

The Effect of Using Ludo Boardgames Learning Media on Students' Concept Understanding Ability

Marlina Eliyanti Simbolon^{✉1}, Eli Hermawati², Sindi Ladya Baharizqi³

¹Universitas Negeri Jakarta, ^{2,3} Universitas Kuningan

✉ marlina@uniku.ac.id

Abstract. The problem in this study is the low understanding of students' concepts on science content which is under the KKM. This study aims to describe the differences in students' conceptual understanding in the experimental class who received the Ludo boardgames learning media and the control class who did not receive the Ludo boardgames learning media and to describe the differences in the improvement of students' conceptual understanding in the experimental class using the Ludo boardgames media and the control class that did not use the Ludo boardgames media. ludo boardgames learning media. This method uses the Quasi-Experimental method, while the research design uses the Nonequivalent Control Group Design. The dependent variable in this study is understanding the concept and the independent variable is the use of Ludo boardgames learning media. The research subjects were fifth grade students. The instrument used in this study was an essay test. The results showed that $t_{count} > t_{table}$. So that there are differences in students' understanding of concepts after being given treatment using the Ludo board games learning media. In addition, the difference in increasing understanding of the concept can be seen from the results of the t-gain test, the results of $t_{count} > t_{table}$. So that there is a difference in the increase (gain) of students' understanding of concepts using the Ludo boardgames learning media with those not using the Ludo boardgames learning media. The difference in increasing understanding of the concept can be seen from the results of the t-gain test, the results of $t_{count} > t_{table}$. So that there is a difference in the increase (gain) of students' understanding of concepts using the Ludo boardgames learning media with those not using the Ludo boardgames learning media. The difference in increasing understanding of the concept can be seen from the results of the t-gain test, the results of $t_{count} > t_{table}$. So that there is a difference in the increase (gain) of students' understanding of concepts using the Ludo boardgames learning media with those not using the Ludo boardgames learning media.

Keywords: Educational Boardgames, Ludo Learning Media, Student Concept Understanding

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INTRODUCTION ~ Science lessons are subjects that relate to the environment and are useful in students' daily lives. Naturally, natural science has concepts of thought and understanding that are integrated in the development of systematic and analytical thinking skills. Therefore, science education must be strongly instilled from the start, namely from basic education which is the beginning for students to a higher level of education. But in reality the problem that occurs in students who are at this level of

elementary school education is that there are still students who seem lacking in understanding concepts in a subject.

Based on the results of research observations conducted by researchers in class V of SD Negeri 1 Cigadung, several problems were obtained including, students' understanding of concepts in science content is still low or not yet able to understand the material seen from the results of students' concept understanding scores below the KKM. In

addition, students still use the ability to memorize material without understanding something and students have not been able to conclude the material that has been studied in their own sentences, learning media are still limited, still sourced from textbooks, there is no development of varied and

interactive media. This causes students do not have a good understanding of concepts in science learning. The following is the acquisition of grade 5 students' scores on the science content at SDN 1 Cigadung for the 2020/2021 academic year as the experimental class and the control class.

Table 1. The Value of Concept Understanding of Science Content Students of Class V SDN 1 Cigadung

| VA class | | | VB class | | |
|----------|----------------|------------|------------|------------------|------------|
| KKM | Amount Student | Percentage | KKM | Amount Remainder | Percentage |
| >KKM | 6 | 30% | >KKM | 7 | 34% |
| = KKM | 5 | 25% | = KKM | 4 | 19% |
| <KKM | 9 | 45% | <KKM | 10 | 47% |
| AMOUNT | 20 | 100% | AMOU NT | 21 | 100% |

Source: Data of SDN Cigadung

Based on table 1 about the test value data for class V SDN 1 Cigadung shows that the understanding of concepts at SDN 1 Cigadung is still low. KKM specified at SDN 1 Cigadung for science subjects is 70. This can be seen from the grades in class VA that reach the KKM as many as 6 students or (30%), as many as 5 students or (25%) are at the KKM limit and as many as 9 students or (45%) who did not reach the KKM. Meanwhile in class VB, 7 students or (34%), 4 students or (19%) were at the KKM limit and 10 students or (47%) did not reach the KKM.

In order for students' understanding of concepts at SDN 1 Cigadung to be better, and the learning process to be interesting, a stimulus is needed that can make students interested in learning. Stimulus to students can be done by

using appropriate learning media to improve students' conceptual understanding of the material presented. Aqib (2013: 50) learning media are everything that can be used to channel messages and stimulate the learning process in learners (students). Hanafi, (2014). Each teaching and learning process is characterized by the presence of several elements including objectives, materials, methods, and tools or media, as well as evaluation. Arsyad, 2014; Ichsan et al., (2018). Elements of methods and media are elements that cannot be separated from other elements that function as a way or technique to deliver learning materials to reach their goals. So as to facilitate the absorption of the learning material being taught. The media that researchers use to be able to solve these problems is that researchers use ludo game learning

media.

