THE EFFECT OF CROSSWORD PUZZLE GAME ON STUDENTS' VOCABULARY MASTERY AT GRADE EIGHT OF SMP GKPS 3 PEMATANG SIANTAR

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Abstract

The aim of this study is to find out whether crossword puzzle game is an effective media to improve students’ vocabulary mastery of descriptive text, and comparing with the students who were taught by using the conventional media. This study is a quantitative research using quasi-experimental as the method of collecting data. In this study, the data were taken from the pre-test and post-test. The Excel program was used to analyze the validity. The result shows that the mean of pre-test from the experimental group was 55,33, and the control group was 42,33. Then the mean of post-test from the experimental group was 82,5, and the score of the control group was 63,16. Based on the t-test calculation of post-test from both classes shows that the result of the t-value (3,666) was higher than the t-table (2,001). Since the t-test was higher than the t-table, it could be stated that there was a significant difference between the students’ achievement who were taught by using crossword puzzle game and those who were taught by using conventional learning media in improving vocabulary of descriptive text. The students who were taught by using crossword puzzle game have higher achievement. In other words, crossword puzzle game is effective to improve students’ vocabulary mastery. Based on this result, it is recommended that teachers use crossword puzzle in English classes because this game is very helpful for students in improving their vocabulary mastery..

Keywords: Crossword Puzzle Game, Vocabulary Mastery
INTRODUCTION

As we know that when we want to communicate with people we need a language as a means of communication. Without having the ability to express a language, then we are unlikely to communicate with others and in fact we will be hard to express our thoughts and feelings to others. According to Brown (2000:5) states that "Language is a system of arbitrary conventionalized vocal, written, or gestural symbols that enable members of a given community to communicate intelligibly with one another" (Derakhshan & Khatir, 2015). It means that we can express a language through written or orally so that others can understand the thoughts, feelings and our ideas with ease. Moreover the language is a tool that can be used to communicate to others. According to Jain (2008:6) he states “English is the language of the world and the knowledge of the language makes a person, a citizen of the world”. So it means that English is one of important language for all people (Reyes-Chua & Lidawan, 2019).

English as International language is spoken almost all over the world. English as a foreign language has kinds of approaches and methods to help the learners to understand and used it. Generally, it begins with learning activities mastering adequate skills which is significantly important for students to understand all the aspects of English language, as: Listening, Speaking, Reading, and Writing. Listening is name with receptive skill. The talent of reception is listening. When we talk about hearing, what we truly mean is listening to what is being said and comprehending it. Speaking is name with productive skill. The most effective ability to increase and develop vocabularies is speaking (HASANI & RASOULI, 2015). Speaking is an interactive activity where speakers seek to create meaning by generating, absorbing, and processing information. Reading is known as receptive skill. Reading is the process of interpreting written content. And Writing is named with productive skill. Writing is the process of communicating ideas and thoughts with symbols (alphabetical letters, punctuation, and spaces) to people globally in a readable manner (Chotimah & Astiyandha, 2022).

Vocabulary is one of the important things to be though in learning foreign language because it is impossible to speak something to other without variety of word in mind. Rubin (1994:79) state that the "one can not speak, understand, read or write a foreign language without knowing a lot of words, so vocabulary learning target is at the heart of mastering a foreign language". Those statements imply the importance of teaching vocabulary as a foreign language. As a linguist, Thornbury (2002:13) said that vocabulary learning is very important. 'Without grammar very little can be conveyed, without vocabulary nothing can be conveyed' (Sun & Yin, 2022).

One of the language skills that the students must master when learning a foreign language is vocabulary. Vocabulary is the links the four components of the English language, including listening, speaking, reading, and writing. Students must develop their practices and learn in order to increase the number of advances vocabulary for the fourth aspects of language. Mastering vocabulary will help students to communicate in oral and written form because it maintains all information related with word meaning and word in use. Vocabulary may be a center component
of language skills and gives much of the premise for how well learners speak, write, read, and listen. It implies without great mastery of vocabulary, it is impossible for students to have great mastery in four language skills (WILDANI, 2021). In addition, Riyanto as cited from Robiatussolikah (2009), stated that the more vocabulary someone can master, the more fluently they can express their ideas. It is hard for students to be fluent speakers if they do not have a rich vocabulary list.

