Building Vocabulary Stock for EFL Learners through the Jigsaw II Puzzle Collaborative Technique
Case Study of First Year Pupils at Benzaoui Ahmad Lamine Middle School-Ain Beida, Oum El Bouaghi

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

By: Miss. Aldjia GOUASMIA

Supervisor: Mrs. Soraya BECHOUA

Examiner: Mrs. Khadidja ZAIDI

2015-2016
DEDICATION

In the Name of ALLAH, the Most Merciful, the Most Compassionate

This work is dedicated to:

My lovely parents whom I consider the source of happiness and success in my life, those who devoted their life and directed their efforts to make my educational dreams come true; their love always supports my spirit. May Allah bless them.

To my pretty sisters: Zineb, Chaima, Warda, and my little angel Anfal, who kept pushing me forward to complete this work; I am so grateful to them for their support.

To all my extended family.

To all my closest friends: Feryal, Hanan, Amira, Wassila, Sara, Maria, Rania, Radia, Asma, Imen, and Nesrin. I am thankful for the nice moments we spent together. I have to admit that without your encouragement, I would have never been able to accomplish this research project.

To everyone with whom I share love and respect.
ACKNOWLEDGEMENTS

First, I would like to thank Allah for giving me strength and courage to conduct this research.

Second, I would like to express my infinite and sincere gratitude to my supervisor, Mrs. Soraya BECHOUA, for her continuous support, guidance, valuable advice and suggestions.

My sincere thanks would go to “Mrs. Khadidja ZAIDI” for accepting to be the examiner of my dissertation.

A special appreciation goes to pupils who seriously participated in this research. I should thank Mr. Boufar, the school headmaster and Mrs. Habiba AISSANI for their cooperation and help.

My deep gratitude goes to all the teachers in the Department of English at the University of Oum El Bouaghi, who taught me throughout the five years I have spent in this department.
ABSTRACT

Vocabulary learning by far plays a crucial role for many students as it is the basis of their learning of English. However, it can be a challenging task because it is often perceived as a dull, boring and difficult. Interestingly, the present study is intended to investigate the effect of using collaborative techniques namely jigsaw П puzzle on building the vocabulary stock of middle school EFL pupils. To achieve this goal, sixty four (64) pupils of first year level were chosen from the population of Benzaoui Ahmad Lamine Middle School in Ain Beida, Oum El Bouaghi as participants of this study. The selected sample was divided into two groups, an experimental group and a control one. For the purpose of manipulating the effect of the independent variable “using collaborative technique, the jigsaw П puzzle” on the dependent variable “building new vocabulary”, a quasi experimental design was applied. Firstly, a pre-test, comprising three different activities, was administered to both groups in order to determine the pupils’ background knowledge of vocabulary. Then each group has received treatment as the experiment procedure requires but with different teaching techniques, i.e., the experimental group was taught vocabulary using jigsaw П puzzle technique applied in three vocabulary lessons, whereas the control group, who received three vocabulary session, was taught the same thing through traditional instruction given by the teacher. Then, a post-test was addressed after the treatment to both groups; it was similar to the pre-test. After collecting and analyzing the data depending on the paired-sample t-test and the independent one, the findings revealed that jigsaw П puzzle was effective in the teaching of new vocabulary, regarding the pupils’ better performance in the post-test, i.e., after treatment. In addition to that, we realized that there was a significant difference between both groups because the control group has not recorded improvement as the experimental group has. In this case, the significance of the results not only confirmed the correlation between variables, but it did validate the alternative hypothesis and reject the null one. So, it has been concluded that collaborative techniques mainly, jigsaw П puzzle enhance the building of new vocabulary because it increases their memorization, acquisition, and comprehension.

Key words: collaborative techniques, jigsaw П puzzle, teaching new vocabulary, middle school EFL pupils.
LIST OF ABBREVIATIONS

- **CL**: Collaborative Learning
- **CLL**: Cooperative Language Learning
- **CLM**: Collaborative Learning Method
- **CPSM**: Collaborative Problem Solving Model
- **EFL**: English as a Foreign Language
- **ESL**: English as a Second Language
- **E.g.**: Example
- **EGP**: English for General Purposes
- **ELT**: English Language Teaching
- **ESP**: English for Specific Purposes
- **FL**: Foreign Language
- **GI**: Group Investigation
- **I.e.**: It means
- **L1**: First Language
- **L2**: Second Language
- **STAD**: Student Team Achievement Devision
- **SL**: Second Language
- **TPR**: Total Physical Response
- **>**: More than
- **<**: Less than
- **%**: Percentage
LIST OF TABLES

Table 1: The Interpretation of the Schematic Representation of the Research Design 36

Table 2: The Schedule of the Experimental Group Sessions 37

Table 3: The Division of Scores on the Total Activities 40

Table 4: The Control Group Scores’ Frequency (on each Activity) on the Pre-test 41

Table 5: The Experimental Group Scores’ Frequency on the Pre-test 43

Table 6: The Frequency of the Experimental and Control Groups’ Scores on the Pre and Post-test 45

Table 7: The Frequency of the Experimental and Control Groups’ Scores on the Pre-test 47

Table 8: Control Group’s Pre-test, Post-test and Difference Scores 49

Table 9: Experimental Group pre-test, post-test and difference scores 50

Table 10: The Experimental Group’s Square Difference Scores on the Pre and Post tests 55

Table 11: Square Post-test Scores of Both Groups on the Post-test 58
<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1:</td>
<td>The Components of Knowing a Word</td>
<td>8</td>
</tr>
<tr>
<td>Figure 2:</td>
<td>The Schematic Representation of the Research Design</td>
<td>35</td>
</tr>
<tr>
<td>Figure 3:</td>
<td>The Division of Scores on the Total Activities</td>
<td>40</td>
</tr>
<tr>
<td>Figure 4:</td>
<td>The Control Group Scores’ Frequency on the Pre-test</td>
<td>42</td>
</tr>
<tr>
<td>Figure 5:</td>
<td>The Frequency of the Experimental Group Scores on the Pre-test</td>
<td>44</td>
</tr>
<tr>
<td>Figure 6:</td>
<td>The Frequency of the Experimental and Control Groups’ Scores on Pre and Post-tests</td>
<td>46</td>
</tr>
<tr>
<td>Figure 7:</td>
<td>The Frequency of the Experimental and Control Groups’ Scores on the Pre-test</td>
<td>48</td>
</tr>
<tr>
<td>Figure 8:</td>
<td>The Control Group’s Scores on the Pre-test and Post-test</td>
<td>50</td>
</tr>
<tr>
<td>Figure 9:</td>
<td>The Experimental Group’s Pre-test, Post-test, and Difference Scores</td>
<td>52</td>
</tr>
</tbody>
</table>
LIST OF CONTENTS

Dedication I
Acknowledgements II
Abstract III
List of Abbreviations IV
List of Tables V
List of Figures VI

INTRODUCTION 1
Statement of the Problem 2
Aim of the Study 2
Research Questions and Hypothesis 2
Means of the Research 3
Structure of the Study 4

PART ONE: THEORITICAL BACKGROUND 5
CHAPTER ONE: VOCABULARY LEARNING 5
Introduction 6
1.1 What is a Word? 6
    1.1.1 Aspects of Knowing a Word 6
    1.1.1.1 Form 6
    1.1.1.2 Meaning 7
    1.1.1.3 Use 7
1.2 What is vocabulary? 9
1.3 Description of English vocabulary 9
1.4 Types of vocabulary 10
    1.4.1 Receptive (Active) vocabulary 10
    1.4.2 Productive (passive) vocabulary 10
1.5 Vocabulary teaching and Learning 11
    1.5.1 Vocabulary teaching 11
        1.5.1.1 Techniques for teaching vocabulary 12
            1.5.1.1.1 Visual techniques 12
            1.5.1.1.2 Verbal techniques 13
                1.5.1.1.2.1 Definitions 13
                1.5.1.1.2.2 Synonyms 14
General Discussion 60

PEDAGOGICAL IMPLICATIONS 61

LIMITATIONS OF THE STUDY 62

GENERAL CONCLUSION 62

LIST OF REFERENCES 64

APPENDICES

RÉSUMÉ
Introduction

Throughout our experience as EFL learners, it has been noticed that the process of vocabulary learning is more complex than it is thought to be, since vocabulary acquisition concerns how much learners expand the number of words they understand when learning a new language. In so many cases, students scarcely find the appropriate learning situation or the suitable technique which allows them to practise the vocabulary acquisition of the foreign language in order to improve their English. Accordingly, vocabulary has been viewed as an important linguistic aspect that EFL learners need to develop because the acquisition of new terms has always been a means of practising, sustaining, and reinforcing other skills. For these reasons, a number of contemporary studies and researches have theoretically conceived methods and strategies to make it easier for EFL learners to acquire a maximum of lexical items. In simpler terms, educators have been urged to adopt various ways as to make their students acquire new vocabulary items. This has been made possible through the use of a variety of collaborative techniques, some of which revealed to be efficient techniques for the acquisition or the building of vocabulary stock: the jigsaw II puzzle, among others, has been considered as an effective teaching and learning collaborative strategy to enhance students’ ability to build a stock of new vocabulary items in a foreign language.

Statement of the Problem

In recent years, the English language has played an increasingly important role as a medium of communication between people. Students generally encounter problems or difficulties in English learning, specifically beginners, who generally see unknown words as the first problem to overcome. This may be because vocabulary has been recognised as crucial to language use in which insufficient vocabulary knowledge of the learners led to difficulties in second and even foreign language learning. Additionally, mastering vocabulary is one of the most challenging tasks that beginners confront while acquiring another language, since they have not sufficient background and knowledge about the target language as they learn it for the first time. Hence, learners feel unmotivated to build a new vocabulary stock, partly because of the boring activities. In this case of language learning, beginners need to be instructed via new strategies which can help them acquire new lexical items in more interesting and motivating ways.

On this basis, a variety of collaborative learning strategies have been followed to maximize the effectiveness of students’ English language learning. Among these collaborative learning strategies, the jigsaw II puzzle has been suggested as a significant
technique which was originally developed by Aronson (1978). It has been adopted by a number of teachers at all levels in a variety of ways. Basically, it is a type of collaborative learning in which each member of a group has a piece of information needed to complete a group work task. Therefore, it would be a significant strategy for learners to cooperate in the class within an intimate atmosphere. One of the primary advantages of the jigsaw Π strategy is that it tends to eliminate competition in the classroom and increase collaboration among the students. According to Colosi and Zales (1998), the jigsaw Π is an effective way of engaging students with both course material and each other. The current study aims at investigating the effect of jigsaw Π technique on the vocabulary acquisition for EFL learners, particularly, first year middle school pupils.

**Aim of the Study**

Since the classroom is the first place where learners have an opportunity to use the target language, the methodology followed by the teacher has a great influence on learners’ vocabulary development. The aim of the present study is:

To investigate the effectiveness of the jigsaw Π puzzle in building EFL learners vocabulary stock.

**Research Questions**

Recent research studies have focused largely on the effect of jigsaw Π puzzle as a learning strategy on students’ better interaction and engagement in EFL classes. The present work aims at answering the following questions:

- Does the jigsaw Π puzzle technique have an impact on EFL pupils’ vocabulary acquisition?
- To what extent is the jigsaw Π puzzle technique effective in building EFL pupils’ vocabulary stock?
- Is there a significant difference in vocabulary learning between students who are taught vocabulary through jigsaw Π puzzle and those who did through the traditional method?

**Research Hypotheses**

On the basis of what has been mentioned before, it is hypothesized that:

**H1**: Implementing the jigsaw Π puzzle as a collaborative strategy would enhance EFL middle school pupils’ vocabulary stock.

**Ho**: Implementing the jigsaw Π puzzle as a collaborative strategy may have no effect on enhancing EFL middle school pupils’ vocabulary stock.

**Research Methodology**
Participants

The participants of this study belong to a population of 160 of first year EFL middle school pupils at "Benzaoui Ahmed Lamine" in Ain Beida, Oum El bouaghi. These pupils were divided into four groups containing 32 pupils each. Sixty four (64) of them were randomly chosen to be the sample of the study for the reason that:

- They are beginners, so they need to learn English vocabulary through interesting activities.
- They have the ability to acquire new lexical items thanks to their fresh memories.

Instrumentations

As for the instruments, a quasi-experimental study has been conducted to obtain sufficient data. The nature of our work makes it necessary to run an experimental design to determine the effect of manipulating the independent variable, using jigsaw П puzzle, on the dependent variable which is building vocabulary stock. The time the experiment would take is approximate three sessions (3) in three weeks (from the last week of February to the end of March). The sample was divided into 2 groups. The first one is the control group and the second is the experimental one. At the beginning, a pre-test was administered to both groups to measure the pupils’ level in terms of vocabulary. The test included three different vocabulary tasks. First, they were asked to fill in the gaps with the appropriate words from the box. These words are belonging to animals’ vocabulary (wild and domestic) on which the treatment has been focused. Second, pupils were asked to work on classifying a group of animals into two categories: wild and domestic. Finally, they were invited to cross the odd word. In this task, pupils were provided by series of animals and each series contains an animal that does not serve the group, so they have to omit it. Then, a treatment was carried out with the experimental group who received about twenty items through the jigsaw П strategy. The control group received instruction through traditional method. After the experiment has been completed, a post-test was administered to both groups which included the same evaluation as the pre-test to determine whether the jigsaw П puzzle has an effect on the experimental group vocabulary acquisition.

