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Investigating The Impact of Brain-Based Learning Strategy in Enhancing Pupils' Vocabulary Retention

The Case of Second Year Middle School Pupils of English at Mohammed El-amine El-AMOUDI Middle School

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Dedication

I dedicate my dissertation To my loving parents, Mohamed Fethi and Fairouz for their endless love, support and encouragement.

To my sisters, Lilyane and Menna Allah

To my brothers, DjamelEddine and Djad

To my beloved cheerleader who I made a lot of memories working on this piece of research with, Ikram

To all my friends who have supported me throughout this process

To every person helps us when working this dissertation, especially Khadidja Goui

I will always appreciate all they have done.

Wiam

Dedication

Every challenging work needs self efforts as well as guidance of older especially those who were very close to us

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To my sisters Sabrine, Afifa, Douaa, and Aya

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To all my beloved ones who support me in my hard time.

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All praise to ALLAH, the source of every blessings.

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Abstract

Foreign language teachers are always in attempt to develop their pupils' vocabulary retention through the use of a diversity of strategies. One of the main strategies that focuses on boosting pupils' long term memory is Brain-Based Learning. This strategy is based on Brain-Based Learning principles in order to make the maximum use of situations in which the brain learns best. Vocabulary retention is an important component in teaching and learning a Foreign Language. Hence, most of pupils face challenges in remembering the new ones. Accordingly, the present study aims to investigate the impact of the implementation of Brain-Based Learning Strategies in enhancing pupils' vocabulary retention at Mohammed El amine EL AMOUDI middle school, Touggourt, Algeria, with a sample of second year middle school pupils within the school year 2021-2022. It is hypothesized that the implementation of Brain-Based Learning Strategies in the classroom would boost pupils' long term memory and provide more chances for better vocabulary retention. In order to investigate the impact of Brain-Based Learning in enhancing pupils' vocabulary retention, a Quasi- Experimental method is used in this study involving 33 pupils divided into two groups one experimental and one control group. A pre-test and post-test are administered to pupils to measure the effectiveness of the strategy in their vocabulary retention. Both pupils' and teachers' questionnaires were conducted with the intention of knowing the difficulties that pupils faced during learning new vocabulary, and investigating middle school teachers of English attitudes towards the implementation of Brain-Based Learning Strategy in the classroom. The results obtained after the analysis of teachers' questionnaire and pupils' questionnaire, pre-test and post-test go hand in hand with our hypothesizes and create a motivating environment for pupils and helps them enhance their vocabulary retention.

Keywords: Foreign language, Brain-Based Learning Strategy, Vocabulary retention, Middle School Pupils.

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General Introduction

1. Background of the study

At the beginning of our studying experience we have faced some difficulties in learning English as a Second language. Retaining new vocabulary was the biggest challenge that we faced that time. We have noticed that we were unable to retain vocabulary for a long time. For that reason, we started, at that time, looking for new ways and strategies related to memorization and the brain because when it comes to learning, it is well worth to be aware about the brain.

Among the many Brain-Based Learning Strategies and activities, flashcards was the activity that was the most interesting to us. Many educators (Cain & Cain, 1944; Madarazo&Motz, 2005; Jensen, 2005) shed light on Brain-Based Learning Strategy and its role in enhancing pupils' vocabulary retention. Accordingly, we decided to investigate this area that is Brain-Based Learning Strategy in order to facilitate the process of learning and have competent pupils in English language.

2. Aim of the study

The study aims to investigate Brain-Based Learning Strategy in enhancing second year middle school pupils' of English vocabulary retention in the subject of English in The Middle School of Mohammed El-amine El-AMOUDI, Touggourt ,Algeria, within the school year 2021.2022. The study also aims to help second year middle school pupils overcome some of their vocabulary retention obstacles in the subject of English through the implementation of the various activities suggested in Brain-Based Learning strategy which would facilitate the vocabulary retention process. In addition to that, the study aims to explore the attitudes of second year teachers of English towards the implementation of Brain-Based Learning Strategy in developing vocabulary retention.

3. Statement of the problem

Vocabulary is capital to English language teaching. Without enough vocabulary, pupils cannot “understand others or express their own ideas”(Fooziyeh&Khadijeh,2016, p 40).In a similar vein,it could say that learning vocabulary is the first task for pupils in acquiring new languages. Wilkin (1972,p111-112) states that “without grammar very little can be conveyed, without vocabulary nothing can be conveyed”. In other words,there is very little that can be communicated without grammar, and there is nothing that can be communicated without vocabulary.Accordingly, teachers always look for effective strategies to enhance their pupils' vocabulary retention. The current study investigates the impact of Brain-Based Learning Strategy in enhancing vocabulary retention pupils of English in The Middle School of Mohammed El-amine El-AMOUDI, Touggourt, Algeria, within the school year 2021.2022.

4. Research questions and Hypothesizes

This study intends to answer the following questions:

- Does Brain-Based Learning Strategy boost pupils' vocabulary retention?
- What are the obstacles that middle school pupils of English could face in vocabulary retention?
- What are the teachers' attitudes towards the implementation of Brain-Based Learning Strategy in developing pupils' vocabulary retention?
- How could Brain-Based Learning Strategy promote middle school pupils' vocabulary retention?

The present study is designed to investigate the followings hypotheses:

- Brain-Based Learning Strategy would enhance middle school pupils' vocabulary retention. In other words, if Brain-Based Learning Strategy is implemented, pupils' vocabulary retention would be enhanced.

- When middle school pupils of English are taught vocabulary using Brain-Based Learning Strategy, their vocabulary retention issues would be traced. Expressly, if Brain-Based Learning Strategy is implemented, pupils' vocabulary retention difficulties would be traced.
- If Brain-Based Learning Strategy is implemented during vocabulary teaching, the teaching vocabulary process would be more helpful. That is to say, Brain-Based Learning Strategy would facilitate the teaching vocabulary process.

5. Research Tools and Target population

The method used in this study is the Quasi-experimental method which is “a subtype of non-experiments that attempt to mimic randomized, true experiments in rigor and experimental structure but lack random assignment” (Cook & Wong, 2008; Cited in John & Andea, 2020, p02). The data was collected by selecting randomly a sample of 33 pupils of Mohammed El-amine El-AMOUDI middle school divided into two groups, the experimental group contains 16 pupils and control group contains 17 pupils, in order to test the validity of the hypothesis and seek answers to the questions of this research. A pre-test was administered to both classrooms before the treatment, which aims to measure pupils' current level in retaining vocabulary, a treatment took place in Mohammed El-amine El-AMOUDI middle school, Touggourt, Algeria within the school year 2021, 2022 for eight training sessions, one session for the pre-test, four sessions for the treatment and the last two sessions for the post-test and the questionnaire, pupils were taught through several strategies and activities that are related to Brain-Based Learning strategy, and a post-test that aims to investigate pupils' development in retaining the new vocabulary items. In addition to that, a questionnaire was administered to the experimental group of Second year middle school pupils of English in Mohammed El-amine El-AMOUDI middle school, Touggourt, Algeria, within

the school year 2021,2022in order to know the pupils' attitudes in retaining the new words. Another questionnaire was administered to teachers of English within the same middle school and school year in order to investigate their attitudes towards the implementation of Bain-Based Learning Strategy. The Questionnaires, the pre-test, and the post-test are analyzed and designed to assess the effect of Brain-Based Learning Strategy on enhancing second year pupils' vocabulary retention of Mohammed El-amine El-AMOUDI middle school, Touggourt, Algeria, within the school year 2021,2022.

6. Organization of the dissertation

This study is divided into two main parts: one theoretical and the other practical. The theoretical part consists of two main chapters. The first chapter deals with the definition of vocabulary retention and its importance, along with its types and some teaching techniques. The second chapter casts light on the Brain-Based Learning strategy and human brain. It defines the approach along with its principles. Also, it contains some Brain-based learning techniques, strategies, activities and its advantages in memorization. The practical part, discusses the research data analysis and collection, as well as how the results that we obtained from the Quasi-experimental method, pupils' questionnaire and teachers' questionnaire has been interpreted.

7. Definition of terms

7.1. Vocabulary

According to Oxford Advance Learner's Dictionary (2021), vocabulary is all the words that a person knows or uses and it is all the words in a particular language.

7.2. Vocabulary retention

Richard&Schmidt (2002,p457) state that it is “the ability to recall or remember things after an interval of time. In language teaching, retention of what has been taught may depend on the quality of teaching, the interest of the learners, or the meaningfulness of the materials”.

7.3. Brain-based Learning

According to Madrazo&Motz (2005,p56) Brain-Based Learning is the use of “research in neuroscience on how the brain works to gain an understanding of how students learn and develop in a classroom”.

7.4. Approach

Cambridge dictionary (2021) defines an approach as a way of considering or doing something. For example, a person's approach to life, thus, his perspective or view of life.

7.5. Method

Richards and Schmidt (2002, p330) state that the method “is a way of teaching a language which based on systematic principles and procedures”.

7.6. Strategy

According to Mintzberg (1987, p12) strategy is “unified, comprehensive, and integrated plan...designed to ensure that the basic objective of the enterprise are achieved”

7.7. Technique

The Oxford Learner's Dictionaries defines a technique as a way of dealing with somebody or something; a way of doing or thinking about something such as a problem or a task.

Chapter One: Vocabulary Retention

Introduction

Most language teachers believe that vocabulary is the single most important aspect of any language instruction without words to represent a wide range of meanings. Communication in second language cannot happen in an meaningful way, no matter how well pupils learn grammar or how well the sounds of the L2 are mastered. Yet, of all the parts of learning a foreign language, vocabulary appears to be the least systematized and well-served. Furthermore, learners tend to retain the greatest number of vocabulary in order to understand and apply the language. Therefore, this chapter sheds light on the definitions of vocabulary and vocabulary retention, besides it illustrates the importance of vocabulary, its types, discuss teaching techniques and learning style, it also defines the difficulties in learning vocabulary retention, and focusing more on the reasons behind forgetting words.

1. Vocabulary Definitions

Vocabulary is considered as a fundamental aspect in learning foreign language. This statement is supported by Hatch & Brown (1995, p 01). They open that “vocabulary is the foundation to build languages, which plays a fundamental role in communication”. In similar vein, Richards & Renandya (2002, p 255) add that vocabulary is a crucial component of language proficiency, and it provides much of the foundation for how learners talk, listen, read, and write.

McArthur (1992, p 1090) regards vocabulary as a group of words in a language that have a meaning and change from one context to the other when he states:

“Vocabulary derives from the Latin word “vocabulary” which is a list of vocabulary words. The medieval vocabulary was a list of Latin words to be learned by clerical students. It was usually arranged thematically, with a translation equivalent in vernacular language”

In addition to that, Nugroho, Nurkamto&Sulistiyowati (2012, p 04) state that vocabulary is written or spoken aspect of language as symbol of ideas in foreign language for the pupils. In another vein, Schmitt (2000, p 112) opens that “vocabulary is more than just individual words working separately in a discourse environment. Rather, once words are placed in discourse, they establish numerous links beyond the single orthographic word level”. (Cited in Nugroho, 2017, p 192)

Based on the definitions above, it can be concluded that vocabulary is the total amount of words required to transmit ideas and represent the speaker's meaning. It is a powerful carrier of meaning that forms the basis of learning a foreign language. That is why it is critical to master vocabulary. (Vopalková, 2008; Cited in Nugroho, 2017, p 192)

2. Retention definition

According to Oxford Advanced Learner's Dictionary, Retention is defined as “the action of keeping something rather than losing it or stopping it”. This means that retention is the capacity to recall or recognize what has been learned or experienced.

3. Vocabulary retention

Vocabulary retention is a significant characteristic of vocabulary acquisition in learning a foreign language.

Richard & Schmidt(2002, p 457) define vocabulary retention as “the ability to recall or remember things after an interval of time. In language teaching, retention of what has been taught (e.g. grammar rules, vocabulary) may depend on the quality of teaching, the interest of the learners, or the meaningfulness of the materials”. That is to say, before vocabulary to be recalled and generated in meaningful phrases, it must be stored in the mental lexicon or long-term memory by using valid materials for pupils.

In brief, vocabulary retention refers to the process of storing information in the mind, not to vocabulary acquisition in the classroom.

4. The importance of vocabulary

Vocabulary knowledge is often viewed as a critical tool for second language learners because a limited vocabulary in a second language makes it difficult to communicate effectively. Underscoring the importance of vocabulary acquisition, Schmitt (2000,p55)emphasizes that “lexical knowledge is central to communicative competence and to the acquisition of a second language”. Learning vocabulary items is important in all language skills (listening, speaking, reading, and writing) in English as a second language and English as a foreign language (Nation, 2011). Furthermore, Rivers & Nunan (1991) believe that acquiring a sufficient vocabulary is necessary for successful second language use since we will be unable to employ the structures and functions we have learnt for understandable communication if we do not have a large vocabulary.

Wilkins (1974, p.111) says that “without grammar very little can be conveyed, without vocabulary nothing can be conveyed”. He is implying that while learning a language, grammar is insufficient and that a greater emphasis should be placed on vocabulary, because language without vocabulary cannot transmit meaning and communication cannot take place.

Cameron (2001) also states that vocabulary is a fundamental and necessary part of the language. As a result, learning vocabulary is crucial for mastering a language.

It is clear from the preceding explanation that vocabulary plays an important role in language development in order to maintain other language skills. Along with the significance of vocabulary growth for learners' competence levels, as it plays an important role in their lives.

5. Types of vocabulary

Researchers classify vocabulary into many kinds based on many aspects. Heibert&Kamil (2005) categorize vocabulary knowledge into receptive and productive vocabulary. When listening or reading, receptive vocabulary consists of words that can be grouped, whereas productive vocabulary consists of words that can be spoken or written.(Cited in Alizadeh, 2016, p 22)

5.1. Receptive vocabulary

For Aebersold& Field (1997), *detache* or responsive lexicon alludes to dialect things that can be recognized and caught on within the setting of perusing or tuning in.

Crow & Benjamin (2013) in open lexicon; learners don't donate much significance to the spelling and pronunciation of words. In similar vein, Hycraft (1978, p.44) suggest that “those which the students recognize and understand when they happen in setting but which they cannot deliver correctly”. The understudies can get it these sorts of words within the content, but they discover trouble in production.

5.2. Productive vocabulary

According to Nation (2001) productive vocabulary carry the idea that we produce language forms by speaking or writing to convey a message to others. Similarly, Gains& Redman (1986) suggest that productive vocabulary refers to language items which the learner can recall and use appropriately in speech and writing. Additionally, they thought that through listening and reading the same item several times in the classroom, the passive vocabulary transmitted to active vocabulary.

In the same vein, Hedge (2000, p110) states that active vocabulary is when learners have the ability to produce words in writing and speaking (cited in Alfaki, 2015). Additionally, Gilbert & Beatrice(2005) show that productive vocabulary is all the words the student understands, plus all the words that they can use and produce to express their thoughts and explain exactly how they are feeling to others.

6. Vocabulary Teaching

Based on the research of Berne &Blachowicz, (2008), teaching vocabulary can be difficult because many teachers are unsure of the best practices in vocabulary instruction and don't always know where to start when it comes to putting a focus on word learning in the classroom (Cited in Alqahtani 2015).

Teaching vocabulary is an important part of learning a language because languages are built on words (Thornbury, 2002). That is to say, it's nearly hard to learn a language without words; even human communication is based on them. In similar vein, Walters (2004) argues that the learning of vocabulary is a crucial aspect in teaching a language, according to both teachers and pupils.

In addition to that, one of the most debated aspects of teaching English as a foreign language is vocabulary instruction. When the teaching and learning process is in full swing,

problems are bound to arise. Teachers will encounter difficulties during the teaching and learning process. They are having difficulties figuring out how to instruct pupils in a way that produces satisfactory results. As a result, the teacher should plan ahead of time and research acceptable approaches to use with their pupils; a skilled teacher should familiarize himself or herself with a variety of current teaching strategies. Teachers must be able to master the material in order for pupils to understand them and get engaged and enthusiastic about the teaching and learning process in the classroom.

7. Vocabulary Teaching Techniques

To prevent pupils from forgetting, implementing several vocabulary techniques by the instructor is needed. In this vein, Takač (2008) illustrates that teachers' techniques are influenced by a number of elements, including the content, time constraints, and the value of the material to the students. As a result, teachers have certain justifications for using specific vocabulary presentation approaches. Instead of using just one strategy to communicate one planned vocabulary item, the teacher frequently mixed several techniques. Furthermore, teachers are encouraged to use as many different types of vocabulary presentations as feasible (Pinter, 2006).

Here are some techniques of teaching vocabulary as stated by different scholars to teach vocabulary such as Brewster, Ellis & Girard (1992), Gains & Redman (1986), Allen (2011), and Thornbury (2002).

7.1. Visuals

Allen (2011) emphasizes the value of employing visual aids while teaching vocabulary, particularly to beginners. According to Scott (2002), visual techniques include flashcards, wall charts, drawings, photographs, and projects. He places a greater emphasis on pictures and things that allow pupils to think about the word independently or in groups. Furthermore,

these techniques are useful for teaching physical goods as well as other areas of vocabulary such as places, occupations, acts and activities, and people's descriptions.

Moreover, using visuals to demonstrate words can be a useful vocabulary technique because acquiring material visually can draw pupils' attention and engage them in the lesson. As a result, several academics emphasize the importance of visual vocabulary instruction since images inspire and motivate both analytical and visual learners during the learning process.

7.2. Using object

Visual aids and demonstration are all used in this technique. Because our memory for objects and pictures is very dependable, visual techniques can work as cues for recalling words they can assist learners retain language better Takač (2008). Furthermore, according to Gairns&Redman(1986), the real objects technique is appropriate for beginners and young learners, as well as when providing concrete vocabulary. When the vocabulary consists of concrete nouns, objects might be utilized to demonstrate meaning. When a new term is introduced by displaying an actual object, it is frequently easier for pupils to visualize the word and memorize it. Objects from the classroom or items brought in from outside can be utilized.

7.3. Mime, Expressions and Gestures

According to Klippel (1994) "mime or gesture is useful if it emphasizes the importance of gestures and facial expression on communication" (Elmahdi&Hezam, 2020). It can be utilized not only to express the meaning of a word in a reading passage, but also in speaking activities because it emphasizes communication. Mime, expressions, and gestures can be used to introduce several words. Adjectives such as "sad" and "glad"; mime and removing a hat from your head to teach hat, and so on.

Teaching gestures may be useful for learners' memorization process in addition to assisting comprehension. Indeed, many second language teachers who employ gestures as a teaching approach claim that they aid students in memorizing the lexicon of the second language. Many of them have noted that students can quickly recall a term. During the lecture, the teacher makes the gesture related with the lexical item.

7.4. Translation

Translation, or the translation of a word into a learner's native language, is one of the most prevalent procedures. However, according to some experts (Doff, 1988, p. 12), "if we merely supply a direct translation, the pupils will not be able to see how the word is utilized in an English phrase." When teachers present examples and students give the word translation, translation is straightforward, clear, and rapid for accomplishing the goal. Students may be unfamiliar with the word itself because it has been translated into other variations of the same language, such as the word "suppress," which can be translated as */yustabid/* in Arabic, (study—learn) and a slew of other words. Furthermore, translation forces pupils to organize reality in accordance with their own preferences. It is claimed that when students construct their ideas in their home language and then translate them into the target language, they face significant difficulties because some words are difficult to translate and some linguistic objects do not have structural equivalents in both languages. As the word (is) suggests (He is working hard).

Nation (1990, p 52) argues that the value of a translation depends on how and when we use it. Translation into native language has the same processes as translating pictures and descriptions in English.