Based on the observation that researcher made in SMP GKPS 3 Pematang Siantar during her internship program she got the fact in field, many students not mastered the vocabulary, it can be seen from the mean of some English test that the researcher has given to students in that school. Based on the English examination of the students, it is found that many of students only get 45-60 score in their English tes (Prasetyo, Martono, & Suparno, 2018). And from the results of the test before, researcher concluded that several obstacles in learning English are positively effect the lack of students vocabulary. First, it can be see when the students enter the English class exactly in a descriptive lesson. In descriptive text the learners might find that there are adjectives. When students are ask some questions, they said it is difficult to distinguish where is the adjectives, verb, noun, and adverb in descriptive text. Second, students also do not know how to write down the right vocabulary word. Even though the teacher try to spell it out in front of the class. Third, students are difficult to memorize the meaning of vocabulary because they really not interesting to learn about English learning maybe because the learning model that teacher using is not interest them, And the fourth many of students in the class can not pronounce vocabulary well (Firdaus, 2019).

The things that affect the problem are their social background who influence the way they learn and the way they receive the lesson. Based on our interview with a few students, among of students are comes from underprivileged families, it is the biggest factor that dominates this problem (Wazeer, 2023). Parents who focus on material make children less attention and education from home, as we know that education from home is the first and foremost education. The lack of communication between children and parents also affects the way they express opinions in learning material. Students are unable to think critically when conveying their opinions to friends and their own groups.

Based on the experience above, the researcher concluded that the problems above may be caused by the absence of media in learning process and lack of knowing adjectives in descriptive text sentences. According to Santyasa (2007:3) The use of teaching media is important in the process of learning and teaching activities, it is said that because the teaching media very helpful in providing maximum, efficient and effective teaching. With the existence of learning media, students can feel comfortable, and enjoy in the process on going learning media can be audio, pictures, tools and others (Ho, Thien, An, & Vy, 2020). By using descriptive text students are very capable of doing crossword games. Descriptive text is made in the crossword game. Students is answer the statement in a sentence and complete the crossword puzzle. The use of crossword puzzles in descriptive text is very influential in increasing students' vocabulary. In this case, the
teacher is led to have a way to get students interested in learning descriptive text (Harahap, Sari, Ramadhani, Safriyani, & Harahap, 2020). Learning with the Crossword Puzzle Game media is carry out by previous research conducted by Mu’awanah who in her thesis conducted an experiment on "The Effectiveness of using Crossword Puzzle Game with Picture in Teaching Writing" (Hanif, 2016). This research uses the quantitative approach with experimental and control methods. And the results stated that teaching using pictorial crossword puzzles has an influence on students' writing scores in class XI MA Hidayatul Insan Palangka Raya (Mu’awanah, 2017). Another research conducted by Dari entitled "The Effectiveness of Crossword Puzzle Games towards students' vocabulary material". This research used the experimental class and control class methods. The results of this research indicate that the crossword puzzle game is effective in learning vocabulary in the second grade students of SMP Puspita Bangsa Ciputat (Sari, 2017). Besides Mu'awanah and Sari, other researches also used the Crossword Puzzle Games as a medium in a lesson, namely Erawati conducted a study entitled "The influence of using Crossword Puzzle toward students’ ability in Writing descriptive text" (Gao, Wang, & Lee, 2020). The research methodology used is a quasi-experimental research design. The sample from this study is selected using cluster random sampling technique. And the results which state the Crossword Puzzle Game is very influential in student learning outcomes in writing descriptive text, (Niya, 2021).

Based on the phenomenon above, the researcher is interested to make a research entitled, "The Effect of Crossword Puzzle Game on Students’ Vocabulary Mastery of Grade Eight Students at SMP GKPS 3 Pematang Siantar".

**METHOD**

This research used quantitative research method by using quasi-experimental design. Creswell (2012:309) Quasi-experiments include assignment, but not random assignment of participants to groups. An experimental design was the method to collecting the data by using two classes. The first class a Control class that did not taught by using a strategy and second was Experimental class that has the treatment of Crossword Puzzle which consist of pre-test and post-test in order to know the effect of Crossword Puzzle Game on students’ vocabulary of grade eight of SMP GKPS 3 Pematang Siantar. In conducting the experimental research, the sample devided into two groups (Chen, Li, & Wang, 2019). Before the experiment, both classes gave the same pretest. Furthermore, the experimental class was given treatment using the Crossword Puzzle Game Method. While the control class was treated using conventional learning media. After the two classes carried out the learning process, they were given the same posttest (Gunawan, 2019). This research was conducted at SMP Swasta GKPS 3 Pematang Siantar, which is location at Jl. Sisingamangaraja No. 26, Sigulang-gulang, Kec. Siantar Utara, Kota Pematangsiantar, Sumatera Utara, 21143. This research carried out in the first semester of the academic year 2023/2024.

