IMPROVING VOCABULARY MASTERY BY USING DIGITAL CROSSWORD PUZZLE IN SMP NEGERI 22 BANDAR LAMPUNG

(Undergraduate Thesis)

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ABSTRACT

IMPROVING VOCABULARY MASTERY BY USING DIGITAL CROSSWORD PUZZLE IN SMP NEGERI 22 BANDAR LAMPUNG

By

Dede Gita Pratiwi

The aims of this study were (1) to see the significant improvement in students' vocabulary achievement after the implementation of digital crossword puzzles as media and (2) to see which type of vocabulary was mostly improved after the implementation of digital crossword puzzles as media. The design of this research is a quantitative study with a population of students from SMP Negeri 22 Bandar Lampung. The sample for this research is class 7.10, which consists of 29 people. The instrument used was a vocabulary test in the form of multiple choice, totaling 50 items. The mean of the pretest is 39.86, while the mean of the posttest is 81.72, meaning that there was an increase in students' scores. Then, it was also found that the N-gain number is 41.86. The results showed that the students' scores increased from the pretest after receiving the treatment using a digital crossword puzzle. Besides, if the t-value (17,438) is compared with the t-table (2,048), it can be concluded that there is a significant improvement in students' vocabulary achievement after implementing digital crossword puzzles in the learning process, and the implementation of digital crossword puzzles has had a positive effect on students' vocabulary mastery across all aspects of vocabulary types, especially nouns. In conclusion, student scores increased after the researcher implemented digital crossword puzzles in vocabulary learning. This means that students can improve their vocabulary by using digital crosswords. The future researchers, who will research the same topic, will not provide the same vocabulary material in the treatment process as the vocabulary material tested during the pre-test and post-test so that the research results can be more accurate and effective.

Keywords: *vocabulary mastery, teaching vocabulary, digital crossword puzzle, media learning*

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Menyatakan bahwa skripsi ini adalah hasil karya saya sendiri. Sepanjang pengetahuan saya, karya ini tidak berisi materi yang ditulis oleh orang lain, kecuali bagian-bagian tertentu yang saya ambil sebagai acuan. Apabila ternyata terbukti bahwa pernyataan ini tidak benar, sepenuhnya menjadi tanggung jawab saya.

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Yang memberi pernyataan

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CURICULUM VITAE

Dede Gita Pratiwi was born in Margoyoso on July 3rd, 2001. She is the second child of a great couple Wagiran and Sutiyem. She has two siblings, one old brother named Gusmi Ali Fahmi and one young brother named Arjun Wibisono .

She began her first education at SDN 1 Margodadi in 2007 and graduated in 2013. In the same year, she was accepted at MTs Al-Maruf Margodadi and graduated in 2016. Then, in 2016 she pursued her study at SMAN 1 Sumberejo and graduated in 2019. After graduating from SMAN 1 Sumberejo, she was accepted in the English Education Study Program of the Faculty of Teacher Training and Education at Lampung University through SNMPTN in 2019.

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DEDICATIONS

With full love and appreciation, this script is proudly dedicated to Allah SWT and Rasulullah SAW. My beloved parents, father and mother, Mr. Wagiran and Ms. Sutiyem My old brother Gusmi Ali Fahmi and my young brother Arjun Wibisono They are truly the most perfect gift Allah has ever given to me, and they are a light in my life who always guides me.

My best partners, my best friends, and my best supporters. Having you all is the greatest blessing in my life. My loved Friends in English Education 2019 of Lampung University My incredible major and alma mater, the English Department of Lampung University

MOTTO

Be patient and be patient. Verily Allah is with those who are patient.

(QS. Al- Anfaal : 46)

So verily with hardship there is ease, verily with hardship there is relief."

(Q.S. Al-Insyirah [94]: 5-6).

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CHAPTER I

INTRODUCTION

1.1 Background

English is an international language that serves as the most common means of communication. English can also help people express their thoughts, opinions, messages, and receive information. English is an international language spoken by almost everyone in the world. One example of this is communication with people abroad, businesses, etc. Based on these statements, it can be inferred that English is necessary in our lives. English plays an important role in international communication. Language is a set of rules used as a means of communication (Sanggam, 2008). English is also the language of international air traffic control and the primary language of global publishing, science, and technology (Anna, 2006).

As recognized, there are four skills in English: listening, speaking, reading, and writing. All of these skills need to be mastered by scholars and teachers. Nunan, (1995) said that talking was to mention phrases orally, to talk as a means of talking, to make a request, and to make a speech. Speaking is the process of creating and exchanging meaning using verbal and non-verbal symbols in a variety of contexts. It can also be defined as an interactive thought process involving the production, acquisition, and processing of information (Bums and

Joyce, 1997). Haris (1974) stated that there are five additives to speaking: pronunciation, grammar, vocabulary, fluency, and comprehension. All of these additives would produce speech that may be understood in communication; exact pronunciation, grammatically sound knowledge, vocabulary mastery, comprehension, and fluency are all wanted in exact English.

Vocabulary is one of the crucial aspects of supporting those skills. English can be used for distinct goals, so it had a very significant role in Indonesia, like teaching, culture, and others. Vocabulary is one aspect that is important in English. Students will find it difficult to say something when communicating with others when they lack vocabulary, even though they have learned grammar. For example, when someone asks you, "What are you doing this morning?" you want to reply that you are doing a sport called "running" this morning, but you do not know the vocabulary, so you answer these questions with body movements such as running. Students can say something even though they only read a text or vocabulary in a dictionary; by (Astriyanti & Anwar, 2016:41) "vocabulary is needed to improve the four English skills: listening, speaking, reading, and writing".