7.5. Guessing from context

First language and second language reading specialists have proposed guessing from context as a technique of dealing with new vocabulary in unedited selections (Dubin, 1993). According to Nation & Coady (1988), there are two types of contexts. The first is context inside the text, which comprises morphological, semantic, and syntactic information in a specific text, and the second is general context, or non-textual context, which is the reader's prior knowledge of the topics being read.

7.6. Scale

It's a different technique to teaching word meaning. It's a good technique for pupils to review and feed what they've learned in contrasted and related subjects. Learners can learn new words as well as revise past contrasting and related words using scales, according to Grains & Redman (1997). Learners understand hot and cold, as well as how to feed in both warm and cool environments freezing and boiling towards the end.

8. Learning Styles and Vocabulary Retention

The term "learning styles" refers to how people collect, analyze, interpret, organize, and think about knowledge. Pupils have various learning styles, which are evident in the various ways in which they gain material in the classroom.

According to Keefe & Ferrell (1990, p 59) state that learning styles is “the composite of characteristic cognitive, affective, and physiological factors that serve as relatively stable indicators of how a learner perceives, interacts with, and responds to the learning environment” .

Felder & Silverman (1988) defined learning style as an individual's preferred way of acquiring, retaining and processing information (Cited in Graf, Viola, Leo & Kinshuk, 2007).

Learning styles, according to Brown (2000), are the ways in which people receive and process information in learning circumstances. He claims that one part of learning style is learning style preference, which refers to the preference for one learning scenario or condition over another. The Fleming (2006) VARK model of learning proposes that learning is composed of four major styles: visual (V), aural (A), read/write (R) and kinesthetic (K).



Figure.1.1. Types of Learning Style

8.1. Visual

Fatt (2000, p 35) says that people with a visual learning preference “see the world by constructing or remembering mental images”. Chelbi (2016, p.38) state that “visual learners show a preference for reading, drawing, and other graphic data”. A visual learner would do better on a test if the test included visual diagrams (Fatt, 2000).

As a result, visual learners may benefit from demonstrations, drawings, or other visual learning tactics, diagrams (Coker, 1996). The following are some keywords that might be used to entice a visual learner to pay attention: seeing, looking, imagining, observing, searching, and perceiving are all terms used to describe the act of seeing, looking, imagining, observing, searching, and perce (Coker, 1996).

8.2. Auditory

Auditory learners prefer sound and make more informed decisions based on what they have heard or read (Fatt, 2000). Auditory learners, according to Fatt, prefer lectures, seminars, conversations, and cassettes. Auditory learners, on the other hand, are more likely to ask questions about what they have learnt and may not have understood if they listen to tape recordings of the content (Fatt, 2000). An auditory learner would do their best on a test if they were given an oral assessment (Fatt, 2000). According to Coker (1996, p 67)“The learner may also want to visually compare his or her technique to a model demonstrating the desired movement”. Rhythm, hear, detect, tempo, and flow are some keywords to employ with auditory learners (Coker, 1996).

8.3. Read / write

According to Drago and Wagner (2004), note-takers are read/write learners. They learn more effectively by taking notes during lectures or reading tough content. As a result, Read/Write students prefer knowledge presented in the form of words and text-based input and output. As a result, PowerPoint, the internet, lists, dictionaries, and thesauri could all be employed as teaching tools for reading/writing students.

8.4. Kinesthetic

Individuals that favour kinesthetic learning communicate with their surroundings through feelings or feelings. "Kinesthetic learners like to learn by doing, using the trial and error method" (Fatt, 2000). A kinesthetic learner learns through doing, which allows them to construct and develop what they've learnt (Fatt, 2000).Furthermore, a kinesthetic learner would perform better on a test with task-oriented questions (Fatt, 2000).

9. Difficulties in learning vocabulary retention

Identifying the issues that pupils confront is the first step in successfully teaching language. According to Thornbury (2004, 27), the following variables contribute to the difficulty of certain words:

9.1. Spelling

Although most English spelling is fairly law-abiding, there are some glaring irregularities that can contribute to a words' difficulty. For example, listen, headache, climbing, bored, honest, cupboard, muscle, and other words with silent letters pose significant difficulties.

9.2. Pronunciation

According to researchers, difficult-to-pronounce terms are more difficult to learn. In addition to that, Thornbury (2002, p 27) opens that “words with clusters of constants such as ‘strength’ or ‘crisps or breakfast’ are problematic”. That implies the words with clusters are difficult to pronounce and may cause students to become confused while learning, say, two consonants in the same word.

9.3. Grammar

Also complicated is the grammar related to the word, mainly if this differs from that of its L1 equivalent. Remembering whether or not a verb like enjoy, love, or wish is observed through an infinitive (to swim) or an \pm ing form (swimming) can upload to its difficulty.

9.4. Length and Complexity

Long words appear to be no more difficult to learn than short ones. However, because high frequency words in English are short, students are more likely to come across them, which is positive factor “learnability”.

9.5. Meaning

When the meanings of two words overlap, learners are likely to mix them up. Cook and do are a good example: you make breakfast and schedule an appointment, but you also do the dishes and fill out a questionnaire.

9.6. Range, connotation and idiomatic

Words that may be employed in a variety of situations are seen as being easier than synonyms with a narrower range. As a result, compared to *impose, place, position*, and so on, *put* is a fairly broad verb. *Thin* is also a better bet than *skinny, slim, or slender*. Uncertainty about the meanings of some terms might also be problematic. In English, propaganda has a bad connotation, although its equivalent might simply be publicity. Excessive, on the other hand, has no negative connotations in English, but its closest translation in other languages may be deviant. Finally, idiomatic phrases or expressions (such *make up your mind, keep an eye on...*) are more difficult to learn than terms with a clear meaning (*decide, watch*).

10. Multimodality

According to Melisa Ferguson (2021) stated that Multimodal learning engages students with content through a variety of modalities or communication outlets. It is based on the VARK learning style model, which states that different students learn better through visual, auditory, reading/writing, and kinesthetic interactions with knowledge. Pictures and graphics are necessary for visual learners. Auditory learners require face-to-face encounters to hear

content. Texts are preferred by students who learn best via reading and writing. Kinesthetic learners prefer to learn by doing. While some students prefer one learning style over another, others achieve best when they use a combination of two or more modalities.

In this vein, teachers use a variety of tools and activities to target many modalities throughout a lesson in multimodal learning. This entails using a range of media to augment content delivery, measuring students' understanding through diversified applications of topic mastery, and personalizing feedback to meet the material presentation and assessment, as well as students' capacity to interpret the teacher's observations. This move from print-based to multimodal education highlights the need to reconsider how teaching and learning are conceived, handled, and implemented. Meaningful learning, according to Kolb & Kolb (2005), does not occur in a single method, but rather in a unity of circulation because the brain works in unison while learning. Teaching should begin with a brain investigation.

Conclusion:

Finally, the acquisition of vocabulary is critical to learning any language. So, while vocabulary is an important component, most pupils struggle to learn new words. Learners, in particular, struggle to recall and create terminology that they have learnt. Teachers, on the other hand, must choose instructional tactics and practices that will create a positive learning environment and encourage students to enhance their vocabulary retention. This chapter discussed the value of vocabulary, the causes for losing words, and vocabulary training approaches.

Chapter Two: Brain-Based Learning Strategy

Introduction

Nowadays, a going number of new theories and strategies are used to get rid of the limitation of traditional way of teaching and enhance pupils' participation, acquisition and retention. Hence one of the main problem students' face during learning is retaining the newly vocabulary, Brain-Based learning is considered one of the main effective strategies that tries to make connections between human brain the teaching process.

Importantly, this chapter gives an overview about the aims of Brain-Based Learning strategy. It defines Brain-Based Learning and represents the human brain and its parts and functions. Also, it explains how the brain learns and represents the twelve principles of Brain-Based Learning strategy. This chapter also illustrates several techniques, strategies and activities that are related to Brain-Based Learning strategy. It shows the effectiveness of Brain-Based Learning Strategy on enhancing pupils' vocabulary retention. The chapter comes to end with conclusion that covers all the previously mentioned points.

2.1. Brain-Based Learning Definitions

New technologies have allowed scientists to observe the brain functions. These findings have provided new knowledge about the different ways in which the human brain naturally learns best. Brain-Based Learning focuses on meaningful learning rather than the traditional methods which concentrate on memorization (Tufekci & Demirel, 2009, p 1782). That is to say, it is not easy for the brain to learn or understand something illogic or meaningful.

This strategy has many definitions which are given by several experts and educators.

According to Jensen (1998) Brain-Based Learning is defined simply as the interdisciplinary answer to the question of “what is the most effective way of brain’s learning mechanism” (Cited in Eick 2008, p03). Jensen (1995/2000) added that it is “as learning accordance with the way the brain is naturally designed to learn” (Cited in Connell, 2009, p29). Hence, Greenleaf (1998) argues that Brain-Based methods of learning shed lights on how the brain processes, interprets, links, store, and receives messages. In other words, Brain-Based Learning Strategy implements the latest findings in neuroscience research about how the brain works in order to understand how pupils learn and retain information.

For Olaoluwa & Ayantoye (2016, p 449) this strategy is based on the biology of human brain. Indeed, it deals with how the brain learns, assimilates, thinks, and remembers. In simple, understanding how the human brain works and learns and then connecting it to the teaching and learning process is known as Brain-Based Learning.

Materna (2000) opines that Brain-Based Learning aims to boost the learning potential, different to the traditional approaches and methods, and provides learning and teaching system for teachers. (Cited in Ozden & Gultekin, 2008, p 02). Additionally, it is an open framework activity which encourages all pupils to participate in the classroom. Sousa (2016) argues that Brain-Based Learning includes the engagements of emotions, making meaning,

nutrition, enhancing environment, music and absents of threats the seek of maximum pupils participation and achievements. (Cited in Uzezi& Jonah, 2017, p 02)

In brief, Brain-Based Learning is such a teacher facilitated and learner centered strategy that utilized learners' cognitive endowments and can effectively reach all pupils' individual needs. (Tafi&Kadkhodaie, 2016, p141)

2.2. The Brain

Learning is essential aspect in human life. The learning process mainly tacks place in the brain. As a result the brain becomes the determining factor in thinking about learning. Therefore, exploring the brain its parts and functions is fundamental to facilitate the learning process for both pupils and instructors. In this vein, Politano&Paquin (2000, p 05) state that “learning about the brain gives us the foundation we need to teach our students about their learning..... As we learn more about the brain, we are able to appreciate its complexity and power”.

The brain is the most complicated and connected organ in human body. A theorist like Jensen (2005) compares it to a head of cauliflower in shape. Whereas, Cain &Cain(1991, p 26) compare it to a large city on earth divided into many areas working together in the same time, they opine that “the brain is parallel processor”. This means that it can process many different information at ones.

Additionally, the human brain weights around three pounds. Hence it represents only about two percents of the body; it is responsible for many aspects in the whole body. Indeed, Salvk in (2004, p 17) argues that:

“The brain is not only the control centre of the entire human body, organizing our behaviours and biological functions, but it is also the seat of our humanity. It defines who we are, how we act, and the very nature of our species”.

Accordingly, Perry (2000) asserts that teachers do not need to be neuroscientists or psychologists in order to know how the brain structures, functions, and learns. The process of teaching can become more effective when teachers understand how the brain senses, processes, stores, and retrieves.

2.3. Parts and Functions of the Brain

2.3.1. Cerebrum

The largest part of the brain is called the cerebrum. It represents nearly 80 percent of the brain weight (Sausa, 2016, p 20). The cerebrum is divided into two hemispheres (left and right). The left hemisphere controls the right side of the body and is responsible for analytical and verbal skills such as interpretations, mathematics, reading, writing, gives structure, and order ideas. While the right hemisphere controls the left side of the body and it is responsible for generalized concepts. Sprenger (2002) states that it is related to strong emotion responses, intuition, images, music, and summarising (Cited in Clemons 2005, p 03). Each hemisphere is divided into four lobes namely: the occipital lobe, the temporal lobe, the frontal lobe, and the parietal lobe. Each lobe has specific work and is responsible for specific activities. These latter are connected to each other with neurons and cells which make the brain well connected.

The occipital lobe is existing at the back of the brain above the cerebellum. This area is responsible for vision. The temporal lobe involves memory, hearing, making meaning, learning and language. It is located around the ears on the both sides of the brain. The frontal lobe is founded around the forehead. It deals with purposeful activities like problem-solving,

judgement, senses, creativity and holds short-term memory. The parietal lobe is at the top and back of the brain. It includes high sensory information such as touch, taste, pain, and pleasure. Also, it concerns with language function.

2.3.2. Cerebellum

The cerebellum is Latin for “the little brain”. It represents 11 percent of the brain’s weight. It is located right behind the brain stem, below the rear part of the cerebrum. It involves non-ending impulses of muscles and neurons which make this area responsible for coordinating movement, thoughts, and emotions. Moreover, a person who has damage in this area would have difficulties in performing automatic skills such as catching a ball, completing a handshake and tying a shoelace because the cerebellum stores the memory of the automated movements.

2.3.3. Brain Stem

The brain stem is the lowest area of the brain. Sousa (2016, p18) states that “it is often referred to as the reptilian brain because it resembles the entire brain of a reptile”. It acts as a shift centre connecting the lower brain with the middle of the brain and the cerebral hemispheres. As well as, it is responsible for controlling and monitoring vital body functions like heartbeats, digestion, body temperature and breathing.

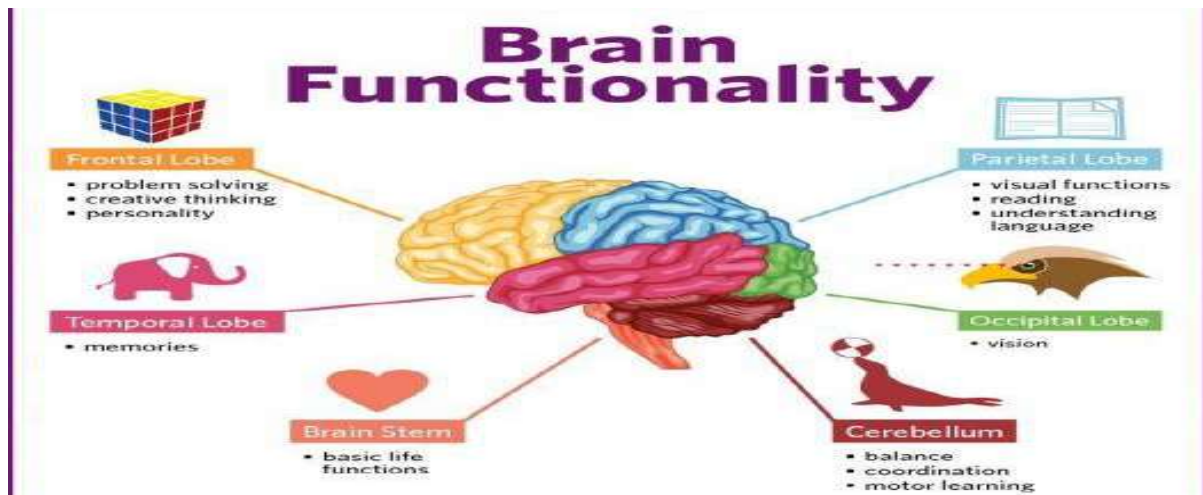


Figure2.1. Parts and Functions of the Brain

2.4. How Does the Brain Learn

To understand how does the brain learn, a study of brain cells and neurons is needed. The brain is composed of trillion cells that are interconnected by electrical circuits. Two known types, which are basic to learning things and storing information, are called neurons and glial cells(Clemons,2005, p 03).As an individual learns neurons form connections with one another. For Clemons (2005, p03) learning takes place when two neurons communicate with each other. Sousa (2016, p22) defines neurons as “the functioning core of the brain and the entire nervous system”, where as the glial cells labours’ is to “hold the neurons together and act as filters to keep harmful substances out of the neurons” (p 21).

Springer (1999) agreed that every new information neurons received, a thousands of branches emerging called dendrites. She opened that when two neurons communicate with each other, neuron transmits messages a long an axon and moves across small space between neurons called synapses (Cited in Eadens, Ray, Eadens&Shirer, 2013, p 52). Synapses allow neurons to contact with each other (because there is no direct contact between neurons) as information travels through the brain (Stevens& Goldberg, 2001; Cited in Clemons, 2005,

p03). Ultimately, the connections between neurons make learning; if the teacher makes the connections stronger yet the new information would state forever.

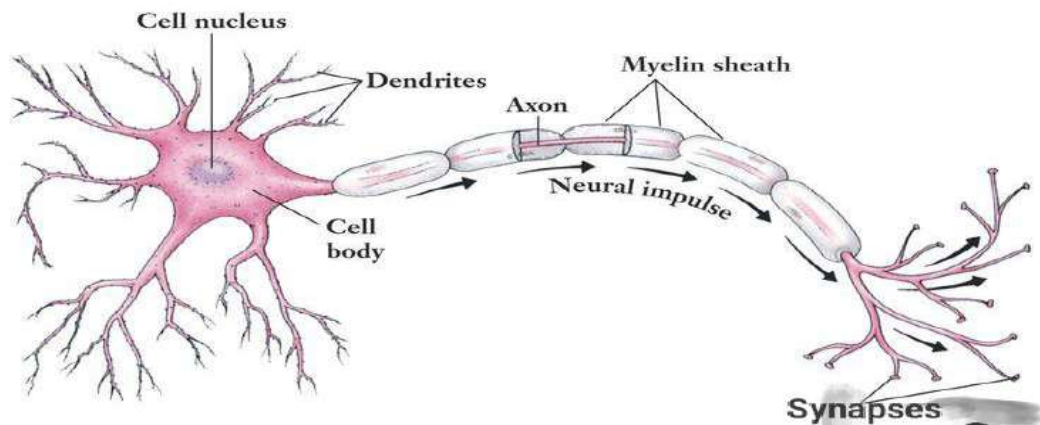


Figure2.2. Neuron

To say it differently, teachers should repeat the new information by implementing different strategies and activities to motivate their pupils and promote fun learning, which would facilitate their pupils' remembering and making them learn the new information by connecting it to their past knowledge.

2.5. Twelve Principles of Brain-Based Learning

Based on the findings of neuroscience about how the brain works and learns Caine & Caine (1995, p 44) and Caine & Caine (1991, p 79 - 90) developed twelve basic principles that can be considered as “general theoretical foundation” (Caine & Caine, 1991, p 79) of Brain-Based Learning strategy to apply it in the classroom. It gives a theoretical system for effective learning and teaching process. In addition to that, it seeks the best conditions of the learning process, increase academic achievement, and provide equal opportunities for individual differences learning style (Duman, 2010, p 2081). These principles introduce the human brain learning process, and consider as the basis for teaching by engaging the human brain. These are the following:

2.5.1. The brain is a parallel processor

This means that the human brain is able to process different information at the same time. Caine & Caine (1991, p 80) argue that emotions, thoughts, imagination and predispositions operate currently and interact with information process. Therefore, teachers can benefit from this aspect by using various methods and theories that lead to orchestration. In the same light of thought, Slavkin (2004, p 39) inserts that teachers and parents should implement this fact and utilize “colourful posters, interesting stimulations, and complexity when designing information to be learned”.

According to Kolb and Kolb (2005) meaningful learning does not exist in one way but in circle unity because the brain works in unity during learning. (Cited in Uzezi& Jonah, 2017, p 02) This later will make the learning process effective, understood and easy to occur.

2.5.2. Learning engages the entire physiology

The human brain is a physiological organ that functioning in accordance with physiological rules, everything influence this physiological function influence the capacity of learning. As well as, the brain is affected by stress and threat differently from peace, happiness, boredom, and challenge. As a result, teachers should provide a relaxed environment for their pupils for successful learning.