This game is included in the "board game" category or similar board games with monopoly games, snakes and ladders, chess, and so on. Rahmawati, et al (2016: 5) Ludo media is the development of a checkered board game designed as a learning media tool. So it can be concluded that the ludo game is a game that has been modified to be able to help the teaching and learning process in the classroom so that students feel happy in learning. With this media, students are given an understanding of the concept of using ludo media which can create a fun and meaningful learning atmosphere. In addition, according to the characteristics of elementary school students who still like to play and need a fun learning atmosphere. This is in line with Angguntari, Y and Nugaraha, J (2019: 45) states that this media game is easy and fun to run, students can understand and recall the explanations that have been delivered by the teacher, and test student understanding more deeply through practice questions contained in the game with fun. In addition, there is more interaction between students throughout the learning process and students can become sources of learning for each other. With the media used, it is hoped that it can improve students' conceptual

understanding skills as well as one of the solutions to improve science learning on water cycle material in fifth grade students of SD Negeri 1 Cigadung. Therefore, researchers are interested in conducting a study with the title "The Effect of Using Ludo BoardGames Learning Media on Students' Concept Understanding Ability".

METHODS

The research method used in this study is a quasi-experimental method (Quasi Experiment). According to Sugiyono (2018) that experimental research can be interpreted as a research method used to find the effect of certain treatments on others under controlled conditions. This study was conducted to determine the difference in increasing students' conceptual understanding between classes that were treated using Ludo boardgames media and classes that were not treated using Ludo's boardgames media in science subjects. The design used in this study is the nonequivalent control group design. This research design uses two groups which are divided into two classes. The first group is the experimental group, comparison or as a group that is the result of not getting learning treatment using the Ludo boardgames learning media. The research design can be described as follows:

Table 2. Research Design

| Group | Pre-Test | Treatment | Post-Test |
|-------|----------|-----------|-----------|
| A | O1 | X1 | O3 |
| B | O2 | --- | O4 |

A = Experimental group using ludo board games media

B = Control group not using ludo board games media

O1 = Initial test given to the experimental group

- O2 = Initial test was given to the control group
- X1 = Treatment of ludo board games learning media
- O3 = Final test givento the experimental group
- O4 = The final test was given to the control

The subjects of this study were the fifth grade students of SD Negeri 1 Cigadung, Cigugur District, Kuningan Regency which consisted of two classes with a total of 42 students. The students of class VA as the control class were not given the ludo boardgames learning media treatment while the VB class as the experimental class were given the ludo boardgames learning media treatment. The data collection technique in this research is using the test as a research instrument. The test used is the essay test used in the pre-test and post-test, with reference to the indicators of concept understanding. The number of test questions is 20 questions for each test, either pre-test or post-test. The criteria for the questions given to the experimental class and the control class are the same. The analysis of the instrument used is the analysis of the level of difficulty, discriminatory power, validity and reliability.

RESULTS AND DISCUSSION

This research was conducted at the State Elementary School 1 Cigadung, Cigugur District. Before the research was carried out, the researchers made several preparations consisting of conducting a preliminary study, preparing learning media, then conducting research instruments. The research instrument test consisted of a test of the level of difficulty, discriminatory power, validity and reliability of the instrument. The level of difficulty of the questions According to Arifin (2016:134) The level of difficulty of the questions is the opportunity to answer correctly from a

question at a certain level of ability which is usually expressed through an index. The greater the index of difficulty level means the question is the easier the level of difficulty of the question is used to find out the question is easy, medium or difficult. A good question is a question that has neither too easy nor too difficult criteria. Based on the calculations carried out, the test questions used in this study have various classifications of difficulty levels, namely difficult classification as many as 2 items (8%), while as many as 13 items questions (52%), while as many as 13 items questions (52%) and easy 10 items questions (40%).

Validity test, to measure the accuracy test or test the accuracy of a measuring instrument in measuring what is being measured (Arikunto, 2013). Based on the calculation of the validity test, it can be explained that the test questions used in this study have various validity classifications, namely the high validity of 8 items (32%), moderate validity of 12 items (48%), the questions can be categorized valid with r table 0.3610. While the low validity of the question is 4 items (16%) and the validity of the question is very low as much as 1 item of the question (4%). After obtaining the results of the validity test, then proceed with the reliability test. Reliability test according to Hanggara, A and Darsih E (2018:39) that reliability means trustworthiness or constancy, An instrument is said to be reliable if the instrument is used repeatedly to give the same measurement results. Based on the

calculations from the reliability test, it can be explained that the test questions used in this study have various reliability classifications, namely the reliability of very high category questions as many as 20 items (80%) and high reliability 3 items (12%) and moderate reliability as many as 2 item questions (8%). To calculate the reliability of all these items, namely by using the formula "r11" which obtained a reliability value of 0.8721475514 which is categorized as high. Then test the discriminatory power according to Arifin (2016):