Structure of the Study

The present study is divided into three chapters. The first two chapters are theoretical, whereas the third one is practical. Chapter one deals with vocabulary; starting with knowing what is a word and its aspects, then moving to vocabulary definition, description of English vocabulary, its types, the various techniques for teaching and learning vocabulary, as well as its importance. Chapter two is devoted to collaborative learning and
jigsaw Π puzzle. At the beginning, the chapter introduces definition of collaborative learning, its characteristics, types, the difference between collaborative, cooperative and group work, its instructional format, the way of creating an effective collaborative learning, how to evaluate students’ group work, teaching and learning vocabulary through collaboration, limitations of collaborative learning, then a clear picture about jigsaw Π puzzle strategy; its definition, its implementation in the EFL classes, and its importance. The third chapter is concerned with the research methodology and findings. The research methodology contains a detailed description of the experiment, population, data-gathering and tools. The analysis and interpretations of the pre-test as well as post-test results are followed by a summary and discussion of findings.
PART ONE: THEORETICAL BACKGROUND
CHAPTER ONE: VOCABULARY LEARNING

Introduction

1.2 What is a Word?
   1.1.1 Aspects of Knowing a Word
      1.1.1.1 Form
      1.1.1.2 Meaning
      1.1.1.3 Use

1.2 What is vocabulary?

1.3 Description of English vocabulary

1.4 Types of vocabulary
   1.4.1 Receptive (Active) vocabulary
   1.4.2 Productive (passive) vocabulary

1.5 Vocabulary teaching and Learning
   1.5.1 Vocabulary teaching
      1.5.1.1 Techniques for teaching vocabulary
         1.5.1.1.1 Visual techniques
         1.5.1.1.2 Verbal techniques
            1.5.1.1.2.1 Definitions
            1.5.1.1.2.2 Synonyms
            1.5.1.1.2.3 Antonyms
         1.5.1.1.3 Translation technique
      1.5.2 Vocabulary learning
         1.5.2.1 Learning strategies
            1.5.2.1.1 Intentional vocabulary learning strategies
            1.5.2.1.2 Incidental vocabulary learning strategies

1.6 The importance of vocabulary in EFL classes

Conclusion
Introduction

One of the most important responsibilities of every teacher is to help students develop a strong useful vocabulary. This area of research is considered as a vital component in any language course. No matter how well the student learns grammar, no matter how successfully the sounds of L2 are mastered, without words to express a wide range of meanings, communication in L2 just cannot happen in any meaningful way. Moreover, vocabulary gives the learners an opportunity to express themselves clearly and appropriately in a wide range of situations.

Importantly, this chapter sheds light on vocabulary development, via providing points about what is a word and its aspects, then definitions of the vocabulary concept and forming a basic notion about it. The chapter, also, introduces different types of the FL vocabulary, the various techniques for teaching and learning vocabulary, and finally the importance of vocabulary will be discussed at the end of this chapter.

1.1 What is a word?

Bauer and Laurie (1983) claimed that a word is the smallest element that may be uttered in isolation with semantic or pragmatic content with literal or practical meaning. Words may consist of a single morpheme (e.g. red), or several (e.g. redness), and they are separated by spaces in the written language. A complex word will typically include a root and one or more affixes or more than one root in a compound (e.g. black-board). Words, also, can be put together to build larger elements of language, such as phrases, clauses, and sentences. Each word belongs to one or more of eight different word classes: noun (apple), adjectives (small), pronouns (they), verbs (to write), adverbs (here), prepositions (before), conjunctions (while) and determiner (the).

1.1.1 Aspects of Knowing a Word

The concept of a word can be defined in various ways, but three significant aspects teachers need to be aware of and focus on. These aspects are: form, meaning, and use.

1.1.1.1 Form

According to Nation (2001), the form of a word involves its pronunciation (spoken form), spelling (written form), and any word parts that make up this particular item, such as a prefix, root, and suffix. An example for word parts can be seen with the word ‘uncommunicative’ where the prefix ‘un’ means negative or opposite, ‘communicate’ is the root word, and ‘ive’ is a suffix denoting that someone or something is able to do something. Here, they all go together to refer to someone or something that is not able to
communicate, hence ‘uncommunicative’. That is the reason behind learning the rules that enable students to build up different forms of a word.

1.1.1.2 Meaning

Ur (2000) stated “the meaning of a word is primarily what it refers to in the real world, its denotation”. That is to say, the concept and what items it refers to, and the association that comes to mind when people think about a specific word or expression. It is not an easy task for learners to find the precise meaning of words because some words do not have just one meaning, i.e., context will help learners to do so. In addition, the dictionary meaning is also needed when knowing a word because the meaning of a word differs from one language to another.

1.1.1.3 Use

According to Nation notes, this aspect involves the grammatical functions of the word or phrase, collocations that normally go with it, and finally any constraints on its use, in terms of frequency, level, and so forth.

The following is a summary of Nation’s view (2001) of what knowing a vocabulary item includes:

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Component</th>
<th>Receptive knowledge</th>
<th>Productive knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>spoken</td>
<td>What does the word sound like?</td>
<td>How is the word pronounced?</td>
</tr>
<tr>
<td></td>
<td>written</td>
<td>What does the word look like?</td>
<td>How is the word written and spelled?</td>
</tr>
<tr>
<td></td>
<td>word parts</td>
<td>What parts are recognizable in this word?</td>
<td>What word parts are needed to express the meaning?</td>
</tr>
<tr>
<td>Meaning</td>
<td>form and meaning</td>
<td>What meaning does this word form signal?</td>
<td>What word form can be used to express this meaning?</td>
</tr>
<tr>
<td>Concept and Referents</td>
<td>What is included in this concept?</td>
<td>What items can the concept refer to?</td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------------------</td>
<td>--------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Associations</td>
<td>What other words does this make people think of?</td>
<td>What other words could people use instead of this one?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Use</th>
<th>Grammatical Function</th>
<th>In what patterns does the word occur?</th>
<th>In what patterns must people use this word?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Collocations</td>
<td>What words or types of words occur with this one?</td>
<td>What words or types of word must people use with this one?</td>
</tr>
<tr>
<td></td>
<td>Constraints on use (register, frequency...)</td>
<td>Where, when, and how often would people expect to meet this word?</td>
<td>Where, when, and how often can people use this word?</td>
</tr>
</tbody>
</table>

**Figure1. The Components of Knowing a Word**

**1.2 What is vocabulary?**

The word vocabulary is defined in the *oxford dictionary* (2007) as the total number of words that make up a language. Moreover, *Hutch and Brown* (1995) considered vocabulary as a list or set of words of a particular language that individual speakers of language might use. *Heibert and Kamil* (2005) believed that vocabulary is the knowledge...
of words and word meanings, they propose a clear definition that illustrates vocabulary by saying that “vocabulary knowledge is knowledge; the knowledge of a word not only implies a definition, but also implies how that word fits into world” (p.21). They emphasized that learners should acquire the knowledge and the sense of words which direct them to appropriately understand how these words can be used effectively in the real-world situation.

In fact, learning vocabulary is a fundamental area in English or other foreign languages (FLs) since learners learn vocabulary first before they master more complex structures. In this respect, Richard and Renandya (2002) suggested that vocabulary is a very important means to express our thoughts and feelings, either in spoken or written forms. Indeed, neither literature nor languages exist without vocabulary.

Furthermore, Lehr, Osborn, and Heibert (2004) claimed that vocabulary refers to the knowledge of words and their meanings that the learners can acquire from different forms such as oral, printed, receptive and productive.

Vocabulary is knowledge of words and word meanings. However, vocabulary is more complex than this definition suggests. First, words come in two forms: oral and printed. Oral vocabulary includes those words that we recognise and use in listening and speaking. Printed vocabulary includes those words that we recognise and use in reading and writing. Second, word knowledge also comes in two forms: receptive and productive. Receptive vocabulary includes words that we recognise when we hear or see them. Productive vocabulary includes words that we use when we speak or write. Receptive vocabulary is typically larger than productive vocabulary, and may include many words to which we assign some meaning, even if we do not know their full definitions and collocations or ever use them ourselves as we speak and write. (p.5)

To summarize, vocabulary is a general term used to refer to students’ understanding of words, either in printed or oral form, acquired through frequent practice and time. Vocabulary is also a list of words used by people in different situations.

1.3 Description of English Vocabulary

For years, the popular methodology for learning a second or FL was to focus on grammar and sentences first and then on vocabulary. Recently, however, there has been a shift toward recognition that learning vocabulary first leads to more success. What we have seen so far is that vocabulary in any language is a complex issue. Yet, vocabulary is much more than just single words.
Recent vocabulary studies draw on an understanding of lexis, the Greek for ‘word’, which in English “refers to all the words in a language, the entire vocabulary of a language” (Barcroft, Sunderman, & Schmitt, 2001, p.571). So a significant portion of spoken or written English language usage is central to English vocabulary learning and therefore worth teachers’ attention as they teach vocabulary (Lewis, 1993).

On this basis, English vocabulary can be defined as the words of English language including single items and phrases or chunks of several words which convey a particular meaning, the way individual words do. In other words, English vocabulary not just addresses single lexical items and words with specific meanings, but also includes lexical phrases or chunks. Therefore, one simple way to look at vocabulary for foreign language learners is single words, set phrases, variable phrases, phrasal verbs, and idioms.

1.4 Types of Vocabulary

Educational research shows that vocabulary strongly relates to reading comprehension, writing performance, listening, and speaking. Vocabulary as a key component in oral and printed language is mainly taken the form of receptive and productive. According to Nation (1990, p. 29), vocabulary can be divided into two types:

1.4.1 Receptive / Passive Vocabulary

Receptive vocabulary refers to all the words that a person can comprehend and respond to, even if the person cannot produce those words. It is considered to be also an important component of the speaker’s mental lexicon. In other words, receptive vocabulary knowledge is related to the ability to recognize the word when it is heard, i.e., what is the sound like?, or what does it seem like?

It is also referred to as passive vocabulary. Aeborsold and Field (1977) defined it as the language items that can be recognized and understood in the context of reading or listening. In other literature, it is also viewed as ‘comprehension’ which consists of the words comprehended by the students when they read and listen.

1.4.2 Productive / Active vocabulary

Productive vocabulary is usually associated with speaking and writing. It is related to the ability to pronounce, write, and spell the word, then the ability to use it in a grammatical pattern along with the word that usually collocates with it. Nation (1990, p. 25) claims that “…productive vocabulary is wanted to express a meaning through speaking or writing and retrieving and producing the appropriate spoken or written word form”. It is also labelled by Aeborsold and Field (1977) as active vocabulary. It refers to items the student can use correctly in speaking or writing.
In fact, productive vocabulary is more difficult to put into practice because the students are expected to be familiar with how to pronounce it well, and to use the grammar of the target language appropriately. They are also hoped to be familiar with collocation and realize the connotation meaning of words. Therefore, it is often used in both the speaking and the writing skills.

1.5 Vocabulary teaching and learning

Vocabulary is one crucial aspect in learning a SL/FL since words are the main tool of conveying or receiving messages. The communicative approach brought different ideas and gave vocabulary its real value. It gave a great importance to teaching and learning vocabulary in language teaching. Richard and Renandya (2002) claimed that in the past, vocabulary teaching and learning were often given little priority in second language programs, but recently there has been a high interest in the nature of vocabulary and its role in teaching and learning.

1.5.1 Vocabulary teaching

In teaching, second or foreign language teachers give much importance to vocabulary. Essentially, teachers focus on teaching vocabulary as a basic material in language that permits the students learn new words to express their ideas and thoughts when communicating. There has been an increased focus on teaching vocabulary recently, partly as a result of “the development of new approaches to language teaching, which are much more word-centred” (Thornbury, 2004, p.5).

Freeman (2000), also, believed that teachers must follow certain principles when teaching vocabulary. These principles should be followed and respected to build strong vocabulary for teaching. Some of these principles are the following:

- Clear and simple explanations, without giving complicated definitions.
- Make a connection i.e., relate the previous knowledge with the present knowledge.
- Using the blackboard as a teaching aid, with of course demonstration or oral presentation.

It is important to know that if teachers use words like synonyms, opposites, or members of the same lexical set, students will be confused and they may lose previous knowledge about the given word.

1.5.1.1 Techniques for Vocabulary Teaching
Teaching vocabulary is not an easy task. Teachers need some aids especially while introducing new items, either by themselves, by texts, or other materials they work with. Various techniques and activities are aimed directly at teaching vocabulary, which is usually put into sets of somehow related words often by topic or meaning (Allen, 1983).

McCarthy (1992) suggests that before presenting new language, pre-teaching activities might be beneficial “to activate existing knowledge to make the encounter with new words more meaningful” (p.108). Pre-teaching activities often arouse students’ attention and desire to explore a particular topic or subject in greater detail.

1.5.1.1.1 Visual Techniques

It is necessary to use visual techniques as a teaching strategy in the classroom. In foreign or second language classroom, using visual techniques can help students learn vocabulary and strengthen what they have learned. Gairns and Redman (1986) state that “they are extensively used for conveying meaning, and are particularly useful for teaching concrete items of vocabulary such as food and furniture, and certain areas of vocabulary such as places, professions, description of people, actions, and activities” (p.73).

Furthermore, there are many possibilities how to explain or illustrate the meaning of the words. Primarily, it is essential to mention techniques typical for ‘Direct Method’ as Thornbury (2004) specifies them “using real objects or pictures or mime” (p.78). Thornbury continues that these tools are especially appropriate for elementary levels where many concrete objects are taught. Such types of presentation are usually completed with the use of Total Physical Response, which is a technique developed by Asher (1969) where the teacher gives commands and students perform the actions. According to Asher (1969), in TPR technique, the intention is to replicate the experience of learning one’s mother tongue.

Moreover, Richards and Rodgers (2001) regard pictures as one of the most important visual elements in the lesson. Pictures are considered as important visual tools that help much the visual learners to increase their understanding of the words. Finally, mimes and gestures can involve all the learners to learn vocabulary. However, not all vocabulary can be presented in this way. According to Doff (1988), vocabulary should only be presented visually if it can be done quickly, easily and clearly. In fact, for suitable vocabulary, visual techniques are an effective strategy which is direct, interesting and facilitates the process of teaching vocabulary.

1.5.1.1.2 Verbal technique
Verbal techniques are a very useful means for teaching vocabulary. According to Gairns and Redman (1986), these techniques work most when an item becomes more abstract; therefore, in order to make sure that the learners have understood, teachers make use of more than one situation or contrast to check whether the concept has been grasped or not.

In addition to that, verbal techniques are teacher-centred, in which teachers can explain vocabulary items through definitions or synonyms and opposites (Campillo, 1995, p. 45-46).

1.5.1.1.2.1 Definitions

A definition is any group of words or symbols designed to explain the meaning of some other word or symbol. Sample sentences complement the definition because they show how the new word is used. According to Gairns and Redman (1986), a definition is included as one of the easiest verbal techniques in which the English teachers are expected to introduce a word in English through the use of other word in the same language. Therefore, teachers use definition sentences as successful tools for teaching new vocabulary items, because definitions enable students to have a common understanding of a word or subject; they also argue that definitions allow teachers to guide their students to all be on the same page when discussing or reading about an issue.

1.5.1.1.2.2 Synonyms

Synonyms are words that have the same or very similar meaning. Synonyms are used by teachers especially with beginners or with low level student because the length and the explanation of the teachers should be restricted.

A synonym may be used to help the students to understand the different shades of meaning, if the synonym is better known than the word being taught. Gairns and Redman (1986) say that synonyms help to enrich the students’ vocabulary and provide alternative words instantly. These can be effective since they build on words and phrases that students already recognize. However, the teacher needs to highlight the fact that ‘true’ synonyms are relatively rare and the answers will often be ‘near’ synonyms. Students could make crosswords, word snakes or other puzzles for each other using these synonyms.