Moreover, the learning is a natural process as breathing in the brain, but it can be inhibited or facilitated because pupils’ beliefs, attitudes, school, and life experience influence the learning process. Hence, teachers should provide proper activities for their pupils that would encourage them to become interested and engaged.

In this vein, O’shea, Kimmel & Gibborns state that pupils’ attitudes towards the subject can be related to educational achievement in different way either to reinforce higher or lower

performance (Cited in Ayantoye & Olaoluwa, 2017, p 450). In addition, the timing of learning is influenced by the natural development of the body and the brain as well as by natural cycles and rhythms for instance there can be a five-year difference in maturation between two pupils in the same age.

2.5.3. The search for meaning is innate

According to Caine & Caine (1991, p 81) “the searching for meaning is survival oriented and basic to the human brain”. In other words, searching for meaning is a natural basic inhuman brain. It tries to make sense of everyday life experience. As a result, teachers should design exciting and meaningful lessons. Indeed, the classroom environment needs to be helpful to raise pupils’ curiosity, discovery and challenge.

In similar vein, Tafti & Kadkhodaie (2016, p 141) assert that “teachers should actively take advantage of these natural processes by designing and orchestrating lifelike and enriching experiences for learners, to ensure that students process experience in such a way as to increase the extraction of meaning”. Indeed, teachers need to let their pupils discover new information themselves and give them several challenging activities. In this way, they would stabilize and familiarise the things that they are learning easily.

2.5.4. The search for meaning occurs through patterning

Nummela & Rosengren (1986) assert that patterning “refers to the meaningful organization and categorization of information”. (Cited in Caine & Caine 1986, p 81) Therefore, the brain is designed to perceive and generate patterns. Students learn better if they can make meaning and connection between what they are learning and their own life.

In this vein, Slavkin (2004, p 40) opens that “The children do not feel they are better learners because they are “smart” or “memorize more”, but they actually make sense of what

is being taught to them". In the light of that, teachers should allow their pupils to express what they have learned in various ways. Once pupils are able to connect patterns and create meaning of what they are learning, they will then feel free to express themselves and get engaged in classroom activities.

2.5.5. Emotions are critical to patterning

As a basic concept of Brain-Based Learning is that emotions influence and organizes the ability of learning. Rosenfeld (1988) opens that emotions are crucial to memory; they facilitate the storage and remember information. As a results, teachers need to be aware about their pupil' feeling and attitudes. They have to maintain a close and harmony relationship with respect and acceptance with their pupils in and out of the classroom. In general, teachers should implement effective communication strategies to help their pupils overcome anxiety and enhance their abilities to express their ideas without being fear of criticized.

2.5.6. The brain process parts and wholes simultaneously

The human brain is divided into left and right hemispheres which communicate with each other. Each one has different components and labours. However, the two hemispheres are inextricably interactive; they designed to work together as one team. During the time that one side is reduces information into parts; the other side functions with it as a whole.

2.5.7. Learning involves both focused attention and peripheral perception

As a matter of fact, the brain is able to absorb information of which it is immediately paying attention, but it also incorporates the information that lies beyond the field of attention. In this vein, O'keefe&Nadel (1978) states that this means that the brain is affected by the entire sensory context in which education or communication takes place. Therefore, all pupils can understand effectively when their attention and interest is deepened. Accordingly, in order

to enhance pupils' interest and enthusiasm in learning, teachers need to show their enthusiasm first. This latter will draw the pupils' attention to the learning materials and process.

2.5.8. Learning always involves conscious and unconscious processes

The instructors must give a connection from the pupils' previous learning to develop a connection and generate meaning for what they are currently studying. This procedure primes the pupils' unconscious minds to act in their advantage, after which they consciously absorb the new information.

2.5.9. We have at least two different types of memory: spatial(autobiographical) and rote learning (taxon memory)

Spatial memory system does not need rehearsal and allows for instant memory of experiences. However, the rote memory identifies skills and facts that are needs repetition in order to keep it in the long term memory.

2.5.10. We understand and remember best when facts and skills are embedded in natural, spatial memory

Pupils learn language through multiple interactive experience including vocabulary and grammar. This means that, the experimental learning is the greatest way to invoked spatial memory. Thus, lessons should be parts of experience including real life activities such as stories, drama, metaphors, and interaction of various subjects in order to enhance pupils' retention and learning second language.

2.5.11. Learning is enhanced by challenge and inhibited by threat

Jensen (2005, p 55-56) opens that emotions have a strong impact in learning and memory; "The more interest the emotional state, the more likely we are remember things". In

the same line of thought, the brain learns perfectly when appropriately challenged. However, it downshifts under threats. Accordingly, Teachers should provide a state of relaxed alertness in pupils by using various activities which could make low in threat and high in challenge in the classroom environment.

2.5.12. Each brain is unique

Although all humans have the same set of system, each brain differs to the other in every individual in the way humans behave, think, and learn. This is a result of the integration of genetic factors and life experience. For that reason, teachers should provide various choices in the classroom to attract pupils' brains to become interest in the learning process and able their brains to work at its best.

2.6. Instructional Techniques Associated with Brain-Based Learning

As matter of fact, the aim of Brain-Based Learning Strategy is to maximise the learning and teaching process and develop environments in which the brain learns best (Kandasamy, Ibrahim, Jaafar&Zaid, 2021, p 28). Educators such as Caine & Caine (1991), Caine et al (2015) and Jensen (2005) have put three instructional techniques related to Brain-Based Learning namely: Relaxed alertness, Orchestrated immersion, and Active processing in order to encourage pupils gain new skills and provide a relaxed learning environment for successful education.

2.6.1. Relaxed alertness

According to Caine & Caine (1995, p46) the term relaxed alertness means challenging pupils in proper way while maintaining a low level of threat. In other words, Pupils need to feel safe in order to take risk. In addition to that, Pool et al (1997) state that if the teacher's goal is to change pupils' thinking style by making connection between the old and the new

knowledge, pupils' must feel safe and require a challenging relaxed alertness.(Cited in Ozden&Gultekin, 2008, p 03)

2.6.2. Orchestrated immersion

In the work of Gozuyesil&Dikici (2014, p 643), orchestrated immersion refers to a pupils' "concentration on the contents they encounter. Accordingly, teachers need to provide a rich environment full of interesting activities to engage pupils in the content they are tackling. Moreover, using real and rich experience would help them to learn easily. In the same line of thoughts, Caine & Caine (1995, p 46)state that pupils learn from entire experience and physical context such as ongoing activities, brief events, and social interaction. In similar vein, Gulpinar (2005, p 302) states that orchestrated immersion is a "giving optimal opportunities for learning by providing learners rich, complex and realistic experiences; giving the learners time and opportunity to make sense of their experiences by reflecting, finding, and constructing meaningful connections in how things relate and, during the whole processing, by presenting efficient tutorial".

In very real sense, in orchestrated immersion teachers have to create an environment in which pupils feel that they are a participants and living the process.
(Ramakrishnan&Annakodi, 2013, p 237)

2.6.3. Active processing

As its name indicates, it is a technique allows pupil to consolidate and internalize information by actively processing it. Also, it refers to pupil's ability to continuously and actively process the new information in order to integrate, consolidate, and relate it in meaningful and coherent way. (Caine & Caine, 1991, P 147)

2.7. Brain-Based Learning Vocabulary Strategies

Brain-Based Learning provides a variety of learning instructional strategies which depend on the results of the studies made about the human brain and how it learns. These strategies are carefully designed for language learning and development of pupils' retention. Indeed, these strategies implement Brain-Based Learning principles in order to help pupils promote their long term memory, facilitate the use of authentic target language and clarifying colloquial expressions. However, they differ from one aspect to another. They share the same roles and goals.

2.7.1. Chunking

This strategy attempts to help pupils activate their vocabulary acquisition and retention, along with promoting their fluency and accuracy in language production.

Among all the definitions, Wray's (2000, p: 465) definition is the most prestigious one. He claims that chunking is:

“A sequence, continuous or discontinuous, of words or other meaning elements, which is, or appears to be, prefabricated; that is, stored and retrieved whole from memory at the time of use, rather than being subject to generation or analysis by the language grammar”.

In brief, chunking is a combination of two or three words commonly found to work together and have specific meaning such as collocations, fixed expressions, idioms which can be stored and retrieved spontaneously as a whole unit in the language acquisition process. Teachers should implement this strategy in the classroom to help their pupils not to focus on the individual words of the phrases, but to give more attention to the whole chunks. This can enhance their pupils' long term memory and vocabulary retention (Sprengr, 2010).

2.7.2. Repetition

Most studies on vocabulary learning strategies such as Schmitt (1997), Nation (2001), and Mitton (2009) shed light on repetition strategies and its impacts in consolidating the new vocabulary. In the one hand, Altalhab (2018, p 149) suggests that repetition strategies (oral/written) positively affect vocabulary retention; especially in recalling the meaning and the form of word knowledge. In the other hand, Jensen (2005, p 39) opens that too much of the same things can be boring to pupils. Thus, he introduces several principles to teachers for interesting repetition. Figure 2.3 below shows these principles and when to use them.

Activity	When To Do It
Pre-exposure	Days, weeks, months, years ahead (covert)
Previewing	Minutes, hours ahead (overt coming attractions)
Priming	Seconds, minutes (covert exposure)
Reviewing	Minutes after learning (overt)
Revision	Hours, days, weeks later (overt)

Figure 2.3. Variation on Repetition (Jensen 2005, P 39)

Accordingly, teachers need to implement several interesting repetition games and activities such as back to the board, half a crossword, and pictionary to promote their pupils' short and long term memory and motivate them to engage with the vocabulary been learned.


2.7.3. Semantic Mapping

Zahid&Abdi (2012, p 2274) state that Semantic Mapping involves “drawing a diagram of the relationships between words according to their use in particular text”. They open that Semantic Mapping has the function of bringing relationships in a text to consciousness in order to improve comprehension and create association networks for words. It is best known

as a collaborative effort between the teacher and pupils. Due to the varies use of the strategy, Ward (1988) states that semantic mapping has been widely employed as pre-reading or pre-writing strategy, as a post check of comprehension, as well as for general vocabulary development. In guided, Buzan’s study (2000) showed that semantic mapping can be used to improve memory, increase recall of information, developed ideas and cognitive structure(Cited in Al-Otaibi, 2016, p 281).

2.7.4. Frayer Model:

Frayer Model is a graphic organizer implemented for vocabulary analysis and building. It aims at enhancing pupils’ understanding the meaning of an unknown vocabulary and helping them to internalize the word or concept so that it becomes a part of their everyday vocabulary. It provides definition, characteristics, examples and non examples (synonyms and antonyms) and an oval in the centre for the word being studies. (Alashy, Qoura&Gohar, 2019, p 14)

<p>Definition</p> <ul style="list-style-type: none"> - Unwilling to change one's purpose or opinion. - Determined to have your own way. 	<p>Characteristics Picture Sentence</p> <p>"Come with me you obstinate mutt!"</p> 
<p>Synonyms (Examples)</p> <ul style="list-style-type: none"> - stubborn - disobedient - determined - hard-headed - inflexible 	<p>Antonyms (Non-Examples)</p> <ul style="list-style-type: none"> - obedient - flexible - yielding - willing

Word
Obstinate (adj)

Figure2.4. Example of a Completed Frayer model created by a student (Dazzeo&Rao, 2020, p 37)

In brief, teachers should decide what framework and strategies they shall choose to focus on according to their pupils' needs, learning styles, and proficiency in learning vocabulary.

2.8. Brain-Based Learning Activities

Activities does not make you smart, but it makes you able to focus and learn (Sprenger, 2010). When it comes to teaching vocabulary instructors use a variety of activities and exercise in order to facilitate the understanding of the target words and bring it to their long term memory. Sprenger (2010) added that activities ready neurons to connect more easily better than any other factor.

Brain-Based Learning Strategy shed lights on varies vocabulary activities which could enrich the learning environment and assist all pupils with varying learning styles to better learn and retain of the subject matter. In similar vein, Ramakrishnan&Annakodi (2013, p 236) state that “Brain-based Learning activities engage both hemispheres of the brain simultaneously, resulting in stronger, more meaningful learning experiences and permanent brain connections”. Some of these activities are mentioned in the table below.

Table.2.1. Brain-Based Learning Activities

Brain-Based Learning activity	Brief Definition	Benefits
Flashcards	ForNugroho, Nurkamto&Sulistiyowati (2012, p 05) Flashcards are cards with word or words, number or picture on it, on either or both sides, used in the classroom by teacher and pupils.	<ul style="list-style-type: none"> - Help pupils learn and memorise new words. - provide visual link between L1 and the target language. -Useful for presenting, practicing and revising vocabulary or like stimulates for other activities.
Vocabulary Notebook	According to Oxford online English vocabulary notebook is “a small book when you recall new words”.	<ul style="list-style-type: none"> - Helps pupils to incorporate new words into already known language repertoire. - Using the new vocabulary in different context more than just knowing its meaning. - Facilitates acquiring knowledge about such aspects like: spelling, pronunciation, connections and collocations. - The student can assess and monitor his/her learning and take responsibility of his/her learning.
Songs	Many educators such as Medina, (1993); Mishan, (2005); Murphy, (1992) state that music is a great language package that combines culture, vocabulary, listening, grammar and a variety of other language components in just a few rhymes, and for many people from all the world. (Cited in Alipour, Gorjian&Zafari, 2012, P 140)	<ul style="list-style-type: none"> -Makes pupils more attentive and increase their desire to learning a language. - create more opportunities for revision which is fundamental for storing and recalling. - Helps pupils overcome the problem of retaining the new vocabularies.
Crossword Puzzle	Sabiqoh (2016) defines crossword puzzle as an effective and useful teaching tool for terminology, definitions, spelling, and linking essential concepts with related. (Cited in Tambaritji&Atmawidjaja, 2020, p589).	<ul style="list-style-type: none"> - Increasing retention and memory. - Trains pupils to remember words and their meanings, because it is a game that is related to discovery and formation of words. - Encourages pupils to use their language in a creative and communicative manner.

2.9. The effect of Brain-Based Learning on Vocabulary retention

Vocabulary retention is “the ability to keep the acquired vocabulary and retrieve it after a period of time to use it in different language contexts” (Mohammed, 2009, p 16). It has been indicated by many researchers such as Flose (2006), Altalhab (2018) and Al-Otaibi (2016) that vocabulary retention plays a crucial role in language mastery. However, pupils face some difficulties in acquiring the new items and fail to store it in their long term memory. In this vein, Richards (2001) opens that the failure in retention of vocabulary may be due to the prevalent traditional teaching pedagogies in which language teachers still implement strategies and pedagogies taken from the print mode of meaning-making to teach vocabulary items.

In the light of what has been said, Brain-Based Learning Strategy has come as a new version in the curriculum of teaching and learning process which aims to help pupils overcome some of their difficulties and identify the abilities of the human brain for teachers and how they would benefit from it in their classrooms to improve both pupils’ learning and current teaching practices.

According to Tafi & Kadkhodaie (2016, p 143) Brain-Based Learning Strategy had more positive benefits in improving pupils’ learning and retention, than the traditional teaching, suggesting it is more effective dealing with educational issues. In one hand, Achor & Gbadamosi (2020, p12) indicate that pupils may find this strategy very exciting, and knowledge acquired may stay forever. In the other hand, the findings of Kyado, Achor & Gbadamosi (2021, p 88) also imply that Brain-Based Learning Strategy is capable of creating meaningful learning and lasting experience in the mind of pupils. In addition to that, it helps pupils to practice which makes information constant. Moreover, Brain-Based Learning sheds lights on employing stories that engage many areas of the brain (because they may include

experiences, memories, feelings, ideas, actions), it includes various emotional triggers that are helpful in retrieving information (Sprenger, 2010).

In brief, Brain-Based Learning Strategy enriches input by operating various teaching approaches while establishing a secure classroom environment where learners are encouraged to take risks (Jacobs, 1997, p07).

Conclusion:

As a new paradigm of teaching, Brain-Based Learning Strategy implements findings about the human brain that intends to maximise the teaching and learning process. As it has been indicated in this chapter, Brain-Based Learning Strategy works on developing pupils' memory, comprehension, retention and production by engages several principles, activities, techniques and strategies. Thus, teachers should understand the new strategies, reflect up on them, and choose the appropriate one according to their pupils' needs.

Chapter Three: The Field of Work

Introduction:

This chapter is devoted to the practical part of this research work. It emphasizes the steps and research tools employed. It describes Quasi-Experimental method, the target population, and the tools of the research namely pupils' questionnaire, teachers' questionnaire, and pupils' pre and post test.

The current chapter efforts to investigate the impact of Brain-Based Learning Strategy in enhancing pupils' vocabulary retention through the analysis of the obtained findings. The results of the obtained findings from the two questionnaires and the pre and post tests, would go hand on hand with the propositions or disconfirm our hypothesis about the implementation of Brain-Based Learning Strategies in boosting pupils' vocabulary retention in the classroom. The current study aims to either support the alternate hypothesis that applying Brain-Based Learning Strategy in the classroom would increase Middle school pupils' vocabulary retention, or to support the null hypothesis that applying Brain-Based Learning Strategy in the classroom would not enhance Middle school pupils' vocabulary retention.

3.1. Research Design

Research methodology is a “way of systematically solve (...a) research problem” (Korthari, 2006, p 07; Cited in Asgari&BaptistaNunes, 2011, p 33). The research methodology used in this study is one of the most prevalent kinds of research which is the Quasi-Experimental Method. The reason why the writer chose this method because it offers practical options for conducting impact evaluations in real world setting, (White & Sabarwal , 2014, p 01). They (2014, p 10) defined it as “a comparison group that is as similar as possible to the treatment group in terms of baseline (pre-intervention) characteristics”. The study was carried out with two intact groups selected randomly. The first group defined as experimental group and the other as the control group.

In the light of that, Quasi-Experimental method involves a pre-test, a treatment, and post test. The pre-test was administered before the treatment to pupils of both groups, Richard& Schmidt (2002, p 409) stated that a pre-test is “a test given before learning has occurred” which aims to measure pupils’ current level in retaining vocabulary. After that, a treatment took place at Mohammed El-amine El-AMOUDI middle school, Touggourt, Algeria within the school year 2021/2022. It took eight training sessions during the second semester. The control group had undergone learning vocabulary through the regular strategy while the experimental group was taught using Brain-Based Learning techniques and strategies. A post-test was administered to both groups in order to measure pupils’ improvement in vocabulary retention and learning.

In addition to that, two questionnaires were designed for this study. According to Brown (2001, p 6) the questionnaire is: "[...] any written instruments that present respondents with a series of questions or statements to which they are to react either by writing out their answers or selecting them among existing answers" (Cited in Mackey and M. Gass, 2005, p 92). The first questionnaire was administered to the experimental group in order to know the pupils’ attitudes in retaining the new vocabulary. And the second questionnaire was administered to teachers of English within the same middle school and school year in order to investigate their attitudes towards the implementation of Brain-Based Learning Strategy in the classroom.

3.2. Target population

Participants are regarded one of the most important components of any research work. According to Marczyk et al. (2005, p 18) the term population refers to the total number of participants who the researcher is interested in. These people are of the same level (Cited in Labiod, 2007, p 23). In similar vein, Singh (2006, p 82) states that the population or universe

is the complete mass of observations, which is the parent group from which a sample is to be produced. Only an approximation of population characteristics can be derived from the sample observations. As a result, it's important to clarify what "sample" means, Riazi (2016, p 284) defines the sample as “a small proportion of a population which researchers consider for study when investigating a particular topic”.

