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Can Domino Card Be Effective in Elementary School Instruction?

Nanda Azahra[1]*, & Sri Enggar Kencana Dewi[2]
[1,2] STKIP Nurul Huda, OKU Timur, Indonesia
*E-mail: nandaaz47@gmail.com

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Abstract

Background:*The problem in this study is whether there is an effect of using domino card media on student learning outcomes. The purpose of this study was to obtain information about student learning outcomes by using domino cards as media.*

Method:*The research method used in this study was a quasi-experimental design with a nonequivalent control group research design. This study used two classes, namely VA and VB classes.*

From the research results, it was found that in the experimental class the average value was 84.77 while in the control class the average value was 72.15. The results of the independent sample t-test obtained a sig. 2 tailed is 0.000 <0.05, it is known that there is a significant difference between the average learning outcomes in groups A and B.

Results: *Based on the results of the analysis of the data obtained, it was concluded that learning by using domino card learning media can have an influence on student learning outcomes in Theme 6 Sub-theme 2 Learning 1 and 2 which can be seen from the difference in average learning outcomes in the experimental class and the control class.*

INTRODUCTION

Based on observations made in class V SD Negeri 2 Eling-Eling (Public Elementary School 2 Eling-eling), South Sumatra, Indonesia, it can be obtained that: (1) students do not understand the material presented due to limited media (2) due to limited learning media students are less enthusiastic about participating actively in learning process; (3) there are still many students who score below the Minimum Completeness Criteria (KKM).

Students have difficulty understanding learning material. This is in line with the daily score documentation which shows that out of 20 students, only 9 people or 45% can get a score according to the minimum completeness criteria (70). Meanwhile, 11 students or 55% scored below the minimum completeness criteria.

One of the media that can attract students is domino card. According to Suprijono (2013), looking for pairs of cards is a method of active learning. The method of finding pairs of cards is quite fun to use to repeat a learning material that has been given before. Meanwhile, according to Larasati (2016: 115 - 119), dominoes are a game card with 28 cards with large dots, each card is divided into two fields containing 0-6 dots. The most common way of playing is by placing the smallest card first, namely the blank card, then followed by the other players and so on, connecting to form an unbroken pattern.

Domino card has the advantage of making students more active and enthusiasm for learning (Herawati 2017; Muthoharoh & Cholifah 2020; Adawiyah & Kowiyah 2021; Pramawidyaka, Enawaty, & Melati 2015; Pajarudi 2019; Murdiyanto & Mahatama 2014; Pradani 2022; Mardhiah & Akbar 2018). It is like a game rather than only images which are still monotonous. The domino card here are not like the usual dominoes used, but rather a medium used for learning that looks like dominoes, it's just that the difference is that there is a question located on the right side, and an answer located on the left side, and inside the card an interesting background will be given after that the questions applied in the card must be adjusted to the student's abilities. Thus the learning material presented is easily understood by students. This can also make students interested and active in the learning process.

Based on the background and identification of the problem, the formulation of the problem in this study is as follows: (1) What are the learning outcomes of class V students before and after using domino card learning media in class V SD Negeri 2 Eling-Eling? (2) Is there an effect of the use of domino card learning media on the learning outcomes of fifth grade students at SD Negeri 2 Eling-Eling?

METHOD

This research method uses quantitative experimental research in the form of Quasi Experimental Design. The form of the Quasi Experimental research design that will be used is the Nonequivalent Control Group Design. Census or total sampling is a sampling technique where all members of the population are sampled (Sugiyono, 2019: 134). The research instrument used was a test instrument to measure the learning outcomes of fifth grade students at SD Negeri 2 Eling-Eling. The data analysis for this study used descriptive statistical analysis and inferential statistical analysis.

Data and Data Sources

In this study the authors used two data sources, namely: (1) Primary data sources, namely data sources that directly provide data to data collectors. As for the primary data source in this study were all fifth grade students at SD Negeri 2 Eling-Eling who were the research subjects. (2) Secondary data sources, namely sources that do not directly provide data to data collectors (Sugiyono, 2017: 193). In this study, documentation, teacher books, student books and other supporting books are secondary data sources.