This means that one of the most important elements of learning English is vocabulary. Students will find it difficult to express their ideas when they do not have sufficient vocabulary as supporters to be able to understand and speak English. In addition, Thornbury & Scott (2002:13) stated, "Without grammar, very little can be conveyed; without vocabulary, nothing can be conveyed. As mentioned above, it shows how important vocabulary is in learning a language.

Without knowing vocabulary, we cannot express our feelings, it will be impossible to understand something, and communication among people will never be reached. So, vocabulary is one of the most important things in English learning.

Teachers have an important role. Teachers are in constant search of essential activities that allow students to improve their learning abilities in a foreign language. The teachers have to know the situation of the students and use the appropriate technique in order to make students enjoy learning and gain new vocabulary. There are many media that can be used in the teaching and learning process. One kind of medium is crossword puzzles. By solving crossword puzzles, the students could obtain new vocabulary and improve their own. In line with Widyasari (2010:14) "there are several activities that would assist in building up the vocabulary that apply words in conversation and deed the crossword puzzle". Crossword puzzles can nurture the brains of students by helping them memorize new words. In addition, the students would train to finish the crossword puzzle by dividing it with their friends.

Another study in this matter was conducted by Yayang (2018) in his journal entitled "Teaching English Vocabulary Using Crossword Puzzle Game with Seventh Grade Students". The result of the research was that the mean score of the posttest was higher than the mean score of the pretest. Therefore, teaching the English vocabulary used in crossword puzzle games is effective in improving the students' vocabulary. It was also conducted by Wina (2019) in IKIP SILIWANGI

with the title, "Improving English Vocabulary Mastery by Using Crossword Puzzles." The result of the research shows that the mean score of the pre-test was 41.83 and the post-test was 75.67 after giving treatment using a crossword puzzle. It means that teaching English vocabulary using a crossword puzzle was an effective way to improve students' vocabulary in seventh grade. The other research was conducted by Vina (2020) with the title, "Improving Students' Vocabulary Mastery Using Crossword Puzzles." This shows that there is an increase in the mastery of English vocabulary after implementing crossword puzzle games in the learning process in the classroom.

However, there were differences between the researcher's research and related previous studies. The difference between this study and previous research was that previous research had focused on general vocabulary types, while this research would focus on which types of vocabulary improved the most after the implementation of the digital crossword puzzle, so the researcher would conduct a study entitled: Improving Vocabulary Mastery by Using Digital Crossword Puzzle in SMP Negeri 22 Bandar Lampung.

1.2 Identification of the Problem

Based on the background of the problem above, the writer formulated the problem as follows:

1. The students had difficulty learning English.

2. The students were lacking in learning English, especially in vocabulary.

3. The students had difficulties remembering vocabulary.

4. The teachers did not use the various mediums in the teaching and learning process.

5. The teachers did not find a suitable medium to help the students solve their problem.

1.3 Problem limitation

In this research, the researcher focuses on how to improve the students' vocabulary skills in seventh grade at SMP 22 Negeri Bandar Lampung through a digital crossword puzzle. Crossword puzzles were expected to be able to overcome the problems and help the students improve their vocabulary skills. The researcher also expected the students would be highly motivated to learn by using digital crossword puzzles.

1.4 Research Question

1. Is there any significant improvement in students' vocabulary achievement after the implementation of digital crossword puzzles as media?

2. Which type of vocabulary is mostly improved after the implementation of digital crossword puzzle as media?

1.5 The Objective of The Study

1. To know the significant improvement of the students' vocabulary achievement through the use of digital crossword puzzles as media.

2. To know which type of vocabulary is mostly improved after the implementation of digital crossword puzzle as media.

1.6 Scope of the Research

This research was experimental. It focuses on digital crossword puzzles as a medium to help students develop their vocabulary skills. The subject of this research was a seventh grade student at SMP Negeri 22 Bandar Lampung in Gedong Meneng, Rajabasa, Bandar Lampung City. This research was held in odd semesters, with five meetings, pre-test, three treatments and post-test, with topics based on the syllabus about descriptions of objects. In the teaching and learning process, it was hoped that the teacher could make the students active in the learning activity since, basically, the main purpose of teaching vocabulary skills was to achieve effective communication. It was not just aimed at producing corrected English words.

1.7 The Significance of the Study

The writer hoped this research could contribute to English teaching and learning. It had two major significances, i.e., practical and theoretical significances:

1. Theoretical Significance

The result of this research was expected to be a reference, clarify previous theories about teaching vocabulary through digital crossword puzzles, and provide knowledge and a positive contribution about digital crossword puzzles as a teaching medium to make an enjoyable situation during the teaching and learning process.

2. Practical Significance

a. For the students

The result of this research can been used as an implementation to improve the ability of students in understand more about vocabulary using digital crossword puzzles.

b. For the teacher

The results of this research can help the teacher choose the media for teaching vocabulary.

c. Other researchers

To be applied more broadly to other researchers who wish to conduct further research in related fields. By doing this research, the researcher hoped that other researchers would study it and get more information about the problems with mastering vocabulary. Thus, the researcher may have gained new experiences and knowledge for the future of her life.

CHAPTER II

LITERATURE REVIEW

This chapter concerns several theories that support the research: The concepts of teaching, vocabulary, crossword puzzles, previous research, basic assumptions, and hypotheses were elaborated in the following section:

2.1 The Concept of Teaching

Teaching is an interactive process between the teacher and the students. There are several definitions from some experts; those are from (Bennion, 2015) which stated that teaching is the process of training an individual through the formation of habits, the acquisition of knowledge, the inculcation of ideals, and the fixing of permanent interests. According to Brown (2000), teaching is defined as showing or helping someone learn how to do something, giving instructions, guiding in the study of something, providing knowledge, or causing them to know or understand something. Based on the definitions above, it could be concluded that teaching is the process of helping students gain or acquire knowledge through a learned activity that is guided by a teacher.

