG post-test, it was essential to have the mean, the std deviation and the std error mean calculated. All the calculations results were organized in the next table

Table 15 Scores of EG in the post-test

Number of EG student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Score ./20	15	14	13	11	14	13	13	14	15	18	11	14	15	14	12	8	16	11
Minimum	8																	
Maximum	18																	
Total ∑n	241																	
Mean $\bar{x}$	13.388																	
Std Deviation	2,25281																	
Std Error Mean	0.53099																	

Depending on the values presented in the table drawn above the EG scores were good in this phase where it was noticed that the maximum score was "18" while the minimum one was "8", the total was "241" and the mean was "13.388" which denoted that participants level was ameliorated. The previous table embraced as well the std devition "2.252" and the st error mean "0.530" hence the scores of this cohort were close to the mean

3.9.2 Analysis of Control Group Scores in Post-test

To be able to measure the degree of CG progress, the results obtained in the post-test were stated in the following table:

Table 16 CG scores in the post-test

Number of CG student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Score ./20	12	10	14	15	12	10	9	11	13	11	12	12	13	10	12	12	9	13
Minimum	9																	
Maximum	15																	
Total ∑n	210																	
Mean $\bar{x}$	11.666																	
Std Deviation	1,64496																	
Std Error deviation	0,38772																	

Despite of the the calculations shown in the table above ,CG participants during the post-test phase were able to attain "210" as a total and the scores were between "9 and 15" . Additionally, the table included the resulted mean that was "11.666", as well as dmonstrated the std deviation was about "1.644" and the std error mean was around "0.387" therefore CG scores in this test were closely clustered around the mean.

3.9.3 Comparison between the EG Pre and Post -test Results

To measure the degree of progress that EG made a table was drawn to summarize the total and the mean gained by this group in the pre-test and the post-test.

Table 17 Comparaison between EG pre-test and post-test results

	Pre-test	Post-test
Total ∑n	199	241
Mean x̄	11.05	13.388

It was shown that EG participants made an obvious progress, since the total in the pre-test was "199" while in the post-test it was raised and students could achieve "13.388".

Graph 10 Comparaison of EG scores in the pre-test and the pos-test
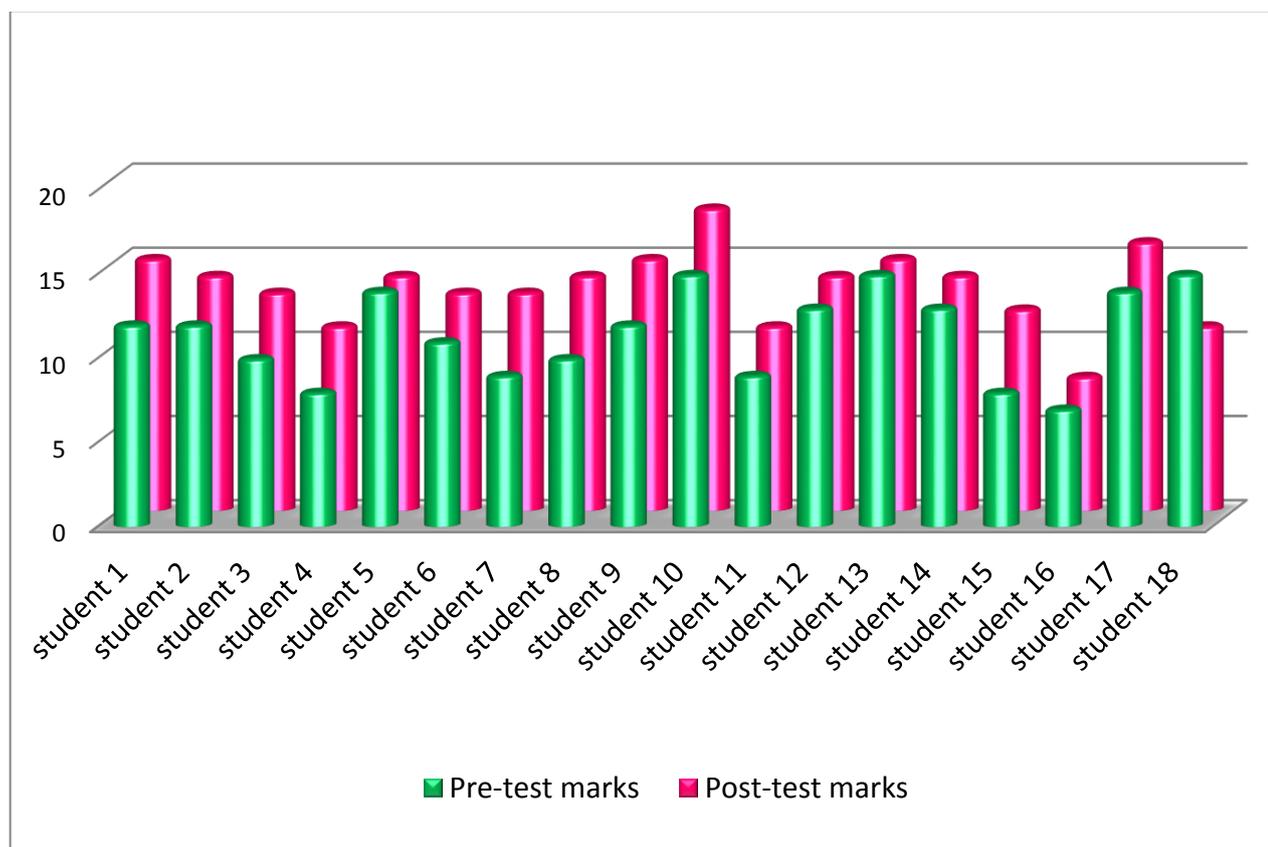
Changes of EG before and after the treatment were clearly presented in the drawn the graph, the pink histograms represented the scores in the post-test where participants obtained scores higher than the ones obtained in the pre-test. This denoted that the EG had befitted from the treatment sessions and the participants' vocabulary level was improved.

3.9.4 Comparison between the CG Pre and Post -test Results

      To be able to assess the progress of CG between the pre-test and the post-test

the following table was drawn to show the total and the mean obtained by this group

in the pre-test and the post-test.

Table 18 Comparaison of CG scores in the pre-test and the post-test

The table mentioned that the CG total was "196" in the pre-test and "210" in

	Pre-test	Post-test
Total $\sum n$	196	210
Mean $\bar{x}$	10.888	11.666

      the post-test as well as the mean "10.888" in the pre-test and "11.666" in the

post-test, as result the CG participants level in vocabulary had been slightly improved

.