1.5.1.1.2.3 Antonyms

Antonyms are words that have the opposite meanings. They are important in teaching new vocabulary items, because learners are able to use to build their vocabulary stock. Furthermore, antonyms have a significant role in several fields of study, such as linguistics, psychology, literature, psycholinguistics, and language acquisition of beginners.
(James, 2004). They are, also, an essential part of the daily communication in different circumstances. James (2004) states that antonym enhances and strengthens the expressive character of political and social vocabulary to become more diverse, in its structure. In other words, antonyms are used to differentiate meanings of sentences and their structures and are a source of new means of communication. Even though they are linguistically explained, every second language learner of English language must be aware when using them and also very attentive when trying to get their meaning. Importance of antonym observed in the process of mother language acquisition as well as of the second language, and in this specific case, that of the English language.

Taking into account the points of techniques presented earlier, it seems that there are several similarities of program for teaching vocabulary development skills to be organized by Brown (2001, p.367). He offers some techniques for teaching vocabulary skills, among others are:

1. Determine the goal of teaching, such as:
   - To improve the reading vocabulary skills of ESL students.
   - To teach ESL students word-building skills.
   - To teach ESL students to guess word meanings from context clues.

2. Get student to make word building; that is derived from suffixes, prefixes, and roots.

3. Definition clues; which comprises the parentheses, footnotes, synonyms, and antonyms.

4. Inference clues; these clues have three types; such as examples, summaries, and experiences.

On the basis of what is mentioned before, it can be said that the English teachers, before applying those techniques, should know the level of students’ competency and the goal of teaching in advance, particularly on teaching vocabulary. Also, they should be able to lead the students to learn a new word or some words clearly. In relation to the employment of verbal techniques, of course, the English teachers have to regard the length of time and the English textbooks used.

1.5.1.1.3 Translation Technique

This technique appeared first in the grammar translation method, when learning was just a matter of translation from the target language into the mother tongue. Before, the teacher’s job was to select the most needed vocabulary items with their meanings in the native language (Coaday & Huck, 1997, p.5). The translated words are given to students to
learn them by heart. However, translation from the target language to the native one should be kept under control of the teacher, for example, simple explanation using the native language or synonyms. Harmer (1993) explains that, in the translation technique, the teacher gives the translation of a given word into the students’ mother tongue. Translation is the quickest way of demonstrating the meaning of vocabulary items. However, it can discourage learners from interacting with words they are learning.

Of course, it is also possible in some cases to use a combination of the techniques mentioned before.

1.5.2 Vocabulary learning

Learning vocabulary is a very important part of learning a language. The process of learning SL/FL cannot take place without learning vocabulary. This process helps students to achieve their needs and develop their abilities for communication. One important finding of research suggests that vocabulary learning never stops (Smith, 1998).

Furthermore, learning vocabulary is fundamentally about learning how to perform the language skills such as reading, writing, listening, and speaking easily. Nation (1994) states that:

Vocabulary is not an end itself. A rich vocabulary makes the skills of listening, speaking, reading, and writing easier to perform. Learners’ growth in vocabulary must be accompanied by opportunities to become fluent with that Vocabulary. This fluency can be partly achieved through activities that lead to the establishment and enrichment of vocabulary knowledge, but the essential element in developing fluency lies in the opportunity for meaningful use of vocabulary in tasks with a low cognitive load. (p.5111)

1.5.2.1 Vocabulary learning strategies

Schmitt (1997) provides a useful overview of the rise in importance of strategy use in second language learning, noting that it grew out of an interest in the learner’s active role in the learning process. There are numerous strategies which demonstrate how to learn vocabulary. The most used ones are: the intentional and the incidental vocabulary learning strategies.

1.5.2.1.1 Intentional vocabulary learning strategy

Intentional or explicit vocabulary learning strategy is described as an approach that emphasises vocabulary items rather than the language itself. It is viewed as a traditional and common method in teaching vocabulary. Ellis (2005) calls it the planned method involving the use of tasks designed to elicit forms which have been selected ahead by
teachers, while, Schmitt (2000) demonstrates that it can be called explicit learning of vocabulary and it focuses directly on the information to be learned. Intentional learning is quick and usually preferred by learners, especially beginners, and less able students. The important words can be learned by using the intentional learning strategy. Schmitt (2008), also, claims that “with true beginners, it is probably necessary to explicitly teach all words until students have enough vocabulary to start making use of unknown words met in context” (p.2).

Generally speaking, intentional vocabulary learning is one successful method for teaching and learning a word’s meaning by using tools to bring the learner’s attention into direct contact with the form and meaning of words, such as dictionaries, vocabulary lists, and direct vocabulary explanation. Although it will provide the greatest chance of acquisition, it is time consuming and it is too laborious for learners to learn language. In addition to that, intentional learning vocabulary in classroom is often the teacher-centred class.

1.5.2.1.2 Incidental vocabulary learning strategy

Incidental vocabulary learning is also known as implicit vocabulary learning which is somehow the opposite of intentional or explicit vocabulary learning. Many linguists defined the incidental vocabulary learning. Nation (2001), for instance, defines it as an important learning strategy which occurs without specific intention to focus on vocabulary. One can develop vocabulary knowledge subconsciously while being engaged in any language activities, especially reading.

Meara (1994) puts vocabulary learning into different categories. One distinction is usually made between intentional or conscious learning and incidental learning. In his opinion, incidental learning is a by-product of learning something else and it is not like the intentional learning which is designed by teacher or students. That is to say that learners master vocabulary when they are involved in some learning activities, such as reading, speaking, doing a task, and interacting with others. Schmitt (2008) also defines implicit vocabulary learning as learning through exposure when ones’ attention is focused on the use of language rather than on learning itself. Context then plays a very important role in assisting such learning.

From the views mentioned before, it can be said that incidental learning of vocabulary is a learning method from reading, listening, speaking or writing to language
use while learners’ main attention emphasises on the information of passages or texts. Thus, learning vocabulary refers to learning new items in which these items should incidentally be acquired. Decarrico (2001) claims that “...beyond a certain level of proficiency in a second language, vocabulary learning is more likely to be mainly implicit”. (p.289)

To summarize, it has been noticed that both strategies are beneficial and complete each other. In this sense, the intentional vocabulary learning strategy is very useful for teaching necessary words and the incidental vocabulary learning strategy is used to enlarge learners’ vocabulary size through exposure. For that, Gu and Johnson (1996) claim that numerous studies show that these incidental and explicit approaches lead to far better results than just incidental learning alone.

1.6 The importance of vocabulary in EFL classes

Vocabulary is considered as an important aspect in English Language Teaching (ELT) because without sufficient vocabulary knowledge, learners cannot understand others or express themselves and their ideas clearly. McCarthy (1990) emphasizes how vocabulary is important, arguing that despite the importance of other elements of language such as grammar and phonetics, obviously, vocabulary is still the basis for communicating and thus learning a FL.

Wilkins (1972), also, defended this idea stating that “without grammar very little can be conveyed, without vocabulary nothing can be conveyed” (p.111). So, lexis plays a very essential role in language learning. According to Thornbury (2008), spending life in studying grammar will not lead to a very accurate language, because when using a language, words and expressions are much more needed than grammar. He argues that people can say very little with grammar, but they can say much more with words. This means that when students develop fluency and expressions in English, they move to acquire more productive vocabulary in order to develop their own personal vocabulary learning strategies, and this was confirmed by Lewis (1993) who said “lexis is the core or heart of language” (p.89).

Yet, teaching and learning vocabulary have been neglected in Second Language Acquisition (SLA) throughout its varying aspects, not only in English for general purposes (EGP), but also in English for specific purposes (ESP) as well (Kennedy and Bolitho, 1985). Therefore, it is crucial to take into consideration the importance of this element for the sake of its numerous benefits. On the one hand, it develops the students’ communicative competence which allows them to know what to say in different situations,
and how to react in the acts of communication. This will give students the chance to have other people understand what they wish to express; hence, it leads people to make a good impression on them based on the vocabulary that students use. On the other one, vocabulary helps students understand what they read and get to comprehend words they are unfamiliar with. Thus, they catch new items and enhance the desire to build vocabulary stock. For these reasons, the awareness has been raised to the key role that vocabulary acquisition can play in language learning.

**Conclusion**

All in all, learning vocabulary is essential in teaching and learning process because learners can explore the beauty of the foreign language through a great variety of words. Moreover, vocabulary gives the learners an opportunity to express themselves clearly and appropriately in a wide range of situations. It is undeniable that vocabulary plays an integral role in language learning as it helps students for communication, and mastering the language.

Importantly, in this first chapter, we have discussed what a word is and its aspects, definitions of vocabulary, the description of English vocabulary, as well as its types. We have also tackled vocabulary teaching and learning which are of different techniques and strategies. So far, we have concluded this chapter with the importance of vocabulary in EFL teaching.
CHAPTER TWO: COLLABORATIVE LEARNING & JIGSAW II STRATEGY

Introduction
2.1 What is Collaborative Learning Strategy?
   2.1.1 Definition of Collaborative Learning in EFL Classrooms
   2.1.2 The Difference between Collaborative, Cooperative, and Group Work
2.2 Characteristics of Collaborative Learning
   2.2.1 Positive Interdependence
   2.2.2 Group Formation
   2.2.3 Individual Accountability
   2.2.4 Social Skill
   2.2.5 Structuring and Structure
2.3 Types of Collaborative Learning Groups
   2.3.1 Collaborative Concept-Learning Tasks
   2.3.2 Collaborative Problem-Solving Tasks
2.4 Instructional Formats of Collaborative Learning
Introduction

Macaro (1997) describes collaborative learning (CL) as one of the most important and most effective means by which learning can take place, and a focus on the mutual exploration of a subject by means of social interaction with peers and between learners and teachers has experienced a long history over the past few decades. This focus was mainly simulated because many studies have shown the superiority of CL methods over other methods of instruction. At present, many researchers are investigating CL methods to check their feasibility and effectiveness. In this chapter we provide a brief history of CL, the difference between collaborative and cooperative work, its place in EFL classrooms, the CL characteristics, types of CL, collaborative learning instructional format. Furthermore, stating how to create an effective collaborative learning and the way teachers evaluate students’ group work. This chapter, also, covers how to teach and learn vocabulary through CL followed by the effect of CL techniques on vocabulary learning, without neglecting limitations of CL as suggested by some studies in the field. Moreover, the chapter tackles a detailed part about jigsaw II, starting with its definition, the implementation of jigsaw in EFL classes, and finally the importance of the jigsaw strategy in vocabulary learning.
2.1 Collaborative Learning Strategy

2.1.1 Definition of Collaborative Learning Strategy in EFL Classes

While extending the definition to the classroom setting, Russo (1995) terms CL as “an instructional method in which students at various performance levels work together in small groups toward a common goal” (p.82). His elaboration emphasizes a shared responsibility for one’s own learning as well as others’ among learners. Thus, the success of one student depends largely on other students, that is, one student helps others to be successful as well. Hence, collaborative learning is an instructional strategy which is based on the division of students into small groups working collectively and helping each other on a specific task in order to achieve a common academic goal.

2.1.2 Difference between Cooperative, Collaborative, and Group work

Classroom structures include many instructional processes; one of them is when students are working together in which they learn from each other, but there are three main strategies that teachers use in order to get students work together. In other words, there is a clear distinction between cooperative, collaborative, and group work. Johnson and Johnson (2005) explained them as follows:

From one hand, there is a sharp variance between CLL and collaborative learning. It has been noticed that cooperative learning is often regarded as a synonym of collaborative learning and sometimes is used in the same sense (China & China, 2009). However, according to some other researches, there are some differences among the two strategies. Oxford (1997) claimed that cooperative learning is more structured, more prescriptive to teachers about classroom techniques, more direct to students about how to work together in groups than collaborative learning. Meanwhile, Oxford (1997) added that in collaborative learning, the learner engages with more capable (teachers, advanced peers, etc) who provide assistance and guidance. Dooly (2008) argued that the main aim behind collaborative learning is to make the learner responsible for his learning for working together and building the knowledge in collective way. So, collaborative and cooperative learning differ in two points. First, the level of the learners in the group work. Second, in the cooperative learning, the teacher still has a role as a controller of the class in order to know what is going on the group. However, in collaborative learning, the learners have the responsibility of their learning.

From the other hand, CLL and group work as stated by Woolfolk (2001) are not one, not in the same coin; these terms are not similar as it is mentioned in the following quote:
The terms group learning and cooperative are often used as if they mean the same. Actually, group work is simply several students working together, they may or may not be cooperating. Cooperative learning is an arrangement in which students work in mixed ability groups and are rewarded on the basis of the success of the groups.

(p.265)

2.2 Characteristics of Collaborative learning

In collaborative learning the participants become critical thinkers because they get the chance to engage in discussions, they are more responsible for their own learning. So, the careful building of learning groups is the key to the right collaborative learning. According to Johnson and Smith (1998), there are five essential components to structure such groups.

2.2.1 Positive Interdependence

In a collaborative setting, the success of one person is independent on the success of the group; this is referred to as positive interdependence. All members should rely on one another to achieve the goal and need to believe that they are linked together to succeed. Positive interdependence is the belief of anyone in the group that there is value in working together and that the results of both individual learning and working products would be better when they are done in collaboration, otherwise; collaborative learning would not be fruitful. This means that, the teacher should make sure that everyone is doing his/her duties not just the most proficient one who does everything.

2.2.2 Group Formation

Group formation is a complex and important step to design effective collaborative learning activities. Through the adequate selection of individuals to a group, it is possible to create environments that foster the occurrence of meaningful interactions, and thereby, increasing powerful learning and intellectual growth. Richards & Rodgers (2001, p. 196) stated that “group formation is an important factor in creating positive interdependence”. According to them, many factors should be considered in setting up groups: first, the size of the group, which is typically from two to four, depends on the activity that designed by the teacher, also, the students’ age and time restrictions. Second, the selection of the factors around which the students’ groups will be formed can be selected by the teacher, random, or students-selected. Third, suggesting students’ role in groups: each group member has a specific role to play, such as noise monitor, recorder, or summarizer.

2.2.3 Individual Accountability
Individual accountability is the belief that everyone will be accountable for his/her performance and learning. It occurs when the performance of each individual is assessed and the results are given back to the group and the individual in order to identify those need more assistance and support in learning. Richards & Rodgers (2001, p. 197) acknowledged that “individual accountability involves both group and individual performance, for example, by assigning each student a grade on his/her portion of a team project or by calling on a student at random to share with the whole class, with group members, or with another group.”