2.2 The Concept of Vocabulary

Vocabulary is a component of language that helps the learner learn the language. Vocabulary is one of the language components that support students in learning languages. According to Richard (2001:4) in Anwar and Efransyah (2018),

vocabulary is one of the most obvious components of language and one of the first things applied linguists turned their attention to. Murcia (2001: 285) in Parmawati stated that vocabulary learning is central to language acquisition, whether the language is first, second, or foreign. If people have mastered vocabulary well, they will speak, listen, read, and write. Diverse methods are executed to manage the vocabulary that targets to enhance the cap potential of writers and audio systems to make emotive outcomes and assemble an easy and coherent discourse.

Vocabulary is one of the building blocks of the language system that we need to learn. According to Richard (2001:4) and Yuliawati (2013:20), vocabulary is one of the most obvious parts of language and one of the first to which applied linguists paid attention. If people had a good vocabulary, they would speak, listen, read, and write. Various measures are taken to manipulate vocabulary with the aim of enhancing the ability of writers and speakers to produce emotional effects and build fluid, coherent discourse. On the other hand, Freeman (2000:29) stated that "vocabulary is emphasized over grammar, but from the start he worked on all four skills (reading, writing, speaking, and listening), but oral communication is a prerequisite.

Montgomery (2007:2) stated that there is a list of vocabulary types for each type. Vocabularies serve different purposes, and having them together promotes growth in another way.

1. a) Speaking vocabulary People used words in their speeches.

2. b) Listening vocabulary It was a language that people heard and understood.

3. c) Writing vocabulary They are the words that people use formally or in an informal form.

4. d) Reading vocabulary Those are the words people know and understand when they read sentences.

From this statement, we could infer that vocabulary is one aspect of language. Vocabulary was important in language learning because it had meanings that were used in communication.

2.3 Aspect of Vocabulary

Based on Brown (2010:19), the vocabulary consists of several aspects: meaning, spelling, pronunciation, word classes, and word use. The students should master all aspects of vocabulary in order to communicate well in English.

a. Meaning

A word may have more than one meaning when it is used in different contexts. In order to discover the meaning, the teacher can use methods such as guided discovery, contextual guesswork, and dictionaries. Guided discovery involves asking questions or offering examples that guide students to guess the meaning correctly. By involving students in discovering the meaning, it will be easier for students to remember the word and its meaning. Contextual guesswork means making use of the context in which the word appears to drive an idea of its meaning, or in some cases, a guess from the word itself.

b. Spelling

In learning vocabulary, spelling is important because it aids in reading. Spelling: there may be different acceptable written forms for the same words

within the same variety of English or, most commonly, because they belong to different varieties, as happens with many British or American English terms.

c. Pronunciation

Pronunciation is how words are pronounced. The pronunciation of words is not related to spelling, so it is difficult to learn. Good pronunciation helps the receiver communicate easier.

d. Word classes

Word classes are categories of words. There are grammatical patterns that should be practiced fluently by the students, such as nouns (countable and uncountable), verb complementation, phrasal verbs, adjectives, and adverbs (Kareem, 2000:4). The classification of the words of a language in this way depends on their function in communication. Nouns can occur in certain places in sentences and serve a certain function. Verbs also occur in certain places and have special functions, so word class membership is an important lexical feature.

e. Word use

Word use is how a word, phrase, or concept is used in a language. Word use may also involve grammar and thus be the subject of pronoun analysis.

f. Words Classification

Hatch and Brown (1995: 218) classify the vocabularies (words) into two categories in terms of their functional categories. There are major classes and close classes. They are explained as follows, with examples:

    a. Major Classes

      1) Nouns

It refers to a person, place or thing, i.e. Maria, teacher, book, etc.

a. Proper nouns, like Betsy, Ohio differ from common nouns, like woman, state and chair.

Example in sentence: Mr. Yogi always enters our classroom every *Saturday* and *Tuesday* in a week.

b. Abstract nouns, like hope, attention and love, differ from concrete nouns (chair, table and bag).

Example in sentence: Alicia attributes her *writing* to every single mother in the world.

c. Count nouns, like bank, government club, and choir differ from other nouns that refer to people because they refer to the group as a unit.

Example in sentence: *The choir* performs every Sunday.

2) Verbs

It refers to the words that denote action. Hatch & Brown (1995: 223) states that verbs are placed into four classes: activities, accomplishment, achievements, and states.

Example in sentence : We *change* the vacation schedule.

3) Adjectives

It refers to words that give more information about a noun or pronoun.

a) Positive quality, such as; good, beautiful, diligent and kind

Example in sentence: You are *beautiful.*

b) Negative quality, such as; bad, wicked and lazy.

Example in sentence: My boy is very *lazy* today.

4) Adverbs

It refers to the words that describe or add to the meaning of a verb, adjective, another adverb or a whole sentence. Adverbs typically assign attributes to verbs, to clauses or to entire sentences rather than to nouns. For example: here, there, now, quickly and extremely.

Example in sentence: My mother would come *here* with my father.

b. Closed Classes

1. Pronoun: it refers to nouns that have already been mentioned, i.e. *she, they, her, etc.*

2. Preposition: it refers to the words that help locate items and actions in time and space, i.e. *at, on, beside, under, between, etc.*

3. Conjunction: it refers to the words that connect sentences, phrases or clause, i.e. *and so, but, etc.*

4. Determiner: it refers to the words that are used before a noun to show which particular example of the noun you are referring to, i.e. *the, a, an, my, your, that, this, those, etc.*

In conclusion, there were four classifications of word classes. They were nouns, verbs, adjectives, and adverbs, which were important to master in learning vocabulary. The choice of the words given would be adjusted with the level of the students, especially the word choices that would be appropriate for junior high school students.