Graph 11 Comparaison of CG scores in the pre-test and the post-test

68
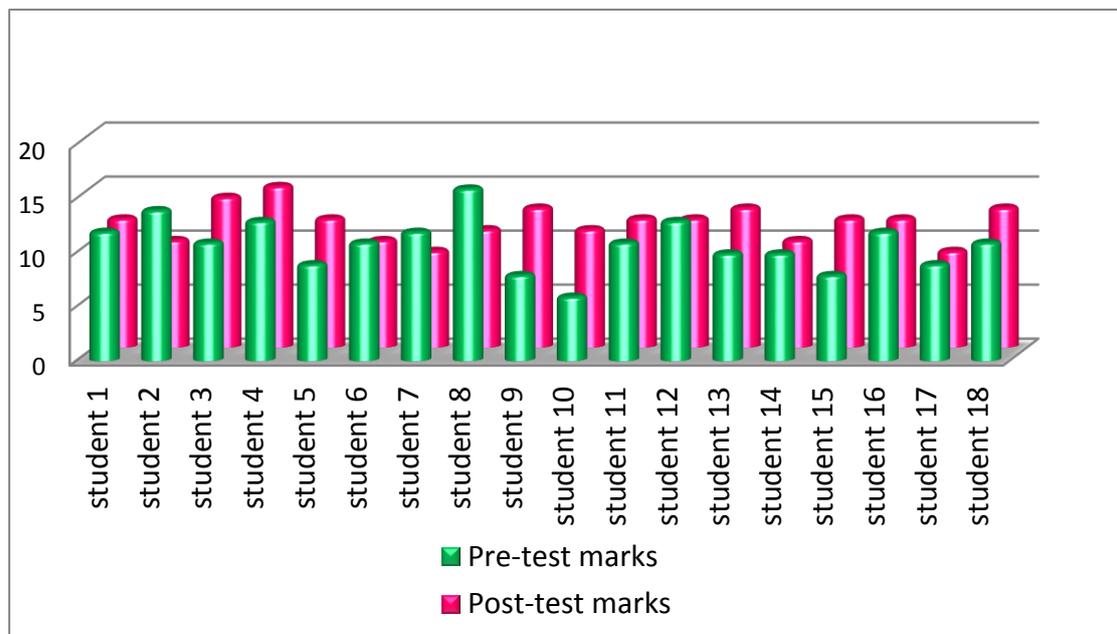
Depending on what has been drawn in the graph, CG participants could mark better scores in the post-test comparing to the scores of pre-tests, therefore, the vocabulary level of these participants was not improved in a considerable extent during the treatment period, since the differences between the pink and the green histograms were very slight.

3.9.5 Comparing Students' level after the treatment

To assess the EG and CG participants levels after receiving treatment during eight sessions and to see whether there were differences or similarities between the two groups in vocabulary improvement. It was necessary to make a comparison between the results earned by each group in the post-test phase. Thus, a table was drawn below to provide a comparison of the scores gained by the participants of the two groups in the post-test to reveal a sufficient description of the changes in scores made by EG and CG.

Table 19 Comparison between EG and CG scores in the post-test

		Pre-test	Post-test
CG	Total ∑n	196	210
	Mean $\bar{x}$	10.888	11.666
	Std deviation	2.39	1.644
	Std error mean	0.565	0.387
EG	Total ∑n	199	241
	Mean $\bar{x}$	11.055	13.388
	Std deviation	2.66	2.252
	Std error mean	0.628	0.530

Despite the illustrated table that presented the common and different points between the two groups, it was remarkable that the outcomes achieved by the members of EG were significantly improved, rather than the CG results which had no apparent changes. I n the pre-test the EG mean that was "11.055" was increased to "13.388" in the post-test as well as the changes in the std deviation "2.66" and the std error mean "0.628" to became "2.252" and "0.530". In similar way, the CG showed improvement in the post-test, however the degree of progress was less than the one of CG, due to the shift of the resulted mean from "10.888" to "11.666" in addition to the changes in the std deviation and the std error mean. Thus, the differences remarked was tested later to prove whether the two variables were correlated or not.

To assess the previous values visibly graphic histograms were drawn below

Graph 12 Comparaison of EG and CG scores in the post-test
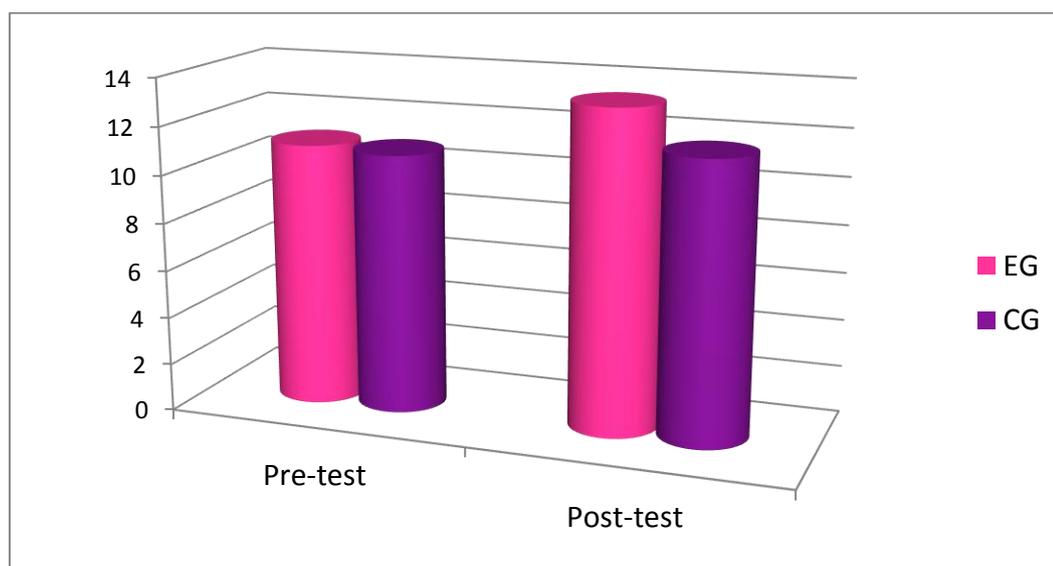
This graph provided pictorial representation of the advancement of the two groups involved in this study, when comparing the two groups' results in the pre-test and in the post-test, it was remarked that the pink histograms of EG were clearly higher than the purple histograms of CG, which demonstrated that EG level was apparently developed whereas the CG level was not developed in considerable extent. Moreover, the degree of EG progress was higher than the one of CG, Consequently,

the method used in teaching EG was more effective and successful than the one used in teaching CG.

3.10 Testing Hypothesis

For the aim of testing hypothesis, it was crucial to use the inferential statistics, thus Pearson correlation as well as independent samples t-test were conducted. More precisely, such statistical tests aim to offer more clarifications about the probability of occurring by chance (Kanji, 2006:265). Mainly these t-tests were selected in order to find out the likelihood that the findings could have occurred under the null hypothesis. When the probability is less than, or equals 0.05, then null hypothesis is rejected, whereas the alternative hypothesis is regarded.

As far as this study is concerned, two hypotheses were formulated: The null hypothesis (H0) which assumes that no significant differences exist between the results of pre-test and post-test, and the alternative hypothesis (H1) which assumes that significant differences exist between the pre-test and post-test results. Concerning the actual study the H1 is: the implementation of crossword puzzles will enrich students' vocabulary, while the H0 is: the implementation of crossword puzzles will not enrich students' vocabulary.

3.10.1 Calculating Pearson Correlation

After having the results of the pre-test and the post-test calculated, analyzed and interpreted, all the preceding findings were statistically proven via Spss software to calculate Pearson's correlation, to be able to investigate the existence of correlation between the variables and to measure the strength of linear relationship between two sets of data, the r-value or the correlation coefficient (r) was calculated .In statistics the correlation coefficient (r) ranges from (1 to-1) to be interpreted as follow:

When r <0 there is negative correlation

When r=0 there is no correlation

When r>0 there is positive correlation

The formula of calculating Pearson correlation (r) is as follows:

$$r = \frac{N\sum xy - (\sum x)(\sum y)}{\sqrt{[N\sum x^2 - (\sum x)^2][N\sum y^2 - (\sum y)^2]}}$$

Where:

N= number of pairs of scores

$\sum xy$ =Sum of products of of paired scores

$\sum x$=Sum of x scores

$\sum y$ =Sum of y scores

$\sum x^2$ =Sum of squared x scores

$\sum y^2$=Sum of squared y scores

The following table was obtained using the SPSS software to show Pearson Correlation.

Table 20 EG Pearson correlation

T-test phase	Group	Pearson Correlation
Pre-test	EG	0.8674
Post-test	EG	0.8674

The table drawn above demonstrated that in the pre-test and the post-test phases EG r-value was 0. 867.This estimated that crossword puzzle and vocabulary improvement are highly correlated and there is a positive strong uphill linear relationship between them. In other terms, the more students solve crossword puzzles the more vocabulary enhancement they have.