Data collection technique

Test

The test is a series of questions or exercises and other tools used to measure skills, intelligence knowledge, abilities or talents possessed by a person or group (Arikunto, 2013: 193). Based on the psychological aspect of the test that the researcher uses, this test is included in the class of learning achievement tests or achievement tests, namely tests that aim to reveal the level of achievement of learning objectives or learning outcomes.

Documentation

The documentation technique in this study was used to obtain data regarding the names and grades of the students who were the research samples, photographs as evidence that the research had been carried out.

Data analysis

This study uses several data analysis techniques, including:

1. Validity test
2. Reliability Test
3. Normality test
4. Homogeneity Test
5. Paired Sample T-Test
6. Test Independent Sample T-Test

RESULTS

The data analysis for this study used descriptive statistical analysis and inferential statistical analysis. The statistical hypothesis in this test is formulated as follows: Ho = There is no effect on the learning outcomes of fifth grade students using domino card learning media at SD Negeri 2 Eling-Eling. Ha = There is an influence on the learning outcomes of class V students by using domino card learning media at SD Negeri 2 Eling-Eling.

Results of Analysis of Research Instruments

1. Validity test

Table 1: Results of Calculation of the Validity of Multiple Choice Test Instruments

No Question	r Count	r Table	Condition	Ket
1	0.519	0.444	r Count > r Table	VALID
2	0.408	0.444	r Count < r Table	INVALID
3	0.520	0.444	r Count > r Table	VALID
4	0.486	0.444	r Count > r Table	VALID
5	0.324	0.444	r Count < r Table	INVALID
6	0.223	0.444	r Count < r Table	INVALID
7	0.723	0.444	r Count > r Table	VALID
8	0.520	0.444	r Count > r Table	VALID
9	0.591	0.444	r Count > r Table	VALID
10	0.408	0.444	r Count < r Table	INVALID
11	0.520	0.444	r Count > r Table	VALID
12	0.223	0.444	r Count < r Table	INVALID
13	0.501	0.444	r Count > r Table	VALID
14	0.585	0.444	r Count > r Table	VALID
15	0.557	0.444	r Count > r Table	VALID
16	0.619	0.444	r Count > r Table	VALID
17	0.445	0.444	r Count > r Table	VALID
18	0.519	0.444	r Count > r Table	VALID
19	0.585	0.444	r Count > r Table	VALID
20	0.684	0.444	r Count > r Table	VALID

Based on the Table 1, it can be explained that the test was conducted from 20 multiple choice questions. The question is declared valid if rcount > rtable (0.444). 15 questions declared valid and 5 questions declared invalid. While the questions are invalid because rcount < rtable (0.444). Rcount can be seen from the Pearson correlation value on validity. In terms of validity, the 15 questions can be used in research so as to produce good research data.

2. Reliability test

Based on the results of the calculation of the reliability test using Cronbach alpha which uses the alpha formula, the Cronbach alpha value is 0.855. So this number is greater than the minimum Cronbach alpha value of 0.6. Therefore, it can be concluded that the research instrument used to measure variables can be said to be reliable or trusted to be used as a research data collection tool.

1st Learning Calculation Results

1. Normality test

The normality test is carried out to find out whether all variables are normally distributed or not. The normality test uses the Kolmogorov-Smirnov formula in calculations using SPSS 16. To find out whether it is normal or not is if the sig value > 0.05 then the data is normally distributed and if the sig value < 0.05 then the data is not normally distributed. Calculation results obtained as follows:

Table 2: Normality test results

		Kolmogorov-Smirnova			Shapiro-Wilk		
	Class	Statistics	Df	Sig.	Statistics	df	Sig.
learning outcomes	Experiment Pretest	0.204	10	0.200*	0.919	10	0.346
	experimental posttest	0.174	10	0.200*	0.949	10	0.652
	pretest control	0.247	10	085	0.832	10	0.035
	posttest control	0.218	10	0.196	0.914	10	0.312

Based on the Table 2, it can be seen that the pretest and posttest data on learning outcomes for both the experimental class and the control class in the Kolmogorov Smirnov column have a sig value > 0.05, it can be concluded that the data group is normally distributed.