3.2.1. The Pupils

The entire population of our present study is made up of second year middle school pupils' at Mohammed El-amine El-AMOUDI, Touggourt, Algeria. It composed of a sample of 33 pupils' from a total population of about 90 pupils is divided into two groups. The experimental group contains 16 pupils and control group contains 17 pupils. This population has been chosen because the second year pupils are at the beginning of the stage of acquiring and retain new vocabulary.

3.2.2. The Teachers

The study participants are the sample of 03 middle school teachers of English selected randomly from the same middle school, all of them are women. The reason behind this choice is to explore their attitudes towards the implementation of Brain-Based Learning Strategy in the classroom.

3.3. Research Instruments

In this study, the following instruments have been implemented: pre-post vocabulary learning test to measure pupils' vocabulary learning before and after the treatment and two questionnaires are clarified in the above figure (Research instruments) to collect data for a deep investigation and from a great source of insight.

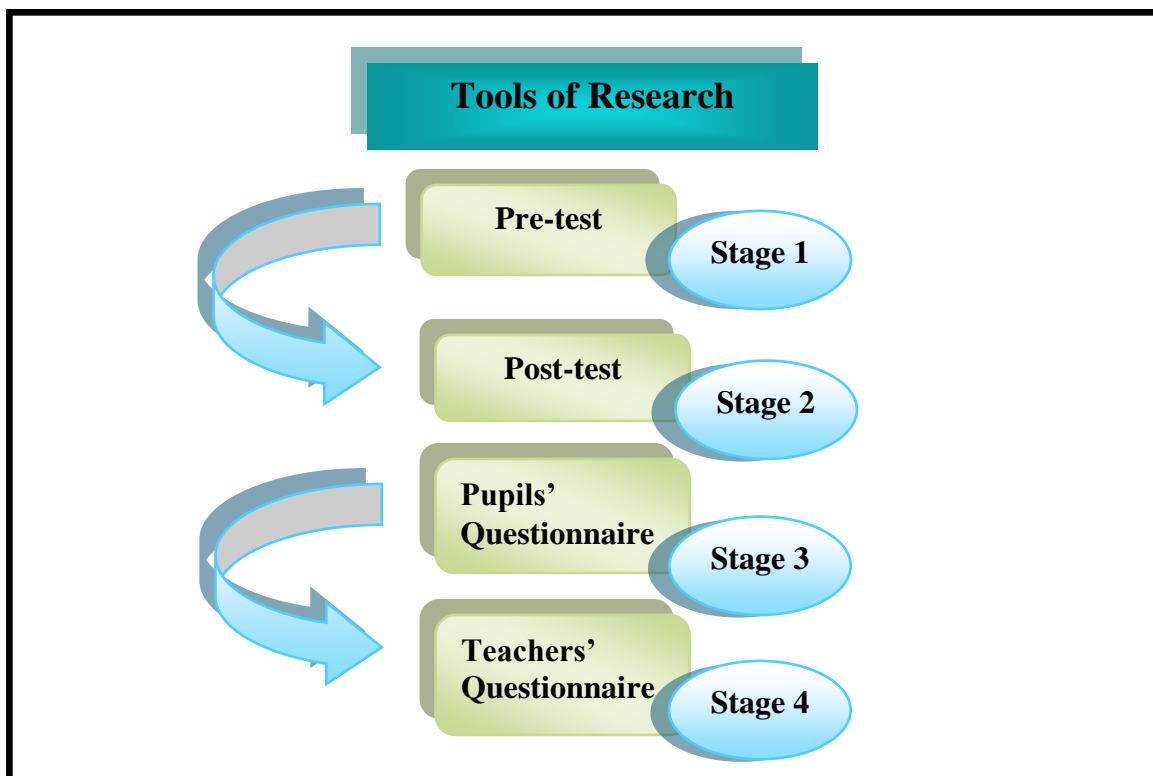


Figure.3.1. Research Instruments used in the present study

3.3.1. Description of Pre-test

In order to examine the participants learning and vocabulary retention prior-knowledge, a pre-test was developed before the treatment for both groups (experimental group and the control group) at Mohammed El-amine El-AMOUDI, Touggourt, Algeria, within the school year 2021/2022. The pre-test contains 04 tasks. The first task aims at investigating pupils' distinguishing between the words from different contexts by crossing the odd word from each list. The second task intends to check pupils' remembering of the words meaning and spelling by asking them to add a new word has a close meaning to the context of each list. The third task shed lights on testing pupils' ability in knowing the antonym of the words using matching task. The fourth task aims at distinguishing pupils' vocabulary retention by writing the correct name under the correct picture.

3.3.2. Description of treatment

The treatment consist of 04 training sessions which conducted from the experimental group that contains 16 pupils who were taught using Brain-Based Learning strategies and techniques in their learning process. In the first session we start the lessen with a warming up activity namely “semon says”; pupils were asked to imitate and act like us; we were say in utterances such as “semon says stand up, semon says turn left” with faint music .This activity aims at implement the technique of orchestrated immersion which intends to focus on pupils’ emotions and motivate them in the classroom. The first lesson aims to enable pupils produce the shapes by themselves and how they can form and ask about them. We used drawing, repetition, “picture this” and matching task to teach the new items and achieve the goal of this lesson.

The second session the lesson was under the title of “Shopping for furniture”. The goal of this lesson was to enable pupils to form questions about shape, size, colour, and price. By the beginning of the lesson we used flashcards (see appendix VII)containing picture of the shapes as a warming up activity. Then we used a dialogue containing all the questions mentioned before to teach them for pupils in indirect way, and a role play to give pupils the opportunity to practice in the pronunciation of the words been taught. By the end of the lesson we asked pupils to write a dialogue about the same subject to produce what they have learned. The last two sessions, the subject was about “Public places” and “Showing the way”. The objectives of these lessons are to enable pupils to identify the public places, using preposition of directions to showing the way. At the beginning we start the lesson by introducing public places to pupils by implementing the visual aids (video) and flashcards (directions and public places, see appendix VII). Then we drew a city map in the board and gave pupils a situation in which they were able to produce a dialogue about giving directions to showing the way

with our guidance. The fourth session includes different tasks and activities about what pupils have taught in the third session.

All in all, the treatment took one hour for each session. The treatment was done in good conditions; we tried to maximise pupils' learning and motivation by giving them different tasks and rewards.

3.3.3. Description of Post-test

For the sake of measuring the extent to which the treatment benefited pupils in the experimental group, a post test was designed for both groups. It consisted of four tasks; the first task aims at assessing the effect of implementing flashcards in vocabulary retention by using matching task between the picture of the shape and its name. The second task tries to distinguish pupils' vocabulary remembering by writing the correct name under the correct picture. The third task intends to discover pupils' ability to understand the meaning of the words and differentiate between the noun, the verb, and the object to form a correct sentence. The fourth task was designed to assess the value of using a short passage and maps in pupils' retention by giving them a list of words and asking them to fill in the gaps with the correct words by using the city map to help "Ahmed" to go to the hospital.

3.3.4. Description of the Questionnaire:

Two questionnaires have been employed in this study one for teachers and one for pupils. The questionnaires include multiple choice (MCQ) questions, where the Teachers/Pupils put a tick in the appropriate boxes after reading the questions carefully; some of the questions are open-ended requiring both pupils and teachers to write full answers. The questions results have been used to investigate the impact of Brain-Based Learning strategy in

enhancing pupils' vocabulary retention and their attitudes to implement the strategy in the classroom.

3.3.4.1. The pupils' Questionnaire:

The pupils' questionnaire was constructed for second year pupils of Mohammed El-amine El-AMOUDI middle school. It composed of (25) questions in total divided into four sections. The first section contains personal information about pupils. While the second section has questions that tend to stimulate pupils' attitudes about learning vocabulary. The third section aims to gain information about pupils' vocabulary retention. And the last section deals with Brain-Based Learning Strategy.

The pupils' questionnaire was given to 33 pupils out of a total of 90 who made up the target population. Pupils were given the same knowledge and instructed to work individually. Their responses are kept private, and their participation is greatly welcomed. All of the questionnaires were filled out in the presence of the researcher, who went over each question with the pupils one by one. The pupils spent over 30 minutes completing the questionnaire. The questionnaire was administered in good conditions.

3.3.4.2. The teachers' Questionnaire:

The teachers' questionnaire was designed for second year middle school teacher of English of Mohammed El-amine El-AMOUDI, Touggourt. It includes 20 questions divided into 04 sections. The first section is about the teachers' background. The second section tackles the teaching vocabulary process. While the third one deals with the process that teachers implement to help their pupils retain the new vocabulary. The last section assesses the teachers' attitudes towards the implementation of Brain-Based Learning Strategy in enhancing pupils' vocabulary retention.

This questionnaire was administered to 03 teachers of English. And it took for them almost 30 minutes of their time.

3.4. Description of findings

3.4.1. Description of the pre-test results

3.4.1.1. Crossing the Odd Word Task

As seen in the table below; the pupils’ scores can be classified into two main categories. The first category involves (06) pupils who have scored between (0) and (2) out of (5)points, making up (37.5%) of the total number. The second category which represent the majority of pupils’ number; it includes (10) pupils who have scored between (3) and (5) points which means they represent (62.5%) of the total number.

Table3.1. Crossing the Odd Word Task

Categories	Category 01	Category 02	Total
	0/5 - 2/5	3/5 - 5/5	
Number	06	10	16
Percentage	37.5%	62.5%	100 %

3.4.1.2. Adding a Word to the List Task

From the table below, the pupils’ scores can be classified into two categories. The first category consists of (09) pupils’ who have scored between (0) and (2.5) out of (5), making up of (56.25%) of the total number of pupils. The second category contains (07) pupils who have scored between (3) and (5) out of (5)points which means they represent (43.75%) of the total number of pupils.

Table3.2. Adding a Word to the List Task

Categories	Category 01	Category 02	Total
	0 /5 - 2.5/5	3/5 - 5/5	
Number	09	07	16
Percentage	56.25%	43.75%	100%

3.4.1.3. Matching Antonyms Task

As it's clear from the table and the graph below, the two categories are equal. Both of them made up of (08) pupils, making up (50%) of the total number. The first category have scored between (0) and (02) points, whereas the second category have scored between (03) and (05) out of (05) points.

Table3.3 Matching Antonyms Task

Categories	Category 01	Category 02	Total
	0/5 - 2/5	3/5 - 5/5	
Number	08	08	16
Percentage	50%	50%	100%

3.4.1.4. Picture This Task

According to the table and the graph below; the pupils' scores can be divided into two categories. The first category includes (06) pupils who have scored between (1) and (2) out of (5) points, making up (37.5%) of the total number. The second category represents the majority of the total number. It involves (10) pupils who have scored between (03) and (05) points, making up (62.5%) of the total number.

Table3.4.Picture This Task

Categories	Category 01	Category 02	Total
	1/5 - 2/5	3/5 - 5/5	
Number	06	10	16
Percentage	37.5%	62.5%	100%

According to the table below, the pupils' scores of the correct answers in the experimental group can be classified into three main categories. The first category contains (03) pupils who have scored an excellent marks between (18.5) and (19.5) out of (20) points, which means they have scored between (92.5%) and (97.5%) of the total number of the correct answers. The second category consists (08)pupils. They have scored an average marks between (10) and (13) points, making up (50%) and (65%) of the correct answers. The third category involves the lowest marks. Five pupils in this category have scored between (01) and (8.5) points, making up (5%) and (42.5%) of the correct answers.

Table3.5. Pre-test Scores and percentages of the Experimental group

Pupils Task Scores	Crossing the odd word	Adding word to the list	a Matching the antonyms	Picture this	Pre-test scores	Percentage of the correct answers
P1	2	3	5	3	13	65.5%
P2	4	2	1	3	10	50%
P3	3	1.5	3	1	8.5	42.5%
P4	2	0	1	1	4	20%
P5	3	5	1	3	12	60%
P6	5	4.5	5	5	19.5	97.5%
P7	5	3.5	5	5	18.5	92.5%
P8	3	2.5	2	5	12.5	62.5%
P9	3	0.5	1	2	6.5	32.5%
P10	0	0	0	1	1	5%
P11	0	3	5	2	10	50%
P12	4	4.5	5	5	18.5	92.5%
P13	4	3	5	1	13	65%
P14	2	0.5	1	3	6.5	32.5%
P15	3	0	2	5	10	50%
P16	2	0.5	5	3	10.5	52.5%

3.4.2. Description of post test results

3.4.2.1. Matching the Shape with Its Name Task

The table and the graph below reveal that the first category consists of (10) pupils who have scored between (0.5) and (2) out of (2.5) points. While, the second category includes (06) pupils have scored a full marks, making up (37.5%) of the total number.

Table3.6. Matching the Shape with Its Name Task

Categories	Category 01	Category 02	Total
	0.5/2.5 – 2/2.5	2.5/2.5	
Number	10	6	16
Percentage	62.5%	37.5%	100%

3.4.2.2. Picture This Task

The table below and the graph show that the majority of pupils' have scored a full mark (6/6) in this task (see category 03). This category involves (07) pupils who represent (43.75%) of the total number. While the second category contains (06) pupils who have scored between (04) and (05) points, making up (37.5%) of the total number. The minority represents category(01) which includes (03) pupils. They have scored between (1.5) and (03) points out of (06), making up (18.75%) of the total number.

Table3.7. Picture This Task

Categories	Category 01	Category 02	Category 03	Total
	1.5/6 – 3/6	4/6 – 5/6	6/6	
Number	3	6	7	16
Percentage	18.75%	37.5%	43.75%	100%

3.4.2.3. Reordering Words Task

Based on the results of the table and the graph below, the pupils' marks divided into three categories. The first and the second category consists of (07) pupils, making up (43.75%) of the total number. The first category has scored between (0) and (2.75) out of (5.5) points. While the second category has scored between (03) and (05) out of (5.5) points. The third category contains (02) pupils who has scored a full mark in this task, making up (12.5%) of the total number.

Table3.8. Reordering Words Task

Categories	Category 01	Category 02	Category 03	Total
	0/5.5 – 2.75/5.5	3/5.5 – 5/5.5	5.5/5.5	
Number	7	7	2	16
Percentage	43.75%	43.75%	12.5%	100%

3.4.2.4. Showing the Way Task

According to the table below, pupils' scores can be classified into three categories. The first category includes (05) pupils who have scored between (01) and (02) out of (06) points, making up (31.25%) of the total number. The second category consists (07) pupils who have scored between (03) and (04) points, making up (43.75%) of the total number. The third category has scored a full mark in this task. It includes (04) pupils, making up (25%) of the total number.

Table3.9. Showing the Way Task

Categories	Category 01	Category 02	Category 03	Total
	1/6 – 2/6	3/6 - 4/6	6/6	
Number	5	7	4	16
Percentage	31.25%	43.75%	25%	100%

Table3.10. Post-test scores and Percentage of the Experimental group

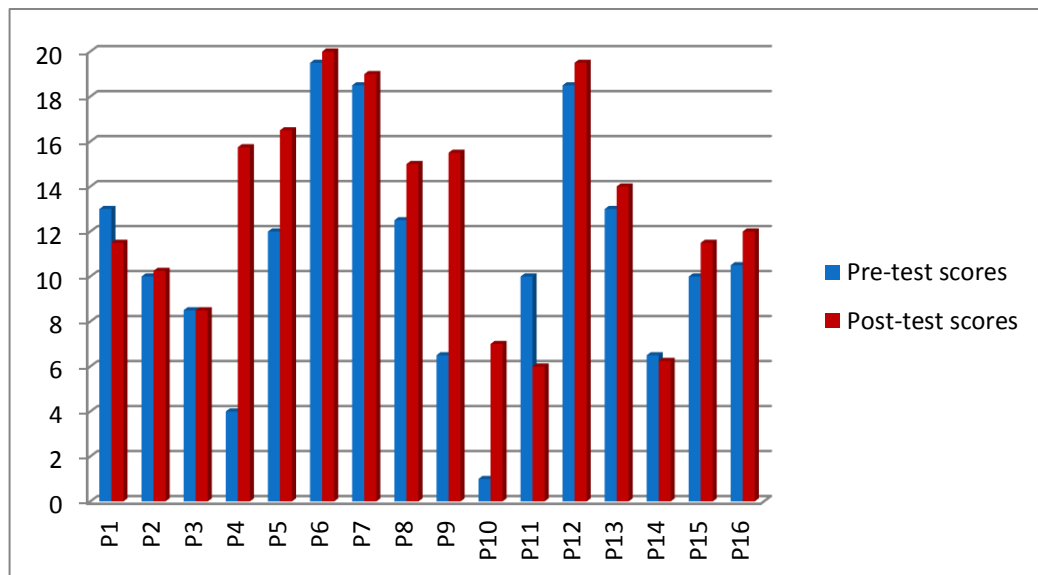
Pupils Task	Matching the shape with its name	Picture this	Reordering words	Showing the way	Post-test scores	Percentage of correct answers
Scores						
P1	2.5	6	0	3	11.5	57.5%
P2	2.5	6	0.75	1	10.25	51.25%
P3	0.5	4.5	2.5	1	8.5	42.5%
P4	1.5	6	2.25	6	15.75	78.9%
P5	2.5	5	5	4	16.5	82.5%
P6	2.5	6	5.5	6	20	100%
P7	1.5	6	5.5	6	19	95%
P8	1.5	6	4.5	3	15	75%
P9	1.5	5	5	4	15.5	77.5%
P10	0.5	1.5	1.5	4	7	35%
P11	1	3	0	2	6	30%
P12	2.5	6	5	6	19.5	97.5%
P13	2.5	4	3.5	4	14	70%
P14	1	1.5	2.75	1	6.25	31.25%
P15	1.5	4	3	3	11.5	57.5%
P16	2	5	3	2	12	12%

The table above represents pupils' post-test scores and percentage of the experimental group after receiving the treatment by implementing Brain-Based Learning Strategy to see how well they have improved. As it seen in the table, it is recognised that there is change in

pupils' scores of the correct answers. Firstly, seven pupils have got an excellent marks between (15) and (20) out of 20 points; which means they have scored between (75%) and (100%) of the correct answers. The second category includes (05) pupils who have scored between (10.25) and (14) points, making up percentage between (51.25%) and (70%) of the correct answers. The third category represents the minority. It consists (04) pupils who have scored between (06) and (8.5) of the correct answers, making up percentage between (30%) and (42.5%) of the correct answers. Generally, most of the pupils have developed their marks according to the pre-test

3.4.3.The Comparison of pre-post test results

The following graph shows the comparison between pre-post test results of the experimental group.



Graph.3.1. The Comparison between Pre-post test Results of the Experimental Group

The graph above represents the difference of marks of pupils according to the pre-test and post-test. It shows that most of the pupils have improved their marks according to the pre-test such as (p4, p5, p9). It illustrates that most of them have scored above (10) points,

this means that the training sessions where Brain-Based Learning Strategy is implemented to teach vocabulary, was constructive.

Table3.11. The difference between pre-test and post-test of the experimental-group

	Total Score	Mean
Pre-test	174	54.40%
Post-test	208.25	62.08%

The table above represents the total score of the pre-test and post-test of the experimental group. It shows that pupils' score in the pre-test was (174) pointed by a mean of (54.40%) as a percentage of the correct answers. Whereas, in the post-test they have scored (208.25) points by a mean of (62.5%) as a percentage of the correct answers. This means that they have increased by (34.25) points in comparison with the pre-test.