2.4 Learning Vocabulary

According to Rubin (2013:2), learning is the process by which information is obtained, stored, retrieved, and used. Based on Lado (1972: 1), there are some ways that may be used to help the students learn and master vocabulary, as follows:

a. By using a dictionary

Obviously, a language learner has to have at least a good vocabulary. Meanwhile, when the students have trouble catching the meaning of a word, dictionaries can be used effectively if the students are aware of the word's limitations and consult them only to find a quick definition.

b. By using note book

One of the most effective ways to control the learning of new words is to keep a small notebook in our pocket so that somebody can write down words whenever they see them.

c. By guessing meaning

Often, especially in reading, the students will find words whose exact meaning is not necessary for them to know in order to understand the sentence. Therefore, the students do not run to the dictionary every time they meet a strange word. They have to wait and see if something else in the context becomes a clue to its meaning.

This step was taken after playing a crossword puzzle. The students had to make sentences based on the vocabulary listed in a digital crossword puzzle. In making the sentences, the students may work in groups or individually.

2.5 Teaching English Vocabulary

According to Doff (1988: 98), as cited in Tuan (2012), there are four stages in teaching vocabulary: presentation, practice, production, and review.

1. Presentation

Presentation is one of the most important stages in teaching vocabulary. It indicates that it is introducing new lexical items to learners. As suggested by Thornbury (2002: 75), learners need to learn both the meaning and the form of a new word. Grains & Redman (1998:73) stated that the techniques used in presenting new vocabulary items are visual techniques, verbal techniques, and translation.

1. Visual techniques include mime, gesture, and visual

2. Verbal techniques include the use of an illustrative situation, the use of synonyms and definitions, contrast and opposite, and examples of type.

3. Translation: Grains & Redman (1998:75) state that it is considered a quick and easy way of conveying the meaning of vocabulary.

2) Practice

If the teacher just presents the meaning of the new words, the students may easily forget them. Thornbury (2002: 93) said "practice makes perfect," so the teacher should provide vocabulary exercises in order to give students an opportunity to practice the new words.

3) Production

In this stage, the students are advised to complete high-level tasks, namely production tasks (Thornbury, 2002: 100). The students should produce something as a product of their own. In this way, the students would turn words

from receptive to productive and put them into long-term memory (Thornbury 2002: 100).

4) Review

Davies & Pearse (2000: 103) as cited in Tuan (2012: 2) mention that reviewing is new work on old language, "a challenge, requiring ingenuity and creativity." It produces better results for teaching and learning vocabulary. In the reviewing stage, students have more opportunities to use language and receive feedback. Methodologists agree that communicative activities are the best way to help students review vocabulary. Besides, visual aids can make vocabulary revision more interesting and effective. Revision can be done by both individuals and in collaboration. Doff (1988: 97), as cited in Tuan (2012: 2), expresses that vocabulary is mainly reviewed through the warm-up step. That means teachers review vocabulary learned in an earlier lesson. It aimed at refreshing students' memories or as preparation for a new presentation.

2.6 Types of Vocabulary Evaluation

According to Hughes (2003: 147), there are two kinds of evaluation in item vocabulary: recognition and production. The recognition test tested vocabulary for which multiple choices can be recommended without too many reservations. The types are synonyms, definitions, and gap-filling. While a production test is a test of vocabulary that is productively difficult, it is practically never attempted in proficiency tests. Information on receptive ability is considered sufficient. In this research, the researcher used recognition as a test. Items may involve a number of

different operations. The types were synonyms, pictures, definitions, and gaped filling.

a. Synonyms

The writer of this item has probably chosen an answer with a similar meaning.

b. Definitions

It is said that test-takers who are uncertain of which option is correct will tend to choose the one that is noticeably different from the others.

c. Gap filling (multiple choices)

Context, rather than a definition or a synonym, can be used to test knowledge of a lexical item.

d. Pictures

The main difficulty in designing the test of productive lexical ability is the need to limit the candidate to the (usually one) lexical item that they had in mind, while using only simple vocabulary of their own.

e. Definitions

Not all items can be uniquely identified from a definition, nor can all words be entirely defined in terms more common or simpler than they can. Some words or concepts are definable.

f. Gap filling

This can take the form of one or more sentences with a single word missing.

Based on the explanation above, the writer concluded that in order to evaluate the results of students' vocabulary skills in this study, it is necessary to prepare a vocabulary evaluation.

2.7. The Concept of Teaching Media

Media is an instrument that is used to transform messages or information from "resource" to "receiver" (Criticos, 1996). Media is also defined as graphic, photographic, or electronic tools for capturing, processing, and reconstructing visual or verbal information. As stated by Hikmah (2019), nowadays, one of the important aspects of the teaching and learning process is the use of technology, which for many years has been replacing the dominance of traditional media. Currently, the development of technology and the internet is rapid and constant. The big role of the internet is to reduce the time spent on physical interactions between students and teachers, achieving similar or better effects on improving language skills.

2.7.1 Types of Media in Learning Vocabulary

According to Fachrurrazy (1992:36), media can be subdivided into three kinds. They were:

1) Visual media

Visual media are the media that can be watched and touched, for example, pictures, realia, maps, miniatures, graphics, digital crossword puzzles, and posters.

2) Audio media

Audio media are media that can be listened to. They are used to listening to and understanding oral text, for example, on the radio, cassette recorder, and tape recorder.

3) Audio visual

Media Audio visual media are the media that can be watched and listened to, for example, TV and film.

