# Word Puzzles Technique Designed for Developing Pupils' Productive and Comprehension Skills

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**Abstract:** This research aims to determine whether word puzzles technique is a helpful tool for improving pupils' productivity and cognitive abilities in the classroom of the primary level. Word searches, is an example of word puzzles that aims to captivate pupils engagingly and entertainingly while fostering their language and critical thinking skills.

The current research delves into how word puzzles can enhance pupils to learn the four learning skills: listening, speaking reading and writing. It also aims to develop pupils' skills of thinking and problem-solving. The research evaluates pupils' development in sentence construction, complicated text comprehension, and vocabulary retention through a battery of classroom activities and tests.

In light of these aims, the research's null hypothesis has been formulated to be tested. The design of one group is adopted and pre and post-tests are used. The sample includes (30) female pupils who are randomly selected from Asia primary private school in Mosul city.

The results show that word puzzles improve pupils' production and comprehension abilities and pique their desire to learn a new language. Findings from this study support the idea that word puzzles can be a useful supplemental tool for language teachers looking for new ways to help their pupils become more proficient speakers.

**Keywords:** word puzzles technique, improving pupils' productivity and cognitive abilities.

**Introduction:** Puzzle learning is a new teaching and learning technique that focuses on the development of problem-solving skills. Word puzzles technique is one of its tools. Falkner, (2012).

It is an effective learning tool in medical education, psychology, sociology, communications, nursing, biology and business. It falls in two models: Crossword puzzle model and Word search model. The latter modal is tackled in this research. Word search model is a structural, self-learning educational tool that reviews and enhances knowledge and concepts acquired during the lesson. Latha, and Madhavan (2020).

**Statement of the Problem:**

Teachers of primary schools concentrate on traditional techniques of teaching, they rarely make efforts on using non-traditional techniques of teaching such as word puzzles technique which develops the productive and comprehension skills among pupils, so their level is not as good as it should be, which reflects their poor results in English.

**Aims of the Study**

This study has designed a word puzzle technique to develop the productive and comprehension skills among primary school pupils. It aims to give pupils chance to learn the four learning skills: listening, speaking reading and writing. It also aims to develop pupils' skills of thinking and problem-solving. Besides, it advances tactics for developing pupils' productive and comprehension skills of the English language in one of the primary schools in Mosul. The theme expressed should promote introducing word puzzles as a means of motivation, and accordingly creates new educational techniques. If word puzzles are viewed from an educational psychology perspective, their use in the classroom provides a variety of learning activity, contributing to the development of pupils' attention themselves locally and generally, memory, and logic in general. To develop all sorts of mnemonic operations, it is advisable to use word puzzles, which require a lot of attention and call for pupils to express themselves locally and generally. Orawiwatnakul, (2013).

In middle aged, children should be prepared for easy orientation of data material. Examples of methodological based use of word puzzles in the teaching of English show the perspective of this phenomenon and highlight their educational importance, in other words, the opportunity to introduce some reference material in its educational function and purpose. Accordingly, the installation of figures should lead pupils to the above-mentioned technique, as well as to the establishment of the pupils'

productive and receptive skills, the aim of that is to increase formation of an algorithm of pupils' technique based on word puzzles promotion aimed at developing productive and receptive skills. Gilmore, (2007). In addition, tasks are used in the past, to test pupils' ready knowledge of words and phrases, at the moment they are tested at the stage of understanding the ability of the meaning of the text. Finally, the research aims at finding how word puzzles are designed, the procedures of the strategy, and the results gained in the learning process especially for increasing pupils' productive and comprehension skills.

## Hypotheses

The present research hypothesis the following assumptions:

- The research assumes that there are no statistically significant differences between the development mean scores of the group in a given pre-test and post-test.

- The research assumes that there are statistically significant differences between the development mean scores of the group in a given pre-test and post-test.

## Models

The current research adopts the model of word puzzles technique: "word search puzzles" model.

## Definitions of Terms

- Word-Search Puzzle is a game consisting of a collection of words in which the player must locate the word (Anggraeni, 2015).

- A word search is a puzzle consisting of many words concealed within a grid of letters (Ambiyatul, 2018).