2.2.4 Social Skills

Social skills are defined by Hill and Flynn (2006, p. 55) as “communication, trust, leadership, decision making and conflict resolution”. The student needs to know how to interact successfully with their colleagues. According to Richards and Rodgers (2001, p. 197), “social skills determine the way students interact with each other as teammates. Usually, some explicit instruction in social skills is needed to ensure successful interaction”.

2.2.5 Structuring and Structures

While it is clear that all the other characteristics (e.g. positive interdependence, social skills, etc...) enhance the achievement outcomes of collaborative learning, there is some evidence that carefully structuring interactions among students in groups also can be effective. Richards and Rodgers (2001, p. 197) stated that “structuring and structure refer to ways of organising student interaction and different ways students are to interact such as three-step interview or Round Robin”. The round robin is the structure which designed in order to give everyone in the group an equal chance at participation. When the class is divided into small group; one person appointed as the recorder. An open-ended question is posed and students are given time to think about the answers individually. Next, members of the team share responses with one another round robin style. The recorder writes down the answers of the group members.

2.3 Types of Collaborative Learning Groups

Collaborative learning can be used in various ways, including collaborative concept-learning tasks, collaborative problem-solving tasks, and collaborative designing tasks. Each type of group has its own purpose and application.

2.3.1 Collaborative Concept-Learning Tasks

Designing for collaborative learning tasks share two important features. First, the participants are supposed to share goals, tools and activities. Second, the participants are supposed to have an equal opportunity to contribute and participate in the discourse.
Collaborative learning needs to be distinguished from cooperative learning and peer tutoring. Examples of cooperative learning groups are those in which students help each other while still maintaining their own worksheet, and groups in which each student does a different part of the group task. In contrast to cooperative learning groups, in collaborative peer workgroup students try to reach a common goal and share both tools and activities (Palincsar & Herrenkohl, 2002). When students are simultaneously involved in the execution of the same task and must achieve a common goal, there is a need to talk, share ideas, coordinate, and to negotiate meaning. Shared goals enhance a positive interdependency between the collaborating students (Johnson, May, & Johnson, 2003). A positive interdependency exists when the participants of the group perceive that they cannot succeed unless the others do, and that they must coordinate their efforts with the efforts of the others to complete the task (Johnson & Johnson, 1992). Collaborative learning tasks aim at a symmetrical participation in the interaction. The participants must have an equal opportunity to contribute.

2.3.2 Collaborative Problem-Solving Tasks

The Collaborative Problem Solving Model (CPSM) was developed by Dr Ross Greene over 10 years ago and has been articulated comprehensively in his recent publication “Lost at School”. Therefore, Collaborative Problem Solving Model (CPSM) is an evidence-based, skill-based, psychological treatment approach first described in the book “The Explosive Child” (Greene, 1998). However, since that time, the evidence for the efficacy of this type of collaborative work has been very strong. That research has demonstrated that CPSM helps reduce seclusion.

A learner may have already learned to solve some problems, but there are still unsolved problems where the skill deficit is causing frustration which produces temper episodes. These are not motivational issues where discipline is needed. These are problems that the kid has not solved, and where CPSM is needed to help teach a way to solve that problem.

Collaborative Problem Solving Model (CPSM) does not stabilize moods, treat depression, decrease anxiety, solve family dynamic issues, improve chemistry in the brain, or provide any of the benefits from medication and psychotherapy. It just teaches learners how to solve one problem. First, learners find the unsolved problem. Then, identify the skill deficit. Finally, they work together to solve the problem that is specific, concrete, and important in their lives. In CPSM, working collaboratively with the young person allows adults to listen to their views and concerns, and in turn allows young people to become aware
of the adult’s concerns. Greene proposes that this type of collaborative learning groups helps to develop a trust relationship between the participants as well as an agreed process of solving issues, particularly explosive challenges, or at the very least, it will result in an improved mutual understanding.

### 2.4 Instructional Formats of Collaborative Learning

There are different instructional formats that were developed to enhance the collaborative learning goals. Some of these are:

#### 2.4.1 Incorporating Reward Structure

According to Slavin (1990) there are three methods for assigning reward to a group.

- The whole group will receive a reward for its performance. The problem here is that, the most skilled student may do all the work by him / herself to ensure a positive reward for the group and the others do nothing. In this case, the work will not lead to a positive interdependence.
- Members of the group will receive individual grades, but by doing this, the exchange of skills will be discouraged since each student is individually evaluated, therefore, a result there is no reason for students to work together.
- Students can receive group rewards on the basis of individual improvement on quizzes or worksheets over class period. This method pushes the more proficient learners to help the less proficient ones, since their reward depends partly on the performance of those students on the quiz.

#### 2.4.2 Reciprocal Teaching

According to Chen (1999), each group consists of three or four members. Students take turns being group leader. The group is given a passage for reading and then the leader summarizes the passage in which the whole group should discuss. Then, the leader either offers predictions or asks them for the next part of the text. This method promotes learning goals by creating explicit demands for students to use high cognitive strategies in their conversations.

#### 2.4.3 Complex Tasks

Many researchers suggested the use of more complex tasks in collaborative group work such as conducting research, creating multimedia presentations, investigating scientific questions, and solving real-life problems (Cohen, 1994).

These complex tasks require the use of multiple strategies and diverse knowledge, since no student is knowledgeable enough to the task individually.

### 2.5 Creating an Effective Collaborative Learning
Luzzato and DiMacro (2010) said “In trying collaborative learning in our classrooms, we are challenging students to try new ways to learn the material while judging them for the quality of work they produce” (p. 320). This means that, using collaborative group work on the basis of course goals can raise students’ achievement, because students will work at ease by helping each other in taking and sharing notes, and encouraging each other when things get tough. Luzzato and DiMacro (2010) saw that, teachers should form groups by taking into consideration the size and the homogenous membership. After students read a text, for example in a reading lesson, the teacher can pick up a concept for discussion. The students’ discussion can help them expand the practical meaning of the concept, find solution to a problem or bring up another creative issue out of the topic, and most importantly learn new terms from each other.

Timing the tasks is another important aspect that Luzzato and DiMacro (2010) insisted on to make student works purposefully and meaningfully. The teacher may give his / her students five to ten minutes for the discussion. Where the time is over, students are asked to present the outcome of their discussion to the whole class. It is noticed that in most times only a few students work while others do not. Ensuring that the group work is effective requires careful planning by the teacher otherwise collaborative group work will be unproductive and fruitless. In order to encourage students’ participation in the group, teachers should ask individual questions after the group discussion so that they check their participation. Another way is by asking students to comment on each other ideas. At the end of the course, teachers may ask students to summarize what they have discussed in the group individually.

2.6 Evaluating Students’ Group Work

Evaluation can take place at any time during the study program, but most of teachers prefer to evaluate their learners at the end of the task. Teachers can evaluate group work during the process, and at the same time, provide feedback and support to the weaker students. They can walk around the class to make sure that they are up to the tasks and are supported when needed. According to Barkley (2010), there is no single method for evaluation; methods can be quantitative or qualitative, formal or informal, formative or summative, self administered or externally administered, or any mixture of these. When teachers want to evaluate their students’ group work, they should take into account that each of these methods has advantages and disadvantages and of course their choice will depend on the purpose of evaluation, content, materials, and tasks being used. There are many techniques that can be used by teachers for the evaluation, here are just two
examples. Teachers may ask their groups to evaluate each other, i.e., group one evaluates group two, group three evaluates group four …etc. Each group will take down notes on the other group’s strengths and weaknesses. This technique will raise the students’ motivation and responsibility. Another technique given by Luzzato and DiMacro (2010) is the use of journals. In other words, each group will keep a journal of events that includes what was the task, what was discussed, what was the goal …etc. These journals can be corrected periodically by the teacher.

To sum up, collaborative learning as one of the latest methods in the educational pedagogy proved to be an effective technique in EFL classes, because it pushes learners to learn and depend on their owns. Working in groups and negotiating with one another can be another factor that helps learners improves their vocabulary.

2.7 Teaching and Learning Vocabulary through Collaboration

In recent years, many language teachers are aware of the significant role of collaborative interaction in teaching and learning vocabulary. Before, when teaching vocabulary, most teachers depend on the traditional method that is limited to the presentation of new items as they appear in reading or listening. This indirect teaching is not really appropriate to the improvement of the students’ vocabulary. In collaborative learning students find the opportunities, where they work in groups, share information, exchange ideas, help and correct each other. In other words, they all stand as one to achieve the desired goal. According to Chen (1999), collaborative learning can be the most effective way to be used in improving students’ vocabulary. Chen (1999) views collaboration as a group of students with shared goals; it requires reciprocal exchange of ideas and extensive information sharing. So differences in the participants’ background and knowledge are likely to cause vocabulary improvement during the group discussion.

Through collaboration each student will learn new word, term, expression from his / her classmates rather than when they work individually. In addition to that, negotiation and decision-making in collaborative groups provide intensified engagement with the content. When students work collaboratively, they will have the desire to know the word for oneself and for partner. Another important point is that, when teacher wants to provide his / her students with new words. S / he must choose words that have a wide coverage and frequency rate. It can be said that, if teachers provide their learners with high frequency words and make them share and exchange these words through collaborative tasks the results of improving vocabulary through collaboration will be inevitable. CLM is an effective way to be used in improving students’ vocabulary mastery. It indirectly trains the students to share
information with each other; as a result they will be more productive in the teaching learning process. Besides that, this method can help the students to be able to work collaboratively in a team or a group work. By applying CLM in which students feel active and less bored, the teaching learning process will be more effective and interesting.

2.8 The Effect of Collaborative Technique on Vocabulary Learning

Collaborative learning provides a rich feedback environment for learners and facilitates language acquisition. Vocabulary can be acquired subconsciously while learners are engaged in a collaborative learning activity which provides an opportunity for students to interact together. Moreover, group collaboration allows students to notice their linguistic gap, the link between form and meaning, and get feedback from their peers. Vygotsky (1987) greatly emphasised the value of the social interaction in which he views that human is social in nature, hence s/he develops his/her cognitive skills in a group setting. Thus, most students prefer to work together in order to maximize their knowledge and skills, especially if their work is based on a specific learning purpose. To conclude, collaboration can help improving student-teacher relationships since students feel involved and part of trusting, caring classroom culture.

2.9 Limitations of Collaborative Learning

Even though collaborative learning has many advantages on the students, it can involve some disadvantages including the lack of participation of team members and the dominant attitude of some members, especially self-confident student (Johnson and Johnson, 1994, p. 14). Furthermore, students often find it difficult to trust the other team members, since some of them prefer to work as a team. Also, there is a common problem when using group work in which students find it easy to depend on their L1 in the discussion. Most teachers observe that their students’ use their mother tongue when they work collaboratively, and by doing this L2 vocabulary will never be improved. Moreover, in most times, the group members fall in what is called the personality clash. In other words, each student wants to impose his / her own opinion, as a result other students may agree just to avoid conflict even though his / her opinion is wrong. Another problem which is the most common one is that the less proficient students will all depend on the most proficient ones in doing the task. Finally, working in groups takes more time than working individually.

2.10 Jigsaw П Method

2.10.1 What is Jigsaw П?
Jigsaw teaching was developed by Elliot Aronson (1978) and his colleagues. There are two jigsaw methods, original jigsaw and jigsaw Π. The original jigsaw or jigsaw I is the first jigsaw method that was developed by Aronson and his colleagues in 1978. It requires each student to read and become an expert or only part of reading selection rather than reading the entire selection. This approach would acquire instructional material carefully divided into four or five appropriate topics. For example, in a unit on Great Britain, one student might have information on Great Britain’s economy, another on its geography, a third on its history and so forth. To know all about Great Britain, students must rely on their teammates. Original jigsaw also takes a little time because its reading is shorter, only a part of the total unit to be studied (Slavin, 1991).

Later in (1986), Slavin adopted Elliot Aronson’s original jigsaw to be more practical and in easier format; he called it jigsaw Π. This later is an activity that allows a small group of students to work together in order to maximize their own and each other’s learning (Slavin, 1995). Jigsaw Π can be used whenever the material to be studied is in writing narrative form. It is most appropriate in such subjects as socio studies, literature, some parts of science and related areas in which concepts rather than skills are the learning goals. The instructional material for jigsaw Π should usually be a chapter, a story, a biography or similar narrative and descriptive material. Jigsaw Π student work in five heterogeneous groups of six or so students, each on material that the teacher has broken into subsections (Slavin, 1995).

In jigsaw Π, students work in small teams, composed of four or five students who represent a heterogeneous group in terms of academic performance, sex, and race or ethnicity. The team should also have performers of mixed abilities. The students are assigned chapters or other units to read and are given ‘expert sheets’ that contain different topics for each team member to focus on when reading. While everyone has finished reading, students from different teams with the same topic meet in “expert group” to discuss their topic for about thirty minutes. The experts then return to their teams and take turns teaching their teammates about their topic. Finally, students take assessment that covers all the topics. Students are informed about the importance of their contribution to the team success so that they work hard in their expert groups to be able to help their team do well. Every student depends on his / her teammates to provide the information needed to do well on the assessments.

2.10.2 The Implementation of Jigsaw Π in EFL Classrooms
The jigsaw II classroom is very simple to use. The following steps show the construction of the material used in EFL classrooms through the jigsaw II puzzle, the teacher should:

- **Step one:** divide students into 5 or 6 person jigsaw groups. The groups should be diverse in terms of gender, ethnicity, race, and ability.
- **Step two:** appoint one student from each group as the leader. Initially, this person should be the most mature student in the group.
- **Step three:** divide the day’s lesson into 5 or 6 segments. For example, if we want to teach students about Roosevelt’s history, we might divide a short biography of her into stand alone segments on: (1) her childhood, (2) her family life with Franklin and their children, (3) her life after Franklin contracted polio, (4) her work in the White House as first lady, and (5) her life and work after Franklin’s death.
- **Step four:** assign each student to learn one segment. Make sure students have direct access only to their own segment.
- **Step five:** give students time to read over their segment at least twice and become familiar with it. There is no need for them to memorize it.
- **Step six:** form temporary “expert groups” by having one student from each jigsaw group join other students assigned to the same segment. Teachers should give students in these expert groups time to discuss the main points of their segment and to rehearse the presentations they will make to their jigsaw group.
- **Step seven:** bring the students back into their jigsaw groups.
- **Step eight:** ask each student to present her / his segment to the group. Here, teachers encourage others in the group to ask questions for clarification.
- **Step nine:** move from group to group, observing the process. If any group is having trouble (e.g. a member is dominating or disruptive), make an appropriate intervention. Eventually, it’s best for the group leader to handle this task. Leaders can be trained by whispering an instruction on how to intervene, until the leader gets the hang of it.
- **Step ten:** at the end of the session, teachers give a quiz on the material. Students quickly come to realize that these sessions are not just fun and games but really count.

