Crossword Puzzle Learning Media to Improve Mastery of Indonesian Vocabulary in Elementary School

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ABSTRACT
The use of learning media in the teaching and learning process is very important. This can help in creating an effective teaching and learning situation. This study aims to analyze the effect of Crossword Puzzle learning media in increasing elementary school students’ Indonesian vocabulary knowledge. This article is a quantitative study using a quasi-experimental approach. The research sample was class IV, totaling 38 students. The 38 students were divided into 2 groups, namely 20 experimental classes and 18 control classes. The selected research instrument is a test in the form of pretest questions and posttest questions that will be given to students. While data analysis uses 2 prerequisite tests, namely the homogeneity test and the normality test. Normality test, data is tested using Shapiro Wilk. While the homogeneity test can be carried out by testing the homogeneity of variants in the IBM SPSS 20 software. Then data analysis is continued with statistical analysis of the t test, namely the paired sample t-test. The research results found that there was an influence of the Crossword Puzzle learning media on increasing elementary school students’ mastery of Indonesian vocabulary. It was concluded that the Crossword Puzzle learning media could improve elementary school students’ mastery of Indonesian vocabulary.

1. INTRODUCTION
Language cannot be separated in human life. Humans have nature as social beings who need each other to be able to communicate. The language that exists in this life, will be longer growing when used by humans can not even be used as eaten by time. So, the development of this language will be very influenced by the intensity of the use of the language (Halidjah & Pranata, 2021; Noble et al., 2019). So, development a grammar will be determined from the intensity of how often the user of that language to the language he loves. There is Indonesian is a language of the country and unity is important to maintain. Therefore, the language used every day must be preserved and maintained in the face of development language in the present era, including Indonesian itself (Megawati et al., 2020; Pramesti, 2015).

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Indonesian language is used as a compulsory subject in schools, starting from elementary to university level. One of the topics covered in the Indonesian language learning curriculum is vocabulary. Previous study also shared the opinion that vocabulary or commonly known as word stock is all the words found in a language (Kurniawan et al., 2022). Vocabulary can be defined as the total number of words a writer or speaker possesses in Indonesian language or the words that can be used in a field of knowledge. It is a well-ordered arrangement of words, just like a dictionary, that has brief explanations and can be practically used. Mastery of vocabulary is essential as it provides the material needed to realize ideas and concepts (Fidiyanti, 2020; Mahanani, 2020). Vocabulary serves an important function as it is fundamental to every language skill. Understanding vocabulary is, therefore, a crucial aspect of language learning.

In formal education, learning vocabulary plays a crucial role in the Indonesian language as it serves as a foundation for students to master the subject and other subjects as well. The quality of students' language usage can be assessed based on their vocabulary mastery, which can influence their thinking process and creativity level (Hidayat, 2016; Kurniawan et al., 2022). Thus, the ability to master vocabulary has a significant impact on students’ communication skills, both in oral and written communication. The quality and quantity of vocabulary knowledge possessed by students can help them to better understand information conveyed by others or by educators in various learning sources. Mastery of vocabulary is a critical material that can be realized through ideas and concepts. Having mastery over vocabulary is necessary for students or anyone, as it helps them understand or use a vast collection of words to express their thoughts and emotions. Mastery of vocabulary plays an essential role in a child’s education as it can lead to academic achievement and success in school (Pebriawan et al., 2015; Zahro et al., 2020). The more words a child can master and understand, the higher their level of vocabulary comprehension will be.

Improving the quality of education can be achieved by using innovative methods and media developed by educators that can enhance students’ abilities. The innovation of learning media is essential for students success in their learning activities. The use of innovative learning media can assist in improving learning outcomes by employing effective teaching strategies and materials (Patmawati et al., 2018; Syofiani et al., 2018).

Previous study state the existence of learning media is a tool that can assist in describing some parts of the entire learning program that are difficult to explain verbally (Johansson, 2020). Learning media is used as the primary tool in the entire learning process and can also be used as a complementary tool. Also supports by other study stating that learning media can be defined as a tool that can be utilized in delivering messages during the learning process (Yunika & Mushilhasari, 2022). Learning media refers to any tool or device that can aid in conveying messages or information through various channels. By using such media, students minds, emotions, and motivation can be stimulated, resulting in an active learning process that can provide them with new information and help achieve the goal of learning. The use of media and mastery of information technology aim to equip students with the ability to filter and process information and use technology to facilitate their work (Kassem, 2018; Maulana et al., 2022).