- A "word search puzzles" is a word search game in a randomly arranged collection of letters that are usually square. The word search puzzle is found horizontally, vertically, diagonally, or backward (Bailey et al., 1999).

## Background and Rationale

The historical aspect shows that long before our times, people liked solving puzzles. Using linguistic ones, teachers have to diversify the educational process, create a cognitive motive for communication, motivate favorable emotional development progress in language education, and develop the pupils' cognitive domain.

As a background historical aspect, word puzzles present a huge interest. Many etymologists are fond of word puzzles and admit that word puzzles originate from ancient times when people made their first attempts in writing. Such attraction towards word puzzles is easily explained. First of all, their direct interpreter is language, which deserves constant interest from speech researchers. Secondly, word puzzles, in a vicarious way, can show all the variety of language phenomena. Md. Hafizur, et al (2024).

There are different types of word puzzles and diverse rationale behind teaching them. These linguistic games may serve different educational purposes: language material presentation was considered in the form of an educating exploratory dictionary, adapting it to some website, and integrating the learned introductory vocabulary. Having a puzzle might enable the pupils to become aware of their native language and make connections to the foreign language, which is one of the goals of the teaching techniques. The main purpose of the given linguistic games is to reveal the novelty, originality, and importance of the entry item given in the games. Emine, and Cagda, (2016)

## Theoretical Framework

The behaviorism theory is based on the thought of the development of the black box concept from the behaviorists in the early part of the 20th century such as Keller, Skinner, Thorndike, Pavlov, Edward and L. Thorndike. The basic theory undergirding behaviorism is that pupils revert or organism will tend to behave in any new learning situation in the years in which behavior has been previously reinforced. Therefore, the lessons taught should be based on three capabilities known as initial stimulus-response (S-R), natural laws and the facility of duty theory between presentations. According to this theory, learning is only made after a reaction made by the pupils after a stimulus given by the teacher. Besides, the current research discusses such theories as the behaviorism theory and principles of educational psychology representing other theories.

National university. https://www.nu.edu/blog/behaviorism-in-education/

Educational psychology principle includes the principles of readiness to learn, practice and knowledge that are not too hard and are not too easy, distributed practice, without error practice, whole-part-whole practice, accurate and timely feedback, use of increasing method, and integrated interference. Psychology of Learning.

https://archive.mu.ac.in/myweb_test/SYBA%20Study%20Material/edu-II%20psycho.pdf

The principle of readiness to learn states that new concepts or new learning will happen if the preparations for the pupils are good. The position in the readiness of the pupils is the level of human psychological response to stimuli received at the level of good physical and mental. Based on theory and principles of educational psychology, the pupils learn to be more profitable through the use of puzzles in learning such as word puzzles.

https://gcwgandhinagar.com/econtent/document/1587719 14320200419_175051.pdf

## Cognitive Development Theories

There are several cognitive development theories that believe that play can impact children's cognitive growth.

https://www.starshinemontessori.com/role-of-play-enhancing-cognitive-development-early-childhood/

One of them, is Vitalismo, (based on the Gray basic idea, which took root not only during the Renaissance and the Baroque era but also even becomes a guidance in some countries in contemporary educational thinking). According to Gray, play helps a reached perfectionist. Vitalismo is very oriented in considering good teaching is due to methods, procedures, and strategies used in developing their pupils to isolate steps of learning activities that are done from the reasons or objectives to pursue in conducting it. Besides,

Vitalismo also encourages a child's play in fostering a spirit in a self-directed, creative activity and full of learning feel and provide fun. In other words, the attention and energy they can be concentrated to the maximum at the time of play. Francesco et al, (2012)

According to Sue-Uie, word puzzles are useful educational interaction so that the pupil was heard could learn with the lessons he received. Besides, from the experiments, it can be concluded also that the method of word puzzles suitable for teaching in school. Connolly defines word puzzles as activities. This method helps individual pupils to develop the ability to build relationships between words that are near or far between one another, apply their meaning in different contexts. In the development of modern educational paradigm is a method of activity-based learning. Activity-based language learning can be defined as a method of language learning with active learning activities. Tira, (2023)