1.10.3 The Importance of Jigsaw II Strategy

Jigsaw is a type of collaborative learning where each member of a group has a piece of information needed to complete a group work. Therefore, it would be a significant strategy for the learners to cooperate in the class within an intimate atmosphere. According
to Acikgoz (1997), this strategy is based on group dynamics and social interaction. Hence jigsaw II is not just a collaborative learning technique, but it is the element of interdependence among students. Consequently, this collaborative technique can help students in learning vocabularies. Students will be able to increase their levels of vocabulary through jigsaw technique since it is effective for many of them. It will also increase the amount of students’ participation in the classroom. Furthermore, it will reduce both the need for competitiveness and the teacher’s dominance in the classroom (Longman Dictionary, 1998). Finally, the jigsaw strategy will successfully reduce learners’ hesitation to participate in the classroom activities and will help create an active learner-centred atmosphere.

**Conclusion**

Collaborative learning is an educational approach to teaching and learning that involves groups of learners working together to solve a problem, complete a task, or create a product. This chapter may have shed some light on the collaborative learning, its definition, the difference between cooperative, collaborative and group work, then, the characteristics of collaborative learning. It tackles also the instructional format and the types of collaborative learning. Furthermore, the chapter gives an overview about how to create an effective collaborative learning, to evaluate students’ group work, and how to teach and learn through collaboration. Finally, the chapter ends the first part with the limitations of collaborative learning. in the second part, the chapter consists of the definition of jigsaw II method, the implementation of the jigsaw II in EFL classes and it concluded with the importance of jigsaw II strategy.
PART TWO: PRACTICAL FRAMEWORK
CHAPTER THREE: ANALYSIS & DISCUSSION OF RESULTS

Introduction
3.1 Choice of method
3.2 The Sample
3.3 The Research Design
3.4 Procedure
   3.4.1 Pre-test
   3.4.2 Treatment
      3.4.2.1 The Experimental Group Treatment
      3.4.2.2 Control Group Instruction
   3.4.3 Post-test
3.5 Instruments
3.5.1 Test used in Pre-testing and Post-testing

3.6 Scoring

3.7 Statistical Analysis

3.8 Results

3.8.1 Data Analysis

3.8.1.1 Analyzing pupils answers of each activity on the pre-test
   3.8.1.1.1 Control group
   3.8.1.1.2 Experimental group

3.8.1.2 Analyzing the effectiveness of using jigsaw n puzzle
   3.8.1.2.1 Control Group Vs. Experimental Group scores on the pre-test
   3.8.1.2.2 Control Group post-test Vs. Control Group pre-test
   3.8.1.2.3 Experimental Group post-test Vs. Experimental Group pre-test
      3.8.1.2.3.1 The paired-sample t-test
      3.8.1.2.3.2 Procedure for carrying out a paired-samples t-test
   3.8.1.2.4 Experimental group Vs Control group post-test
      3.8.1.2.4.1 The Independent-sample t-test

Conclusion

General Discussion
Pedagogical Implications
The limitations of the study
General Conclusion
List of references
List of appendices
Résumé
الملخص
Introduction

Teaching new vocabulary to beginners in FL classroom has received a great interest on the part of researchers. Many techniques and activities are designed and suggested in this respect. The use of jigsaws is one of the most effective techniques developed to teach new vocabulary in a more effective way. On this basis, the present experimental design research was conducted in “Benzaoui Ahmad Lamine” middle school, Ain Beida, to collect the necessary data that is going to be discussed and analysed through statistics in this chapter.

The chapter consists of two main parts. The first one presents the methodology followed to validate the hypothesis. It examines the choice of the method, the sample, the research design, the procedure, and finally the instruments used in doing this research; while the second part deals mainly with data analysis and the results obtained in the pre and post-tests of the experiment. Finally, a general discussion of the findings is provided.

3.1 Choice of Method
This study is based on a quasi-experimental method, in which two pre-existing groups were randomly assigned as the experimental and control groups. This method was chosen as it is thought to be the most appropriate for the topic of the research.

3.2 The sample

The target population of this research is 160 first year pupils at “Benzaoui Ahmed Lamin” middle school which belongs to the city of Ain Beida, Oum El Bouaghi, for the academic year 2015-2016. A sample made up of 64 pupils (includes both genders, different ages, and mixed abilities) was selected randomly to represent the whole population. There were 32 pupils in the control group and 32 pupils in the experimental group.

The choice of first year middle school stems from the fact that they are beginners, so they need to learn English vocabulary through interesting strategies. Besides, pupils at this stage are able to acquire and retain new vocabularies as much as possible thanks to their fresh memories.

3.3 The Research Design

A quasi-experimental design was followed in order to accomplish the study with two groups assigned as the experimental and the control group. The experimental group received the vocabulary instruction by using the jigsaw П puzzle technique, while the control group was taught the same thing through traditional instruction. This study addresses the following questions:

- Does the jigsaw П puzzle technique have a positive impact on EFL pupils’ vocabulary acquisition?
- To what extent is the jigsaw П puzzle learning technique effective to the enrichment of EFL pupils’ vocabulary stock?
- Is there a significant difference in vocabulary learning between students who are taught vocabulary through jigsaw П puzzle and those who did through the traditional method?

In other words, what role jigsaw П puzzle can play in the process of vocabulary acquisition (retrieving vocabulary, spelling, pronouncing and using it correctly). In the light of these questions, the following hypotheses are formulated:

**H1:** Implementing the jigsaw П puzzle as a collaborative strategy would enhance EFL pupils’ vocabulary stock.

**Ho:** Implementing the jigsaw П puzzle as a collaborative strategy may have no effect on enhancing EFL pupils’ vocabulary stock.
On the basis of the research questions and the hypotheses stated above, this work examined two variables: One independent variable (jigsaw puzzle) and one dependent variable (vocabulary learning).

**Figure02. The Schematic Representation of the Research Design**

Table 1 gives an interpretation to the elements included in figure 2.

| Table01. Interpretation of the Schematic Representation of the Research Design |
|-----------------------------|------------------------|
| **Elements** | **Interpretation** |
| Experimental group | It was composed of 32 pupils. |
| Control group | It was composed of 32 pupils. |
| Pre-test | It was a variety of tasks (fill in the gaps, cross the odd word, classify into the right column) in order to measure the pupils’ level in terms of vocabulary. |
| Treatment 1 (T1) | It was in the form of teaching about 20 new vocabulary |
items through the use of jigsaw pins puzzle, in which the teacher gives indicators (short quiz) for each item and provides explanation.

**Treatment 2 (T2)**

It was in the form of teaching vocabulary without using jigsaw pins puzzle, in which the teacher explained the new items in the traditional way.

**Post-test**

It was the same evaluation viewed in the pre-test.

### 3.4 Procedure

#### 3.4.1 Pre-testing

At the beginning of the experiment, both the control group and the experimental one received the pre-test in forty five (45) minutes after they were informed that scores are going to be counted in their examination marks; therefore, they have to work on their own, i.e. individually. The test included a fill in the gaps, cross the odd word, and classify into the right column tasks. These tasks consisted of different words related to the unit of “Animals: The Wild and The Domestic ones” because the focus of the experiment was on this unit. The main reason behind using such tasks is that they are easy to score.

#### 3.4.2 Treatment

After administering the pre-test, the experimental and control groups received a 45-minute session per week over the period of the study (3 weeks). The tasks that the pupils in both groups dealt with were the same. However, the experimental group received the treatment through the use of jigsaw puzzle by the researcher, whereas the control group was taught through the traditional method by the teacher.

#### 3.4.2.1 The Experimental Group Instruction

During the period of the treatment, the experimental group was taught vocabulary through jigsaw puzzles. The focus was on building some vocabulary words related to the unit of “Animals: The Wild and The Domestic ones”.

### Table02. Schedule of the Experimental Group Sessions

<table>
<thead>
<tr>
<th>Sessions</th>
<th>Lessons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The essential aim behind including jigsaw П puzzles in this research work was to make pupils build new vocabulary stock. To achieve this aim, learners were exposed to three different types of tasks.

At the beginning of the first session, the researcher presented puzzles representing 6 different domestic animals and each puzzle was accompanied with a short quiz to help the pupils, i.e., small passages were used to clarify the idea and facilitate the answer. For instance, in the first session, the researcher worked with such quizzes: “I’m a cute animal, I have got four legs and long ears, I can jump well, I love carrots and live in farms or forests. I’m........” or “I’m a big animal, I am black and white in the picture, I have got two horns, I eat grass and say moo-moo. I’m........”. Then, he divided the whole class into (6) teams, each of which contained (5) members of different abilities, gender, and age to play an enjoyable jigsaw П puzzle known as “Who am I?” puzzle game. This game created a good atmosphere and provided enjoyment to the classroom. The “Who am I?” is supposed to strengthen the pupils’ ability to build new items.

The rule of the game is that each team received a disjointed jigsaw П puzzle about a domestic animal; after that, the researcher wrote (6) different quizzes on the board and the members of each group had to combine all the puzzle’s parts and find the appropriate quiz that suits the whole picture in no more than 10 minutes. The researcher is the one who sets the timer. If all the team’s members recognise the picture of the animal and its appropriate quiz before the timer goes off, they will score two points. However, in case one of the teams failed in joining the puzzle or answering the quiz after the timer goes off, all the members of that team had to repeat it again with no points. After finishing the game, the researcher gives the pupils a feedback about the items that they have recognised. Later on, pupils dealt with the first exercise, where they were asked to complete three sentences with words from their understanding of the game (see appendix D). In the second session, pupils dealt with the second jigsaw П puzzle model which concerned wild animals. The researcher repeated the same steps as in the first session, but by using another kind of animals and quizzes. Furthermore, in this session, participants dealt with different type of
exercise; they were supposed to give the definition of each underlined animal in short sentences orally (see appendix D). The last exercise was done in the third session, where pupils were provided by the last jigsaw П puzzle model entitled “Where do I live?”. In other words, it includes the place where animals live. So, this task involves the pupils reading an uncompleted dialogue on the board, and then writing the missing words in the gaps to get a coherent dialogue.

3.4.2.2 Control Group Instruction

Unlike the experimental group, learners in the control group did the exercises after being taught using the casual way of learning and teaching by their teacher. That is to say, they did not receive any kind of the jigsaw П instruction. The pupils were supposed to direct their concentration on understanding the meaning in general. The new vocabulary items were introduced without puzzles or any other materials, yet following the usual methods such as explanations, gestures, and sometimes translation.

3.4.3 Post-testing

The post-test was administered to both groups during the fifth week. It was identical to the pre-test, i.e., pupils were asked to answer the same activities’ questions of the pre-test to allow comparability of the tests later on. The post-test was administered to see the effect of jigsaw П puzzle as a strategy in teaching vocabulary to the experimental group. Four weeks to administer the post-test were sufficient time to make sure that the participants did not remember their answers in the pre-test.

3.5 Instruments

3.5.1 Test used in Pre-testing and Post-testing

In order to answer the research questions and confirm one of the proposed hypotheses, participants from both groups were pre-tested and post-tested through the same vocabulary activities that were fill in the gaps, classify into the right column, and cross the odd words.

The subjects were asked to do the test following the instructions given in each activity; we made sure that pupils were working individually. Since our test required 45 minutes, we gave them 15 minute at the beginning to read short passages in their textbook “Spotlight on English” of first year middle school, precisely in unit four which was entitled “Animals: Wild and Domestic”. After reading the passages, they dealt with three activities during 45 minutes. The first activity consisted of: filling in the gaps with the appropriate words from the box. In this activity, pupils were provided with six (6) sentences, four of them include two (2) gaps while the two others include only one gap to be filled. The
second activity: concerned with classifying ten (10) animals into wild and domestic in the table. The third activity was mainly about: cross the odd word. To complete this task, pupils were asked to cross the word that does not serve the whole group of words. These groups are also about animals (See Appendix A).

3.6 Scoring
The total score of the test was twenty (20). Five (5) points were given to the first activity. Pupils were scored (0.50) point for each correct answer, while ten points (10) were given to the second activity in which pupils were scored (01) point for each right answer, and the third activity is scored in the same way as the first one, i.e., five points (5) were given to this task, but for each correct response pupils were given (01) point. No points were awarded if the participant ticked different answers in the third activity or used wrong arrangement in the first and second one.

3.7 Statistical Analysis
As a result of the research questions, alternative hypothesis along with the null hypothesis, and the design of the study, two parametric tests were adopted. One of the tests, known as the t-test for independent samples, was applied to show the significant difference between post-test grades of the experimental and control group after the treatment. The other parametric test named the paired-samples-test was used to examine whether using jigsaw Π puzzle as a strategy in teaching learners English vocabulary enhanced their post-test performance in comparison to the pre-test.

The next section would present all these analyses in details.

3.8 Results
This section dealt with the statistical analysis of the research. It showed the results of the vocabulary acquisition tasks of both groups in the pre-test and post-test as well as it discussed the findings gathered from the research.

3.8.1 Data Analysis
Each activity was analyzed independently. That is to say, the total score of the test was 20 points (See table 3 and figure 3). Five (05) points were given to activity one and another five (05) points to the third activity as well, whereas the score of the second activity was ten (10) points.

<table>
<thead>
<tr>
<th>Scores</th>
<th>Act 1</th>
<th>Act 2</th>
<th>Act 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.8.1.1 Analyzing Pupils Answers (of each activity) on the Pre-test

Before analyzing the pupils’ answers, it should be mentioned that it was a hard task to analyze individual words and depict the acquired words of each activity alone. We have chosen to analyze the acquired words by the whole group via evaluating each single activity and find out the frequency and percentage of the acquired words in each activity. (See table 4)

The following tables illustrate the total scores of each activity in the pre-test for both groups (the control group and the experimental group):

3.8.1.1 Control Group

**Table04. The control group scores’ frequency (on each activity) on the pre-test**

<table>
<thead>
<tr>
<th>scores</th>
<th>Fr of act 1</th>
<th>Fr of act 2</th>
<th>Fr of act 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>0</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Nb</td>
<td>Fr</td>
<td>Act</td>
</tr>
<tr>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>1.5</td>
<td>0</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>2.5</td>
<td>8</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>3.5</td>
<td>5</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>4.5</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6.5</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7.5</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>32</td>
<td>32</td>
</tr>
</tbody>
</table>

**Nb:**

**Fr:** refers to frequency  
**Act:** refers to activity
Figure04. The control group scores’ frequency (on each activity) on the pre-test

We have noticed from the first frequency polygon (see appendix B), table (04) and figure (04) that most pupils of the control group succeed in the second activity where they have been asked to classify the group of animals into two categories. The right answers regarding the new vocabulary items in the second activity were wild, domestic (See appendix A). In fact, table (04) shows that most subjects scored between (1) and (8). Thus, we can deduce that the majority of participants succeeded in this activity. After the treatment and the post-test, we would learn whether the answers this good by chance or not.