Table 21 CG Pearson correlation

T-test phase	Group	Pearson Correlation
Pre-test	CG	0.0049
Post-test	CG	0.0049

The table drawn on the top mentioned that the r value of CG in the pre-test and post-test was "0.0049" which is so close to "0", therefore the correlation between the traditional method and vocabulary improvement was not strong. Moreover, the previous variables had a weak uphill linear relationship, which means that when students were taught through the traditional method their vocabulary was not enhanced in strongly and effectively.

3.10.2 Independent sample t-test of the post-test

The research variables were correlated and the EG participants showed a noticeable advancement after being treated for eight sessions in view of the fact that the mean of CG was less than the one of EG 11.666 <13.388, the correlation between groups was confirmed in the previous tables , nevertheless the extent of progress was not clearly explained, thus an independent sample t-test was conducted to afford more detailed assessment ,to show whether the difference between the groups was significant or not as well as to calculate the extent of progress. To confirm or reject the null hypothesis, we consider the p-value 0.05 which signifies that only 5% of the scores were obtained by chance whereas 95% of scores were not resulted by chance, the smaller p-value is the more null hypothesis' rejection degree is.

The undertaken independent sample t-test for the post-test was calculated using Spss, however its mathematical formulas and the necessary steps should be presented (Miller, 1984:80)

1.Calculating the means of the two samples $\overline{x_1}$,$\overline{x_2}$ using the formula: $\overline{x}=\frac{\Sigma x}{N}$

2.Calculating the variances of the two samples $S_1{}^2$, $S_2{}^2$ using the formula:

$$S^2=\frac{\Sigma X^2}{N} - \overline{X^2}$$

3. Substituting the values $\overline{x_1}$,$\overline{x_2}$, $S_1{}^2$, $S_2{}^2$, N_1 ,N_2 in the computational formula for t:

$$t_{N_1}+N_2\text{-}2=\frac{(\overline{x_1} -\overline{x_2})\sqrt{(N_1+N_2-2)N_1 N_2}}{\sqrt{(N_1 S_1{}^2+N_2 S_2{}^2)(N_1+N_2)}}$$

Table 22 Independent sample t-test of the post-test

			Post-test	
			*Equal Variances Assumed	*Equal Variances Not Assumed
Levine's Test for Equality of Variances	F Sig		0,874 0,356	
T-test for Equality of Means	t		2,619	2,619
	df		34	31,115
	Sig (2-tailed)		0.013	0.013
	Mean Difference		1,72222	1,72222
	Std.Error Difference		0,65748	0,65748
	95% Confidence Interval of the Lower Difference	Upper	0,38606	0,38148
		Lower	3,05838	3,06296

The independent samples t-test illustrated above inferred that unlike the pre-test the EG and the CG were significantly different in this phase since the p-value (sig 2 tailed) was 0.013 < 0.05 which proved that significant differences existed between the two groups. In addition, the sig value for Levine's test was 0.35≥ 0.05 which

means that the equal variance was assumed. Furthermore, the 95% confidence interval estimate for the difference among the scores of EG and CG was (0.386 lower and 3.058 upper). As result the t-test findings could statistically reveal reliable differences between the mean of CG and EG in the post-test because t (34) = 2.619, the std error mean difference = 0.657 and the amount of differences in the mean (mean difference) was 0.7222.

As a final point, the t-value=2.619 is greater than the critical value for (34) degrees of freedom, this concluded that the scores did not occurred by chance and the H1 is accepted.

3.11 Interpretation of the Results of the Post-test:

In this part of our research, the t-test and Pearsons' correlation was not made only to measure the impact of using crossword puzzles on enriching students' vocabulary, but also to determine the correlation between crossword puzzles and vocabulary enhancement as well as to detect the reason behind control group students' failure in improving their vocabulary significantly and test the hypotheses. Numerically, the outcomes resulted from the conducted calculations denoted that the dependent and independent variables were positively correlated. Furthermore, due to the data provided in the tables presented above, the null hypothesis of no correlation exists between the independent variable and the dependent variable was rejected H_0: $\mu_1 \neq \mu_2$, whereas the suggested alternative hypothesis; the implementation of crossword puzzles could enrich students vocabulary was accepted. In more precise terms Pearsons' correlation (r) that was above zero, assumed that the existence of relationship between the variables was confirmed thus the null hypothesis was refused, also the t-tests outcomes denoted that solving crossword puzzles was an effective method that could significantly improve EG vocabulary, unlike CG participants who had a slight improvement. Consequently, teacher can exploit crossword puzzle to raise their students' level.

3.12 Overall Results and Discussion:

The core of this study is to determine the obstacles that bound vocabulary enrichment, also to explore the relationship that links vocabulary improvement and solving crossword puzzles in addition to investigate the function of crossword puzzle in enhancing students' vocabulary. that's why t-tests were undertaken before and after the treatment to compare the two samples' scores and to examine the aforementioned, the attained findings suggest that solving crossword puzzles could increase the improvement of students' vocabulary. Depending on the t-test done before the treatment which demonstrated that; both groups could obtain a similar scores where the resulted p-value in the pre-test was 0.845>0.05 which means there was no significant denotation since it exceeds 0.05, on the other side, the obtained statistics of the post-test indicated that participants who were exposed to the crossword puzzles method gained much more sores than the other participants who went through the traditional method where it was noticed that the p-value in this phase was 0.013< 0.05 which inferred that the independent samples t-tests confirmed that crossword puzzle and vocabulary enrichment were correlated significantly. Additionally , the Pearson correlation findings that showed that EG r was 0.86 whereas CG r was 0.049, it was clearly designated that both r results were above zero (-1<0.049 and 0,86 <1) which means that both EG variables and CG variables were correlated , but the EG r-value was higher than CG r-value (0.86>0.049) therefore the traditional method is less effective than the crossword puzzle, this means that the more crossword puzzle is used the more vocabulary is enriched .Briefly, the relationship between those two variables is complementary.

As a conclusion, solving crossword puzzle is a crucial method that enriches, enhances and strengthens students' vocabulary. Moreover, the success of vocabulary acquisition and improvement depends on exploiting crossword puzzle for the aim that teaching vocabulary via crossword puzzles enables students to make a balance between word spelling and meaning, as well as it merges fun with learning This is what is ignored

in EFL classes since students recognize some words meanings and they know some words spelling but they fail to link them together, thus they dismiss those words. As result, these abilities require reinforcement to break down the hedge between them using crossword puzzles method.

Conclusion

As a concluding point ,the actual thesis reveals that the reason behind the deficiency in vocabulary is the traditional method used in teaching vocabulary, where students struggle from feeling bored ,uncomfortable and unmotivated to learn new vocabulary in addition to the decrease of participation and activeness, as result the majority of students fail to learn new words .From the other angle , the factor behind the notable improvement in vocabulary is the integration of crossword puzzle ,where it was assumed that using such puzzles can spread entertainment, raise motivation, and support students to be active therefore the opportunity of successful learning new vocabulary raises as well as the chance of pronouncing, writing, and using the learned words increases , as a conclusion most of students can achieve the course objectives and learn successfully the targeted words and enrich , scaffold and enhance their vocabulary. Furthermore, this study implies that the positive correlation between the two variables assumes that the extensive exploitation of crosswords puzzles leads to perfect results in terms of improving and enriching vocabulary. Briefly, the statistical results highlighted that the impact of using crossword puzzles on enriching student' vocabulary is positive and it gives immediate great results.