Based on the calculations, it can be explained that the test questions used in this study have a distinguishing power category with 2 categories, namely the good category of 5 items (20%) and the sufficient category of 20 items (80%). So it can be said that the question can be used. Then the researcher can directly use the test questions as questions for research. By paying attention to the calculation of validity, reliability, level of difficulty and distinguishing power, it can be concluded that the test questions tested can be directly used for research. The questions used for research were 20 items and 5 items were not used for research. After testing the instrument and getting the calculation results, then the implementation of the learning process was carried out in class VA as the control class and VB as the experimental class. When the learning process in the control class does not use the help of the Ludo boardgames learning media. While in the experimental class using the Ludo boardgames learning media, the two classes were given different treatments with the same material regarding the

water cycle. Before being given treatment, the two classes conducted a pretest (Pretest) which aims to determine the results of students' understanding of the concept. Then after being given treatment, the two classes conducted a final test (Posttest) which aims to find out an increase in the results of students' understanding of concepts after being given different treatment with learning media.

The results of the pretest (pretest) for the experimental class and the control class were obtained, which showed that the two classes before being given treatment had relatively the same initial knowledge ability or not much different. It can be seen that the experimental class got an average of 51.23 while the control class got an average of 56.15. After the researchers gave different treatments, then the two classes were given a final test (posttest). The results of the final test (posttest) of the two classes showed that the final score (posttest) of students in the experimental class had a significant increase compared to the control class. It can be seen from the results of the final test obtained that the experimental class that received treatment using the Ludo boardgames media obtained an average number of 86.00.

The data obtained through the pretest, posttest then analyzed the data to determine the next step in conducting research. Calculation of data analysis performed using statistical parametric test. According to Sugiyono (2018), Parametric Statistics requires that the data for each variable to be analyzed must be normally distributed in order to test whether the data is normally distributed or not, so there must be a

normality test first. The normality test was carried out on the pre-test and post-test data between the two groups/classes. The criteria for the normality test for data distribution are: a) If $X^2_{count} < X^2_{Table}$, then the data distribution is normal. b) If $X^2_{count} > X^2_{Table}$, it means that the data distribution is not normal. then after doing the normality test, namely the homogeneity test. research and research in which research data are taken from separate groups from one population. The homogeneity test was carried out by calculating the pre-test and post-test scores between the two groups. The criteria for the homogeneity test using the F test are as follows: a) If $F_{count} < F_{table}$, then the two variances are declared homogeneous. b) If $F_{count} > F_{table}$, then the two variances are declared not homogeneous. after doing normality and homogeneity test then do t test. The t-test is a statistical test that is carried out and has a function to answer

the truth of a hypothesis. t-test. The decision-making criteria for the t-test are as follows: 1) If $t_{count} < t_{table}$ then H_0 is accepted, 2) If $t_{count} > t_{table}$ then H_0 is rejected.

Then the Gain test which has the aim of providing an overview of improving learning outcomes before and after learning. The N Gain test formula according to Arikunto (2015: 162) is:

$$N-gain = \frac{S_{post} - S_{pre}}{S_{Max}}$$

Information:

- SPost : SPre posttest score
- : Pretest score
- SMAx : Ideal maximum score

The calculation results are then interpreted using N-Gain as follows:

Table 3. Criteria N-Gain

| | |
|--------------------|-----------|
| $g \geq 0.7$ | Tall |
| $0.7 > g \geq 0.3$ | Currently |
| $g < 0.3$ | Low |

The results and discussion of the value data that have been obtained from research that has been carried out at SDN 1 Cigadung. The results of the final test score data (posttest) for understanding student concepts, namely the results of the final test obtained showed that the experimental class that received treatment using the Ludo

boardgames media obtained an average number of 86.00. While in the control class who received treatment using image media with an average number of 79.9. Then test the normality of the experimental class and control class data using the Chi-Square test. The following are the results of the normality test for pretest and posttest data.

Table 4. Normality of Pretest and Posttest Data

| Statistics | Control Class | | Experiment Class | |
|----------------------|---------------|----------|------------------|----------|
| | Pretest | Posttest | Pretest | Posttest |
| Average | 56.15 | 79.90 | 51.53 | 86.00 |
| SD | 9.11 | 8.27 | 9.22 | 7.43 |
| X ² Count | 1.39 | 4.71 | 3.34 | 5.06 |
| X ² Table | 7.81 | | | |
| Information | Normal | Normal | Normal | Normal |

Based on table 4, it is known that the pretest value of the control class with an average value of 56.15 standard deviation is 9.11, the value of X²count = 1.39 and X²Table = 7.81. Then it is known that the posttest value of the control class with an average value of 79.90 and a standard deviation of 8.27, the value of X²count = 4.71. Thus, based on the results of the calculation of the normality test, it is known that X²count < X²Table.