2. Homogeneity Test

The significance value (Sig) is 0.547 > 0.05, so it can be concluded that the variance of the experimental class posttest group and the control class posttest are the same or homogeneous

3. Hypothesis testing

Paired Sample T-Test

Paired sample t-test was used to assess the effectiveness of the treatment, indicated by the difference in the average before and after the treatment was given.

If the significance value is <0.05, then Ho is rejected and vice versa if the significance value is > 0.05, then Ho is accepted. Because (sign value = 0.000 <0.05) then Ho is rejected and Ha is accepted. So it can be concluded that there was an increase in the learning outcomes of the experimental class from the pretest and posttest. meaning that there was an increase before and after being given treatment.

Independent Test Sample T-Test

Independent Test Sample T-Test is used to determine whether there is a difference in the mean between two unpaired sample groups. The following are the results of the Independent Sample T-Test:

The amount of learning outcomes data for group A is 10 students and B is 10 students. The average value of learning outcomes or the mean for group A is 85.3, while for group B it is 66.6. Thus it can be concluded that there is an average difference in student learning outcomes between group A and group B.

Table 3 *Output* Second Independent Sample T-Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	Q	Df	Sig. (2-tailed)	Mean Differences	std. Error Difference	Lower	Upper
LO	Equal variances assumed	0.377	0.547	4,356	18	0.000	18.70000	4.29276	9.68125	27.71875
	Equal variances not assumed			4,356	17,673	0.000	18.70000	4.29276	9.66926	27.73074

LO: Learning outcomes

Based on the table above, it is known that the sig (2-tailed) value is 0.000 <0.05, so as the basis for decision making in the independent sample t test it can be concluded that Ho is rejected and Ha is accepted. Thus it can be concluded that there is a significant difference between the average student learning outcomes in group A and group B.

2nd Learning Calculation Results

1. Normality test

The normality test is carried out to find out whether all variables are normally distributed or not. The normality test uses the Kolmogorov-Smirnov formula in calculations using SPSS 16. To find out whether it is normal or not is if the sig value > 0.05 then the data is normally distributed and if the sig value < 0.05 then the data is not normally distributed. Calculation results obtained as follows:

Table 4. Normality Test Results

		Kolmogorov-Smirnova			Shapiro-Wilk		
	Class	Statistics	df	Sig.	Statistics	df	Sig.
Learning outcomes	Experiment Pretest	0.178	10	0.200*	0.922	10	0.372
	PostTest Experiment	0.188	10	0.200*	0.882	10	0.136
	Control Pretest	0.247	10	085	0.832	10	0.035
	PostTest Control	0.233	10	0.132	0.873	10	0.109

Based on the Table 4, it can be seen that the pretest and posttest data on learning outcomes for both the experimental class and the control class in the Kolmogorov Smirnov column have a sig value > 0.05, so it can be concluded that the data group is normally distributed.

2. Homogeneity Test

The significance value (Sig) is 0.667 > 0.05, so it can be concluded that the variance of the experimental class posttest group and the control class posttest are the same or homogeneous.

3. Hypothesis Test Results

Paired Sample T-Test

If the significance value is <0.05, then Ho is rejected and vice versa if the significance value is > 0.05, then Ho is accepted. Because (sign value = 0.000 <0.05) then Ho is rejected and Ha is accepted. So it can be concluded that there was an increase in the learning outcomes of the experimental class from the pretest and posttest. meaning that there was an increase before and after being given treatment.

Independent Test Sample T-Test

Independent Test Sample T-Test is used to determine whether there is a difference in the mean between two unpaired sample groups. The following are the results of the Independent Sample T-Test:

The amount of learning outcomes data for group A is 10 students and B is 10 students. The average value of learning outcomes or the mean for group A is 88.7 while for group B it is 68.6. Thus it can be concluded that there is an average difference in student learning outcomes between group A and group B.

Table 5 *output* Second Independent Sample T-Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	Q	Df	Sig. (2-tailed)	Mean Differences	std. Error Difference	Lower	Upper
LO	Equal variances assumed	0.192	0.667	5.208	18	0.000	20.10000	3.85933	11.99184	28.20816
	Equal variances not assumed			5.208	17,225	0.000	20.10000	3.85933	11.96562	28.23438

LO= Learning outcomes

Based on the Table 5, it is known that the sig (2-tailed) value is 0.000 <0.05, so as the basis for decision making in the independent sample t test, it can be concluded that Ho is rejected and Ha is accepted. Thus it can be concluded that there is a significant (real) difference between the average student learning outcomes in group A and group B.