Recommendations

Through this study and depending on the analysis and the discussion of the obtained results, a set of recommendations is suggested in order to achieve higher levels in vocabulary learning and enrichment:

- Teachers should provide learners with more active materials such as crossword puzzles that enable them to go from boring passive vocabulary learning to far more enjoyable and effective one.

- Vocabulary improvement success depends on creating a motivating, encouraging classroom environment. This is why teachers should take into account the effectiveness of integrating crossword puzzles in their courses.

- This type of language games should be exploited to enrich students' vocabulary due to deciphering the given clues that enables repetition, rewriting and using the words thus it helps them to memorize, remember and learn the word correct meaning and spelling,

- This thesis recommends to English scholars and syllabus designers to employ crossword puzzles in the syllabus to decrease vocabulary teaching difficulties and to ameliorate students' competencies of learning this skill.

General Conclusion

This study was conducted to shed the light on the effectiveness of using crossword puzzles on enhancing students' vocabulary, first of all, vocabulary is considered as crucial skill that can be strengthened in different numerous methods that varies from one teacher to other depending students' preferences and competencies, besides to the psychological factors that bounds the improvement of vocabulary. Thus, crossword puzzle is suggested to be used as a method of enhancing this skill and fostering its improvement. This dissertation was presented into three major chapters: teaching and learning vocabulary, crossword puzzles, and the fieldwork. The first chapter dealt with vocabulary, its definition, types, and its different learning and teaching strategies, the second chapter focused on crossword puzzle, including its definition, terminology, and its types of clues and grids. The final chapter covered the fieldwork, which aims to investigate the impact degree of using crossword puzzles as a method of vocabulary enhancement. T-test as well as Pearsons' correlation was carried out to test the hypotheses and answer the research questions. Moreover, the analysis and the discussions were done to check whether enriching students' vocabulary via solving crossword puzzles is effective or not, and whether these puzzles can improve words memorization and retention or not. In this context, the data accumulated from the students' experiment that is composed of pre-test and post-test showed that students who received a treatment did much better than the ones who did not have the chance of being treated during the allotted period. Likewise, the post-test analysis has also confirmed the alternative hypothesis and rejected the null one. Additionally, the conducted experiment pointed the various advantages of using crossword puzzles as a method of vocabulary improvement ,where students enjoyed the process of learning vocabulary using this language game ,since it involves them in the instruction ,reduces boredom in classroom , as well as helps them to see learning English as an easy learnable subject rather than a hard complex one as well as it

creates a challengeable environment that motivates students to gain more words and keep them stored in their memories ;besides, it provides more opportunities to be active and practice ,and to replicate and use vocabulary .Not only this but also those students who find difficulties in the habitual traditional method see crossword puzzles solving more entertaining . As a conclusion, crossword puzzles can strongly enrich students' vocabulary.

References:

Allen, J. (1999). *Teaching Vocabulary in Grades 4-12*. Stenhouse Publishers: Portland, Maine.

Allen, V. (1983). *Techniques in teaching vocabulary*. New York: Oxford University Press.

Amato,P.(1988) .*Making it Happen: Interaction in the Second Language Classroom* : From Theory to Practice. New York: Longman

Anderson, R. & Freebody, P. (1981). *Vocabulary knowledge.* Newark, DE: International Reading Association.

Atkinson, D. (2003). *L2 Writing in the Post- Process Era: Introduction*. Journal of the Second Language Writing. pp. 3-12-15.

Barcroft, J. (2008). *Special issue: L2 vocabulary: the interface between learning and representation* (1st ed.). Amsterdam [etc.]: John Benjamins.

Barnes, A., Hines J. Weldon, J. (1996). *Gaming for classroom- based learning: Digital role playing as a motivator of study*. United States of America: IGI Global.

Bressan, D. (1970). *Crossword puzzles in modern language teaching.* Audio- Visual Language Journal, 8(2), 93-95.

Briggs,R .(1922).*Language Games Interaction: Paper Games. New York*: Longman.

Boulmarka, S. (2000). *The Reading Difficulties Encountered by the Students of the Institute of Sports and Physical Education*: Analysis and Remediation. Constantine.

Carter, R. (1998). *Vocabulary Applied Linguistic Perspectives*. Routledge. London.

Danesi, M. (1979). *Puzzles in Language Teaching*. The Canadian Modern Language.

Denise, R (2013). *Puzzles Revolution: Children puzzles*. Cambridge University Press.

Dhand,H. ,Harry,D. 2008. *Techniques of Teaching*. New Delhi.

El- Shamy, S. (2001). *Training games: Everything you need to know about using games to reinforce learning* .Virginia : Stylus Publishing, LLC.

Farrell, A., Guinness, V., & Lloyd, J. (1996). *My generation* (1st ed.). Dublin, Ireland: Lilliput Press.

Fincchiaro,M (1974).*English as a Second Language* : From Theory to Practice. NY: Regents Publ.Co,Inc.

Fowers,D. (2000). *Test Your Vocabulary*. Penguin Books Ltd. London.

Gairns, R, Redman, S. (1986). *Working with words: A guide to teaching and learning vocabulary*. Cambridge: Cambridge University Press.

Gaffny , J (2015), *Mnemonic Vocabulary Instruction for Learning Disabled Students Learning* .Washington

Gettinby, B. (2009). *Cryptic crossword secrets* (1st ed.). Noosa Heads, Qld.: Radge.

Goh,B and Hooper,H ,(2007) ;Franklin,C et al ,(2003) Ringbom,H (1985*) Language Learning and Entertainment*. Cambridge: Cambridge University Press.

Graves, M.. (1986). *Vocabulary learning and instruction. In E.Rothkopf (Ed.), Review of research in education (pp. 48-89)*.Washington DC: American Educational Research Association.

Graves ,T (2006) ; Hiebert and Kamil ,(2005); Nagy ,W (1988). *Learning and Instruction .Vocabulary* : From Teachers College Press. England.

Griffiths ,A (2002). *Instruction of Puzzles Types and Grids* . NY: The Guilford Press.

Hatch, E and Brown, C. (1995). *Vocabulary, semantics and language education*. Cambridge: Cambridge university press.

Haynes, J., Zacarian, D. (2010). *Teaching English language learners: Across the content areas*. Virginia: Alexandria.

Hedge, T. (2000) .*Teaching in the language classroom* .New York: oxford university press.

Hill, A and Popkin,R (1986). *What About the Language Puzzles. Crossword Puzzles.* New Jersey: Lawrence Erlbaum Associates.

Holmes, B. (2001). *Bradford's pocket crossword dictionary* (1st ed.). London: Peter Collin.

Hornby, A. (1974). *Oxford Advanced Dictionary of Current English*. London: Oxford University Press

Kameenui, E., & Baumann, J. (2012). *Vocabulary instruction* (1st ed.). New York: The Guilford Press.

Klippel, F. (1983). *Keep talking: Communicative fluency activities for language teaching*. Cambridge: Cambridge university press.

Latorre, G., and Baeza, G. (1975). *The construction and use of EFL crossword puzzles.ELT Journal*, 30(*1*), pp. 45-55; doi:10.1093/elt/XXX.1.45.

Lehrer, K. (2000). *Theory of Knowledge*. 2nd Edition. Boulder: Westview Press.

Lewis,T (1999) *Second Language Vocabulary Acquisition. Constructivism and Education.* Cambridge: Cambridge University Press.

Loczka,A., Nyitrai,R, & Szántó,D. (2014). *Crow with 2500 words* (1st ed.). Budapest: Strucc.

Longman Dictionary of Contemporary English (1995). Third Edition. Longman Group Ltd.

McKeown, M. & Beck ,I (2004). *Direct and rich vocabulary instruction*. In J. F. Baumann, & E. J. Kame'enui (Eds.), *Vocabulary instruction: Research to practice.*

Mackworth,A and Poole,D (2010). *Artificial Intelligence. Crossword puzzles*. Cambridge University Press.