In the first activity we noticed that most pupils scored between (0) and (5); the new vocabulary items were giraffe, neck, tail, and mouse. Both words lion and cat were the frequent right answers in this activity, while in the third activity, as shown on table (05) that most participants did not succeed in crossing the odd words. In this activity, subjects found difficulties to recognize the odd word from others. Zebra, rabbit, bird, whale are the new vocabulary items in this activity, their frequency lies between 07 and 08; while the scores were between 00 and 03 out of five. It has been depicted that most pupils committed errors with wild animals' words. The aim behind the former was to test the pupils’ ability on guessing the wrong words via understanding and comprehending the new words.
3.8.1.1.2 Experimental Group

The scores of the experimental group on the pre-test were not different from those of the control group (see table 05). That is the reason behind our claim that both of them are homogenous, i.e., their level was approximately equivalent.

Table 05. Frequency of the Experimental Group’ Scores on the Pre-test

<table>
<thead>
<tr>
<th>scores</th>
<th>Fr of act 1</th>
<th>Fr of act 2</th>
<th>Fr of act 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>1.0</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>1.5</td>
<td>0</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>2.0</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2.5</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>3.0</td>
<td>0</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>3.5</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>4.0</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>4.5</td>
<td>10</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>5.0</td>
<td>9</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>6.0</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>6.5</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>7.0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>7.5</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>8.0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>9.0</td>
<td>0</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>
We can deduce from table (05), the second frequency polygon (see appendix C), and figure (05) that the experimental group obtained approximately the same results as those of the control group. The first activity received a scoring between 01 and 4.5 where the frequency of (1) was (2) and (10) for (4.5). We can deduce that most pupils succeeded in doing this activity as the participants of the control did. While we were analyzing the data collected from subjects of this group in the pre-test, we found out that the participants of the experimental group encountered the same difficulty with both words “neck” and “tail” on the one hand, and succeeded in classifying the group of animals into “wild” and “domestic” on the other one. We can suppose that the experimental group, also, relied on the illustration given by the researcher to reach the right answers. The following analysis would reveal whether the scores of this group were improved when having taught them new words using jigsaw П puzzle or not.

The frequency of the second activity lies between 01 and 09. All the words “lion”, “horse” and “cat” were the frequent right answers in this activity. It is supposed that all of them were translated to pupils’ first language which is Arabic.
Table 06. The Frequency of the Experimental Group and Control Groups’ Scores on Pre and Post tests

<table>
<thead>
<tr>
<th>Scores</th>
<th>Experimental Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-test Freq</td>
<td>Post-test Freq</td>
</tr>
<tr>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2.5</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>3.5</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>4.5</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>5.5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>6.5</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>7.5</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>8.5</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>10.5</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>------</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>11.5</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>12.5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>13</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>13.5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>14</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>14.5</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>15</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>15.5</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>16</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>16.5</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>17</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>17.5</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>32</td>
</tr>
</tbody>
</table>
Table 06 shows that the experimental group outscored the control group in the pre-test, the former with a mean of $\overline{X}_{ex} = 11.82$, and the latter with a mean $\overline{X}_{co} = 9.18$. Both groups scored less than the average 20.

For the total 32 scores, we noticed the following:

**Control Group:**
- $12 \geq 10 \rightarrow 37.5\% \geq 10$
- $20 < 10 \rightarrow 62.5\% < 10$

**Experimental Group:**
- $24 \geq 10 \rightarrow 75\% \geq 10$
- $8 < 10 \rightarrow 25\% < 10$

3.8.2 Analyzing the Effectiveness of Using Jigsaw II Puzzle

3.8.2.1 Control Group Pre-test Vs Experimental Group Pre-test

Table 07. Frequency of the control and experimental groups’ scores on the pre-test
<table>
<thead>
<tr>
<th>frequency</th>
<th>frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>2.5</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>3.5</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>4.5</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>5.5</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>6.5</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>7.5</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>8.5</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>10.5</td>
<td>0</td>
</tr>
<tr>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>11.5</td>
<td>0</td>
</tr>
<tr>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>12.5</td>
<td>0</td>
</tr>
<tr>
<td>Score</td>
<td>Control Group</td>
</tr>
<tr>
<td>-------</td>
<td>---------------</td>
</tr>
<tr>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>13.5</td>
<td>0</td>
</tr>
<tr>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>14.5</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>15.5</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>1</td>
</tr>
<tr>
<td>16.5</td>
<td>0</td>
</tr>
<tr>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td>17.5</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
</tr>
</tbody>
</table>

Figure07. Frequency of the Control and Experimental Groups’ Scores on the Pre-Test
3.8.2.2 Control Group Post-test versus Control Group Pre-test

Table (8) shows that the pre-test control group scores have one peak at 7. However, post-test scores have one peak at 8.5. In addition, scores below the average in the pre-test and post-test are more than those above the average.

For the total 32 scores, we have:

<table>
<thead>
<tr>
<th>Pre-test</th>
<th>12 ≥ 10 → 37.5% ≥ 10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20 &lt; 10 → 62.5% &lt; 10</td>
</tr>
<tr>
<td>Post-test</td>
<td>12 ≥ 10 → 37.5% ≥ 10</td>
</tr>
<tr>
<td></td>
<td>20 &lt; 10 → 62.5% &lt; 10</td>
</tr>
</tbody>
</table>

Table08. Control Group’s Pre-test, Post-test, and Difference scores

<table>
<thead>
<tr>
<th>Individual pupils</th>
<th>Pre-test</th>
<th>Post-test</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18</td>
<td>17.5</td>
<td>-0.5</td>
</tr>
<tr>
<td>2</td>
<td>16.5</td>
<td>16</td>
<td>-0.5</td>
</tr>
<tr>
<td>3</td>
<td>15.5</td>
<td>13</td>
<td>-2.5</td>
</tr>
<tr>
<td>4</td>
<td>14.5</td>
<td>15</td>
<td>0.5</td>
</tr>
<tr>
<td>5</td>
<td>9</td>
<td>8.5</td>
<td>-0.5</td>
</tr>
<tr>
<td>6</td>
<td>8</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>7.5</td>
<td>-0.5</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>8</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>7.5</td>
<td>5</td>
<td>-2.5</td>
</tr>
<tr>
<td>11</td>
<td>7</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>12</td>
<td>7</td>
<td>8.5</td>
<td>1.5</td>
</tr>
<tr>
<td>13</td>
<td>6</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>14</td>
<td>6</td>
<td>7.5</td>
<td>1.5</td>
</tr>
<tr>
<td>15</td>
<td>3.5</td>
<td>4.5</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>3.5</td>
<td>5</td>
<td>1.5</td>
</tr>
<tr>
<td>17</td>
<td>2.5</td>
<td>2.5</td>
<td>0</td>
</tr>
<tr>
<td>18</td>
<td>16</td>
<td>15.5</td>
<td>-0.5</td>
</tr>
<tr>
<td>19</td>
<td>7</td>
<td>8.5</td>
<td>1.5</td>
</tr>
<tr>
<td>20</td>
<td>7</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>21</td>
<td>4</td>
<td>3</td>
<td>-1</td>
</tr>
<tr>
<td>22</td>
<td>6.5</td>
<td>4.5</td>
<td>-2</td>
</tr>
<tr>
<td>23</td>
<td>4.5</td>
<td>5</td>
<td>0.5</td>
</tr>
<tr>
<td>24</td>
<td>13</td>
<td>12</td>
<td>-1</td>
</tr>
<tr>
<td>25</td>
<td>10.5</td>
<td>9</td>
<td>-1.5</td>
</tr>
<tr>
<td>26</td>
<td>7</td>
<td>8.5</td>
<td>1.5</td>
</tr>
<tr>
<td>27</td>
<td>12</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>28</td>
<td>14.5</td>
<td>13</td>
<td>-1.5</td>
</tr>
<tr>
<td>29</td>
<td>11.5</td>
<td>12</td>
<td>0.5</td>
</tr>
<tr>
<td>30</td>
<td>9</td>
<td>8.5</td>
<td>-0.5</td>
</tr>
<tr>
<td>31</td>
<td>13</td>
<td>11</td>
<td>-2</td>
</tr>
<tr>
<td>32</td>
<td>10</td>
<td>11</td>
<td>1</td>
</tr>
</tbody>
</table>

Mean (\(\bar{X}, d\))

\(X = 9.18\)

\(X = 9.21\)

\(d = 0.03\)
We witnessed that the control group have recorded a post-test mean $\bar{X}_{po} = 9.21$ which is not the same as the pre-test mean $\bar{X}_{pre} = 9.18$. To facilitate the examination and analysis of the control group’s amount of progress from the scores received in the pre-test to those received in the post-test, we calculated the difference scores for each participant by subtracting each pupil pre-test score from his post-test score as illustrated in table (8).

### 3.8.2.3 Experimental Group pre-test Vs Experimental Group post-test

#### Table09. Experimental Group Pre-test, Post-test, and Difference Scores

<table>
<thead>
<tr>
<th>Individual pupils</th>
<th>Pre-test</th>
<th>Post-test</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>5.5</td>
<td>10</td>
<td>4.5</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>7</td>
<td>4</td>
<td>-3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>6</td>
<td>8</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>8.5</td>
<td>15</td>
<td>6.5</td>
</tr>
<tr>
<td>8</td>
<td>9</td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td>9</td>
<td>10.5</td>
<td>12</td>
<td>1.5</td>
</tr>
<tr>
<td>10</td>
<td>11</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>11</td>
<td>11.5</td>
<td>17</td>
<td>5.5</td>
</tr>
<tr>
<td>12</td>
<td>11.5</td>
<td>10</td>
<td>-1.5</td>
</tr>
<tr>
<td>13</td>
<td>11.5</td>
<td>10</td>
<td>-1.5</td>
</tr>
<tr>
<td>14</td>
<td>12</td>
<td>18</td>
<td>6</td>
</tr>
<tr>
<td>15</td>
<td>12</td>
<td>11</td>
<td>-1</td>
</tr>
<tr>
<td>16</td>
<td>12.5</td>
<td>13.5</td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>13</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>13</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>19</td>
<td>13.5</td>
<td>12</td>
<td>-1.5</td>
</tr>
<tr>
<td>20</td>
<td>14</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>21</td>
<td>14.5</td>
<td>15</td>
<td>0.5</td>
</tr>
<tr>
<td>22</td>
<td>15.5</td>
<td>18</td>
<td>2.5</td>
</tr>
<tr>
<td>23</td>
<td>15.5</td>
<td>18</td>
<td>2.5</td>
</tr>
<tr>
<td>24</td>
<td>15.5</td>
<td>14</td>
<td>-1.5</td>
</tr>
<tr>
<td>25</td>
<td>15.5</td>
<td>18</td>
<td>2.5</td>
</tr>
<tr>
<td>26</td>
<td>15</td>
<td>14</td>
<td>-1</td>
</tr>
<tr>
<td>27</td>
<td>15</td>
<td>18</td>
<td>3</td>
</tr>
</tbody>
</table>
We noticed from both figure (9) and table (9) that the experimental group’s scores have reached a significant progress and improvement between the pre-test scores and those of the post-test. In other words, we may say that the former witnessed the most frequent scores below the average in the pre-test whereas the most frequent scores were above the average in the post-test. In addition the highest mark on the pre-test was (15.5); however in the post test, 18 was recorded as the best mark.

For the total 32 scores, we have:

<table>
<thead>
<tr>
<th></th>
<th>24 ≥ 10</th>
<th>9 &lt;10</th>
<th>31 ≥ 10</th>
<th>3 &lt; 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>75% ≥ 10</td>
<td>28% &lt; 10</td>
<td>96.87% ≥ 10</td>
<td>9.37% &lt; 10</td>
</tr>
<tr>
<td>Post-test</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
While analyzing the results of the participants of the experimental group, we noticed that the former pre-test frequency polygon begins at 02, and ends at 15.5 with peaks at 15. On the other hand, the post-test frequency polygon starts at 04 and ends at 18 with two frequent peaks at 14 and 18.

The data illustrated on the above table (table 9) showed that the mean difference score for the experimental group is $d = 2.10$. This means that there is a considerable enhancement regarding the pupils' memorization of new vocabulary in the post-test. After having taught the former new words using jigsaw П puzzle, we noticed a very remarkable progress as shown in the figure below (figure 9).

The mean of the pre-test $X_{pre} = 11.82$ increased to a marked value in the post-test $X_{post} = 13.71$.

Thus, the result implies that our treatment (teaching new vocabulary using jigsaw П puzzle) increased the pupils opportunity of building new words and had a positive influence on improving their performance and answers in the post-test.

### 3.8.2.3.1 The paired-Samples-t-test

According to Park (2009), “the paired sample t-test permits us to examine whether a two sample scores, collected from the same group on two separate circumstances, are considerably divergent or not”. In other literature, Weaver (2011) stated that “...t-test occurs when you have 2 scores for each person (e.g., before and after)” (p. 16). In terms of knowing when to use the paired t-test, you should consider using this test when you have
two continuous variables that stand for the same variable measured on two separate situations. That is to say, the participants are contributing to have a pre-test, post-test and a treatment period between the both tests. The reason behind carrying out a treatment is to investigate its effectiveness and significance on the dependent variable e.g. the teaching of new vocabulary in the current study.

There are three main reasons behind choosing the paired-sample t-test. First, the former deals with a statistical data and countable scores, i.e., the data collected from both tests is quantitative which will be illustrated via different figures, tables, and values rather than qualitative analysis. Second, the selected groups are going to be engaged in a treatment after having been tested via a pre-test before the treatment and a post-test after. Then, a comparison of their scores will be drawn. Finally, there would be a comparison between the results found in the paired-sample t-test and those stated in the t-table which will give the researcher the opportunity to validate or invalidate her/his hypotheses in our case the effect of using jigsaw n puzzle on teaching new vocabulary. In other words, the analysis of the final results and the differences obtained would help us know whether positive or negative effect is caused by the independent variable “the use of jigsaw Π puzzle.”