Based on the explanation above, the researcher used visual media, namely a digital crossword puzzle. The use of digital crossword puzzle media in the teaching and learning process needs to attract students' attention and make teaching and learning activities more interesting and effective.

2.8 Concept of Digital Crossword Puzzle

2.8.1 Definition of Digital Crossword Puzzle

According to Salen & Zimmerman (2004:14), "a puzzle is a special kind of game in which there is a single corrected answer or set of corrected answers." In addition, Wharton (1995:48) in Rimbayanti (2016:16) affirmed, "A puzzle is still the most popular word game. It lies in the ease with which it can be constructed. The words are fun together horizontally and vertically. That puzzle is very simple to create in order to employ it in the language classroom. By making a list of words that your students should be familiar with, A digital crossword puzzle is a learning medium and a tool in the learning process that is useful for sharpening the brains of students by filling in the answers so as to form a word. Based on the statement, the writer concluded that to assist the students in building and improving their vocabulary mastery with the ways they could have been practiced with answers and questions that had been prepared by the teacher to figure out the correct clues, we can use a technique named "digital crossword puzzle.

The following are the steps taken to make a digital crossword puzzle by Johnson (2011):

1. Enter the website page: https://crosswordlabs.com/, then click enter.

2. Enter the title of the digital crossword puzzle you want to create.

3. Enter the answer (word) from the digital crossword puzzle, and then give a space followed by an understanding or a guiding sentence.

4. Repeat the third step until the number of words to be made is complete.

5. Then the system on the website will automatically form a digital crossword puzzle.

6. Click save, and click share to get a link so you can access it and answer it online.

2.8.2 Teaching Vocabulary Using Digital Crossword Puzzle

According to Widyasari (2010:20), there are some kinds of crossword puzzles that can be performed in the process of teaching and learning vocabulary in the classroom. Those are:

a. Oral Puzzle. It is a puzzle that is given orally by teachers, and students are given only empty crossword puzzles without a clue. Giving instructions orally could train hearing students. Tell students to fill out what they can and then repeat the instructions again until they understand.

b. Picture Puzzle. It is a puzzle using the picture as a clue. Only give the students the puzzle without the clues. For each clue, replace it with pictures. It works very well with a unit that introduces many new vocabulary words.

c. Object Puzzle. It is the crossword where inside the object is written a clue. Give a blank puzzle without a hint to the student. The goods were placed around the room, each given a label with the prompt number. Then the students are asked to go around at different stations, allowing them to pick up the objects as they complete the puzzle.

2.8.3 The Advantages and Disadvantages of Using Digital Crossword Puzzle in Teaching Vocabulary

According to Plaister in Rimbayanti (2016:17), in teaching vocabulary, there are some advantages of crossword puzzles that can be taken, namely:

1. Students will be more engaged and motivated if they learn vocabulary through action.
2. By doing puzzles, students are trained to be involved in problem solving.
3. It is interesting and challenging for students. It can avoid students' boredom from monotonous learning. In this case, puzzles try to increase students' attention, their lesson materials, and their learning.
4. In group or classroom discussion, students are trained to be more critical thinkers.

5. The puzzle in group will make the students feel fun and enjoy learning English. This is meaningful and helpful for students' learning of English. It can encourage students' to participate in their learning of English.

Digital crossword puzzle media made it easier for students to remember words according to questions and according to the material being taught by guessing the words contained in the area provided. The development of digital crossword puzzle media could provide assistance in motivating students to be active in learning because the display was designed to be used interactively, so students did not feel bored when learning took place.

According to Muetiah (2014), the crossword puzzle also had disadvantages. The problem with crossword puzzles is that not all the characteristics of things can be provided because, in creating them, the teacher had to replace one word with another. The teacher has to be aware of the requirements for creating crossword puzzles. The teacher has to make a list of main words and supporting words as contents for a crossword puzzle. Based on the above statement, the writer concluded that using crossword puzzles has advantages and disadvantages in its use as a medium for learning vocabulary.

2.9 Previous Researches

There were some researchers who conducted research with respect to this topic. They are:

Nurul (2017) In this research, the researcher used descriptive and qualitative research. The researcher used purposive sampling techniques to determine the

sample. The researcher chose class VII C as a sample, which consisted of 30 students. In collecting the data, the researcher used three kinds of instruments: observations, interviews, and questionnaires. The researcher used three major data analyses: data reduction, data display, and conclusion drawing or verification. From the data analysis, the researcher found that teaching vocabulary by using crossword puzzles at MTs was as follows: The first was that the teaching and learning process by using crossword puzzles was running well, and the classroom atmosphere was positive. The students looked active in the classroom, but some of them looked less responsible.

The second, the teacher, had some problems. They were: the teacher had difficulties handling the class because the students made it overcrowded by themselves, used a faulty method of teaching, and demanded to share some words of vocabulary in meetings, but the students could only master some of them. Third, the students have some problems learning vocabulary. They were: the students considered the teacher's explanation boring, and they thought of vocabulary learned as knowing the primary meaning of new words that were gotten only from textbooks or from the teacher, so it was difficult for them to use the words based on the appropriate context.

Yayang (2018) This research was attempted to verify the effectiveness of the crossword puzzle game in teaching vocabulary to the seventh grade students of SMPN 10 Cimahi. The main objective was to figure out whether the crossword puzzle game was effective in improving the students' vocabulary or not. The

method uses quantitative research and a pre-experimental research design conducted in one class. The populations of this research were seventh-grade students. In addition, the sample is one class of seventh grade students, which is class VII.E, which consists of 32 students. The data are collected with the pretest and posttest as instruments. The data analysis shows that the result of the mean score of the posttest is higher than the mean score of the pretest. Therefore, teaching the English vocabulary used in crossword puzzle games is effective in improving the students' vocabulary.