Malley, J. and Chamot, A.(1999). L*earning Strategies in Second Language Acquisition*. Cambridge University Press.

Manser , B.(1996). *English Language Vocabulary Knowledge: Teaching and Learning* Strategies .Language Instructions. Malaisia

Meara, P. (2005). *Teaching and learning vocabulary*. In James A. Coleman,

Michael ,L Kamil,N (2005). *Teaching and Learning Vocabulary. Bringing Research to Practice* (1st ed.). New Jersey: Lawrence Erlbaum Associates.

Mollica,A and Piryulescu, M (2008). *Mosaiic. Recreational Linguistics: Crossword Puzzles and Second-Language Teaching* .Department of Language Studies, University of Toronto Mississauga *and* editions SOLEIL publishing inc

Morris,W .(2008) *Cryptics and Clues*. San Diego, Harcourt: Brace Jovanish.

Moursund, D .(2007). *Introduction to Using Games in Education: A Guide for Teachers and Parents*. Oregon.

Nation, P. (1990). *Teaching and learning vocabulary*, New York: Newbury House Publishers.

Nation, P. (2001). *Learning vocabulary in another language.* Cambridge, U.K.: Cambridge University Press. National Reading Panel (NRP).

Nation, P. (2014). *Learning Vocabulary in another Language* (1st ed.). Stuttgart: Klett.

Nida, E., & Taber, C. (1974). *The theory and practice of translation* (1st ed.). Leiden, Netherlands: United Biblie Societies .

Nunan, D. (1992). *Research Method in Education*. Cambridge University Press.

Oxford Students dictionary. (2007). New edition: Oxford university press

Patrick,M (2015) *Wordplay Fiend. Crossword Clues*. New York Times. Cambridge University Press.

Paul, D. (1996). *Songs and Games for Children*. Macmillan Publishers Limited, oxford.

Pavičić T. V. (2008). *Vocabulary learning strategies and foreign language acquisition*.Great Britain. Cromwell Press limited.

Piscop, F., & Gordon, P. (1998). *Cryptic crosswords & how to solve them* (1st ed.). New York: Sterling Pub.

Plumb,J (1993) *Play Games with English*. Collin Granger. Macmillan Heinemann English Teaching. Oxford University.

Powell,J (1956) *Everyday Puzzles. Fill-in Crossword Puzzles.* Cambridge: Harvard University Press.

Prensky,M (2001) *Simulations. Crossword Grids.* New York: Oxford University Press.

Richards. C. & Renandya,A. (2002). *Current research and practice in teaching vocabulary.* Edinburgh, UK: Cambridge University Press, 257-267.

Richards,C. (2001). *Curriculum development in language teaching.* Cambridge: Cambridge University Press.

Rogoff, B. (1990). *Vocabulary Games Concpet.* New York: Macmillian

Schmitt, N. & Nuttal, C. (1982).*Teaching reading skills in foreign language.* Heinemann educational books: London.

Schmitt, N. (2002). *Vocabulary in language teaching .*New York: Cambridge university press.

Seal, B. (1991). *Vocabulary learning and teaching English as a second language or foreign language.* Boston. Massachusetts.In celce-murcia(ed).

Scott, A., and Nagy,E (2004). *Developing word consciousness.* NY: The Guilford Press.

Thornberry, S. (2002) .*How to teach vocabulary .*Longman.

Tsui,M. (1995). *Introducing classroom interaction.* England: Penguin .

Uberman, A. (1998, January-march). *The use of games: for vocabulary presentation and revision .*fr http://www.dbq.edu/library/.

Uberman, A (1999). *The Use of Games :For Vocabulary Presentation and Revisition. English .*Departement of Pedagogical University in Rzesz.W.Poland.

Vygotsky, L (1986) Wilkins,D (1972),Wolfe,K (1972) .*Thought and Language.* Cambridge: The MIT Press.

Wahyuningsih, N. (2009). *A study on the role of crossword puzzle in developing speaking proficiency.* Bistek Journal Bisnis dan Teknologi, Volume 17, (1), 44-50.

Webster, T (1966). *English Words, Vocabulary Concept.* Millian Publishers: Australia PTY Limited

West,M (1953) *Vocabulary Size Test. Vocabulary Importance.* Cambridge University Press.

Weyer ,S (2009) *Crossword Terminology. Diagramless crossword Puzzle*. New York Daily News.

.

Widaningsih, R. (2009). *Increasing vocabulary mastery using crossword puzzle technique in inclusion program* . English Department, School of Teacher Training and Education, Muhammadiyah University of Surakarta.

Wilkins, A.(1972). *Linguistics and language teaching* .London : Edward Arnold.

Web:

Acrostic Crossword (2017). Retrieved 21 April 2017, from http://Free Printable Acrostic puzzle.com

Crossword+puzzle. Retrieved 5 April 2017, from http://www. The Free Dictionary.Com.

Vocabular.co.il.(2017).Vocabulary Word Games English Vocabulary Word Games.15 february 2017,from http://www.voacbulary.co.il

25March 2017 derived from :Meriam-Webster,n.d.Web .

The Bingo Maker | Bingo Card Maker | Create, Print Bingo Cards. (2017). *Thebingomaker.com*. Retrieved 21 April 2017, from http://thebingomaker.com.

WordDive - a fun way of learning languages online. (2017). *WordDive*. Retrieved 21 April 2017, from http://www.worddive.com.

Fill-in the Gaps

Complete the following text with the appropriate words:

Balloon ,Iron, Art, Puzzle ,Ice, Mirror, clouds ,Telescope, fire, Water ,Money Drum, Burnt, Throw, Rain ,Bath ,Frozen ,Smell, Snow ,Computer ,Pool ,Powder ,Knife, Boiled, Fire, Air ,Marriage Blood, Hungry ,Bag ,Alcohol, Glycerin ,floating, dry ,Grass
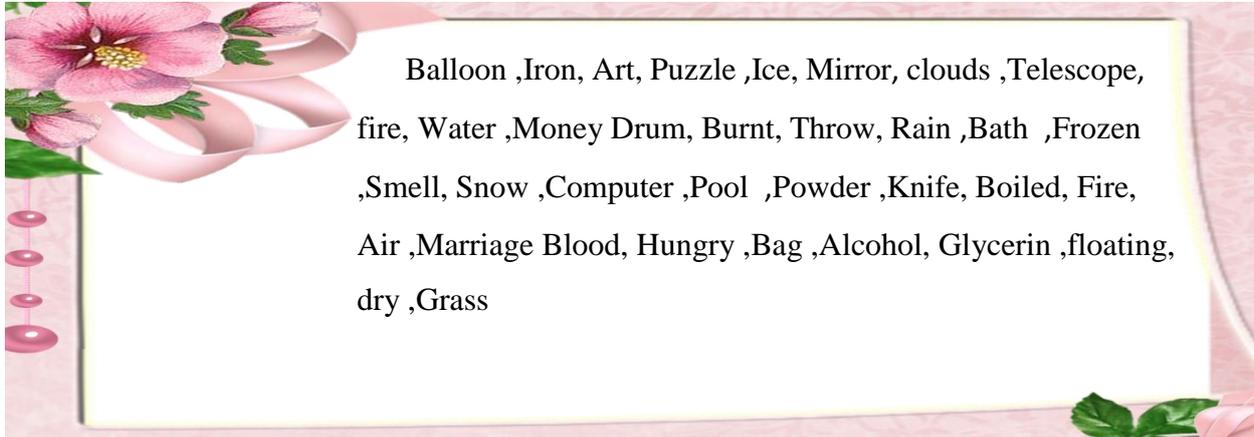
The 7th of February, was my unlucky day, I wake up early to prepare myself for visiting my friend who studies in the faculty of……,Firstly I went to take a…….., surprisingly, I found no …….in the tap , after that I went to prepare my breakfast, I put the milk on the…….. , and I entered the bread in the microwave, then I turned my ………..on to check my inbox, the first message I received was a picture of my friend in the swimming……….,the second message was an invitation for the…….. of our neighbor, and the last one was from merry asking me to bring her a…… medicament. While I was reading the messages, a ……. came from the kitchen, I run to see what happened, I found that the milk ………and the bread …….., so I opened the window to have some ……... After that i brought an apple and I started cutting them with a ………made from …….., but Oops! I injured my finger; so I hastened to put some healing …….. on it, then I cleared the ……….on the table and I ……… the apple.