The learning media used must comply with the required stages and characteristics of learning, including the objectives of the learning process itself, which should cater to the development of elementary school students’ learning. Additionally, it is important to consider using an assessment tool to measure the success of students’ learning outcomes. Innovative learning can be achieved through the use of media that aims to facilitate students’ understanding. One of the educational games frequently utilized as a learning media is Crossword Puzzle (Swastika, 2021; Syoﬁani et al., 2018). In this context, Crossword Puzzle or a word puzzle is a game that cultivates various words through the use of correct spelling.

Crossword Puzzle was originally a matching activity where the task was to find the correct words that fit the given clues. The answers had to not only be correct but also fit the number of boxes provided. Thus, Crossword Puzzle is a game that utilizes words and involves filling in black and white squares in a grid pattern. The goal is to fill in the squares with letters that form words, either horizontally or vertically, based on the given clues (Fadhila & Khorijah, 2022; Halidjah & Pranata, 2021). Crossword puzzles contain columns that are arranged vertically or horizontally. These columns can be arranged according to the requested letters. Students are required to have the correct strategy to fill in the crossword puzzle columns. They are required to answer questions, but also adjust the number of answers with the number of columns, where the number of answers is related to the number of other column answers. Therefore, students are required to have a large number of vocabulary words and a high level of perceptiveness to adjust to the number of columns (Hien, 2021; Weng et al., 2018).

The Crossword Puzzle media is intended for students to fill in blank boxes, which are arranged in black and white squares with letters formed based on the given words. Clues or questions are provided to guide the students. The clues or keywords of a question are usually divided into categories of horizontal and vertical directions, corresponding to the direction of the words to be filled in (Ichsan et al., 2021; Ramadhania, 2022; Wiantara et al., 2020). Not only is it a fun game, but the Crossword Puzzle also has an
educational element that unconsciously focuses students on learning vocabulary. With this in mind, there is a need for a media that strongly supports the learning process. Through the use of Crossword Puzzle media, researchers aim to investigate the mastery of vocabulary utilized in Crossword Puzzle games. Additionally, it is hoped that the use of Crossword Puzzle games will create an enjoyable learning environment and reduce boredom for students. (Joshi, 2021; Rahayu, 2018).

The study aimed to analyze the effectiveness of using Crossword Puzzle as a learning media in improving the students' vocabulary mastery, particularly for the fourth-grade students of MIN 8 Kota Medan. The Crossword Puzzle media utilized in this study contains Indonesian vocabulary. Pre- and post-tests were conducted to evaluate the students' vocabulary mastery before and after being exposed to the media. The research subjects were given treatment in the form of using the Crossword Puzzle media during the learning process. The results of the study can determine whether or not the use of the media has a positive impact on the students' vocabulary mastery.

2. METHOD

The type of research used is research with a quantitative approach using the quasi-experiment method (Rusmana & Suprihatin, 2019). Where in practice it does not use random assignment, but uses existing groups. Where to use the pre-test and post-test designs with non-equivalent control groups. This type of design includes two sample classes. Namely the experiment class and the control class. The experimental class is the class that will be given treatment, and the control class will not be given treatment. The effectiveness test uses quantitative analysis, which includes prerequisite tests (normality test, homogeneity test, and paired sample t-test). In this study, two classes were used as an experimental class and a control class and were both given a pretest and posttest. The experimental class was given treatment in the form of learning media. While the control class was not given treatment. This research was conducted at the Medan City MIN 8 school, which is located at MasjidStreet No. 142B Sei Putih Tengah, Medan Petisah, Medan City, North Sumatra. The sample in this study was 38 students from class IV, MIN 8, Medan City. The experimental class consisted of 18 students, and the control class consisted of 20 students. This type of research instrument is a test. The test used is in the form of pretest and posttest questions for the experimental class and the control class. The use of tests in this study aims to find out before and after the use of learning media (a crossword puzzle).