Yoni (2014) The crossword puzzle was a game that made the learning process attractive and fun. Teaching vocabulary by using crossword puzzles could make the learning process interesting, make students understand the meaning and spelling of words in English, give them the ability to communicate with others, and help them express their ideas in English.

Vina (2020) with the title, "Improving Students' Vocabulary Mastery Using Crossword Puzzle". This research was carried out in two cycles. In the first cycle, the average value of students was 58.97, which was categorized as still very low or bad. Then the researcher proceeded to the second cycle by using the steps in classroom action research, and the researcher was more focused on attracting students' attention to focus on what they had learned and explaining the instructions for working on crosswords. Therefore, in the second cycle, the average value of students increased to 76.02, and the category was good. This shows that there is an increase in the mastery of English vocabulary after implementing crossword puzzle games into the learning process in the classroom.

Regarding the previous research above, the researcher initiated a study to find out whether digital crossword puzzles could make a difference in the students' vocabulary mastery after they were taught through digital crossword puzzles in the seventh grade of SMPN 22 Bandar Lampung and to find out what aspect of vocabulary improved the most among the other aspects of vocabulary.

2.10 Basic Assumptions

In learning English, students needed to know a certain number of words to produce utterances or sentences. The students had to master vocabulary in order to communicate in English. A crossword puzzle was one of the media that could be used by a teacher to teach vocabulary in learned English. By implementing digital crossword puzzles, the students would recycle their vocabulary easily in groups or teams. Working as a team and competing with other teams made the students interested in following the teaching and learning process because they would not feel worried since they worked as a team. By playing the digital crossword puzzle, the students will be motivated to learn English vocabulary because the puzzle is amusing and challenging. It also encourages and increases students' cooperation in English class. It means that crossword puzzles can be used to teach vocabulary.

2.11 Hypothesis

Based on the basic assumption above, the writer formulated the following hypotheses:

H_0: There was no significant improvement in students' vocabulary achievement after the implementation of digital crossword puzzles as media.

H_1: There was a significant improvement in students' vocabulary achievement after the implementation of digital crossword puzzles as a medium.

CHAPTER III

RESEARCH METHOD

Chapter 3 presents the research methods and procedures used in carrying out the research objectives. It was divided into several parts. They were research design, population and sample, procedure data of the research, instruments of the research, technique of data analysis, and validity and reliability.

3.1 Research Design

In this subchapter, the researcher will explain the research design that was used in this research.

The researcher used quantitative research in this study. The researcher used a group pretest-posttest design. In this research, the researcher made two observations: before and after the experiment. The test before the experiment was called the pre-test (T1), and the test after the experiment was called the post-test (T2). In the middle of the pre-test and post-test, the researcher gave the treatments to students by using crossword puzzles in the class. Then, at the end of the treatments, the researcher administers the results of the pre-test and post-test scores to find out if there is a difference in students' vocabulary mastery in the seventh grade of SMPN 22 Bandar Lampung after they were taught through a digital crossword puzzle.

The research design is described as follows:

TI X T2

Where:

T1 = pre-test

T2 = post-test

X = Treatment (teaching vocabulary through crossword puzzle)

(Setiyadi, 2006)

A variable was the nature or character of an individual or organization that (a) researchers could measure or observe, or (b) differences between individuals or organizations studied. This means that a variable is everything that can be observed and learned by researchers. Furthermore, we classified the variables into two categories. It is an independent and dependent variable (Setiyadi, 2006). An independent variable is the major variable that a researcher hopes to investigate. A dependent variable is a variable that the researcher observes and measures to determine the effect of the independent variable. This research consists of the following variables:

1. The independent variable was crossword puzzle (X), because this variable could influence or have effects on the dependent variable.

2. The dependent variable was students' vocabulary mastery (Y), because this variable was observed and measured to determine the effect of the independent variable.

In conclusion, there were two variables in this research. Student vocabulary mastery was the dependent variable (Y), and crossword puzzles were the independent variable (X).

3.2 Population and Sample

1. Population

Populations are large groups that are expected to use the results. This means that the entire population is included in the total number of research entities. In this study, the population was selected from all SMPN 22 Bandar Lampung students.

2. Sample

A sample is part of population research (Arikunto, 2006). The sample for this research was made up of students in the seventh grade at SMPN 22 Bandar Lampung. In this research, the researcher used a saturated sampling technique in which the entire population was sampled. A saturated sample or census is a method for determining a sample when all members of the population are used as samples (Sugiyono, 2010). Another term for saturated sampling is the census.

3.3 Data Collection

Tests were the instruments used in this research; they were pre-test and post-test:

1. Pre-test

The pre-test was conducted before treatments. It was used to determine how far the students' had mastered the vocabulary before the treatments were given. The pre-test items used by the researcher were multiple-choice.

2. Treatment

After doing the primary test, the students were given treatment through the use of crossword puzzles. Before that, the researcher directed the students on how to apply the digital crossword puzzle. Three meetings must be attended.

3. Post-test

The post-test was conducted after the researcher had conducted the treatments. It was used to determine how far the students' had mastered the vocabulary after being taught using a crossword puzzle. Similar to the pre-test, the researcher used a vocabulary test in the form of multiple choices. The questions had the same level of difficulty as the pre-test.

3.4 Procedure of Data Collection

A few approaches were applied to conducting this study, as follows:

1. Finding the subject of the research

The subject of the research was a student in the seventh grade at SMP N 22 Bandar Lampung. There was one class that was the subject of the research.

2. Designing the instruments of the research

The instrument of this research was a vocabulary test. The students were given the instrument for one topic that had already been consulted.