Afterward I decided to get out ………, I went to my room to wear my clothes, and unfortunately I found my fish dead ……….on the aquarium because of the alcohol that falls in it. When I get out the door I remembered that I did not give my rabbit some …….. and I forgot to water the …….. flowers. The first thing I see when I went outdoor is the dark …….., after few steps, the ……. drops started falling, then the drops became like an ………, Oh! It is …….., and I have no enough ……… to buy an umbrella, because I want to buy a ……… , a ……… , ……… game and a ……………

Finally, I told myself I should go back to home otherwise will be ……., I entered to the home and I looked at the ……….whispering, what a bad day I had

Crossword Puzzle (1)
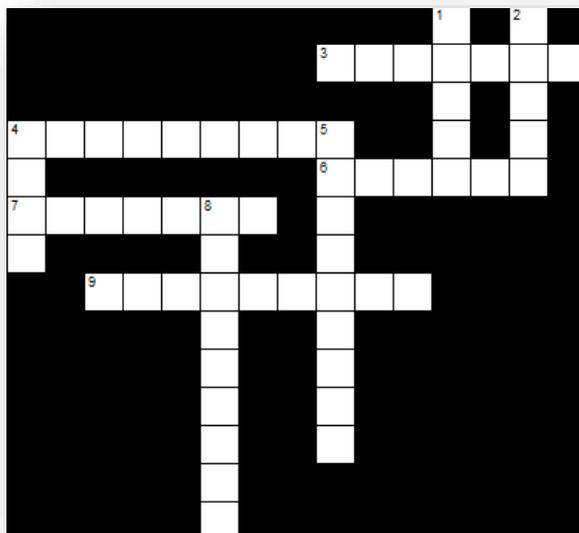
 Across:

3- A thin object usually rubber bag that becomes larger when it is filled with air or gas.

4- A device shaped like a long tube that you look through in order to see things that are far away.

6- A dry substance made up of very tiny pieces of something.

7- The state of having your weight spread equally so that you do not fall.

9- A person who is trained in a science and whose job involves doing scientific projects.

 Down:
1- A white or gray mass in the sky that is made of many very small drops of water
2- The ability or right to control people or things
8- Science that deals with the structure and properties of substances and with the changes that they go through.

4- A long, hollow object that is used especially to control the flow of a liquid or

5- An operation or procedure carried out under controlled conditions in order to discover an unknown effect or law, to test or establish a hypothesis, or to solve scientific problems.

Crossword Puzzle (2)
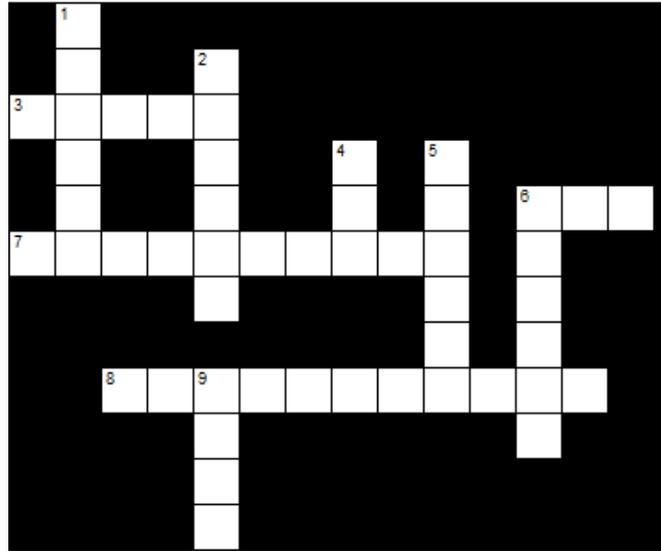
Across:

3- The difference between the direction of two lines or surfaces that come together , the space or shape formed when two lines or surfaces meet each other.

6- To move something (such as your hand or an object) back and forth along the surface of (something) while pressing , to move (two things) back and forth against each other.

7- An idea or theory that is not proven but that leads to further study or discussion.

8- An instrument used for measuring temperature.

Down:

1- Suffering because of a lack of food. Greatly affected by hunger, feeling a strong desire or need to eat.

2- The distance from one end of something to the other end : a measurement of how long something is.

4- A substance (such as oxygen or hydrogen) that is like air and has no fixed shape

5- A body tissue that can contract and, physical strength

6- An action or movement of the body that happens automatically as a reaction to something , the natural ability to react quickly.

9- The line or part where an object or area begins or ends.

Crossword Puzzle (3)
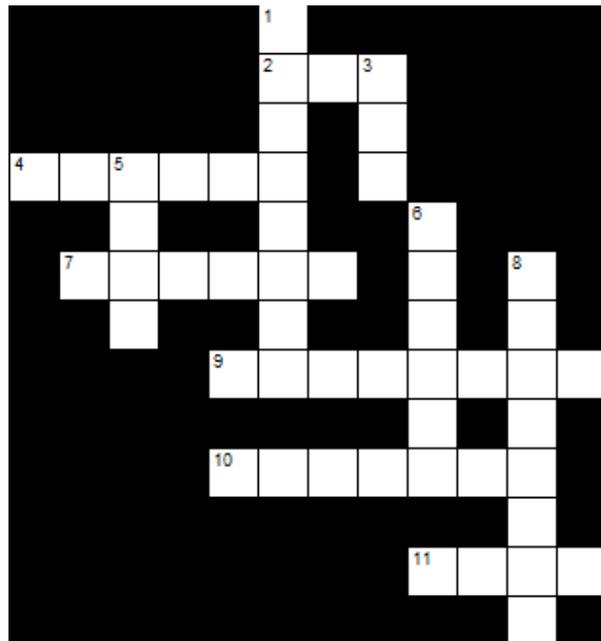
Across :

2- To place something in an open area where there is a lot of moving air to make it cool, dry, or clean.

4-A tiny and very light ball of air inside a thin layer of soap.

7-Neither solid nor gaseous.

9-A very small particle that has a negative charge of electricity and travels around the nucleus of an atom.

10-A systematic enterprise that builds and organizes knowledge in the form of testable explanations and predictions about the universe.

11-The light and heat and especially the flame produced by burning.