**Word Search Puzzles**

One of the oldest and easiest word puzzles is the "word search puzzles". There are only two main directions for the words. In general, "word search puzzles" contains surrounding letter detectors. "Making a word search puzzles" is not an easy thing to do; it can take hours for only one puzzle. There are three kinds of features in "word search puzzles":

1- the standard words,

2- the rarely used letters, and

3- the pattern of the words which are completed with the surrounding letters.

https://www.hhhistory.com/2017/07/the-history-of-word-puzzles.html

"Word search puzzles" is much easier than other puzzles because they are only a combination of words. However, finding the hidden words becomes the main problem because the words are often hidden in the middle or they situated vertically or horizontally. "Word search puzzles" can develop productive skills, since the words are depicted in some lines so that the pupils must explore the spaces related to the words explained in the letters. It will develop the pupils' power of analysis. Comprehension skills can also be developed through "word search puzzles", because the children can learn what to look for, why it is connected and mentioned, when, who, what, and other questions relating to the content of the "word search puzzle".

Besides that, "word search puzzles" can improve the analytical skills of the children because the children should be able to explain the letters to form the pattern of the words or phrases. Interest is also another aspect involved in this kind of puzzle, assuming that when the children feel interested in this game, they can do it with good results. Moussiades, (2022)

In this research, the word search is also used to measure the vocabulary mastery of the pupils. This is due to several advantages of "word search puzzles"

"Word search puzzles" becomes the easiest puzzles; they do not require any kind of order or logic, and they can begin theory training to strengthen the understanding or build the

emergency plan for the solving of various answers. The main application of "word search puzzles" is that can increase vocabulary mastery for the children because the children can learn words they have never found before, either from the answers of completing the sentences or from the outside world or story aroused in this kind of puzzle. According to these advantages, our teachers can teach what they think, such as history, language, and others, to the children by providing this kind of puzzle in order to solve it in class. It is also useful to train the children's patience to complete the job they have done or persist to solve it. In addition, another advantage of this kind of puzzle is to eliminate distress, to break the routine work, and postpone the problems being faced for a while. Therefore, to improve the hedge skill of the children, "word search puzzles" is suggested to compete and analyze, and to have fun because without reward, the result cannot be reached amazingly.

**Benefits of Word Puzzles**

Word puzzles can be effectively used as a technique in fluency writing practice to develop pupils' productive skills and to enhance their ability to spell. It can also be used to improve understanding of vocabulary. In addition, word puzzles are a technique for developing pupils' comprehension ability. Hariffin, (2023)

Many experienced teachers believe that word puzzles just a waste of time because there is no systematic register in the language teaching method. Whereas, the outputs of this research, confirm that the word puzzle technique can indeed be an effective method in teaching in schools. First of all, some of the obvious advantages of word puzzles and crosswords as a teaching tool are the possibilities of increasing vocabulary, providing an excellent example of social studies, as well as spelling practice. In some ways, these puzzles can play a very useful role in increasing memory and thinking skills. Because pupils need to be more critical in checking words or thinking of answers to puzzle games.

**Procedures:**

The research follows six steps. First, after explaining the "Camel" passage which is taken from their text book, fifth grade pupils are given a five-sentence pre-test based on the passage. Appendix (1). Second, the teacher gives the pupils instructions about the first model crossword puzzles model (Word Search Puzzles), and applies it in front of them. Third, he writes down and reads aloud a sentence taken from the text book as shown in Appendix (2). Fourth, he requests from the pupils to repeat the sentence loudly after him. Fifth, he asks them to write the sentence on their notebooks. Lastly, he asks some pupils to come in front of their classmates to find the words inside the diagram he draws on the board according to the sentences he already writes.

In the next lesson, he draws a diagram on the board includes words based on the "Camel" passage and writes the previous questions about it. Appendix (3). Then he asks some pupils to find the missing words inside the diagram and to write them in the suitable blanks. He repeats the activity with different pupils for ten minutes. Then he explains other topics of the text book.

In the next lesson, the teacher reviews the last topic. He writes a paragraph on the board and explain it to them. He asks the pupils to read the paragraph loudly after him. Then he writes five questions based on the paragraph. He draws a diagram includes the answers of the questions. And asks some pupils to come and find the missing words inside the diagram and to write them in the suitable blanks. Appendix (3). After that, he asks other pupils to come and find meaningful words inside the diagram and writes them on the board. Then he explains other topics of the text book.