3.4.4. Description of pupils' Questionnaire

Section one: General Background

Question01: Age

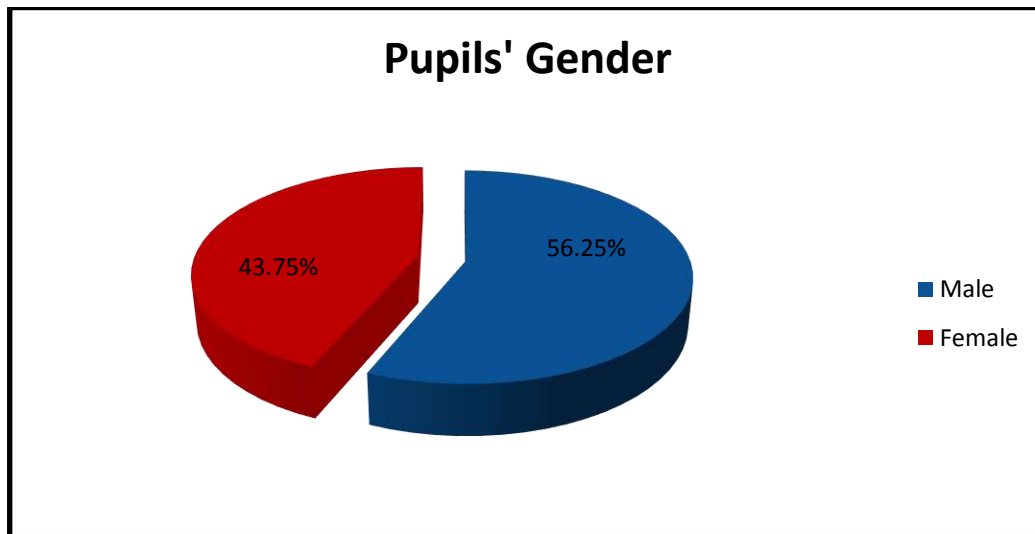
The table below classifies pupils' age into two groups. (81.25%) of pupils their ages are less than 13 years, while (18.75%) of pupils represent who are more than 13 years.

Table.3.12. Pupils' Age

Years	Less than 13 Years	More than 13 Years
Number	13	3
%	81.25%	18.75%

Question02: sex

The graph below shows that male pupils are (9), making up (56.25%). whereas the rest are 7 girls, making up (43.75%) of the total number.



Graph.3.2. Pupils' Gender

Question03:How long have you been learning English?

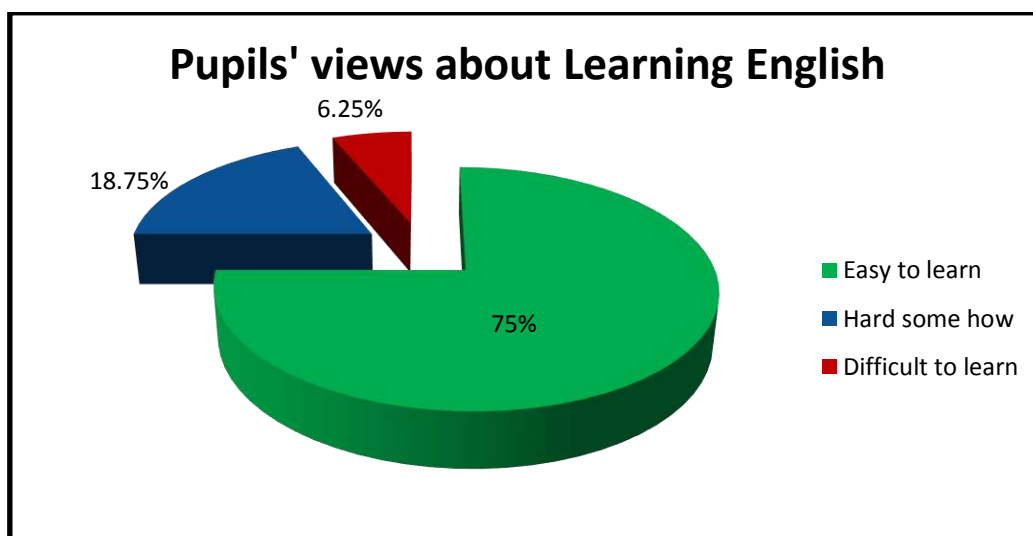
The table below indicates that the majority of pupils (11), making up (68.75%) of pupils' number have been studying English for less than 3 years. Whereas (5) pupils have been studying it for more than 3 years, making up (31.25%).

Table.3.13. Pupils' Years of learning English

Options	Number	%
Less than 3 Years	11	68.75%
More than 3 Years	5	31.25%
Total	16	100%

Question 04: how do find learning English?

The graph below demonstrates middle school pupils' attitudes toward English language learning. It is clear that the majority of the pupils (75%) find it easy to learn. While the answers with hard to learn making up (18.75%). Whereas(6.25%) of pupils find it difficult to learn.



Graph.3.3. Pupils' Views about Learning English

Section 02: Learning Vocabulary

Question 05: Do you think that learning vocabulary is important in learning English?

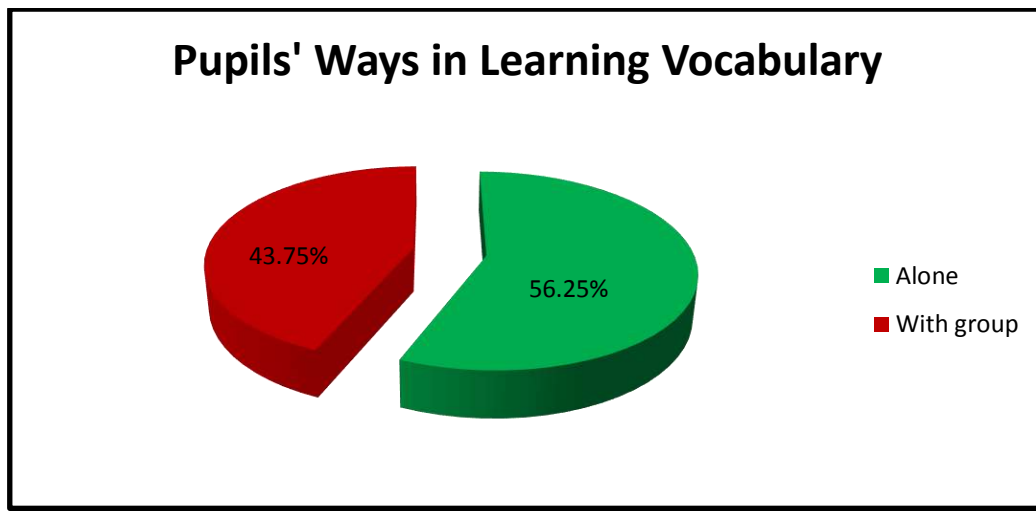
The answers shows that the majority of participants think that vocabulary is important in learning English, i.e. (93.75%), making up (15) of pupils, and they opt on "Yes". While one pupil opts on "NO", making up (6.25%).

Table.3.14. Pupils' Options about the importance of Vocabulary in Learning English

	Yes	No	Total
Number	15	1	16
%	93.75%	6.25%	100%

Question 06: How do you often prefer to learn English vocabulary?

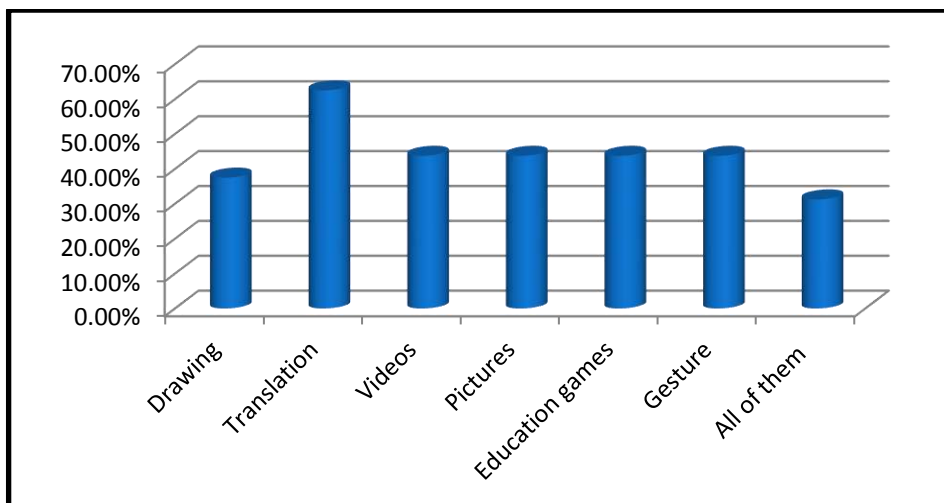
As is it noticed below in the graph, which is clearly seen that (9) pupils prefer to learn English vocabulary alone, making up (56.25%). In contrast (7) pupils chose to learn English vocabulary with group, making up (43.75%).



Graph.3.4. Pupils' ways in Learning Vocabulary

Question 07: What does your teacher use to facilitate learning new words in the classroom?(You may choose more than one answer)

The graph below shows the methods that teachers use in the classroom to facilitate learning new vocabulary. A considerable number of pupils represent (62.5%) have revealed that their teacher use translation. Whereas, the use of videos, pictures, gestures have making up (43.75%) for each one of them. In addition to that, (6) pupils making up (37.5%) have reported that their teacher use drawing. While some pupils making up (31.25%) claim that their teacher implements all the mentioned methods.



Graph.3.5. Teacher Methods to Facilitate the Learning Vocabulary Process

Question 08: Which of the methods that are mentioned above you find it more helpful in understanding and learning vocabulary?

This question aims to investigate pupils' helpful method in understanding and learning new vocabulary. The majority of pupils assert that translation, drawing, videos are the more effective one for them. The figure below shows an example about pupils' response to this question.

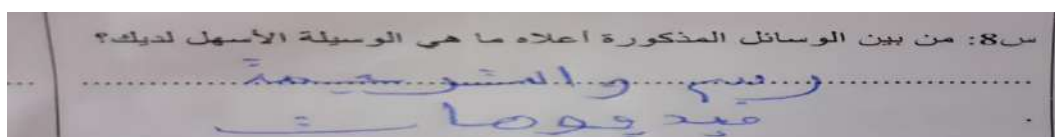
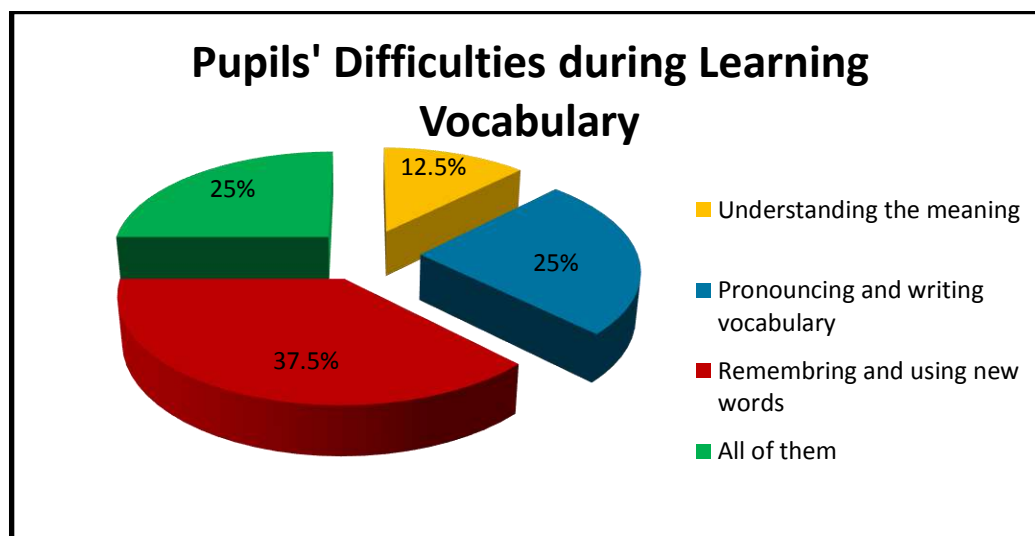


Figure.3.2. Pupils' Favourite Methods in Learning Vocabulary

Question 09: What are the difficulties that you face during learning vocabulary?

The current question aims to investigate where pupils' face more difficulties while learning vocabulary. According to the graph below, "remembering and using new words" are ranked the top (37.5%), making up (6) pupils. In the second place come "pronouncing and writing vocabulary" and "all of them" with the same percentage (25%), making up (4) pupils

for each one of them. The minority represents (2) pupils, making up (12.5%) who claimed that they face difficulties in “understanding the meaning of the vocabulary”.



Graph.3.6. Pupils' Difficulties during Learning Vocabulary

Section Three: Vocabulary retention

Q10: In your opinion, what is the position of vocabulary retention in learning English?

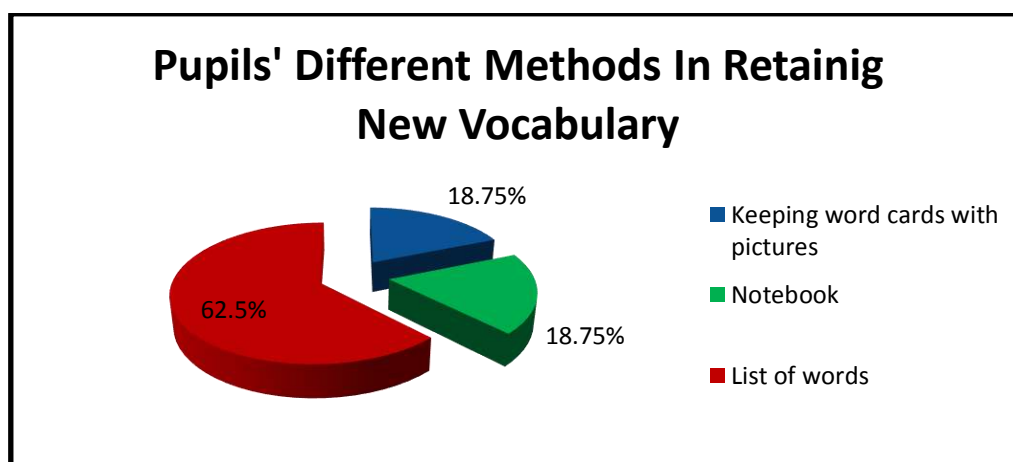
This question intends to elicit pupils' opinions about the position of vocabulary retention in learning English language. Most of pupils have a positive attitudes toward the importance of vocabulary retention in learning English (56.25%) opt on “very important”, making up (9) pupils. Whereas (5) pupils, making up (31.25%) opt on “important”. However, (2) pupils opt on “not important”, making up (12.5%).

Table.3.15. Pupils' Opinions about the Importance of Vocabulary Retention in English

Options	Number	%
Very important	9	56.25%
Important	5	31.25%
Not important	2	12.5%
Total	16	100%

Question 11: How do you usually retain the new vocabulary in English?

As it shown from the graph below, the majority of pupils who represent (62.5%) usually retain new vocabulary in a form of “list of words”. While, (18.75%) chose to recalling vocabulary by using “word cards with pictures”. Beside, (18.75%) of pupils opt on using notebook to retain new vocabulary.



Graph.3.7. Pupils Different Methods In Retaining New Vocabulary

Question 12: How do you find retaining the new English vocabulary?

According to the table below,(9) pupils, making up (56.25%) agree that they find retaining new English vocabulary is an easy task, while the rest (7) pupils making up (43.75%) find it difficult.

Table.3.16. Pupils' Attitudes In Retaining New Vocabulary In English

Options	Number	%
Easy to retain	9	56.25%
Difficult to retain	7	43.75%
Total	16	100%

Question 13: According to you, what is the most difficult aspect in retaining English vocabulary?

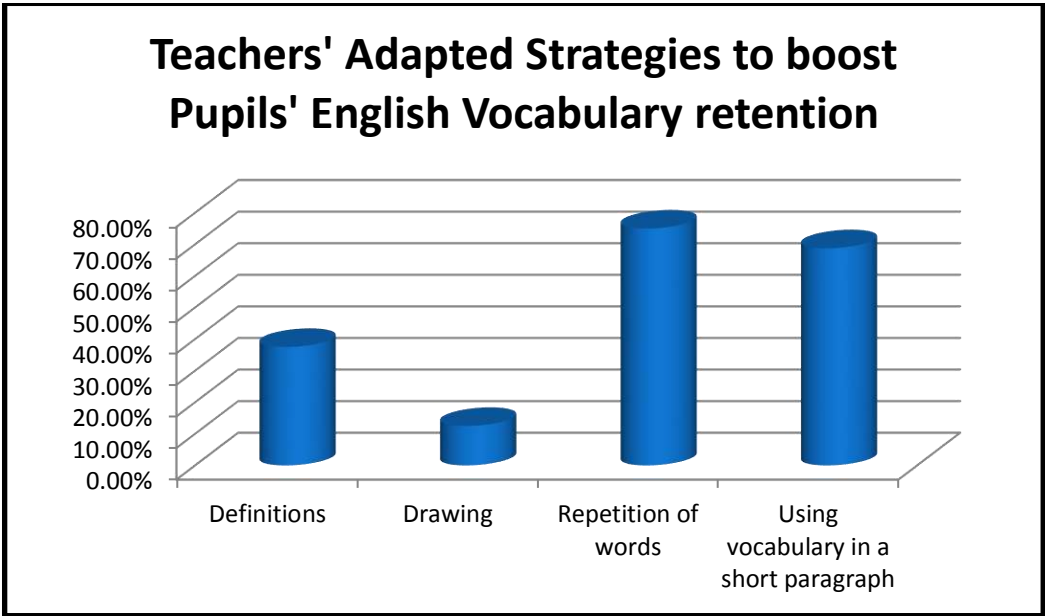
According to the table below, Pupils' answers were different. Seven pupils, making up (43.75%) from the participants answers assert that they have difficulties in retaining English vocabulary at the level of "spelling" words. In addition to that, (6) pupils reported that they face problems at the level of "pronunciation", making up (37.5%). While, (3) pupils, making up (18.75%) of the participants argue that the difficulties in vocabulary retention are due to remembering the vocabulary "meaning".

Table.3.17. Pupils' Difficult Aspect in Retaining English Vocabulary

Options	Number	%
Spelling	7	43.75%
Pronunciation	6	37.5%
Meaning	3	18.75%
Total	16	100%

Question 14: what are the different strategies that your teacher uses to improve your English vocabulary retention? (You may choose more than one answer)

According to pupils' responses to this question, Repetition strategy has got the high rank, making up (75%). Secondly, using vocabulary in a short passage has making up (68.75%). Whereas, drawing strategy ranked (12.5%). While the use of definitions got the lowest rank, making up (37.5%).



Graph.3.8. Teachers' Adapted Strategies to boost Pupils' English Vocabulary Retention.

Question 15: In your opinions, is it necessary to use new methods for teaching English vocabulary?

In this question, all of the pupils agree that using new methods for teaching English vocabulary is necessary, making up (100%). See the table below.

Table.3.18. Pupils’ Attitudes to Use New Methods In Teaching English Vocabulary

	Yes	No	Total
Number	16	0	16
%	100%	0%	100%

Section four: Brain-Based Learning

Question 16: Does your teacher use different activities of materials to improve your vocabulary retention?