Crossword Puzzle (4)
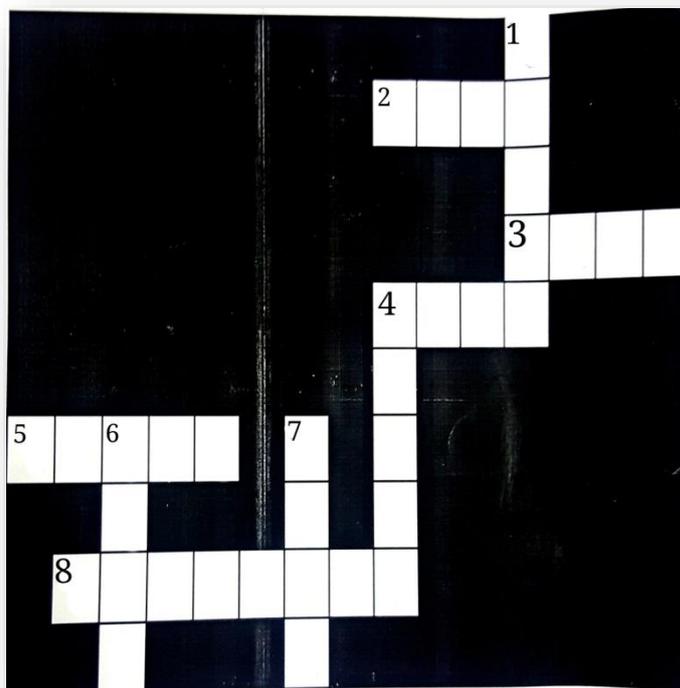
Across:

2- A means of producing an enlarged image (as in a camera)

3- A clear curved piece of glass or plastic that is used in eyeglass, cameras, telescopes, etc ,to make things look clearer, smaller, or bigger.

4- A small deep body of usually fresh water

5- A usually sharp blade attached to a handle that is used for cutting or as a weapon.

8- An automatic electronic machine that can store and process data.

Down:

1- The quality of a thing that you can sense with your nose.

4-The material that is used in form of thin sheets, it is used for writing or printing on, and wrapping things, etc.

6- A device that is heated and used for making cloth smooth.

7- An act of washing the body usually in a bathtub.

Crossword Puzzle (5)
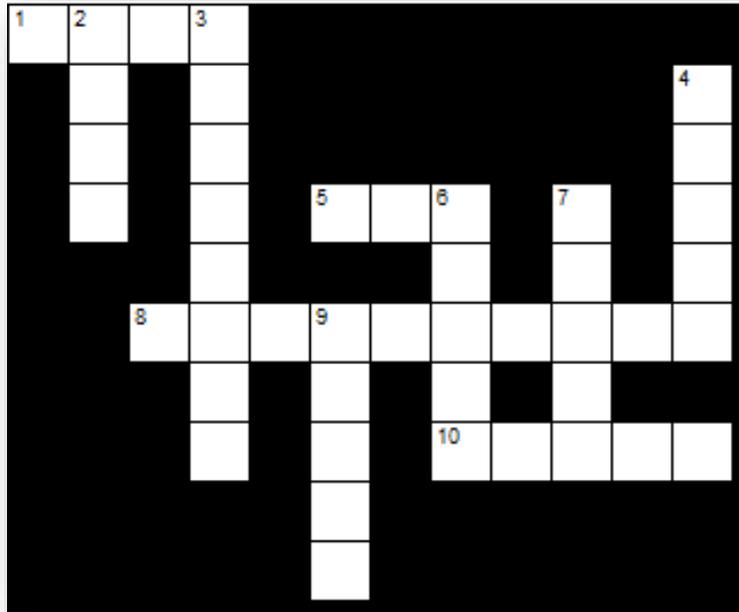
Across :

1- A percussion instrument consisting of a hollow shell or cylinder with a drumhead stretched over one or both ends that is beaten with the hands or with some implement (as a stick or wire brush).

5- A usually flexible container that maybe closed for holding, storing, or carrying something.

8-Sometimes a room or building with special equipment for doing scientific experiments and tests.

10-The natural state of rest during which your eyes are closed and you become unconscious.

Down:

2- Water falling in drops condensed from vapor in the atmosphere.

3- The relationship that exists between a husband and a wife.

4-Something (such as coins or bills) used as a way to pay for goods and services and to pay people for their work a person's wealth.

6- Plants that have narrow green leaves, that are eaten by cows, sheep, horses, etc., and that are commonly grown on lawns and in gardens.

7- An object that is shaped like a large ball with a map of the world on it, the earth , around object.

9-An angle not ending in a sharp point: measuring between 90 degrees and 180 degrees.

Crossword Puzzle (6)
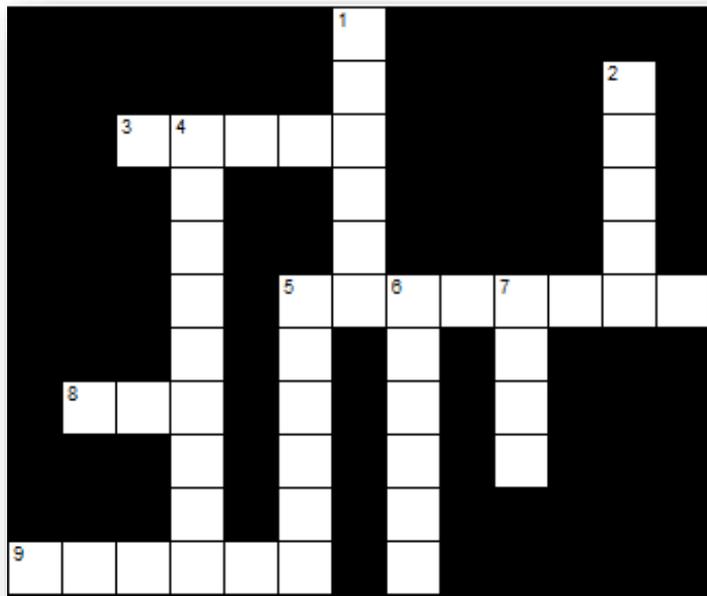
Across :

1- A person who give medical treatment to patients.

2- A substance in the gaseous state as distinguished from the liquid or solid state

4- An undertaking usually involving danger and unknown risks.

5- Something that perplexes, called also mystery.

6- A machine for converting any of various forms of energy into mechanical force and motion.

7- A usually white crystalline substance that condenses from a fluid phase as snow does , soft, white pieces of frozen water that fall to the ground from the sky in cold weather.

Down:

3- The use of means (as charms or spells) believed to have supernatural power over natural forces.

5-The weight or force that is produced when something presses or pushes against something else.

8- The conscious use of skill and creative imagination especially in the production of aesthetic objects the art of painting landscapes.

9-To become congealed into ice by cold.

Crossword Puzzle (7)
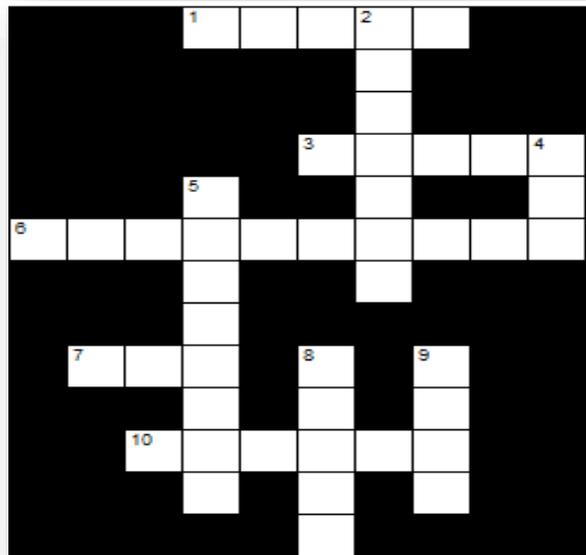
Across:

1- To rest on the surface of or be suspended in a fluid.

3- The earth and all the people and things on it.

6- The study of ideas about knowledge, truth, the nature, and meaning of life.

7- Frozen water.

10- A piece of glass that reflects images.

Down:

2- A colorless flammable liquid that can make a person drunk.

4- Having no or very little water or liquid.

5- A thick, sweet, clear liquid used in making medicines, food, soap, etc.

8- An act of causing something to move with a motion of the arm.

9- To produce a fire: to have a flame.