DISCUSSION

According to Levie, learning through visual stimulus produces better learning outcomes for tasks such as remembering, connecting facts and concepts and recognizing compared to learning through verbal stimulus alone (Arsyad, 2013: 12). The theory above can strengthen and show that using learning media can improve students' memory, which means that students can concentrate more and can remember lessons clearly, so that when students are given questions or tests, students can answer questions correctly and learning outcomes increase.

This study used one learning media, namely using domino cards which were taught in VA class and without using domino cards which were taught in class V B. Prior to learning, students were given a pretest first. This pretest aims to determine students' initial abilities regarding the material to be delivered. The results of this pretest can be used to estimate which parts have not been mastered and have been mastered by students. In the 1st lesson, the average pretest in VA class was 59.9 while in VB class it was 44.5. In the second lesson, the average pretest in the VA class was 57.2 while in the VB class it was 44.5. After the pretest was carried out, the researcher carried out the learning process.

The learning process was carried out in four meetings. Two meetings in class VA and two meetings in class V B. After the learning process is implemented, students are given a posttest to measure learning outcomes. In the 1st lesson, the posttest average in VA class was 85.3 while the posttest average in VB class was 66.6. In the 2nd study, the posttest average in the VA class was 88.7 while the posttest average in the VB class was 68.6. The existence of this pretest and posttest can be used to determine changes in student learning outcomes after using domino card media. The average difference in learning outcomes in the two lessons in the VA class is 87 while in the VB class it is 67.6. From these data it can be said that the average difference in learning outcomes for class VA is higher than class V B.

The results obtained by students in this learning process can be seen in the pretest and posttest results. It can be concluded that there was an increase in student learning outcomes in the experimental class from the pretest and posttest by using domino cards as media. The calculation results show that student scores tend to be higher by using domino cards than without using media.

Furthermore, from the research data that has been analyzed, the result is that there is a difference in learning outcomes between the group using domino card media and the group without using media. This is evidenced from the results of the SPSS 16 analysis with a significance value of 0.000 <0.05, which means that Ho is rejected and Ha is accepted. So it can be concluded that there is a difference in the average learning outcomes in the experimental group and the control group.

There is a significant influence between learning using domino card media and learning without using media. By using domino card media, it is easier for students to understand and students don't get bored easily. Because this domino card learning media has properties that apply teaching and learning activities while playing so that students are more enthusiastic about participating in ongoing learning. This can be seen from the amount of learning outcomes data for groups A and B which are as many as 20 students. The average value of student learning outcomes or the mean for group A is 72.15, while for the experimental group it is 84.77. Thus it can be concluded that there is an average difference in student learning outcomes between the control group and the experimental group.

Based on the explanation above, it can be concluded that in learning using domino card learning media students can be directly involved in the learning process, so learning tends to be fun and students remember, understand more easily and student learning outcomes increase compared to without using learning media.

CONCLUSION

Student learning outcomes before using the domino card learning media, namely in the 1st lesson the pretest average in the VA class was 59.9 and the posttest average in the VA class was 85.3. In the second lesson, the pretest average in the VA class was 57.2 and the posttest average in the VA class was 88.7. From the results of the SPSS analysis, the paired sample t-test obtained a significant value of 0.000 > 0.05, which means that there was an increase in the learning outcomes of the experimental class from the pretest and posttest. From these data it can be concluded that there is an increase in student learning outcomes between before and after using domino card learning media.

There is a significant influence between learning using domino card media and learning without using media. By using domino card media, it is easier for students to understand and students don't get bored easily. Because this domino card learning media has properties that apply teaching and learning activities while playing so that students are more enthusiastic about participating in ongoing learning. This can be seen from the amount of learning outcomes data for groups A and B which are as many as 20 students.

The average value of student learning outcomes or the mean for group A is 72.15, while for the experimental group it is 84.77. Thus it can be concluded that there is an average difference in student learning outcomes between the control group and the experimental group.

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