3. Determining materials

The material given is based on the first-grade junior high school syllabus about describing objects at home.

4. Administering for the pre-test

A pre-test was used to determine the initial potential of the students. Here, students were assigned to write the meaning of vocabulary by choosing one of the multiple choice options.

5. Conducting treatment

The research turned into five meetings for the class. Pre-test, three meetings for treatment, and a post-test. Every treatment was performed twice a week. In the strategy of their process for each meeting, a digital crossword puzzle was the media that was used within the class.

6. Doing post-test

The motive of this test was to find out whether there was a significant improvement in students' vocabulary abilities.

7. Analyzing the research results

Reading the data acquired from the pre-test and post-test targets to determine the increase that occurred in this study

3.5 Instrument of the Research

The instrument of this research was a vocabulary test. The vocabulary test was conducted to find out how far the researcher measures students' vocabulary ability through digital crossword puzzles as media. The test is given in the form of multiple-choice (a, b, c, and d); the numbers of test items were 50 questions. The students' were given a chance to answer the questions for about 90 minutes in both tests. The multiple-choice test is used since its marking is rapid, simple and most importantly reliable, that is, not subjective or influenced by marker judgments (Heaton, 1975: 151). The materials were taken based on the

educational unit leveled curriculum of English for Junior High School. It is focused on descriptions of objects at home. The test consisted of 50 items in multiple choices and each item had four options of answered.

Table of Specifications of the Try out Test

No.	Word type	Items	Total
1.	Noun	3,5, 8,10, 18, 23, 28,30,33, 35, 43, 55, 57, 61, 68, 69, 74, 76,	20
2.	Adjective	7, 11, 14, 16,19, 24, 32, 36, 39, 41, 44, 51, 54, 62, 70, 71, 72, 75,	20
3.	Adverb	4, 6, 12, 13,15, 21, 26, 27, 29, 31, 37, 38, 40, 46,53, 56, 64, 65, 77, 78, 80	20
4.	Verb	1, 2, 9, 17, 20, 22, ,25,34, 42, 45, 47, 48, 49, 50, 52, 58, 59, 60, 63, 66, 67, 73, 79,	20
		Total	**80**

(Table 3.1 Table of Specifications of Try Out Test)

Table of Specifications of the Pre- Test

No.	Word type	Items	Total
1.	Noun	2,4,5,12,14,15,17,19,24,28,29 ,34,37,43,44,49,50	17
2.	Adjective	3,7,9,16,20,22,25,31,32, 33,38,45,46,47	14
3.	Adverb	6,21,36,40,41	5
4.	Verb	1,8,10,11,13,18,23,26, 27,30,35,39,42,48	14
		Total	**50**

(Table 3.2 Table of Specifications of Pre- Test)

Table of Specifications of the Post- Test

No.	Word type	Items	Total
1.	Noun	1,2,8,14,18,20,21,25,26,27,30 ,35,36,38,40,46,49	17
2.	Adjective	3,10,15,17,24,28,29,32,33,34, 37,39,42,43,	14

3.	Adverb	9,11,16,47,50	5
4.	Verb	4,5,6,7,11,12,13,19,22,31,41, 44,45,48,	14
		Total	**50**

(Table 3.3 Table of Specifications of Post- Test)

3.6 Technique of Data Analysis

In order to support this study, the writer used One Group Pre-test Post-test Design. Pre-Test was given by the teacher before the student was treated by using a digital crossword puzzle. The researcher gave each student a worksheet that contains some questions relating to the subject matter that would be given later. Post-Test was given after treatment, the form and material of test was usually the same as pre-test. After that, the writer calculated the score of each student and then found out the mean of each Pre- Test and Post-Test. Sarwono (2006: p.140) proposed that, the formula for calculating the mean of result are as followed.

$$M = \frac{\Sigma X}{\Sigma N}$$

Description:

M = Average value

$$\sum X \quad = \text{Number of values}$$

$$\sum N \quad = \text{Number of respondent}$$

To analyze the result of experiments used the pre-test and post-test one group design then the formula was below.

Before calculated significant test, found the sum of squared deviation ($\sum x2d$) with the following formula:

$$\sum x^2 d = \sum d^2 - \frac{(\sum d)^2}{N}$$

Arikunto (2010)

Significant Test:

$$t = \frac{Md}{\sqrt{\frac{\sum x^2 d}{N (N-1)}}}$$

Description:

Md   = Mean of differences pre-test and post-test

(pre-test post-test) xd= Deviation of each subject (d - Md)

$\sum x^2 d$ = The sum of squared deviations

N   = Subject in the sample

d.b = Determined with N-1

3.7 Validity and Reliability

3.7.1 Validity of Vocabulary Test

The validity of a tool has to reveal how properly that device measures what is meant to be measured (Setiyadi, 2018). Validity relies upon the amount and form of proof that have assisted the translation that the researcher desires to make about the statistics that have been amassed. The researchers used content and construct validity in this study.

1. Content Validity

Describe, with the help of Brown (2000), all validity strategies that focus on the content check material. To collect material that the researcher arranges mainly based on the syllabus made by the teacher. The researcher got data from the syllabus to make judgments that match the objectives or specifications of the vocabulary. This study focused on the syllabus, Curriculum 2013, which focuses on KD 3.7 regarding stating and asking about descriptions of people, animals, and objects. Furthermore, the signs on the syllabus were used as a benchmark in providing assessments to students. The researcher conducts a review mainly based on the learned objectives contained in the syllabus made through the English language trainer, which is a good way to organize materials.