The population is the total number of subjects to be studied by a researcher. The sample is part of the population that has characteristics similar to the population itself. Population and
sample are an important part of research that must be determined from the start. By determining the type of object of this research, researcher can determine the research method that is more appropriate to the conditions and needs.

Population is a set (collecting) of all elements processing one or more attributes of interest. Population is a group of individuals who has the same characteristic (Cresswell : 2009). The population use in this research were all students of grade eight at SMP GKPS 3 Pematang Siantar for 2023/2024 academic year which consisted of two (2) classes, each class having an average number of 30 students. The total number of the students in grade eight about fifty six (60) students (Ackermann, Hepach, & Mani, 2020).

The sample is part of a population that is used to represent the research. According to Cresswell (2009) sample is subgroup of the population that the researcher plans to study for generalizing about the target population. It is mean that the sample take from the population. The research chose purposive sampling. Purposive sampling is a sampling technique based on certain considerations, which are considered suitable for the characteristics of the specified sample. The researcher used eight 1 and eight 2 as control class and experimental class. The control group was the group which are not received the treatment of taught of using Crossword Puzzle and experimental was received a treatment. To take a sample using two classes namely eight 1 and eight 2. The first class eight 1 was taken from 30 as control group and eight 2 class numbered 30 as experimental group (Bin-Tahir, Bugis, & Tasiana, 2017). Instrument research is a tool that is used by researcher to facilitate work in collecting research data. Instruments are tools used to assess, measure, observe, and document quantitative data (Creswell 2014:6). The instrument in this research is a multiple choice to collect data. From the learning outcomes of this test, it can be seen from the extent to which students were able to understood and mastered the material that already studied. This test was given to all classes used, namely the experimental class and the control class (Salem, 2019).

The data acquisition procedure begins with giving a pre-test to both the experimental class and the control class. Then, the experimental class given treatment by applying the Crossword Puzzle Game in descriptive text learning. After the treatment, the researcher was given a post-test to both classes to get the final result. After that, the results of the pre-test and post-test were compared to find out whether the Crossword Puzzle Game media was effective on students’ ability to distinguish vocabulary adjectives.

RESULT AND DISCUSSION

This chapter discuses about the result of the research which consist of analysis of data, findings, and discussion. The results are analyzed based on theory that had been mentioned in the chapter two and the chapter three of this thesis.

Data Analysis
The data collected by giving the test as an instrument of the data collecting. The test was given to know the ability of students in vocabulary mastery. And researcher analyzed data by using formula that had been mentioned in chapter three.