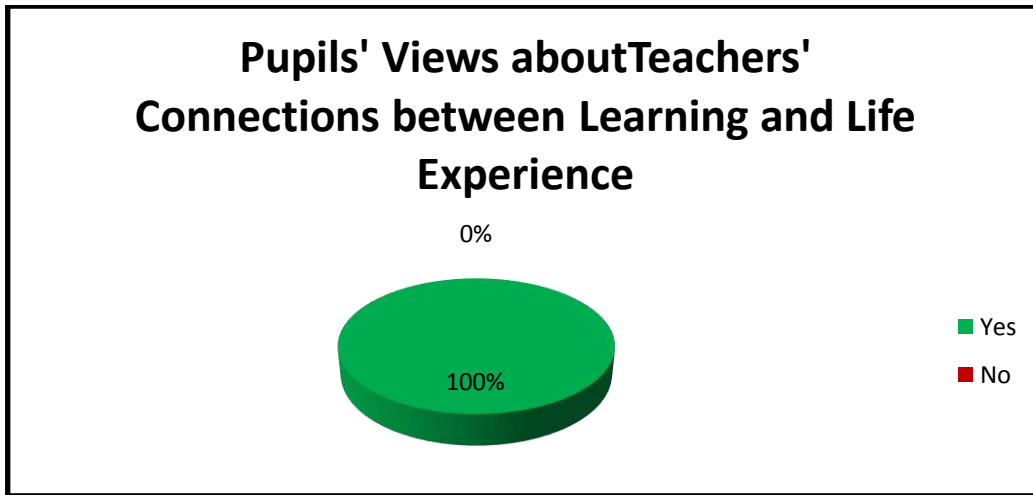
From the table below, the majority of pupils (13) pupils making up (81.25%) reported that their teacher use different activities or materials to improve their vocabulary retention. While (3) pupils with (18.75%) declare for “NO”.

Table.3.19. Teachers’ Use of Materials to Improve Pupils’ Retention

	Yes	NO	Total
Number	13	3	16
%	81.25%	18.75%	100%

Question 17: Does your teacher connect what you are learning to your own life or through a story?

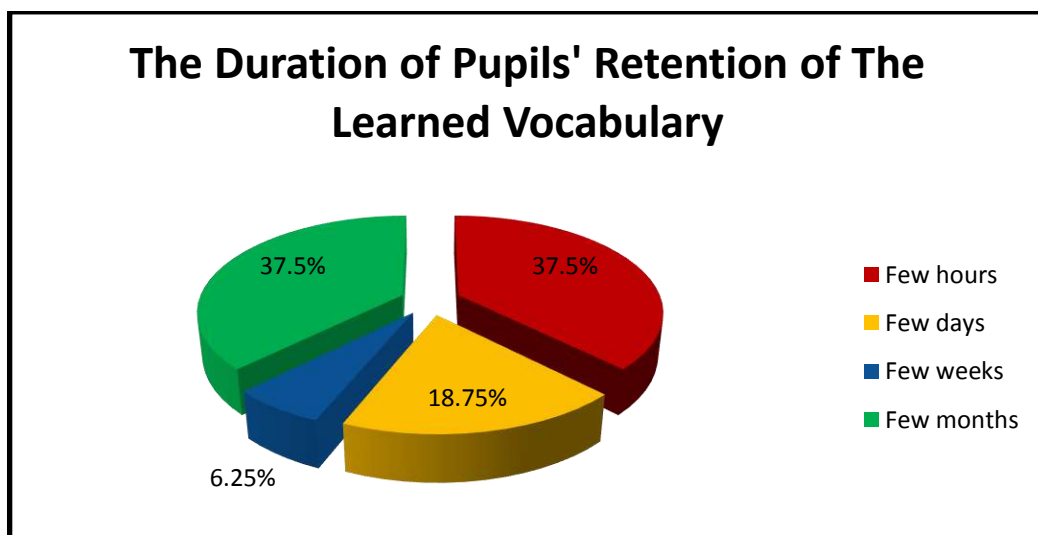
As seen in the graph below, pupils answers point out that all of them state that their teacher connect what they are learning in their own life or through a story, making up (100%).



Graph.3.9 Pupils Views about Teachers’ Connections between Learning and Life Experience

Question 18 : How long do you usually remember new vocabulary before forget it?

The results which are shown below, indicate that six pupils with (37.5%) remember the new vocabulary for few hours before forget it. Three of them declare that they keep few days before forget it, making up (18.75%). Followed by six pupils claim that they remember new vocabulary for few months, making up (37.5%). While, one of the pupils chose few weeks making up (6.25%).



Graph.3.10. The Duration of Pupils’ Retention of The Learned Vocabulary

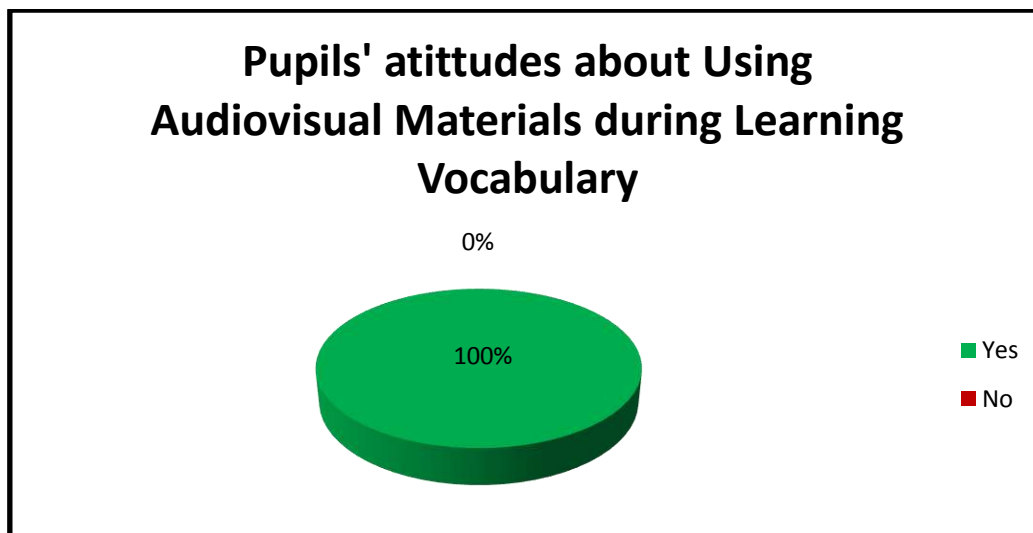
Question 19: List any word/s you retain in the class and write the reason behind remembering it.

In this question, pupils were asked to write some words they retain in the class and mentioned the reason behind remembering it, to have an idea about how pupils retain best. To demonstrate pupils' justifications here are some of their statements:

- ✓ I retain the words “Sunday, March, Day”, because I always use it.
- ✓ I remember the words “potatoes, tomatoes, bananas”, because it is similar to the Arabic Language and easy to retain.
- ✓ I remember the days of the week, because I use it in my daily life.
- ✓ I remember the words “tall and slim”, because I look like that.
- ✓ I remember the name of fruits and vegetables such as “apple, carrots, potatoes”, because they are very important in our exams and I have learned them by using funny instruments such as games and videos.
- ✓ I remember the words “good morning, good afternoon”, because we always greet the teacher when we enter the classroom.

Question 20: Do you prefer using audiovisual materials by the teacher during learning vocabulary?

As it noticed in the graph below, it is clearly seen that all of pupils (100%) prefer using audiovisual materials by the teacher during learning vocabulary.



Graph.3.11. Pupils' Attitudes about Using Audiovisual Materials during Learning Vocabulary

Question 21: Does your teacher use them?

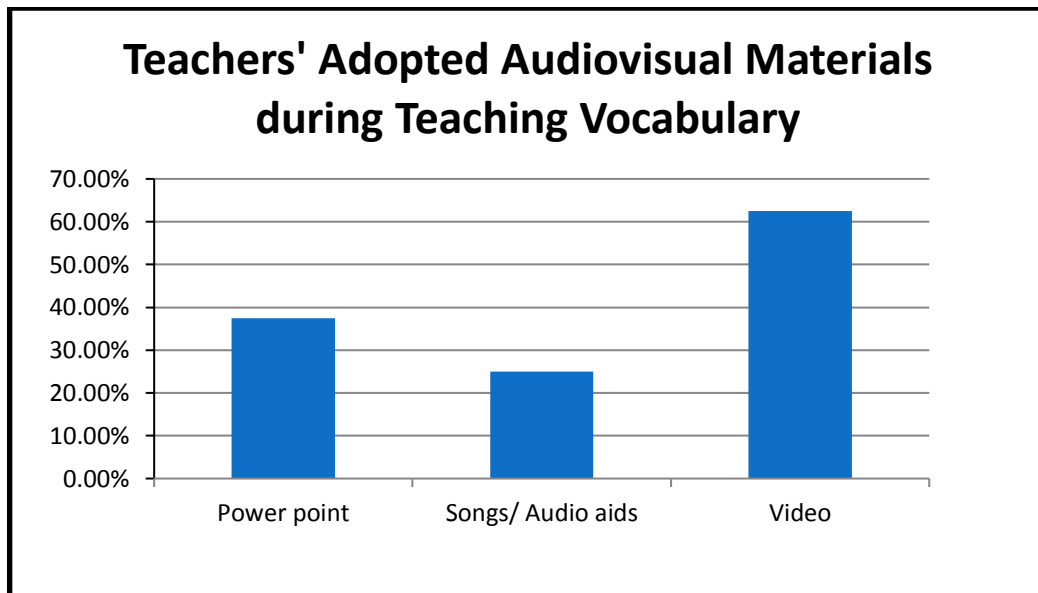
From the table below, all of pupils (100%) declared that their teacher use audiovisual materials during learning vocabulary.

Table.3.20. Pupils' Opt about the Use of Audiovisual Materials in Their classroom

	Yes	NO	Total
Number	16	0	16
%	100%	0%	100%

Question 22: if yes, what kind of audiovisual materials he/she use? (You may choose more than one answer)

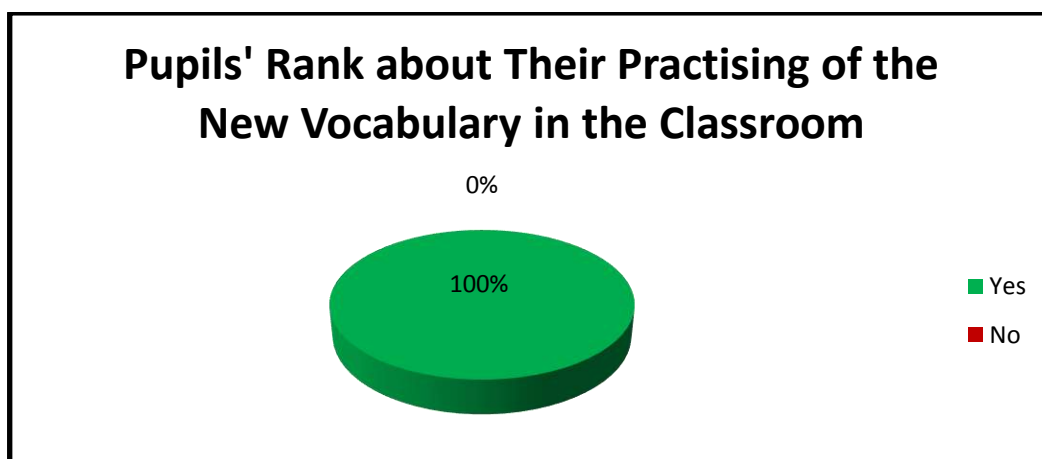
In this question pupils were asked about the kind of audiovisual materials that their teacher use during teaching. A percentage (37.5%) of pupils declared that their teacher use power point. While (25%) of pupils reported that their teacher use the songs/audio aids. However, (62.5%) of pupils opted on videos.



Graph.3.12. Teachers' Adopted Audiovisual Materials during Teaching Vocabulary

Question 23: Does your teacher make you practice the new vocabulary in the classroom?

Graph below represents the percentage of pupils' answers about if their teacher makes them practice the new vocabulary in the classroom. It shows that all pupils opt on "Yes", making up (100%).



Graph.3.13. Pupils' Rank about Their Practising of the New Vocabulary in the Classroom

Question 24: In your opinion, what are the most significant things that assist you in learning, understanding and retaining new vocabulary?

According to the table below, (9) pupils, making up (56.25%) believe that teachers' competence is the most significant things that assist them in learning, understanding and retaining new vocabulary. While,(5) pupils chose the methods of teaching ,making up (31.25%). In addition to that, (2) pupils, making up(12.5%) of the total number assert that the interest in learning the language is the most helpful thing in acquiring vocabulary.

Question 25: How does your teacher assess your vocabulary retention?

Since assessment is a part of learning and it is a fundamental part in helping teachers find their pupils weaknesses and assess their retention. In this question, we intent to discover the way teachers assess their pupils. Most of pupils highlight that their teacher used to assess their vocabulary retention by asking them to include the vocabulary they have been learned in a short paragraph. Others claimed that they are assessed through a test or exam. Whereas the rest state that they are tested through warming up activities at the beginning of the lesson, or by doing tasks and games in the classroom such as producing a dialogue, pictures and guessing their meanings, and role play.

3.4.5 Description of Teachers' Questionnaire

Section one: General Background (Q1 to Q3)

Question01: Gender

As seen in the table below, female teachers represent the majority of the population (100%).

Table3.21. Teachers' Gender

Gender	Male	Female	Total
Number	0	3	3
%	%	100%	100%

Question02: Educational Qualification

According to the results in the table below, all of the teachers have a license degree making up (100%).

Table3.22. Educational Qualification

Degree	Licence	Master	Magister	Total
Number	3	0	0	3
%	100%	%	%	100%

Question03: How many years you have been teaching English in middle school?

In this question, the teachers are asked about the years they had spent in teaching English in middle school. From the table and the graph below, it is revealed that (01) teacher making up (33.33%), teach English for period between 5 - 10 years. While (02) teachers, making up (66.67%), claim to have worked for more than 10 years.

Table3.23. Number of Years spent in Teaching English in Middle school

Years	1 – 5	5 – 10	More than 10	Total
Number	0	1	2	3
%	%	33.33%	66.67%	100%

Section Two: Vocabulary Teaching

Question04:In your opinion, what is the position of vocabulary in English language teaching?

This question represents teachers’ views about the position of vocabulary in English language teaching. The results showed that all the teachers agree that the vocabulary is a very significant part in English language teaching, making up (100%).

Question 05: Are your pupils aware of the importance of learning vocabulary?

The purpose of this question is to elicit responses from teachers about if their pupils are aware of the importance of learning vocabulary. In fact, the majority of them (66.67%) answered with “YES”, while the rest (33.33%) answered with “NO”.

Table3.24. Teachers’ Options about Their Pupils’ Aware of The Importance of Learning Vocabulary

	No	Yes	Total
Number	1	2	3
%	33.33%	66.67%	100%

Question 06: What techniques do you use during teaching vocabulary?

Based on the table below, the results show that all of teachers (100%) use both visual and verbal techniques during teaching vocabulary.

Table3.25. Techniques that Teachers use During Teaching Vocabulary

	Visual techniques	Verbal techniques	Both of them	Total
Number	0	0	3	3
%	%	%	100%	100%

Question07: Do you use audiovisual materials to teach vocabulary?

As it could be seen from the table below, teachers' answers show that all of them (100%) are implementing audiovisual materials in teaching vocabulary.

Table3.26. Teachers' Choice about using Audiovisual Material in Teaching Vocabulary

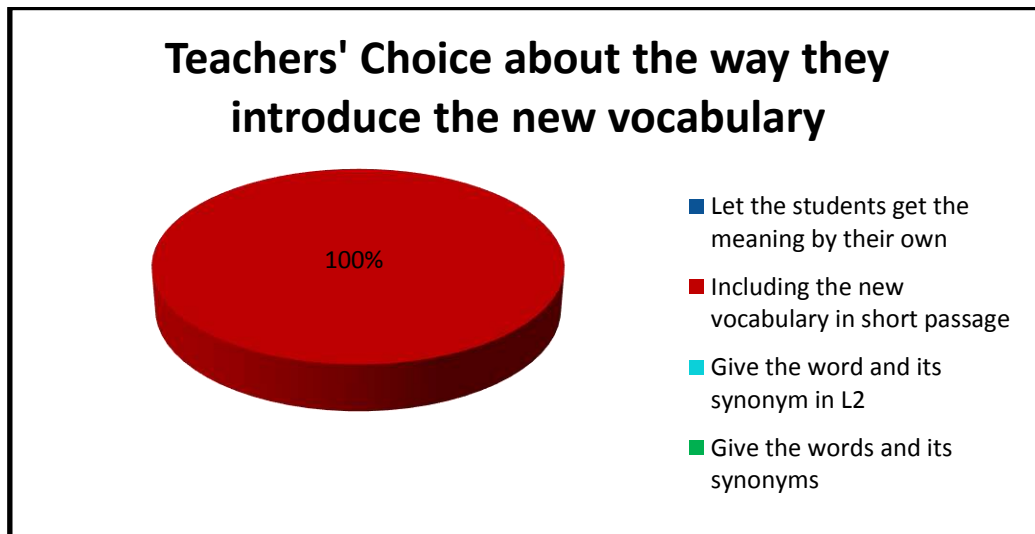
	Yes	No	Total
Number	3	00	3
%	100%	00%	100%

- **Teachers' Justification to Their Choices**

In this question, teachers are asked to justify their answers regarding (Q7). They believe that it is very important to implement audiovisual materials in teaching vocabulary such as flash cards, data show, pictures, videos and gestures. They show that it simplifies the learning for pupils in different aspects especially in understanding the meaning and knowing the correct pronunciation. Additionally, they think that without audiovisual materials, teachers will spend more time and take more efforts while teaching.

Q8: How do you usually introduce new vocabulary to your pupils?

According to the graph below, teachers' answers show that all of them prefer to introduce the new vocabulary by including it in a short passage.



Graph3.14. Teachers' Choice about the way they introduce the new vocabulary

- **Teachers' Justification to Their Choices**

By asking this closed question, teachers' provide a bulk of justifications to their choice. Figure below shows that teachers assert that teaching new vocabulary on a given context is very helpful for pupils to be able to implement the vocabulary they have learned in different context.

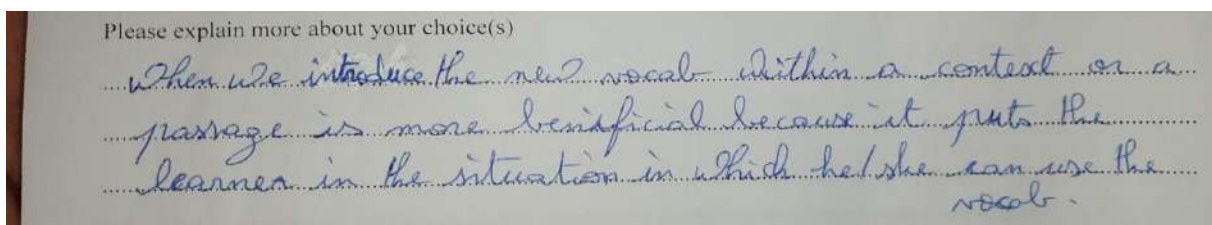
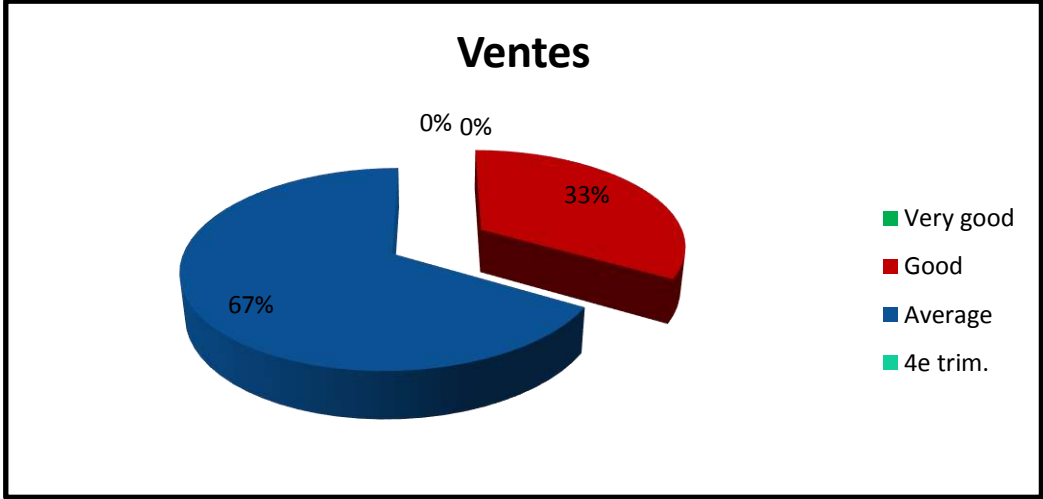


Figure.3.3. Teachers' Justification about the way they introduce the new vocabulary

Section Three: Vocabulary retention

Q9: How do you value your pupils' vocabulary retention?