2. Construct Validity

In determining whether the content contained within the tool was an adequate sample of the content area it should represent, this refers back to the content and format of the tool. As Brown (2000) mentions from Brown (1996), validity is "the degree to which a check measures what it claims, or purports, to measure". The vision of the object or task must be based on the idea of what is being examined (Nurweni, 2018). The researcher designs the assessment mainly based on the concept of vocabulary and the factors present in vocabulary, which turned out to be entirely based on the concept of Jacob (1981), which had been shown to test additional vocabulary tasks carried out at several points of the coaching and learning system. Furthermore, an English teacher at SMPN 22 Bandar Lampung and one lecturer at Lampung University would check the instruments.

3.7.2 Reliability of Vocabulary Test

Reliability refers to the extent to which the test is consistent in its score and gives us an indication of how accurate the test score is (Hatch and Farhady, 1982: 224). In other words, how far it can measure the subject at a separate time, but it shows the same result relatively (Setiyadi, 2006: 113). Reliability is defined as the extent to which a test produces consistent results when administered under similar conditions (Hatch and Farhady, 1982: 244).

Cronbach's alpha is described as 'one of the most important and pervasive statistics in research involving test construction and use' (Cortina, 1993, p. 98), to the extent that its use in research with multiple-item measurements was considered routine (Schmitt, 1996, p. 350). Alpha is commonly reported in the

development of scales intended to measure attitudes and other affective constructs. The instrument is reliable if the Cronbach's alpha value is >0 or 60. Meanwhile, if the value is 0 or 60, the instrument is declared unreliable.

3.7. 3 Level of Difficulty

Level of difficulty relates to how easy or difficult the item is in the form of the point of view of the students' who take the test. It is important since test items which have been too easy (that all students' got right) can tell us nothing about differences within the test population (Shohamy,1985:79).

Level of difficulty is calculated by using the following formula:

$$LD=RN$$

The design can further be described as follows.

LD   : relate to level difficulty.

R   : concerned with a number of students' who answers it right.

N   : refer to the total number of students'.

The criteria are as follows:

<0.30   indicates that level of difficulty was difficult

0.30-0.70   points out that level of difficulty was average

>0.70   denotes that level of difficulty was easy.

(Shohamy, 1985:70)

3.7.4 Discrimination Power

Discrimination power refers to the extent to which the item differentiates between high and low-level students' on that test. A good item, which is according to this criterion, is one in which good students' did well, and bad students' failed (Heaton, 1975:160).

$$DP = \frac{U-L}{12N}$$

The design can further be described as follows.

DP : concerned with discrimination power.

U : refer to a number of upper group students' who answer correctly.

L : denote the number of lower group students' who answer correctly.

N : designate a total number of students'.

The criteria of discrimination power are:

0.00-0.20 indicates that the item of the test was poor

0.21-0.40 points out that the item of the test satisfactory

0.41-0.70 denotes that the item of the test is good

0.71-1.00 indicates that the item of the test is excellent

- (Negative) points out that the item of the test is bad, and it should be omitted.

(Heaton, 1975:160)

3.7.5 Scoring System

The scoring system that is used in this research is dividing the right answer by total items timed 100. The ideal higher scores of pre-tests and post-tests were

calculated by using the formula by Arikunto (1997) which is employed:

$$S = \frac{R}{N} \; x \; 100$$

The design can further be described as follows.

- S denotes as score of the test

- R relates to number of right answers

- N relates to total number of items on the test

3.8 Hypothesis Testing

The researcher used hypothesis tests using Product Moment. Product Moment was used to describe the strength of the relationship between two variables: digital crossword puzzles as media and students' vocabulary ability. Finally, the researchers who interpreted this hypothesis were:

Ho: There was no significant improvement in students' vocabulary achievement after applying the digital crossword puzzle as a medium.

Ha: There was a significant improvement in students' vocabulary achievement after applying the digital crossword puzzle as a medium.

V. CONCLUSION AND SUGGESTIONS

The last chapter consists of conclusions and suggestions. It presents the inference of the discussion and recommendations for English teachers and further researchers who want to implement digital crossword puzzle.

5.1 Conclusions

Regarding the result of data analysis and discussion, the following conclusions were drawn:

1. Students' vocabulary improved when they followed the learning process using digital crosswords as media. This happens because when they play and learn using digital crossword puzzles, they can explore a wide range of vocabulary that they have to fill in.

2. The implementation of digital crossword puzzles has had a positive effect on students' vocabulary mastery across all aspects of vocabulary types, especially nouns. It is easier for students to understand vocabulary in the form of nouns because they are more familiar and easier to guess when learning to use digital crossword puzzles. This makes it very easy for them to answer tests that ask about nouns compared to other types of vocabulary.

5.2 Suggesstion

In reference to the conclusion above, there are several suggestions for further research, which are described in the following paragraphs.

Those are the conclusions of this study and the suggestions from the researcher for English teachers and further researchers interested in using digital crossword puzzles.

1. For English teachers

    1. The teacher who will teach using digital crossword puzzles will ensure that the internet network is adequate and that all students have gadgets that can be used to access the internet.

    2. Teachers are expected to be able to supervise students use of this medium because many students open platforms other than digital crossword puzzles.

    3. Teachers can provide material that is more varied, for example, in the form of other forms of text such as recount text, test procedures, etc., so that students' vocabulary can be further developed.

a) For future researchers

    1. For future researchers who will research the same topic, the researcher suggests that the research not provide the same vocabulary material in the treatment process as the vocabulary material tested during the pre-test and post-test so that the research results can be more accurate and effective.

2. This research is still being applied at the junior high school level. It is hoped that in the future, it can be applied more broadly at the senior high school level.

3. Future researchers are expected not to make the same mistakes in the data collection process and use different material from the pre-test and post-test that will be tested on students.

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