Meanwhile, for testing the normality of the experimental class pretest data with an average value of 51.53, the standard deviation is 9.22, the value of X²count =

3.34 and X²Table = 5.06. Then it is known that the posttest value of the Experiment class with an average value of 86.00 and a standard deviation of 7.43, the value of X² = 5.06. Thus, based on the results of the calculation of the normality test, it is known that X²count < X²Table. This means that the pretest and posttest data in the experimental class and control class are normally distributed. After passing the normality test stage, the homogeneity test was carried out both in the control class and in the experimental class. The following are the results of the homogeneity test of the pretest and posttest data:

Table 5. Pretest and Posttest Data Homogeneity Test

| Statistic | Pretest | | Posttest | |
|----------------------------|---------------|------------------|---------------|------------------|
| | Control class | Experiment Class | Control class | Experiment Class |
| Variance (S ²) | 82.98 | 84.99 | 68.41 | 55.16 |
| Fcount | 1.02 | | 1.24 | |
| Ftable | 4.09 | | 4.09 | |
| n1 | 20 | | 20 | |
| n2 | 21 | | 21 | |
| Information | Homogeneous | | Homogeneous | |

Based on table 5 the results of the calculation of the homogeneity test using the F test, it is obtained that Fcount < Ftable with a significant level of 5%

Ftable = F (20) (21) = 4.09. Where the variance value of the control class pretest is 82.98 and the experimental class pretest is 84.99 with Fcount = 1.02

and $F_{table} = 4.09$, the value of $n_1 = 20$ and $n_2 = 21$. So from the calculation result based on the homogeneity test using the F test obtained $F_{count} < F_{table}$. From the calculation results, the two class variances are declared homogeneous. While the posttest variance value for the control class is 68.41 and the posttest for the control class is 55.16 with a value of $F_{count} = 1.24$ and a value of $F_{table} = 4.09$, the value of $n_1 = 20$ and $n_2 = 21$. So from the calculation results based on the

homogeneity test using the F test, it is obtained $F_{count} < F_{table}$. From the calculation results, the two class variances are declared homogeneous.

After passing the homogeneity test, the next is the T test, the T test leads to the calculation of the difference or difference in the results of the posttest both the experimental class and the control class. The following are the results of the final test hypothesis (posttest) with the t-test as follows:

Table 6. T-Test Final Test (Posttest)

| Class | Flat-flat | variance | Amount student | tcount | ttable |
|------------|-----------|----------|----------------|--------|--------|
| Control | 79.90 | 68.39 | 20 | 2,233 | 2.023 |
| Experiment | 85.52 | 55,20 | 21 | | |

Based on Table 6 The results of the post-test t test obtained $t_{count} = 2.233$ and $t_{table} = 2,023$ thus $t_{count} (2,233) > t_{table} (2,023)$ then H_0 is rejected. In conclusion, H_0 is rejected and H_1 is accepted. Thus there are differences in students' conceptual understanding between students who get treatment using Ludo boardgames media in the experimental class and students who use picture media in

the control class.

Furthermore, the T-test of Gain data, the T-test uses the calculation of the Independent Sample T-test, because this study uses two groups of samples that do not influence each other. The results of the N-Gain hypothesis test with the t test can be seen in the following table:

Table 7. N-Gain Hypothesis Test Result

| Class | Amount Student | Flat-flat | variance | tcount | ttable | Note |
|------------|----------------|-----------|----------|--------|--------|----------------|
| Experiment | 21 | 0.70 | 0.49 | 2,928 | 2.023 | H_0 rejected |
| Control | 20 | 0.52 | 0.05 | | | |

Based on table 7 the results of the t-test gain $t_{count} = 2,928$ and $t_{table} = 2,023$, thus $t_{count} (2,928) > t_{table} (2,023)$ thus there is a difference in increase (gain) on students' understanding of concepts between students who use the Ludo

boardgames media in the experimental class and students who use picture media in the control class.

CONCLUSION

Based on the results of research that has been carried out by researchers in class V of SD Negeri 1 Cigadung on the theme of science 8 Humans and the environment, sub-theme 1 Sahabat Kita's Environment, different results were obtained between the experimental class and the control class with different treatments. The conclusions from the results of this study are: 1) There are differences in students' understanding of concepts in the experimental class using the Ludo board games learning media and the control class using picture media. 2) There is a difference in the improvement of students' conceptual understanding in the experimental class using the Ludo boardgames learning media and the control class using picture media.

The results of the discussion can be concluded that using the Ludo boardgames media can have a significant effect on understanding the concepts of students who use Ludo's boardgames media with students who do not use Ludo's boardgames media.

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