3.8.2.3.2 Procedure for carrying out a paired-samples t-test

In order to compare the experimental group’s pre-test and post-test scores a paired-samples t-test is to be carried out, and to accomplish this, we have to go through the following procedure:

- Calculate the difference between the pre-test and post-test scores for each participant by subtracting the pre-test from the post-test score. It is important to distinguish positive and negative differences.
- Calculate the mean difference (\( \bar{d} \)).
- Calculating the standard deviation of the differences \( S_d \), and the standard error of the mean difference, \( SE(\bar{d}) = \frac{S_d}{\sqrt{N}} \).
- Calculating the t-statistic, which is given by the equation \( t = \frac{\bar{d}}{SE(\bar{d})} \). Under the null hypothesis, this statistic follows a t distribution with N-1 degrees of freedom.
- Using the table of the t-distribution to compare the value for T to the N-1 distribution. Choose the level of significance required (normally p= 0.01) and read the critical value.
If the t-value is higher than the critical t-value, it can be said that the differences between the scores of the pre and post-test are significant at the level of probability. As a result, the alternative hypothesis is rejected and the research hypothesis is accepted.

To investigate the significance of the difference between the experimental scores on the pre and post tests, we have applied the paired-sample t-test.

**The Mean Difference:**

\[
\bar{d} = \frac{\sum d}{N}
\]

Where \( \bar{d} \) = the difference scores, \( N \) = number of subjects, and \( \sum \) = the total sum.

\[
\bar{d} = \frac{40}{32}
\]

\( \bar{d} = 1.25 \)

**The Standard Deviation of the Differences**

\[
S_d = \sqrt{S^2} = \sqrt{\frac{\sum d^2}{N} - \bar{d}^2}
\]

Where \( S \) = the variance, and \( \sum d^2 \) = the sum of the square difference scores.

\[
S_d = \sqrt{\frac{323.25}{32} - 1.25^2} = \sqrt{10.10 - 1.56} = \sqrt{8.54}
\]

\( S_d = 2.92 \)

**Table 10. The experimental group’s square difference scores on the pre and post tests**

<table>
<thead>
<tr>
<th>Pupils</th>
<th>Difference scores ( d )</th>
<th>Square different scores ( d^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>4.5</td>
<td>20.25</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>5</td>
<td>-3</td>
<td>9</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>-----</td>
<td>----</td>
</tr>
<tr>
<td>7</td>
<td>6.5</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>-1.5</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>-1.5</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>-1</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>-1.5</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>-1.5</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>-1</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>
The Standard Error of the Mean Difference

\[ \text{SE (}\bar{d}\text{)} = \frac{S_d}{\sqrt{N}} \]

\[ \text{SE (}\bar{d}\text{)} = \frac{2.92}{\sqrt{32}} = \frac{2.92}{5.65} \]

\[ \text{SE (}\bar{d}\text{)} = 0.51 \]

The T-Statistic

\[ t_{N-1} = \frac{\bar{d}}{\text{SE(}\bar{d}\text{)}} \]

\[ t_{32-1} = \frac{2.92}{0.51} \]

\[ t_{31} = 5.72 \]

Once we compute the t-value we have to look it up in a table of significance to test whether the ratio (the formula of the t-test) is large enough to say that the difference between the groups is not likely to have chance findings. That is to say that the table of critical values of t provides us with the value of our t-ratio that should go above to be statistically significant.

The total number of the experiment group pupils is 32, so, the degree of freedom (df = N-1) is 31. This means that with this group size, any t value below the critical value would have occurred by chance alone. The level of probability we set for this study is p = 0.01; therefore, the t critical value is (3.36). It is obvious that the observed t-value largely goes beyond the critical t-value.

\[ t_{\text{obs}} > t_{\text{crit}} (5.72 > 3.36) \]

Thus, the difference between pre-test scores and post-test scores for the experimental group is significant. This result allows us to reject the null hypothesis in the sense that the obtained findings were caused by the manipulation of the independent variable and not by
chance. It can also be claimed that the application of jigsaw Π puzzles as a teaching tool have an effect on building pupils’ vocabulary stock.

3.8.2.4 Experimental Group Vs Control Group on the Post-test

Table 06 shows that the post-test scores for the experimental group are significantly higher than those obtained by the control group members. Moreover, the calculated post-test mean for the experimental group is $\bar{X}_{ex} = 13.71$ higher than that of the control group $\bar{X}_{co} = 9.21$

For the total 32 scores, we have:

Control group post-test:
- $12 \geq 10 \rightarrow 37.5\% > 10$
- $20 < 10 \rightarrow 62.5\% < 10$

Experimental group post-test:
- $30 \geq 10 \rightarrow 93.75\% > 10$
- $2 < 10 \rightarrow 6.25\% < 10$

Interestingly, for investigating the significance of the difference between the post-test mean scores of both the experimental and control groups, we have used a parametric test known as the independent-samples t-test.

3.8.2.4.1 The Independent-Sample t-test

The Independent-Sample t-test is used to find out whether there is a statistically significant difference between the means of two different groups; control group and experimental group. In other words the independent-sample t-test shows the effect of the independent variable on the dependent variable. Its formula is denoted as follows:

$$ t_{N_1+N_2-2} = \frac{\bar{x}_1-\bar{x}_2\sqrt{(N_1+N_2-2)N_1N_2}}{\sqrt{(N_1S_{1}^2+N_2S_{2}^2)(N_1+N_2)}} $$

$x_1$= individual score. $\bar{x}_n$= the calculated mean. $x_{1}^2$= square score. $N_x$= number of individuals. $\sum x_i$= sum of scores. $\sum x_i^2$= sum of square scores. $S_x$= sample variance.

In order to confirm the independent variable (jigsaw Π puzzle) on the dependent variable (pupils’ vocabulary stock), and reject the null hypothesis, the calculated t should go beyond the tabulated t at a particular level of probability ($p=0.01$).

Control group (pre-test)

$$ \sum X_1 = 294. \sum X_1^2 = 3238. \bar{X}_1 = \frac{294}{32} = 9.18 $$

Control group (post-test)

$$ \sum X_2 = 295. \sum X_2^2 = 3164. \bar{X}_2 = \frac{295}{32} = 9.21 $$

Experimental group (pre-test)
\[ \sum X_1 = 378.5 \cdot \sum X_1^2 = 4862.75. \bar{X}_1 = \frac{378.5}{32} = 11.82\]

**Experimental group (post-test)**
\[ \sum X_1 = 411. \sum X_1^2 = 6465.5. \bar{X}_1 = \frac{411}{32} = 12.84 \]

**Sample variance:**

**Control group**
\[ S_2 = \frac{\sum X_2^2}{N_2} - \bar{X}_2^2 = \frac{3164}{32} \cdot 9.21^2 \]
\[ = 98.87 - 84.82 \]

**Experimental group**
\[ S_1 = \frac{\sum X_1^2}{N_1} - \bar{X}_1^2 = \frac{6465.5}{32} \cdot 12.84^2 \]
\[ = 202.04 - 164.86 \]

\[ S_2 = 14.05 \quad S_1 = 37.18 \]

**Table 11. Square Post-test Scores of both Groups on the Post-test**

<table>
<thead>
<tr>
<th>Pupils</th>
<th>Experimental group’s scores ( X_1 )</th>
<th>Square scores ( X_1^2 )</th>
<th>Control group’s scores ( X_2 )</th>
<th>Square scores ( X_2^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>16</td>
<td>17.5</td>
<td>306.25</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>100</td>
<td>16</td>
<td>256</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>64</td>
<td>13</td>
<td>169</td>
</tr>
<tr>
<td>4</td>
<td>12</td>
<td>144</td>
<td>15</td>
<td>225</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>16</td>
<td>8.5</td>
<td>72.25</td>
</tr>
<tr>
<td>6</td>
<td>14</td>
<td>196</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>7</td>
<td>15</td>
<td>225</td>
<td>7.5</td>
<td>56.25</td>
</tr>
<tr>
<td>8</td>
<td>15</td>
<td>225</td>
<td>8</td>
<td>64</td>
</tr>
<tr>
<td>9</td>
<td>12</td>
<td>144</td>
<td>9</td>
<td>81</td>
</tr>
<tr>
<td>10</td>
<td>14</td>
<td>196</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>11</td>
<td>17</td>
<td>289</td>
<td>9</td>
<td>81</td>
</tr>
<tr>
<td>12</td>
<td>10</td>
<td>100</td>
<td>8.5</td>
<td>72.25</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>13</td>
<td>10</td>
<td>100</td>
<td>8</td>
<td>64</td>
</tr>
<tr>
<td>14</td>
<td>18</td>
<td>324</td>
<td>7.5</td>
<td>56.25</td>
</tr>
<tr>
<td>15</td>
<td>11</td>
<td>121</td>
<td>4.5</td>
<td>20.25</td>
</tr>
<tr>
<td>16</td>
<td>13.5</td>
<td>182.25</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>17</td>
<td>14</td>
<td>196</td>
<td>2.5</td>
<td>6.25</td>
</tr>
<tr>
<td>18</td>
<td>14</td>
<td>196</td>
<td>15.5</td>
<td>240.25</td>
</tr>
<tr>
<td>19</td>
<td>12</td>
<td>144</td>
<td>8.5</td>
<td>72.25</td>
</tr>
<tr>
<td>20</td>
<td>14</td>
<td>196</td>
<td>7</td>
<td>49</td>
</tr>
<tr>
<td>21</td>
<td>15</td>
<td>225</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>22</td>
<td>18</td>
<td>324</td>
<td>4.5</td>
<td>20.25</td>
</tr>
<tr>
<td>23</td>
<td>18</td>
<td>324</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>24</td>
<td>14</td>
<td>196</td>
<td>12</td>
<td>144</td>
</tr>
<tr>
<td>25</td>
<td>18</td>
<td>324</td>
<td>9</td>
<td>81</td>
</tr>
<tr>
<td>26</td>
<td>14</td>
<td>196</td>
<td>8.5</td>
<td>72.25</td>
</tr>
<tr>
<td>27</td>
<td>18</td>
<td>324</td>
<td>12</td>
<td>144</td>
</tr>
<tr>
<td>28</td>
<td>18</td>
<td>324</td>
<td>13</td>
<td>169</td>
</tr>
<tr>
<td>29</td>
<td>18</td>
<td>324</td>
<td>12</td>
<td>144</td>
</tr>
<tr>
<td>30</td>
<td>18</td>
<td>324</td>
<td>8.5</td>
<td>72.25</td>
</tr>
<tr>
<td>31</td>
<td>14.5</td>
<td>210.25</td>
<td>11</td>
<td>121</td>
</tr>
<tr>
<td>32</td>
<td>14</td>
<td>196</td>
<td>11</td>
<td>121</td>
</tr>
</tbody>
</table>

\[ \sum X_1 = 411 \quad \sum X_1^2 = 6465.5 \quad \sum X_2 = 193 \quad \sum X_2^2 = 3164 \]
The t-value

\[ t_{32+32-2} = \frac{12.84 - 9.21}{\sqrt{(32+32-2)\times(32+32)}} = \frac{3.63}{\sqrt{(32+37.18+32+14.05)\times(32+32)}} \]

\[ t_{62} = \frac{3.63\sqrt{62+1024}}{\sqrt{(1189.76+449.6)\times64}} \]

\[ t_{62} = \frac{3.63\sqrt{63488}}{\sqrt{104919.04}} \]

\[ t_{62} = \frac{914.61}{323.91} \]

\[ t_{62} = 2.82 \]

Since the total number of both the experimental and control group participants is 64, the degree of freedom (df = N-2) is 62. So, when entering a t-table at 62 degrees of freedom, we find a critical t-value of 2.39 at the 0.01 level of significance. Clearly, the observed t-value is higher than the critical t-value.

\[ t_{obs} > t_{crit} (2.82 > 2.39) \]

Essentially, the difference between the two groups’ post-test means (\( \bar{X}_{ex} \) and \( \bar{X}_{co} \)) is highly significant. Therefore, the null hypothesis (H0) is rejected, and the alternative hypothesis (H1) is strongly supported, so there in only a 1% probability that the observed mean difference occurred by chance alone. That is to say, we have 99% probability that it was due to the manipulation of the independent variable.

Finally, we conclude that using jigsaw П puzzle as a teaching strategy in the EFL classroom has a significant role on improving the vocabulary learning of first year EFL pupils at Benzaoui Ahmed Lamin Middle School-Ain Beida, Oum El Bouaghi.

Conclusion

This chapter sheded light on the practical part of our research. The analysis of the collected results reveals that teaching new vocabulary seems to be a problematic issue for Algerian teachers mainly in our town Oum El Bouaghi. Besides, most pupils encounter difficulties in comprehending, and acquiring vocabulary because their teachers as well find it difficult to present new words on one hand, and selecting the effective technique on the other hand. In other words, pupils tend to forget the new words easily when having them taught new items following only the teacher’s instruction and depending only on their textbook explanation. Furthermore, the results obtained from the pre-test and the post-tests demonstrate that using collaborative techniques “jigsaw n puzzle” virtually foster and has a positive effect on the
teaching of new vocabulary. That is to say, it brought about a significant progress on pupils comprehension, memorization, and acquisition because the experimental group outscored the control group on the post-test.

**General Discussion**

This study was an attempt to explore the effectiveness of using collaborative techniques, mainly jigsaw П puzzle as a strategy on enhancing the pupils’ vocabulary learning. The research work raises the following questions:

- Does the jigsaw П puzzle technique have a positive impact on EFL pupils’ vocabulary acquisition?
- To what extent is the jigsaw П puzzle learning technique effective to the enrichment of EFL pupils’ vocabulary stock?
- Is there a significant difference in vocabulary learning between pupils who are taught vocabulary through jigsaw П puzzle and those who did through the traditional method?

To answer these questions we hypothesized the following: Implementing the jigsaw П puzzle as a collaborative strategy would enhance EFL pupils’ vocabulary stock. Also, implementing the jigsaw П puzzle as a collaborative strategy may have no effect on enhancing EFL pupils’ vocabulary stock.

Importantly, the results we have obtained from this present study indicate that the experimental group has achieved higher scores than the control group on the post-test measuring pupils’ vocabulary learning. This significant improvement is due to the use of jigsaw П puzzle technique for teaching vocabulary during the treatment. That is to say, applying jigsaw П puzzle as a strategy in teaching learners new vocabulary during the treatment period was effective since the experimental group performed better than the control group on the post-test because the later was taught vocabulary through the traditional methods. So, in view of these findings, the alternative hypothesis could be supported clearly.

**Pedagogical Implications**

The results of the present study have several significant implications:

- First, vocabulary is a central part of any language, thus, teachers must equip themselves with attractive techniques and methods of teaching it. So, the results of this research can be valuable for language teachers at the level of middle school. In carrying out the teaching of English vocabulary especially for pupils of
middle schools, English teachers mainly Algerian teachers should focus their attention on using jigsaw Π puzzle (word puzzle, picture puzzle…) in order to improve the pupils’ vocabulary.