**Data of Experimental Class**

**Table 1. Score of Pre-test and Post-test in Experimental class**

<table>
<thead>
<tr>
<th>No</th>
<th>Students Initial Name</th>
<th>Pre Test (Xa₁)</th>
<th>Post Test (Xa₂)</th>
<th>Gained Score (Da)</th>
<th>Da²</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Ab</td>
<td>65</td>
<td>90</td>
<td>25</td>
<td>625</td>
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<td>2</td>
<td>As</td>
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<td>900</td>
</tr>
<tr>
<td>3</td>
<td>Ap</td>
<td>75</td>
<td>95</td>
<td>20</td>
<td>400</td>
</tr>
<tr>
<td>4</td>
<td>Bs</td>
<td>45</td>
<td>75</td>
<td>30</td>
<td>900</td>
</tr>
<tr>
<td>5</td>
<td>Ds</td>
<td>40</td>
<td>70</td>
<td>30</td>
<td>900</td>
</tr>
<tr>
<td>6</td>
<td>Dh</td>
<td>60</td>
<td>90</td>
<td>30</td>
<td>900</td>
</tr>
<tr>
<td>7</td>
<td>Fs</td>
<td>70</td>
<td>90</td>
<td>20</td>
<td>400</td>
</tr>
<tr>
<td>8</td>
<td>Hm</td>
<td>60</td>
<td>85</td>
<td>25</td>
<td>625</td>
</tr>
<tr>
<td>9</td>
<td>Is</td>
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</tr>
<tr>
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<td>Jrs</td>
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<td>80</td>
<td>40</td>
<td>1600</td>
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<td>Js</td>
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<td>85</td>
<td>35</td>
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</tr>
<tr>
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<td>Jh</td>
<td>45</td>
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<td>25</td>
<td>625</td>
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<tr>
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<td>Jvs</td>
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<td>Ks</td>
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<td>85</td>
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<tr>
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<td>Rp</td>
<td>45</td>
<td>85</td>
<td>40</td>
<td>1600</td>
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<tr>
<td>22</td>
<td>Rs</td>
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<td>85</td>
<td>30</td>
<td>900</td>
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<td>75</td>
<td>30</td>
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<tr>
<td>24</td>
<td>Ra</td>
<td>65</td>
<td>80</td>
<td>15</td>
<td>225</td>
</tr>
<tr>
<td>25</td>
<td>Tm</td>
<td>75</td>
<td>90</td>
<td>15</td>
<td>225</td>
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<tr>
<td>26</td>
<td>Yh</td>
<td>65</td>
<td>85</td>
<td>20</td>
<td>400</td>
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<tr>
<td>27</td>
<td>Ys</td>
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<tr>
<td>28</td>
<td>Yss</td>
<td>50</td>
<td>80</td>
<td>30</td>
<td>900</td>
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<tr>
<td>29</td>
<td>Zs</td>
<td>50</td>
<td>75</td>
<td>25</td>
<td>625</td>
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<tr>
<td>30</td>
<td>Ars</td>
<td>60</td>
<td>80</td>
<td>20</td>
<td>400</td>
</tr>
</tbody>
</table>

**Total ∑** 1660 2475 815 24225

**Mean** 55,33 82,5
Based on the data analysis above, mean score in pre-test is about 55.33. The lowest score was 35 and the highest score was 75. While the mean score in post-test was 82.5 which is the lowest score is 70 and the highest score was 95.

**Testing Hypothesis**

The hypothesis test was used the independent T test. This test due to compared two unpaired data (data in different samples). This independent test was used to see The Effect of Crossword Puzzle Game on Students Vocabulary Mastery. In this test, the post-test scores in the experimental and control classes were compared. The researcher has to offer a null hypothesis (H0) and an alternative hypothesis (Ha). However, to find out the results of hypothesis testing, researcher must calculated the variable mean for both the experimental group and the control group as follows

**Mean Variable of Experimental Class**

\[
M_a = \frac{\sum da}{Na} = \frac{815}{30} = 27.16
\]

**Mean Variable of Control Class**

\[
M_b = \frac{\sum db}{N_b} = \frac{675}{30} = 22.5
\]

The experimental class has a higher mean and standard deviation than the control class, this can be seen from the data. The sum of both classes (Na and Nb) is same, so it was so easy to calculate the two classes using t-test formula. Before calculate the t-test, researcher must use the formula get the degrees of freedom (df) find out the value of t-table to be compared with t-test after calculating the t-test:

\[
df = Na + N_b - 2
\]

\[
df = 30 + 30 - 2
\]

\[
df = 58
\]

The researcher calculated results of t-test using the following formula based on the data that had been collected from the scores for experimental and control class:

\[
t = \frac{M_a - M_b}{\sqrt{\frac{da^2 + db^2}{(Na + N_b) - 2 \left( \frac{1}{Na} + \frac{1}{N_b} \right)}}}
\]

The calculation and the result was:

\[
t = \frac{27.16 - 22.5}{\sqrt{\frac{2084.17 + 777.5}{(30 + 30) - 2 \left( \frac{1}{30} + \frac{1}{30} \right)}}}
\]
The results of data analysis was 3.66 by using hypothesis testing. The value of the t-table with two tails calculated using the degrees of freedom (df) is 58, the results of the t-table is 2.001. 

$H_a$ accepted if the t-test value higher or same with the t-table value.

\[
t = \frac{4.66}{\sqrt{49.33}(0.033)}
\]

\[
t = \frac{4.66}{1.62}
\]

\[
t = \frac{4.66}{1.27}
\]

\[
t = 3.66
\]

From the calculation results, it turns out that (3.66 > 2.001) therefore $H_a$ was accepted and $H_0$ is rejected.