After the data is collected, it is then analyzed using the prerequisite test in the form of a normality test and a homogeneity test using Shapiro-Wilk. The normality test needs to be done to find out whether the samples used are normally distributed or not. After that, it is continued with the homogeneity test, whose aim is to observe the differences in data from both sources and different data groups using IBM SPSS 20. After the data is normal and homogeneous, it is continued by using the t-test statistical analysis, namely the paired-sample t-test.

3. RESULT AND DISCUSSION

Result

This study was conducted in fourth-grade classes of MIN 8 Kota Medan, which were divided into two groups: an experimental group consisting of 20 students and a control group consisting of 18 students. The results of the study are shown in Table 1.

<table>
<thead>
<tr>
<th>Table 1. Control and Expriment Statistics Class Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptive Statistic N Minimum Maximum Mean Std. Deviation</td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>Pretest Experiment 20 37.50 52.50 45.7750 4.37239</td>
</tr>
<tr>
<td>Posttest Experiment 20 70.00 90.00 76.7500 5.50717</td>
</tr>
<tr>
<td>Pretest Control 18 32.50 57.50 46.5278 5.94947</td>
</tr>
<tr>
<td>Posttest Control 18 45.00 77.50 61.5278 7.33339</td>
</tr>
<tr>
<td>Valid N (listwise) 18</td>
</tr>
</tbody>
</table>

Based on the statistical data description as shown in Table 1, it was found that the results of the pretest for the experimental group had an average score of 45.77 with a standard deviation of 4.37. The minimum score obtained was 37.5 and the maximum score was 52.5. Meanwhile, the results of the posttest for the experimental group had an average score of 76.75 with a standard deviation of 5.507. The minimum score obtained was 70.00 and the maximum score was 90.00.
Thus, it can be concluded that the use of Crossword Puzzle media has a positive effect on students’ learning outcomes. The results of using Crossword Puzzle media are better than those obtained from traditional teaching methods without media, leading to an increase in learning outcomes above the minimum passing grade and with statistical significance. Then the result of normality test is shown in Table 2.

### Table 2. Normality Test Result Using Crossword Puzzle Learning Media

<table>
<thead>
<tr>
<th>Students Learning Outcomes</th>
<th>Test of Normality</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Kolmograov-Smirnov</td>
<td>Shapiro-Wilk</td>
</tr>
<tr>
<td></td>
<td>Statistic</td>
<td>df</td>
</tr>
<tr>
<td>Pretest Experiment</td>
<td>0.133</td>
<td>20</td>
</tr>
<tr>
<td>Posttest Experiment</td>
<td>0.180</td>
<td>20</td>
</tr>
<tr>
<td>Pretest Control</td>
<td>0.121</td>
<td>18</td>
</tr>
<tr>
<td>Posttest Control</td>
<td>0.169</td>
<td>18</td>
</tr>
</tbody>
</table>

Based on Table 2, it was found that the level of significance after the posttest in the experimental group was 0.2333 with a significance value of the posttest in the experimental group of 0.128. Additionally, the significance value of the pretest in the control group was 0.634 with a significance value of the posttest in the control group of 0.766. Since the significance value in both groups tested is greater than 0.05, it can be concluded that the Shapiro Wilk normality test above shows that the data on student learning outcomes for both the experimental and control groups are normally distributed.

### Table 3. Homogeneity Test Results Using Crossword Puzzle Learning Media

<table>
<thead>
<tr>
<th>Students Learning Outcomes</th>
<th>Test of Homogeneity Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Levene Statistic</td>
</tr>
<tr>
<td>Based on Mean</td>
<td>0.323</td>
</tr>
<tr>
<td>Based on Median</td>
<td>0.220</td>
</tr>
<tr>
<td>Based on Median and with adjusts df</td>
<td>0.220</td>
</tr>
<tr>
<td>Based on Trimmed Mean</td>
<td>0.318</td>
</tr>
</tbody>
</table>

Based on Table 3, the significance level based on mean value for students' learning outcomes is 0.574. Additionally, the significance value is found to be greater than 0.05, indicating that the variance of the data for students' learning outcomes in the experimental and control groups are homogeneous. Test results paired t-test is shown in Table 4.