In the next lesson, he reviews the last topic and repeats the same activity with different pupils and different sentences taken from the text book for twenty minutes. Then he explains other topics of the text book.

Finally, the teacher implements the post-test as the following experimental design:

**The Experimental Design of the Research**

| Research Group | Pre-test | Independent Variable | Post-test |
|---|---|---|---|
| | Five questions based on a passage taken from the text book | Puzzle Words Technique | Five questions based on a passage taken from the text book |

**Implementation of the Post-Test**

After completing the experiment, the post-test of the same questions as shown in the Appendix (4) is conducted to the research group.

The results shown in the table below are reached:

**Mean, Standard Deviation, and T Values in the Pre and Post Tests of the Pupils'.**

| Research Group | Tests | No. of Pupils | Mean | Standard Deviation | T Value | | Level of Significance |
|---|---|---|---|---|---|---|---|
| | | | | | Calculated | Tabulated | |
| | Pre-Test | 30 | 6.467 | 3.9193 | 4.845 | 2.042 | (0.05) At 29 degrees of freedom |
| | Post-Test | 30 | 9.933 | 0.2537 | | | |

**Data Analysis and Results Discussion:**

It is obvious that the calculated T value (4.845) is higher than the tabulated T value which is (2.042) with ($\alpha = 0.05$) alpha and (29) degree of freedom. Consequently, the null-hypothesis is rejected and the alternative one is accepted. That is to say, there are statistically significant differences between the mean scores of the Pre-Test and the Post-Test in favour of the Post-Test. In other words, the use of "Word Search Puzzles" technique has a positive effect on productive and comprehension skills of the fifth grade primary pupils, as the pupils' scores in Post-Test are higher than with their scores in the Pre-Test.

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**Appendix (1)**

**A Model of Pre-test**



**Fill in the blanks**

1-      Asian camel has two ---------------.

2-      Camels like ----------------together.

3-      Camels keep ---------- in their humps.

4-      Camels can ------------ their noses.

5-      Camels can drink ---------- liters of water in one go.

**Appendix (2)**

**Example of One Sentence**

**SHE PLAYS TENNIS.**

| K | E | Y | S | H | E | T |
|---|---|---|---|---|---|---|
| G | A | R | D | E | N | A |
| M | P | L | A | Y | S | C |
| W | O | M | A | N | I | A |
| T | E | N | N | I | S | R |

Fill in the blanks:

1-      ----------- plays tennis.

2-      She ----------- tennis.

3-      She plays -----------.

**Appendix (3)**

**Applying the Technique**

| H | U | M | P | S | G | O | 3 | L |
|---|---|---|---|---|---|---|---|---|
| O | F | V | T | F | O | R | 5 | I |
| E | S | O | L | C | A | N | 1 | V |
| C | O | M | E | I | F | T | O | E |

**Fill in the blanks**

1-      Asian camel has two ---------------.

2-      Camels like ----------------together.

3-      Camels keep ---------- in their humps.

4-      Camels can ------------ their noses.

5-      Camels can drink ---------- liters of water in one go.

**Appendix (4)**

**Example of a Paragraph**

  Read the following paragraph and fill in the blanks:

My name is Sara. I am eleven years old. I am from Iraq live in Mosul. I am a pupil at Asia primary school I have two brothers and two sisters. My father is an engineer and my mother is teacher.

1-      My name is --------------------.

2-      I have ----------------sisters.

3-      My mother is a -------------.

4-      I ---------- in Mosul.

5-      I am from -----------.

| Z | L | E | V | I | L | O | S |
|---|---|---|---|---|---|---|---|
| Q | U | E | E | N | T | N | A |
| A | T | E | A | C | H | E | R |
| R | I | W | C | O | M | E | A |
| I | N |   | O | L | A | T | E |

**Appendix (5)**

**A Model of Post-test**

Fill in the blanks

1-      Asian camel has two ----------------.

2-      Camels like ----------------together.

3-      Camels keep ---------- in their humps.

4-      Camels can ------------ their noses.

5-      Camels can drink ---------- liters of water in one go.