Graph shows that (67%) of teacher believe that their pupils' level is average in vocabulary retention. However, one teacher, making up (33%) believes that her pupils' vocabulary retention is good.



Graph.3.15. Pupils' Level in Vocabulary Retention

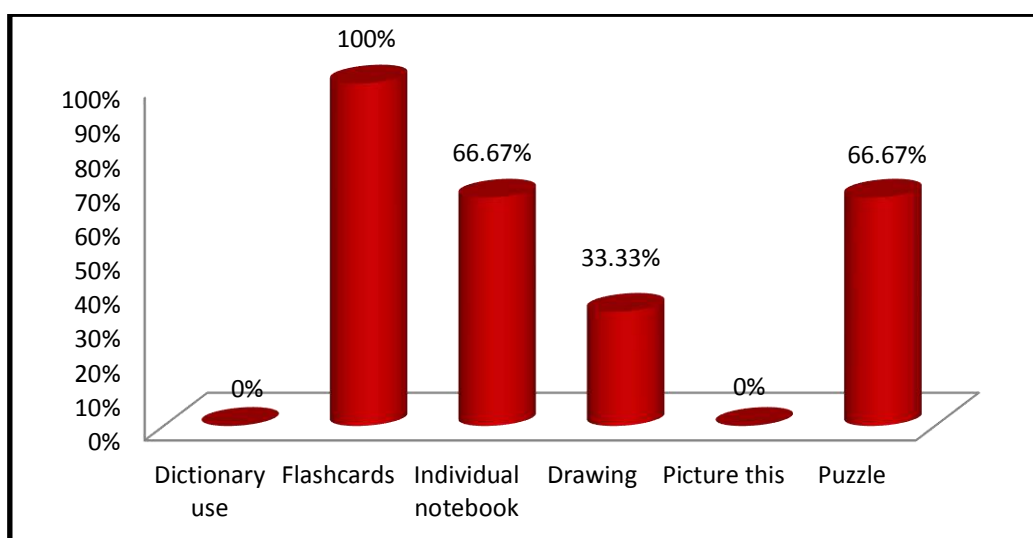
As it is presented below, all of teachers agree that their pupils face difficulties in retaining new vocabulary based on (Q10). In addition to that, question (Q11) seeks to identify the aspects in which pupils face these difficulties. As it shows that ,the majority of teachers narrow their selection on remembering vocabulary spelling and vocabulary meaning as a most difficult aspects for pupils in retaining the new vocabulary.

Table.3.27. Pupils' difficulties in vocabulary Retention

Questions	Teachers		
	(01)	(02)	(03)
Q10: Do your pupils face difficulties in remembering new vocabulary?	Yes +	+	+
	No		
Q11: If yes, in which aspect of the following (you may choose more than one answer)	Pronunciation		
	Spelling +	+	
	Meaning +	+	
	All of them		+

Q12: According to you, what are the most effective activities that help pupils retaining new vocabulary?

Based on what is presented in the graph, all of teachers pay more attention at using flashcards (100%), individual notebook (66.67%), Puzzle (66.67%) and drawing (33.33%) as effective activities to promote their pupils' vocabulary retention.



Graph.3.16. Teachers' Options about the most effective activities for pupils' vocabulary retention

Q13: What kind of activities do you usually use?

Figure presents some activities that teachers usually use in teaching vocabulary in the classroom. It shows that they implement several activities during teaching vocabulary such as flashcards, games, individual notebooks, and role play.

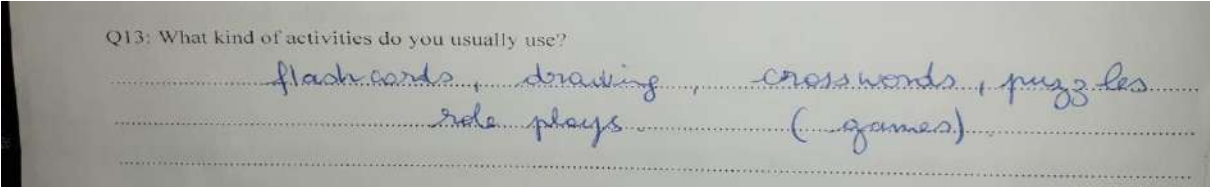
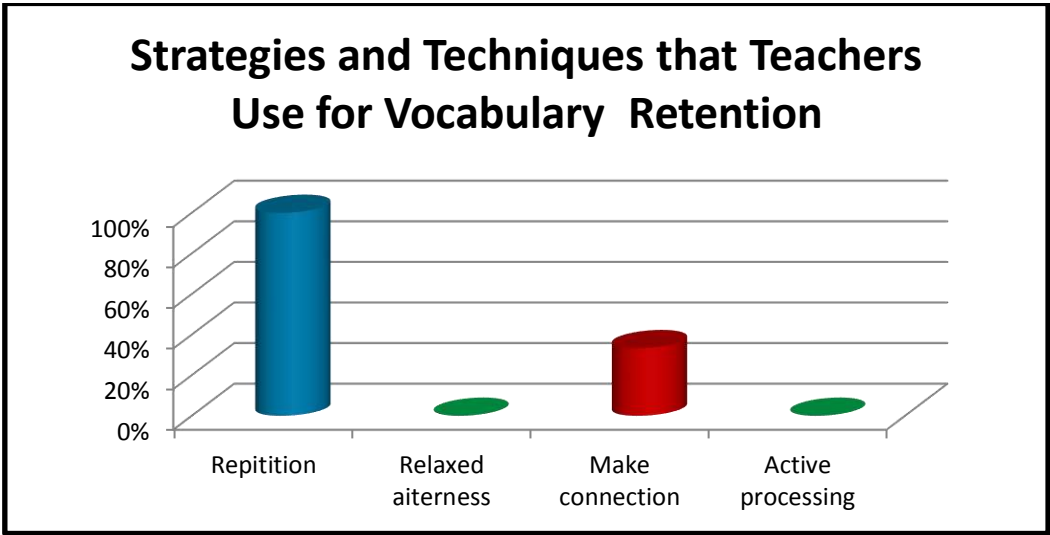


Figure3.4. Teachers’ Usual Activities during Teaching Vocabulary

Q14: What strategies and techniques do you usually employ to help your pupils retain vocabulary?

The aim of this question is to know teachers’ favourite strategies and techniques at helping their pupils in storing new vocabularies. The results below shows that teachers consistently prefer to use repetition (100%) and make connection (33.33%) to able pupils retain vocabulary.



Graph.3.17. Strategies and Techniques that Teachers Use for Vocabulary retention

Q15: Which piece of advice you give to your pupils to improve their vocabulary retention?

Teachers have given various advices to their pupils' to develop their vocabulary retention. The first teacher stimulates her pupils at using the slate inside the classroom and at home while revising. While the second and the third teacher have advised their pupils to use vocabulary notebook by including the know vocabulary within a sentence, watching videos, and practising the vocabulary they have been learned in a role play.

Section Four: Teachers' attitudes towards the implementation of Brain-Based Learning Strategy in enhancing pupils' vocabulary retention

Q16: Which approach do you use to teach vocabulary?

According to the teachers' responses to this question (Q16), all of them are using Competency-Based Approach to teach vocabulary.

Q17: Do you find it effective in enhancing your pupils' vocabulary retention?

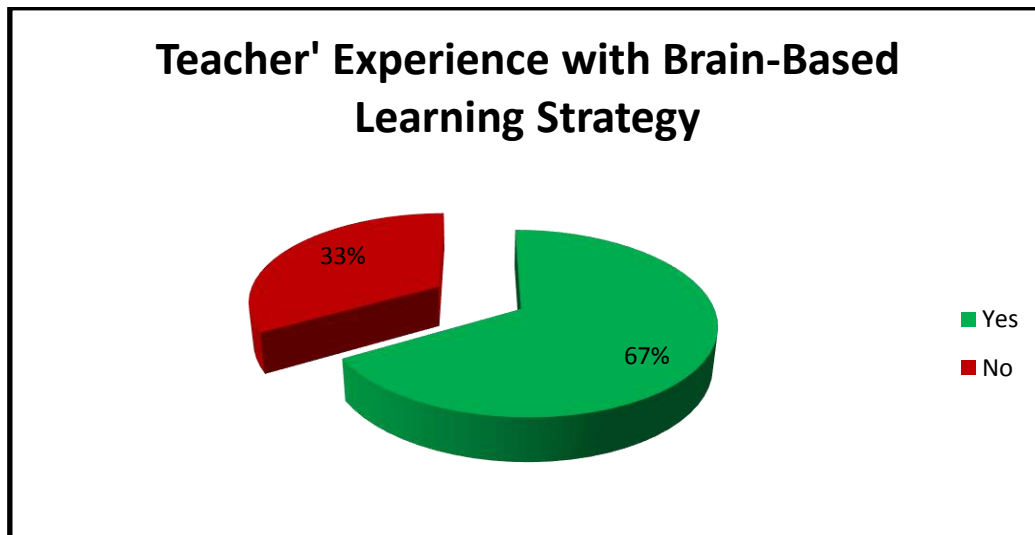
As it shown in the table below, Middle school teachers of English assert that Competency-Based Approach plays an efficient role in enhancing their pupils' vocabulary retention.

Table.3.28.The effectiveness of teachers' approach in enhancing pupils' vocabulary retention

	Yes	NO	Total
Number	3	0	3
%	100%	0%	100%

Q18: Have you ever tried to teach vocabulary through Brain-Based Learning Strategies?

The question aims at knowing whether middle school teachers of English have been dealt with Brain-Based Learning strategies in teaching vocabulary. Graph shows that the majority of teachers (67%) have been implemented this strategy in their classrooms.



Graph.3.18. Teachers' Experience with Brain-Based Learning Strategy

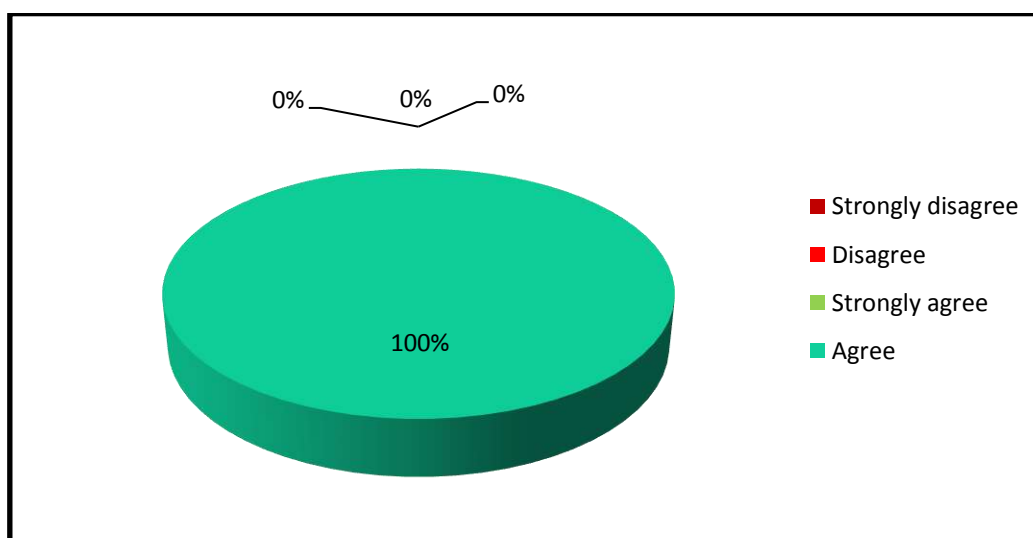
In both cases, explain why please?

Teachers' Justifications to their answers

Teachers demonstrate that they usually use Brain-Based Learning Strategies when they regard weaknesses in their pupils' vocabulary retention. They open that Brain-Based Learning can play a significant role in boosting their pupils' retention.

Q19: Brain-Based Learning would enhance pupils' motivation and facilitates the teaching and learning process

Teachers, in this question provide a total affirmation (100% agree) that Brain-Based Learning would enhance pupils' motivation and facilitates the teaching and learning process



Graph3.19. Teachers' Expectation about Brain-Based Learning Strategy

Q20: What is your attitude towards the implementation of Brain-Based Learning Strategies on enhancing pupils' vocabulary retention?

The teachers who have part in answering this question, they state that Brain-Based Learning Strategy is a key element in enhancing pupils' vocabulary retention. In addition to that, they add that this strategy fits all the different learning styles. Because it has been revealed as a result of the science study of the brain, they believe that it would has a great effect in enhancing pupils long term memory.

3.5. Discussing Findings:

The obtained results from the Quasi-experimental method, pupils' questionnaire, and teachers' questionnaire manifest important information. It confirms the alternative hypothesis of the current study which stated that Brain-Based Learning Strategy would enhance middle

school pupils' vocabulary retention. From the analysis of the pre-post test results, pupils' post-test score have been improved with a comparison to the pre-test. The reason behind this development may due to the several uses of brain activities, games, strategies, and techniques. Additionally, this development confirm the great role of Brain-Based Learning in maximising and facilitating the learning process, besides enhancing pupil' retention.

Additionally, the analysis of pupils' questionnaire provides different information about middle school pupils' attitudes in vocabulary retention, and identifies the most difficult aspects they face during retaining vocabulary. First of all, pupils' responses show their interest and awareness about the role of vocabulary in acquiring English language. Furthermore, they open that remembering words' spelling and pronunciation are the most difficult aspects they face during retaining new vocabularies. However, they demonstrate their appreciation to their teacher, who used to implement audiovisual materials during teaching vocabulary. This later, makes the content easier, fun and easy to acquire for them.

Moreover, the analysis of the teachers' questionnaire reveals their attitudes towards the implementation of Brain-Based Learning Strategy in enhancing middle school pupils' vocabulary retention. The teachers' responses demonstrate their willingness towards the implementation of Brain-Based Learning activities in helping their pupils overcome some of their learning difficulties and boosting their vocabulary retention. In addition, the questions have been administered to the teachers give an ideas about the teaching system in Algeria. Accordingly, by knowing the weaknesses and the strength of the current learning process, teachers can implements this strategy to enhance, motivate and facilitate their pupils' learning process

Conclusion

This chapter focuses on the fieldwork for this research study that aimed to investigating the impact of Brain-Based learning strategy in enhancing middle school pupils' vocabulary retention. A discussion of the theoretical background for the study methodology, which is the Quasi-experimental by means of pre-test and post-test. In addition, the data gathered during this investigation will be described and discussed. Furthermore, we can see significant and shared insights between teachers and pupils regarding brain-based learning strategy and vocabulary retention, which demonstrated the effectiveness of the strategy to develop pupils' vocabulary retention, based on the data obtained from teachers' and pupils' questionnaires. All in all, brain-based learning strategy is a helpful teaching strategy through which vocabulary retention can be promoted and developed.

General Conclusion

Mastering vocabulary is one of the most crucial and difficult tasks for learners, especially beginners. It appears to be a difficult mission because English is new foreign language for pupils. They try to memorize a large number of words while having no idea how to use them. As a result, many teachers are attempting to promote new strategies that would help their pupils to learn English without becoming bored, as opposed to the traditional learning. As a result, this study attempts to shed light on one of those strategies which is Brain-Based Learning Strategy. The implementation of a Brain-Based Learning Strategy allows pupils to expand their learning horizons which make them practicing the language unconsciously.

This present study divided into 2 main parts: one theoretical and the other practical. The theoretical part consists of two main chapters, and it is organized as following: the first chapter contains the literature review of vocabulary retention, as well as its importance, types, and training methods. Whereas, the second chapter deals with Brain-Based Learning Strategy and the human brain. It defines the strategy, as well as its guiding principles. It also includes certain Brain-Based Learning techniques, strategies, and activities. Besides underlining its benefits in memorization and retention. However, the practical part explains the research data analysis and collecting. In addition to that, it explains how the results obtained from Quasi-experimental method, the pupils' questionnaire, and teachers' questionnaire were interpreted.

Moreover, the main aim of this study is to find answers to the research questions. In addition, the goal behind this study is to investigate the impact of Brain-Based learning strategy in enhancing middle school pupils' vocabulary retention.

Based on the current findings, this study was successful in answering the research questions and confirming the research hypotheses: Brain-Based Learning Strategy would

enhance middle school pupils' vocabulary retention. In other words, if The Brain-Based Learning Strategy is implemented, pupils' vocabulary retention would be enhanced.

Recommendations

The following recommendations were made based on the findings and conclusions of this study:

- Brain-Based Learning Strategy should be employed as a foundation for improving middle school pupils' vocabulary retention.
- The Ministry of Education should provide training to middle school teachers in the use of language learning methodologies, including Brain-Based Teaching Strategies, in order to assist their pupils in effectively learning English language vocabulary.
- Middle school teachers' should design activities that motivate their pupils to implement new vocabulary tasks and provide opportunity for practice.
- Middle school teachers' should educate their pupils how to employ a variety of language learning strategies.
- When building English courses, especially in middle school, course designers should think about including Brain-Based Learning Strategies.
- New strategies for boosting vocabulary learning and retention should be investigated and implemented so that pupils can easily achieve their proficiency objectives in learning foreign languages.

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Appendix

Appendix I

Pre-test scores and percentage of the Control group

Pupils Task Scores	Crossing odd word	the	Adding a word to the list	Matching antonyms	Picture this	Pre-test scores
P1	2		1	1	3	7
P2	4		0	3	5	12
P3	2		2.5	3	3	10.5
P4	4		3.5	0	3	10.5
P5	2		0.5	2	0	4.5
P6	5		3.5	5	5	18.5
P7	2		1	0	0	3
P8	3		2	3	0	8
P9	3		2	3	5	13
P10	3		1	2	5	11
P11	5		4	5	5	19
P12	1		3.5	5	5	14.5
P13	3		4	3	5	15
P14	3		0	0	3	6
P15	5		4.5	5	5	19.5
P16	4		5	5	5	19
P17	1		1.5	3	2	7.5

Appendix II

Post-test scores and percentage of the control group

Pupils Scores	Matching Task shape with its name	the Picture this	Reordering words	Showing way	thePost-test scores	Percentage of correct answers
P1	2	2	1	2	7	35%
P2	2	2	5	2	11	55%
P3	2.5	4.5	1.25	2	10.25	51.25%
P4	1	4	2	2	9	45%
P5	1	2	4	1	8	40%
P6	2.5	6	5	4	17.5	87.5%
P7	0.5	1	0	1	2.5	12.5%
P8	1.5	0.5	0	1	3	15%
P9	1.5	6	3.25	0	10.75	53.75%
P10	2.5	6	1	3	12.5	62.5%
P11	2.5	6	2	0	10.5	52.5%
P12	2.5	6	3.25	6	17.75	88.75%
P13	1.5	6	3.5	4	15	75%
P14	3.5	4.5	1	2	9.5	47.5%
P15	2.5	6	5	4	17.5	87.5%
P16	2.5	5	3.75	6	17.25	85.25%
P17	2.5	4.5	1.5	3	11.5	57.5%

Appendix III

Pupils' Questionnaire

Section one : General Background

الجزء الأول: معلومات عامة

Q1 : Age :

س1: العمر

Q2 : Gender : Male Female

س2: الجنس: ذكر أنثى

Q3: How long have you been learning English?