Crossword Puzzle (8)
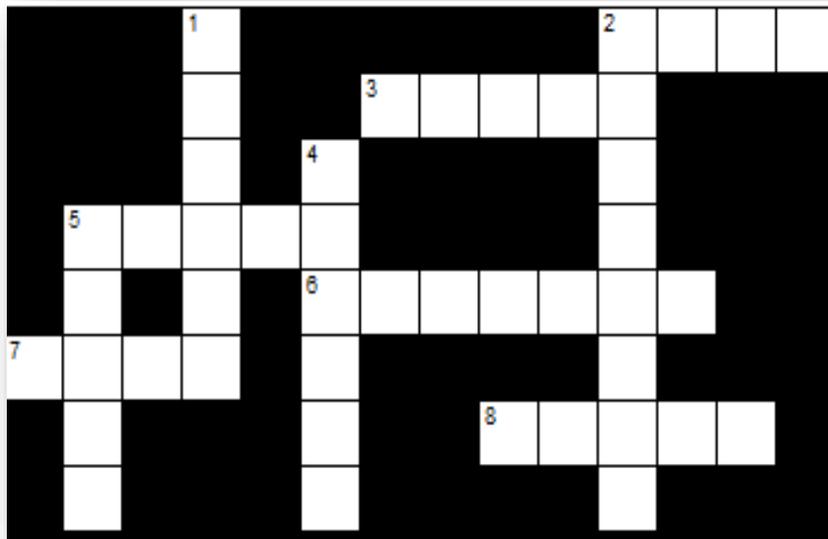
Across :

2- the light and heat and especially the flame produced by burning , an occurrence in which something burns.

3- the clear liquid that has no color, taste, or smell, that falls from clouds as rain, that forms streams, lakes, and seas, and that is used for drinking, washing, etc.

5- a beam that is supported freely in the center and has two pans of equal weight suspended from its ends , an instrument or machine for weighing.

6- the natural force that tends to cause physical things to move towards each other ,the force that causes things to fall towards the Earth.

7- the regular solid of six equal square sides .

8- the red liquid that flows through the bodies of people and animals.

Down:

1-a four-sided shape that is made up of four straight sides that are the same length and that has four right angles.

2- the act of rubbing one thing against another.

4- a unit for measuring temperature and the size of an angle.

5- the structure of bones that form the head and face of a person or animal.

Fill-In the Gaps

Complete the following text with the appropriate words:

Philosophy, Liquid, Ray, Gaseous, Scientist, Muscle,

Edge, Doctor, Skull, Engine, Laboratory, Obtuse,

Length, Reflex, Angle, Experiment, Hypothesis, Scale, Gravity, Fiction, Tube, Lens, Power, Chemistry, Materials, Proton, Electron, Science, Geometry, Pressure, Sharp, Adventures, World, Paper, Bag, Sleep, Thermometer, Cube, Square, Degree.
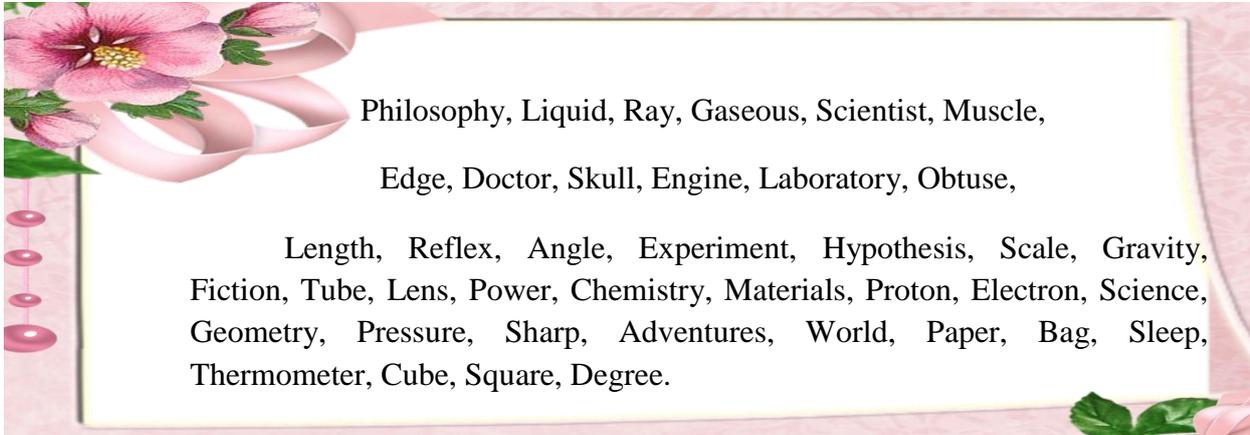
Hello! I'm Emily, I've just got my baccalaureate………,and I'm confused about which university branch should I select. In fact, I am fond of………because it is concerned of all the intellectual activities and explorations of the living……...

Firstly, my mother advised me to choose………, because it is concerned with the compositions of the solid, the……… and the……… substances, their properties and reactions. Also it includes the investigations of ………and……..Also, she proposed to me to select physics which studies………which is the fundamental force of attraction that all objects have for each other. As well as the studies of the different , including the power of ……..,………,………., and……….This branch also deals with the structures of the different……..

Similarly, my father suggested to me to choose…….., he said, if you select this field, you will encounter different calculations, including the…… and the width, you will study every…….of the geometric shapes including squares and……, and you will focus on the different degrees of…….. for instance, the…….. angle, and the ……… angle.

Moreover, my grandfather said if you want to have a mental…….., you should select biology, because you will enter the……… to prove the…….. through scientific ………. You will use different……… and tools like,……,……., ………..and …….. He smiled and said; you may be a popular………..

Unlikely, my older sister recommended selecting…………which consists of learning the reality, and existence. While my brother advised me to be a doctor so that I can treat patients who have different illnesses like, ………..diseases and………… diseases.

Consequently, I took a……….., and I wrote "chemistry will be my branch, and one day I will be the best chemist in the ………..", then I put it in my……… and I went to ……

الملخص

لطالما كانت دراسة اللغة الإنجليزية كلغة أجنبية أمر في غاية الصعوبة و بالأخص تعلم أكثر عدد ممكن لما تحتويه هذه اللغة من مفردات. إثراء الرصيد اللغوي بطريقة سريعة و فعالة بات مشكل يؤرق التلاميذ والأساتذة في كل الأطوار الدراسية . من بين الاستراتيجيات المقترحة هي إدماج الكلمات المتقاطعة كإستراتيجية تساعد على إثراء المعرفة اللغوية اللغة لدى التلاميذ. قمنا بإجراء دراسة تجريبيه على تلاميذ الصف الثاني في الطور الثانوي حيث قسمنا التلاميذ إلى فوجين فالفوج الأول و هو الفوج التجريبي الذي حظي بفرصة التعلم عن طريق تشفير الكلمات المتقاطعة أما الفوج الثاني و هو الفوج الضابط درس عن طريق المنهجية الاعتيادية المختارة من طرف الأستاذ و ذلك لهدف المقارنة ما بين الطريقتين و تقييم مدى فعالية منهجية الكلمات المتقاطعة على تحقيق اعلي الدرجات في توسيع صقل الرصيد اللغوي لدى التلاميذ. بعد العمليات الإحصائية التي قمنا بها عقب التجربة توصلنا إلى أن التلاميذ الذين خضعوا لتعلم المفردات اللغوية عن طريق الكلمات المتقاطعة حققوا نتائج تفوق تلك التي حققها تلاميذ الفوج الضابط وعن طريق الدلالات الإحصائية التي تثبت مصداقية النتائج المتحصل عليها نستنتج ان استخدام الكلمات المتقاطعة كوسيلة لإثراء المفردات اللغوية لدى التلاميذ أمر فعال و ناجح

Thank You....