- Second, as noticed in the actual situation of using jigsaw Π as collaborative technique in the teaching of new vocabulary to pupils of middle school, most Algerian middle schools witnessed a scarcity of using this enriching technique. Therefore, we recommend that teachers are advised to introduce this technique while presenting new vocabulary.

- Third, the findings of this research could help those dealing with foreign language teaching, such as syllabus designers, material developers, test makers…etc

- Fourth, the current research raises the importance of renewing the use of jigsaws but in a more effective way because it is proved that jigsaw Π is an effective way of enhancing vocabulary teaching to beginners.

- Fifth, the findings of this research might be appropriate not only for the teaching of new vocabulary but also for teaching pronunciation, grammar, and other skills. That is to say, we recommend that jigsaw Π puzzle can be used for these purposes and thus more research is required in this respect.

- Sixth, this study introduced several tips that make vocabulary presentation more interesting and easy for both teachers and pupils.

- Lastly, we can say that the present research discusses the implementation of jigsaw Π in teaching vocabulary to middle school Pupils. However, it is just one effort to improve pupils’ comprehension, acquisition, and memorization of new vocabulary. It is hoped, therefore, that the results of the current study could be used as an additional reference for further research.

Limitations of the study

An experimental study was applied to obtain reliable results about the effectiveness of jigsaw Π puzzle in enhancing the pupils’ vocabulary learning. Thus, in our try to fulfil a research purpose, we have faced a major problem which is related to the limited span of time. The crucial objective of using jigsaw Π puzzle in EFL classrooms is to store new vocabulary items. Thus, providing a long treatment period can permit the learners to acquire a large number of words.

General Conclusion

The current study examined the effect of using collaborative technique ‘jigsaw Π puzzle’ on the teaching of new vocabulary for two groups at ‘Benzaoui Ahmed Lamin
Middle School’ in Ain Beida. Throughout the analysis of the findings collected from the pupils’ vocabulary pre-test and post-test, it was concluded that the contribution of jigsaw puzzle on teaching new vocabulary to pupils led to a significant vocabulary improvement.

Using jigsaw puzzles inside the classroom helps them to be involved in the lesson more actively, teachers will have more time to construct enjoyable classroom activities mainly in the class work by sharing answers and drilling, trying to participate, working on the vocabulary and pronunciation as well as giving the examples through playing different kinds of games such as “who am I?” and “where do I live?” games; participating as volunteers, work and interact with each other in an intimate atmosphere, utilizing the new words in examples, and the warm-up activity.

The findings revealed that subjects in the experimental group, who had received the treatment using jigsaw puzzle, significantly showed improvement on the post-test, after the treatment. Their scores on the post-test outscored the ones on the pre-test, before the treatment. Consequently, through the alternative hypothesis, we can claim that using jigsaw puzzle is a supportive and fruitful way to enhance vocabulary teaching on one hand, and to raise pupils’ motivation, comprehension, memorization, and acquisition on the other hand.

We deduced from the analyzed data that there was a significant disparity between both groups’ scores on the post-test (the control and experimental groups). The experimental group outscored the control group on the post-test scores. That is why, it was corroborated and confirmed that teaching new vocabulary through jigsaw puzzle would lead to a better understanding, building, memorization, and acquisition than the traditional method.

Textbook designers, writers, and teachers are invited to reconsider the use of jigsaw puzzle on the teaching / learning of vocabulary at the middle school level with young pupils. They should think about the introduction of new words by using jigsaw puzzle which will be provided either by buying them from libraries or making them at home.

All in all, vocabulary is essential in the four skills namely reading, speaking, writing, and listening. The teaching of new vocabulary mainly to middle school pupils should consist of attractive techniques and materials as jigsaw puzzle puzzles which have proved in our study their productivity; it is a visual collaborative teaching technique that helps pupils to acquire and build the new vocabulary words on one side and motivates them on the other one.
REFERENCES


http://dx.doi.org/10.1038/news.2011.179


APPENDIX A: Test Used in Pre-test and Post-test

Name:                                                                 Time: 45 min

Group:

Activity one (5pts): Fill in the gaps with the appropriate words from the box:

Lion – Tail – Mouse – Neck – Horse
Giraffe – Cat – Panda – White – Noise

1. The ................has a long..............
2. Do you know that the ..............is called the king of animals
3. Tom is a ...............and Jerry is a..............
4. A............... is the animal with longest............
5. An elephant has got a long.............
6. A.............is black and.............

Activity two (10pts): Classify the following animals into the table below:

Dog /cow/tiger/cat/giraffe/horse/sheep/elephant/camel/bear

<table>
<thead>
<tr>
<th>Domestic Animals</th>
<th>Wild Animals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Activity three (5pts): Cross the odd word:

1) Cat      dog      rabbit      lion
2) Cow      zebra    giraffe    bird
3) Elephant whale    tiger    donkey
4) Eagle    parrot    dog      hen
5) Dog      wolf      fox      horse
Appendix B

Polygon 1: The control group scores’ frequency of each activity in the pre-test
Appendix C

Polygon 2: The experimental group scores’ frequency (on each activity) on the pre-test
Appendix D: Experimental Group Treatment

**Session 1:** The researcher introduces 6 different unconnected puzzles with the help of 6 short quizzes to facilitate the task. The following are the short quizzes:

“I am a big animal. I am black and white in the picture, I have got two horns, I eat grass and say –moo/moo- also I provide you with milk”

So, I am....................................................

“I am fat and small, I haven’t got 4 legs, I’ve got wings, I can’t fly very well but I can swim”

So, I am....................................................

“I am a big animal, I haven’t horns, I’m brown and I have long black tail, I can take you for a ride if you want”

So, I am....................................................

“I am fat and small, I have two legs and two wings, I give you meat and eggs, I have been raised either in homes or farms”

So, I am....................................................

“I am white and I give you my wool, I eat grass and I like to stay with my friends, I am afraid of dogs”

So, I am....................................................

“I am a cute animal, I have got four legs and long ears, I can jump well, I like carrots and I live either in farms or forests”

So, I am....................................................
At the end of the session, pupils were supposed to do a task that interprets their understanding through the game.

**Task:** complete the following sentences with the appropriate words:

1. The............. is black and .......... in the picture.
2. A hen is one of the...........animals that give us ..........and..........
3. A duck is a kind of birds which can’t..........but she can..........well.

**Session Two:** The researcher repeats the same steps as the first session but by introducing both other kinds of animals and quizzes.

“I am a big and danger animal, I have lighter brown fur, I walk like humans. Honey is my favourite food. I live in mountains and large forests”

So, I am..............................................
At the end of the second session, pupils receive another type of activity in which they are asked to give the definition of the underlined words orally (the words are animals).

**Task:** Give the definition of the underlined words

- The woman, with a blue dress, has got a beautiful **cat**.
- In weekends, Omar visits his grandfather’s farm to take a ride with his **horse**.
- My little sister enjoyed the circus very much but she got feared from the **lion**.
- Susan offered me a cute **rabbit** in my birthday.
- Last summer, we took a lot of photos with **monkeys** in Jijel.

**Session three: as usual,** The researcher follows the same structure of using quizzes, but this time by introducing puzzles about places where animals live such as: farm, forest, jungle, house...etc. The quizzes, also, are about those places.

“I’m a large area of land where domestic animals are raised and plants are grown for use as food, I have buildings where equipments such as tractors are stored and where animals are housed, people who own or work on me are called farmers.

So I’m..............................."
At the end of the session, pupils are provided by the last type of exercise which is a dialogue completion where pupils are supposed to fill in the gaps with the appropriate words.
Pupil: Which animal do you prefer?

Animal Keeper: I like elephants.

Pupil: What do they eat?

Animal Keeper: They eat fruit and grass.

Pupil: Where do they live?

Animal Keeper: They live in.............

Pupil: What about monkeys?

Animal Keeper: Well, monkeys are wild animals. So, they may live in.............as well as in.............

Pupil: Really? Did you mean that monkeys can’t live in.............as horses and cows?

Animal Keeper: No, they can’t. We cannot raise them neither in...............nor in.............as domestic animals.
Résumé

Le Vocabulaire abstrait est un élément de langage qui devrait être étudié à l'école/université. Ceci, à son tour, peut aider l’élève à réaliser sa plus grande influence dans la communication. Toutefois, l'enseignant devrait adopter une stratégie utile qui leur permet d'apprendre l'anglais facilement. Ce qui est important et le but principal de ce travail de recherche est d'étudier l'effet de l'utilisation des jeux Pi de puzzle comme une stratégie d'enseignement sur le renforcement du vocabulaire des apprenants. Les hypothèses ont été définies comme suit: l'utilisation du puzzle dans les classes d’Anglais de collège conduirait à la construction d’un vocabulaire approprié pour les apprenants débutants, et l’utilisation du puzzle dans la classe d’Anglais de collège n’avait pas aucun effet sur la construction d’un vocabulaire approprié pour les apprenants débutants. Afin de prouver notre hypothèse, une méthode expérimentale a été adoptée. Les participants étaient trente-deux élèves de collège en première année d’Anglais à Benzaoui Ahmed Lamin, Ain Beida-Oum El Bouaghi. Ils étaient divisés en deux groupes, le contrôle et le groupe expérimental. Les élèves dans les deux groupes ont été testés au préalable lors de la première réunion. Les élèves dans les deux groupes ont été testés au préalable à la première réunion avec le vocabulaire de creux enseignant correspondant de tâche. Ensuite, le groupe témoin a reçu trois séances de vocabulaire à l’aide de la méthode ordinaire utilisée par leur professeur. Toutefois, le groupe expérimental ont appris trois leçons de vocabulaire grâce à l’utilisation des jeux Pi de puzzle afin d'aider les élèves à apprendre de nouveaux éléments de vocabulaire dans une ambiance agréable et de relax. Après cela, le post-test a été fait après le traitement ont montré pour les deux groupes; t était semblable à l’essai. Les résultats montrent qu’il existe une considérable promouvant en comparant avec le pré-test et le post-test, il a été observé que l’adoption des jeux Pi de puzzle comme une stratégie d’enseignement pour l’apprentissage du vocabulaire rend les élèves plus motivés et intéressé à acquérir et construire de nouveaux mots de vocabulaire. Par conséquent, il est suggéré d'inclure des jeux Pi de puzzle comme une stratégie efficace dans l'enseignement du vocabulaire.
الملخص

المفردات هي عنصر من عناصر اللغة التي ينبغي أن تدرس في المدرسة/الجامعة لأن هذا يجوزه يمكن أن يساعد الطلاب على تحقيق مبتكارهم في مجال المحادثة والاتصال مع الغير. ومع ذلك ينبغي أن يتبع الاستاذ إستراتيجية مفيدة التي يمكن أن تساعدهم على تعلم اللغة الإنجليزية بطريقة سهلة وفعالة. تعني استخدام لعبة تركيب القطع (2) كاستراتيجية تعليمية تعمل على تعزيز الرصيد اللغوي للطالب. تم تعيين فرضيتان هذا البحث على النحو التالي: استخدام لعبة تركيب القطع (2) في نماذج اللغة الإنجليزية يؤدي إلى بناء مخزون المفردات المناسبة للطالب المبتدئ أو استخدام لعبة تركيب القطع (2) في نماذج اللغة الإنجليزية ليس له أي تأثير على بناء مخزون المفردات المناسبة للطالب المبتدئ.

لأن المفردات المطلوبة في المشاريع تم إعداد أسلوب المنهج التجريبي إضافة إلى ذلك طبقت الدراسة على نموذج يتألف من 32 طالب من السنة الأولى متوسط لإعداد اللغة الإنجليزية في مدرسة بن زاوي أحمد في عين البواقي. حيث تم تقسيم الطلاب إلى مجموعتين مجموعة الظابطة والمجموعة التجريبية. تم مسجلا اختيار المشاركين في كل المجموعتين في أول اجتماع لهم قبل إجراء العلاج عن طريق نفس الاختبار. ثم قسمت المجموعة الظابطة إلى 3 جلسات لتعلم المفردات بإتباع الطريقة العادية المتبعة من طرف معلمهم. ومع ذلك تلقت المجموعة التجريبية 3 جلسات لتعلم المفردات عن طريق استخدام لعبة تركيب القطع (2) بغية مساعدة الطلاب على التعرف على مفردات لغوية جديدة في جو مريح ويعيد منحهم لقب ناجح.

بعد ذلك تم إجراء نفس الاختبار السابق لكلا الفوجين في مرحلة ما بعد العلاج أو أظهرت النتائج أن هناك تحسن معتبر بالمقارنة بينهما قبل و بعد الاختبار حيث أن استخدام لعبة تركيب القطع مثيرة للاهتمام في تعلم المفردات اللغوية تجعل التلاميذ محفزين ومهتمين باكتساب وتخزين مفردات لغوية جديدة. واخيرا تم اقتراح استخدام لعبة تركيب القطع (2) كاستراتيجية فعالة في تعلم المفردات اللغوية الجديدة.
Summary

Vocabulary learning by far plays a crucial role for many students as it is the basis of their learning of English. However, it can be a challenging task because it is often perceived as a dull, boring and difficult. Interestingly, the present study is intended to investigate the effect of using collaborative techniques namely jigsaw П puzzle on building the vocabulary stock of middle school EFL pupils. To achieve this goal, sixty four (64) pupils of first year level were chosen from the population of Benzaoui Ahmad Lamine Middle School in Ain Beida, Oum El Bouaghi as participants of this study. The selected sample was divided into two groups, an experimental group and a control one. For the purpose of manipulating the effect of the independent variable “using collaborative technique, the jigsaw П puzzle” on the dependent variable “building new vocabulary”, a quasi experimental design was applied. Firstly, a pre-test, comprising three different activities, was administered to both groups in order to determine the pupils’ background knowledge of vocabulary. Then each group has received treatment as the experiment procedure requires but with different teaching techniques, i.e., the experimental group was taught vocabulary using jigsaw П puzzle technique applied in three vocabulary lessons, whereas the control group , who received three vocabulary session, was taught the same thing through traditional instruction given by the teacher. Then, a post-test was addressed after the treatment to both groups; it was similar to the pre-test. After collecting and analyzing the data depending on the paired-sample t-test and the independent one, the findings revealed that jigsaw П puzzle was effective in the teaching of new vocabulary, regarding the pupils’ better performance in the post-test, i.e., after treatment. In addition to that, we realized that there was a significant difference between both groups because the control group has not recorded improvement as the experimental group has. In this case, the significance of the results not only confirmed the correlation between variables, but it did validate the alternative hypothesis and reject the null one. So, it has been concluded that collaborative techniques mainly, jigsaw П puzzle enhance the building of new vocabulary because it increases their memorization, acquisition, and comprehension.

Key words: collaborative techniques, jigsaw П puzzle, teaching new vocabulary, middle school EFL pupils.