س3: منذ متى و أنت تتعلم اللغة الإنجليزية؟

Less than three years

أقل من ثلاث سنوات

More than three years

أكثر من ثلاث سنوات

Q4: How do you find learning English?

س4: كيف تجد تعلم اللغة الإنجليزية؟

Easy to learn

سهلة التعلم

Hard some how

صعبة نوعا ما

Difficult to learn

صعبة جدا

الجزء الثاني: تعلم المفردات

Section Two: Learning Vocabulary

س5: هل تعتقد أن تعلم المفردات مهم لتعلم اللغة

Q5: Do you think that learning vocabulary is important in learning English?

الإنجليزية؟

Yes

نعم

No

لا

Q6: How do you often prefer to learn English vocabulary?

س6: كيف تفضل غالبا تعلم المفردات باللغة الإنجليزية؟

بمفردك

Alone

مع زملائك

With group

س7: ماذا يستخدم أستاذك لتسهيل تعلم مفردات جديدة

فالقسم؟ (يمكنك اختيار أكثر من اجابة)

Q7: What does your teacher use to facilitate learning new words in the classroom? (you may choose more than one answer)

Drawing

Translation

Videos

Pictures

Education games

Gestures

All of them

الرسم

الترجمة

فيديوهات

صور

ألعاب تعليمية

لغة الجسد

جميعهم

س8: من بين الوسائل المذكورة أعلاه ما هي الوسيلة

الأسهل لديك؟

Q8: Which of the methods that are mentioned above you find it more helpful in understanding and learning vocabulary?

.....

.....

س9: ماهي الصعوبات التي تواجهها أثناء تعلم المفردات؟

Q9: What are the difficulties that you face during learning vocabulary?

Understanding the meaning of the vocabulary

Pronouncing and writing vocabulary

Remembering and using new vocabulary

فهم معنى المفرد

نطق و كتابة المفرد

تذكر و استعمال المفرد

جميعهم

All of them

الجزء الثالث: الاحتفاظ بالمفردات:

Section Three: Vocabulary retention

Q10: In your opinion, what is the position of vocabulary retention in learning English?

س10: في رأيك، ما هي أهمية تذكر المفردات في اللغة الإنجليزية؟

Very important

مهمة جدا

Important

مهمة

Not important

ليست مهمة

Q11: How do you usually retain the new vocabulary in English?

س11: ما هي الوسيلة التي تستخدمها في تذكر المفردات عاداتاً؟

Keeping word cards with pictures

استعمال الصور مع اسم المفرد

Notebook

دفتر للمفردات

List of words

قائمة من المفردات مع الشرح

Q12: How do you find retaining the new English vocabulary?

س12: كيف تجد تذكر المفردات الجديدة في اللغة الإنجليزية؟

Easy

سهل

Difficult

صعب

Q13: According to you, what is the most difficult aspect in retaining English vocabulary?

س13: أين تكمن صعوبة احتفاظك بالمفردات؟

Spelling

التهجئة

Pronunciation

النطق

المعنى

س14: ما هي الإستراتيجيات المختلفة التي يستعملها أستاذك

Meaning

لتحسين مهارة الاحتفاظ بالمفردات في اللغة الإنجليزية

لديك؟

Q14: What are the different strategies that your teacher uses to improve your English vocabulary retention? (you may choose more than one answer)

التعريفات

الرسم

Definitions

تكرار المفردات

Drawing

إستعمال المفردات في فقرة صغيرة.

Repetition of words

أخرى،.....

Using vocabulary in a short paragraph

.....

Others.....

س15: في رأيك، هل من الضروري استعمال استراتيجيات

.....

جديدة لتعلم المفردات في اللغة الإنجليزية؟

Q15: In your opinion, is it necessary to use new methods for teaching English vocabulary?

نعم

لا

الجزء الرابع: إستراتيجية الاستناد على الدماغ

Yes

س16: هل يستعمل أستاذك وسائل متنوعة لتطوير مهارة

No

تذكر المفردات لديك؟

Section Four: Brain-Based Learning

نعم

Q16: Does your teacher use different activities or materials to improve your vocabulary retention?

لا

س17: هل يربط الأستاذ ما تتعلمه من مفردات بحياتك أو

بقصة ما؟

Yes

No

نعم

لا

If yes mention some of

them.....

.....

.....

Q17: Does your teacher connect what you are learning to your own life or through a story?

Yes

No

Q18: How long do you usually remember new vocabulary before forgetting it?

Few hours

Few days

Few weeks

Few months

Q19: List any word /s you retain in the class and write the reason behind remembering it.

.....

.....

.....

.....

س18: ما هي مدة تذكرك للمفردات الجديدة؟

ساعات قليل

أيام قليلة

أسابيع قليلة

أشهر قليلة

س19: أذكر بعض من الكلمات التي تعلمتها في القسم مع ذكر سبب تذكرك لها.

.....

.....

.....

.....

.....

س20: هل تفضل استخدام الوسائل السمعية البصرية من طرف الأستاذ خلال تعلم المفردات؟

نعم

لا

هل يستخدمها أستاذك؟

نعم

لا

إذا كانت الإجابة بنعم ، فما نوع الوسائل السمعية البصرية

Q20: Do you prefer using

التي يستخدمها؟

audiovisual materials by the teacher during

عرض الباوربوينت

learning vocabulary?

أغاني / مقاطع صوتية

Yes

فيديوهات

No

س23: هل يقوم الأستاذ بجعلكم ترددون الكلمات الجديدة؟

Q21: Does your teacher use them?

نعم

Yes

لا

No

س24: حسب رأيك، ماهي أهم العوامل المساعدة على

Q22: If yes, what kind of audiovisual material

اكتساب وفهم وتخزين المفردات الجديدة؟

he/she use? (you may choose more than one

كفاءة الأستاذ

answer).

طرق التلقين

Power point

تعلق التلميذ باللغة و اهتمامه بتعلمها

Songs/ Audio aids

س25: كيف يقوم أستاذك بتقييم مدى احتفاظكم بالمفردات

Videos

الجديدة؟

Q23: Does your teacher make you practice

the new vocabulary in the classroom?

Yes

No

Q24: In your opinion, what are the most

significant things that assist you in learning,

understanding and retaining new vocabulary?

.....

.....

.....

.....

.....

.....

Teacher competence

Methods of teaching

Pupils interest in learning the language

Q25: How does your teacher assess your
vocabulary retention?

.....

.....

.....

.....

Appendix VI

Teachers' Questionnaire

Dear Teacher,

The purpose of this questionnaire is to gather information about the impact of Brain-Based Learning Strategy in enhancing second year middle school pupils of English vocabulary retention in the subject of English in Mohammed El-amine El-AMOUDI middle School, Touggourt, Algeria. Therefore, you are kindly requested to answer the following questions by putting a tick (✓) in the corresponding box or writing your comments or suggestions whenever necessary. Your feedback is very important and mostly appreciated.

Section One: General Background

Q1: Gender: a- Male b- Female

Q2: Educational Qualification:

a- Licence

b- Master

c- Magister

Q3: How many years you have been teaching English in middle school?

.....

Section Two: Vocabulary Teaching

Q4: In your opinion, what is the position of vocabulary in English language teaching?

.....

.....

Q5: Are your pupils aware of the importance of learning vocabulary?

a- Yes

b- No

Q6: What techniques do you use during teaching vocabulary?

a- Visual techniques

b- Verbal techniques

c- Both of them

Q7: Do you use audiovisual materials to teach vocabulary?

Yes

No

In both cases, please explain why?

.....

.....

If yes, mention some of them please?

.....

.....

Q8: How do you usually introduce new vocabulary to your pupils?

a- Let the students get the meaning by their own

b- Including the new vocabulary in short passage

c- Give the word and its synonym in L2

d- Give the words and its synonym in L1

Please explain more about your choice(s)

.....

.....

.....

Section Three: Vocabulary retention

Q9: How do you value your pupils' vocabulary retention?

a- Very good

b- Good

c- Average

d- Weak

Q10: Do your pupils face difficulties in remembering new vocabulary?

a- Yes

b- No

Q11: If yes, in which aspect of the following: (you may choose more than one answer)

a- Punctuation

b- Spelling

c- Meaning

d- All of them

Q12: According to you, what are the most effective activities that help pupils retaining new vocabulary?

a- Dictionary use

b- Flashcards

c- Individual notebook

d- Drawing

e- Picture this

f- Puzzle

Q13: What kind of activities do you usually use?

.....

.....

.....

Q14: What strategies and techniques do you usually employ to help your pupils retain vocabulary?

a- Repetition

b- Relaxed alertness

c- Make connection

d- Active processing

Q15: Which piece of advice you give to your pupils to improve their vocabulary retention?

.....

.....

Section Four: Teachers' attitudes towards the implementation of Brain-Based Learning Strategy in enhancing pupils' vocabulary retention

Q16: Which approach do you use to teach vocabulary?

.....

.....

Q17: Do you find it effective on enhancing your pupils' vocabulary retention?

a- Yes b- No

Q18: Have you ever tried to teach vocabulary through Brain-Based Learning Strategies?

a- Yes b- No

In both cases, explain why please?

.....
.....
.....

Q19: Brain-Based Learning would enhance pupils' motivation and facilitates the teaching and learning process.

a- Strongly disagree
b- Disagree
c- Strongly agree
d- Agree

Q20: What is your attitude towards the implementation of Brain-Based Learning Strategies on enhancing pupils' vocabulary retention?

.....
.....
.....
.....
.....

Thank you for your contribution

Appendix V

Pre-Test in Vocabulary Retention

Full name:

Level: 2ms.....

Task 01: I cross the odd word in each list.

- 1) Father – Mother – Teacher – Sister.
- 2) Red – Yellow – Pink – Ruler.
- 3) Painter – Uncle – Mechanic – Journalist.
- 4) Monday – August – Thursday – Wednesday.
- 5) Small– Wavy – Curly– Straight.

Task 02: I add a word to each list.

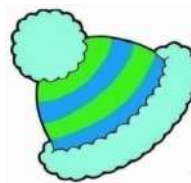


Task 03: I match the word with its antonym.

- Slim Curly
- Long Dark
- Small Fat
- Straight Short
- Fair Big

Task 04: I write the name of each garment under the right picture.

Dress – Sneakers – Sunglasses – Jeans – Bonnet.



Appendix VI

Post-Test in Vocabulary Retention

Full name:

Level: 2ms.....

Task 01: I mach each picture with the right shapes.



.a cube

. a square

.an oval

.a circle


. a triangle

Task 02:I put each word in the correct gap according to the pictures below.

carrots -supermarket - bananas – house - tomatoes - strawberries - apples – cake – ice cream – potatoes – juice - chocolate.



Today, I go to the with my mother. We buy

vegetables and fruits. We start with the fruit side. We buy ,

..... , and . After that, we go to the vegetables side.

Mom buys , , and



..... .We also buy many kinds of snacks such as



, , And



..... before we go to the

Task 03:I reorder the words to get a correct sentence.

01) Can / the way/ you/ show me / please?/ to the cinema, / .

.....

02) Shape/ What/ is / the mirror?/.

.....

03) books / How many / you / do / buy?/.

.....

04) This / pencil/ is/ a/.

.....

Task 04:I fill in the gaps with the correct word to help Ahmed to go to the hospital by using the city map.

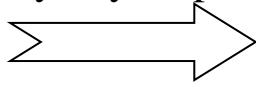
Can - straight - next to - turn left - the way - opposite to .

Ahmed: Hello,.....you show meto the hospital, please?

You: Hi, well. Go..... and then The hospital is the pharmacy and..... the restaurant.

Ahmed: thank you. **You:** You are welcome.

My city map



Good luck

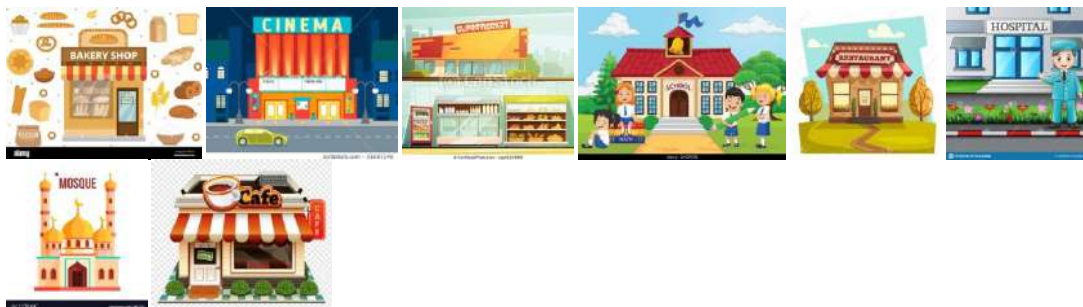
Appendix VII

Flashcards

Shapes



Public Places



Directions



Abstract

Foreign language teachers are always in attempt to develop their pupils' vocabulary retention through the use of a diversity of strategies. One of the main strategies that focuses on boosting pupils' long term memory is Brain-Based Learning. This strategy is based on Brain-Based Learning principles in order to make the maximum use of situations in which the brain learns best. Vocabulary retention is an important component in teaching and learning a Foreign Language. Hence, most of pupils face challenges in remembering the new ones. Accordingly, the present study aims to investigate the impact of the implementation of Brain-Based Learning Strategies in enhancing pupils' vocabulary retention at Mohammed El amine EL AMOUDI middle school, Touggourt, Algeria, with a sample of second year middle school pupils within the school year 2021-2022. It is hypothesized that the implementation of Brain-Based Learning Strategies in the classroom would boost pupils' long term memory and provide more chances for better vocabulary retention. In order to investigate the impact of Brain-Based Learning in enhancing pupils' vocabulary retention, a Quasi- Experimental method is used in this study involving 33 pupils divided into two groups one experimental and one control group. A pre-test and post-test are administered to pupils to measure the effectiveness of the strategy in their vocabulary retention. Both pupils' and teachers' questionnaires were conducted with the intention of knowing the difficulties that pupils faced during learning new vocabulary, and investigating middle school teachers of English attitudes towards the implementation of Brain-Based Learning Strategy in the classroom. The results obtained after the analysis of teachers' questionnaire and pupils' questionnaire, pre-test and post-test go hand in hand with our hypothesizes and create a motivating environment for pupils and helps them enhance their vocabulary retention.

Keywords: Foreign language, Brain-Based Learning Strategy, Vocabulary retention, Middle School Pupils.

المخلص

يهدف مدرسو اللغات الأجنبية دائماً إلى تطوير احتفاظ تلاميذهم بالمفردات اللغوية من خلال استخدام مجموعة متنوعة من الاستراتيجيات. يعتبر التعلم المعتمد على الدماغ من الاستراتيجيات الرئيسية التي تركز على تقوية ذاكرة التلاميذ طويلة المدى. تعتمد هذه الإستراتيجية على مبادئ التعلم القائم على الدماغ من أجل تحقيق أقصى استفادة من المواقف التي يتعلم فيها الدماغ بشكل أفضل. بعد الاحتفاظ بالمفردات مكوناً مهماً في اكتساب وتعليم اللغات الأجنبية. ولذلك فإن معظم التلاميذ يواجهون تحديات في تذكر المفردات الجديدة. بناءً على ذلك، تهدف هي الدراسة إلى التحقق من مدى فعالية استعمال استراتيجيات التعلم القائم على الدماغ على تعزيز احتفاظ التلاميذ بالمفردات اللغوية الجديدة. تم إجراء البحث على مستوى ابتدائية محمد الأمين العمودي، تقرت، الجزائر، مع عينة من تلاميذ السنة الثانية متوسط للعام الدراسي 2021-2022. من المفترض أن تنفيذ استراتيجيات التعلم القائم على الدماغ في الفصل الدراسي سيعزز ذاكرة التلاميذ طويلة المدى ويوفر فرصاً أكبر للاحتفاظ بالمفردات بشكل أفضل. بالإضافة إلى ذلك، سيزيد من مستوى التحفيز بين التلاميذ ويساعدهم في التغلب على بعض صعوبات الاحتفاظ بالمفردات. من أجل التحقيق في تأثير التعلم المعتمد على الدماغ في تعزيز احتفاظ التلاميذ بالمفردات اللغوية، تم استخدام طريقة شبه تجريبية في هذه الدراسة تضم 33 تلميذاً مقسمة إلى مجموعتين مجموعة تجريبية وأخرى ضابطة. تم إجراء الاختبار قبلي وبعدي للتلاميذ لقياس مدى فعالية الإستراتيجية في التأثير على احتفاظهم بالمفردات. تم تقديم استبيان للتلاميذ بقصد معرفة الصعوبات التي تواجههم أثناء محاولتهم تعلم والاستحفاظ بالمفردات الجديدة. إضافة إلى ذلك، تم توجيه استبيان لثلاثة أساتذة لغة إنجليزية بنفس المتوسطة لمعرفة آرائهم المختلفة حول تبني إستراتيجية التعلم القائم على الدماغ في تعزيز الاستحفاظ بالمفردات لدى التلاميذ. أظهرت النتائج مدى صحة فرضيات الدراسة، وتبين بان استعمال إستراتيجية التعلم القائم على الدماغ دور مهم في خلق بيئة محفزة للتعلم و تعزيز قدرة التلاميذ على احتفاظهم بالمفردات الجديدة في اللغة الإنجليزية.

الكلمات المفتاحية: اللغة الأجنبية، التعليم المرتبط بالدماغ، استحضر الكلمات، تلاميذ الطور المتوسط

Résumé

Les enseignants de langues étrangères tentent toujours de développer la rétention de vocabulaire de leurs élèves en utilisant une diversité de stratégies. L'une des principales stratégies visant à stimuler la mémoire à long terme des élèves est l'apprentissage basé sur le cerveau. Cette stratégie est basée sur les principes du Brain-Based Learning afin d'utiliser au maximum les situations dans lesquelles le cerveau apprend le mieux. La rétention de vocabulaire est une composante importante de l'enseignement et de l'apprentissage d'une langue étrangère. Par conséquent, la plupart des élèves ont du mal à se souvenir des nouveaux. En conséquence, la présente étude vise à étudier l'impact de la mise en œuvre des stratégies d'apprentissage basées sur le cerveau dans l'amélioration de la rétention du vocabulaire des élèves au collège Mohammed El amine EL AMOUDI, Touggourt, Algérie, avec un échantillon d'élèves de deuxième année du collège au sein de l'école. année 2021-2022. On suppose que la mise en œuvre de stratégies d'apprentissage basées sur le cerveau dans la salle de classe stimulerait la mémoire à long terme des élèves et offrirait plus de chances de mieux retenir le vocabulaire. Afin d'étudier l'impact de l'apprentissage basé sur le cerveau dans l'amélioration de la rétention du vocabulaire des élèves, une méthode quasi-expérimentale est utilisée dans cette étude impliquant 33 élèves divisés en deux groupes, un groupe expérimental et un groupe témoin. Un pré-test et un post-test sont administrés aux élèves pour mesurer l'efficacité de la stratégie dans leur rétention de vocabulaire. Les questionnaires des élèves et des enseignants ont été menés dans le but de connaître les difficultés rencontrées par les élèves lors de l'apprentissage d'un nouveau vocabulaire et d'enquêter sur les attitudes des enseignants d'anglais du collège à l'égard de la mise en œuvre de la stratégie d'apprentissage basée sur le cerveau en classe. Les résultats obtenus après l'analyse du questionnaire des enseignants et du questionnaire des élèves, du pré-test et du post-test vont de pair avec nos hypothèses et créent un environnement motivant pour les élèves et les aide à améliorer leur rétention de vocabulaire.

Mots-clés : langue étrangère, stratégie d'apprentissage basée sur le cerveau, rétention de vocabulaire, élèves du collège.