**Research Findings**

Based on the data analysis, it was found that the used of Crossword Puzzle is effective on students’ vocabulary mastery. This could be seen from the following results:

1. The mean score pre-test in control group was 42.33 and post-test score in the control group was 63.16 while mean score in experimental group before treatment was 55.33 and the mean score in experimental group after treatment was 82.5. The gained score between mean in control and experimental group was 20.

2. The post-test standard deviation for the experimental group after treatment was 2084.17 and the control class was 777.5.

3. The hypothesis value show that the t-test value was higher than the t-table value 3.66 > 2.001

**Discussion**

To determine the effect of crossword puzzle game media as a medium on students achievement in vocabulary mastery in descriptive text, the researcher provided a multiple choice pre-test and post-test. The researcher obtained data in the form of pre-test and post-test scores
after administering the post-test. The data was then evaluated using the t-test. The score of students in the post-test from 30 students using Crossword Puzzle Game was higher with total mean 82.5 than the score of post-test without using Crossword Puzzle Game with total mean 63.16.

The results of the research above concluded that there are significant differences between the adjective pre-test and post-test in students’ vocabulary mastery in descriptive text. When adjectives were played with a crossword puzzle game to teach vocabulary, students’ vocabulary skills improve. Students were more active and less bored in learning. As a result, crossword puzzle game play can be an excellent media for educate or develop student vocabulary. Crossword puzzle in adjective vocabulary can make teaching more interesting and encourage students to participate more actively in the learning process to learn vocabulary mastery (Bavi, 2018).

There was development in the experimental class, it can be considered as an effect of applying crossword puzzle game on the students’ ability in vocabulary. The researcher then used a t-test to determine the significance of the difference in scores between the pre-test and post-test. The result of t-test is 3.66. The t-count numbered was discovered, and the researcher then assessed the degree of freedom or df = (Na + Nb - 2), therefore the df was 30 + 30 - 2 = 58. The researcher used t-tables with a level of significance of 5%. The writer discovered the df (58) in a t-table at a significance level of 5%, which is 2.001. The researcher compared the t-test and t-table values to address the hypothesis testing question (Widya, Fatimah, & Santiana, 2020). The writer obtains the value of t-test 3.66 and the value of t-table 2.001. When t-test reaches the t-table it indicates that the alternative hypothesis (Ha) is accepted and the null hypothesis (H0) is rejected, and the theory was validated. It means that there was a significant effect of using crossword puzzle game media in teaching learning process in grade eighth of SMP GKP 3 Pematang Siantar.

In this research, there are several advantages and disadvantages of using crossword puzzle game in adjectives vocabulary. The advantages of crossword puzzle was can encourage students to participate more actively in the learning process, make students enjoy learning, and make students more motivated to learn adjective (Mortazavi, Nasution, Abdolahzadeh, Behroozi, & Davarpanah, 2021). The disadvantage of the crossword puzzle game in this research, students are not careful enough in looking at the crossword puzzle (AKBARI, HEIDARI TABRIZI, & CHALAK, 2021).

Based to the explanation previously, applying Crossword Puzzle Game as an educational media can enhance vocabulary mastery. Students who are taught with crossword puzzle as a learning medium received a higher grade than students who are not taught with crossword puzzle. Following data analysis, the researcher showed that applying crossword puzzle as a media is more effective in improving vocabulary mastery in grade eight students at SMP GKPS 3 Pematang Siantar.

CONCLUSION

After analyzing the data, researcher found that using crossword puzzle game media as medium in vocabulary mastery was more efficient to using for improving students’ vocabulary mastery. Furthermore, using crossword puzzle help students understood about the learning content, make
students more active in class and student feel interest during the teaching learning process. It was proved by processing the results of the analyzed studies. After studied adjective on descriptive text by using the crossword puzzle media, it was proved to be active, especially affecting students’ performance in acquiring adjective vocabulary. From the calculation results, it turns out that $t_{test} > t_{table}$ that is about 3.66 > 2.001, so that $H_a$ is accepted and $H_0$ is rejected. It can be concluded that the use of crossword puzzle game media on adjectives is effective for the ten grade students of SMP GKPS 3 Pematang Siantar, a learning media for descriptive on adjective vocabulary and can help students to reduce difficulties in the teaching and learning process.

REFERENCES