### Table 4. Test Results Paired t-test with IBM Software SPSS 20

<table>
<thead>
<tr>
<th>Paired Samples Test</th>
<th>Paired Differences</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>Std. Deviation</td>
<td>Std. Error Mean</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pair 1 Pretest Experiment - Posttest Experiment</td>
<td>- 30.975</td>
<td>6.584</td>
</tr>
<tr>
<td>Pair 2 Pretest Control - Posttest Control</td>
<td>- 15.000</td>
<td>9.195</td>
</tr>
</tbody>
</table>

Based on Table 4, show the paired t-test conducted using IBM SPSS 20 software with the decision criteria being that if the significance value is less than 0.05, $H_0$ is rejected and $H_1$ is accepted. The output above shows that the significance value is less than 0.05, which is 0.00 < 0.05. Therefore, there is an effect of using Crossword Puzzle as a learning media to improve the mastery of Indonesian vocabulary of fourth-grade elementary school students.
Discussion

This is supported by a study conducted by previous study which found a significant and strong influence with a value of 0.000 < 0.05 and 0.766, respectively (Al Mawaddah et al., 2021). This means that the null hypothesis was rejected and the alternative hypothesis was accepted, indicating that there is an effect of using Quizizz as a learning media during online mathematics lessons at SDIT Al Ibrah Gresik. Additionally, it was found that students' learning outcomes improved. Furthermore, this is also supported by a study conducted showed that the use of Crossword Puzzle as a learning media in Science with the topic of Changes in Appearance had a significant effect with a value of 0.000 < 0.05 and a strong correlation of 0.733, meaning that the null hypothesis was rejected and the alternative hypothesis was accepted, indicating that there was an effect of using Crossword Puzzle as a learning media in Science for elementary students at SD NegeriJemberLor 02 (Retno et al., 2015; Tika & Agustina, 2021). Additionally, it was found that the students' learning outcomes improved.

The pretest results of the students in the control group yielded an average score of 46.52 with a standard deviation of 5.94. The minimum score obtained was 32.50 and the maximum score obtained was 57.50. The posttest results of the students in the control group showed an average score of 61.52 with a standard deviation of 7.33, with a minimum score of 45.00 and a maximum score of 77.50. Based on the statistical analysis, it can be concluded that there was an improvement in the learning outcomes of both the experimental and control groups. In line with that, it is supported by research conducted by previous study which states that there is a significant difference in learning outcomes between the post-tests of the control and experimental groups (Mawardhani et al., 2023). The average score of the control group was 71.50, while the experimental group scored an average of 82.25.

Media Crossword Puzzle is a simple game that requires students to fill in blank boxes with letters that form words based on the given question keywords. Crossword Puzzle and thinking games are part of the media that can support the process of teaching thinking and make it something visible and observable (Azis & Yusal, 2022; Mshayisa, 2020). This very simple learning media can be taught during the learning process so that it will make learning more interesting and create a learning process that can create a fun atmosphere that ultimately can realize the hope of improving learning outcomes and can have a competitive nature, so that later students will be motivated and compete to advance in the class (Riynaldiy et al., 2019; Yunita & Mushlihasari, 2022).

The improvement of student learning activities is very important for educators to do by using learning media. Innovative and interesting development using media by teachers is not only focused on that, but also needs to be given motivations to develop independent attitudes in children so that they will be encouraged to carry out various activities (Fadhillah & Khoriyah, 2022; Winarni et al., 2022). Students will be given encouragement or motivation to increase their mastery of vocabulary through the use of Crossword Puzzle learning media. The opinion above explains that Crossword Puzzle can be used as a creative and innovative learning media and is capable of creating a fun atmosphere for students, which will ultimately affect their learning outcomes. Another meaning is that the use of this learning media in Indonesian language material will help improve students’ learning motivation, where students will be more focused and enthusiastic during the learning process, leading to an increase in their vocabulary.

4. CONCLUSION

Based on the research that has been done, this Crossword Puzzle learning media can be used as a reference in improving the Indonesian language vocabulary mastery of class IV MIN 8 Medan City students. Crosswords can be used as a creative and innovative learning media and are able to build a pleasant atmosphere for students so that later they will influence the activities or results of student learning. Another meaning is that the use of this learning media in the learning process in Indonesian language material will help in increasing student motivation so that later students in the learning process will focus and be more enthusiastic during their learning activities so that students’ vocabulary will increase.

5. REFERENCES


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