

## **The Effect Of Domino Card Games On Ability To Know The Concept Of Numbers (Quasi Research Experiments on Students in Group A TK Dwijorini 2 Kota Magelang)**

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### **Abstract**

This study aims to determine the effect of domino card games on the ability to recognize the concept of numbers in TK Dwijorini 2 Kota Magelang in the 2018-2019 school year. The research method used in this study is a quasi-experimental method. The research subjects were children in group A as many as 20 children, 10 children in the experimental group and 10 children in the control group at TK Dwijorini 2 in Magelang city. The data obtained is the result of observation, documentation and tests performed on each subject given at the time of pre-test and post-test and tested using the T-Test with the help of SPSS Version 21.0. The results showed that there was a significant effect of using domino card games on the ability to recognize the concept of numbers in children. This is evidenced by the score of the ability to recognize the concept of numbers in the experimental group children is higher than the control group. The conclusion is that there is a significant influence on the use of domino card games on the ability to recognize the concept of numbers.

**Keywords:** *dominoes, know the concept of numbers.*

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### **Background**

Introduction of mathematics in Early Childhood Education (PAUD) such as counting, numbers and number operations, preferably using concrete objects. Mathematics or numeracy is very important in life, shopping, counting objects, time, distance, speed are simple examples of mathematical needs in everyday life (Suyanto, 2005: 56).

According to Shaffer (in Masitoh et al., 2005: 74) children's learning occurs when a child makes a more permanent change in his mind or behavior as a result of the interaction between maturity and learning. The success of children in learning depends on the way the presentation of learning materials, learning media and teaching methods are used by the teacher in the teaching and learning process.

The results of observations of researchers at TK Dwijorini 2 in Magelang City, there are still many parents of children and educators who put more emphasis on the introduction of number symbols, so that many children have difficulty in recognizing numbers or counting the number of objects. The mistake that many parents and PAUD educators make is emphasizing the introduction of number symbols, not on the number concept (Rohmitawati, 2008), while recognizing the concept of numbers is the main foundation in mathematics. As a result of the mistakes of parents and educators in TK Dwijorini 2, about 70% of group A children have difficulty recognizing the concept of numbers, this often occurs when children do activities to match the number of objects with numbers, count the number of objects, and distinguish the same number of objects and not the same.

One way to present learning material that can improve the ability to recognize the concept of numbers in children aged 4-6 years using dominoes. Domino cards here are not a card used by people to gamble, but rather a medium for learning whose shape is made like a domino card to attract the interest of children in recognizing the concept of numbers in Early Childhood Education (PAUD). Learning to recognize the concept of numbers using domino card media is felt to be more effective and successful than using the information / lecture method.

Formulate the problem in this study: "Is there an influence of dominoes on recognizing the concept of numbers?" The purpose of this study was to determine the effect of dominoes on the ability to recognize the concept of numbers. This research provides benefits in developing early childhood education, especially related to developing the ability to recognize the concept of numbers and enhance the ability to recognize the concept of numbers.

According to Copley (Astuti, 2012: 25) a number or number is a symbol or symbol which is an object consisting of numbers. For example, number 10, can be written with two numbers (double digits), namely numbers 1 and numbers 0. According to Delphie (2009: 3) numbers are branches of mathematics that discuss the relationship between the relationship of real symbols with calculations. Knowledge of numbers is often referred to as arithmetic. Every number represented in the form of numbers is actually an abstract concept. As stated above, in learning mathematics, recognizing the concept of numbers is not only the appearance of oral language, but must be accompanied by a display model / toy object or image display. To be able to develop the concept of numbers in kindergarten children is not done in the short term, which must be done in stages over a long period of time, and concrete media are needed to help the learning process recognize numbers.

According to Copley in Astuti (2012: 27) reveals indicators relating to the ability to recognize the concept of numbers, namely (1) counting, (2) one-to-one correspondence, (3) quality (quantity), (4) comparison (comparison) and (5) recognizing and writing numerals (knowing and writing numbers).

In delivering learning material to recognize the concept of numbers for children aged 4-6 years (kindergarten), it requires stages in its delivery and is done in stages. The

approach to using concrete material and images must be intensively carried out at the initial level in the child, before the child enters the next level of recognition. According to Gage and Berliner (in Makmun, 2005) in this context the teacher plays a role, is in charge and is responsible as follows: a) Planner (planner) b) Implementer (organizer), c) Appraiser (evaluator)

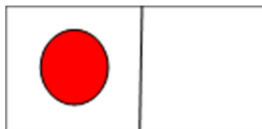
Froebel (Patmonodewo, 2003: 7) argues that childhood is a very important and valuable phase, and is a period of formation in the period of human life (a noble and malleable phase of human life). Therefore the childhood period is often seen as a golden age for the implementation of education. At this time children learn best through the presence of permanent objects (object permanency) have begun to develop. The way of thinking of children aged 4-6 years is concrete and transductive, children connect objects they have just learned based on their experiences interacting with objects before.

Based on the way of thinking of children aged 4-6 years, according to Suyanto (2005: 8) the principle of learning in Early Childhood Education (PAUD) should have characteristics: 1) concrete and can be seen directly, 2) character of recognition, 3) balanced between physical activities and mental, 4) according to the level of development of the child, 5) according to individual needs, 6) developing intelligence, 7) in accordance with the child's learning style, 8) contextual and multi-context, 9) integrated, 10) using the essence of play.

Playing is an activity carried out repeatedly for pleasure (Piaget in Ismail, 2009: 24). According to Arbarini (2009 in [arbarini.blogspot.com] accessed 10 May 2012) one of the games for early childhood math games, namely counting games, lotto, dominoes.

Domino cards contain circles that represent numbers from blank (zero) to 12. These cards are good for training children to count and recognize patterns (Suyanto, 2005: 69). According to Anang (in Sabeth 2008: 26), dominoes can be used as educational toys, one of which is used to recognize the concept of numbers and number operations. Things that can be done are as follows: 1) recognizing patterns, 2) learning to say, 3) Learning to compare, 4) Addition, subtraction operations

Domino card games are media that can provide direct experience for children, where children can be directly involved in activities that recognize the concept of numbers on a modified domino card. In addition, according to Juliarti in Sabeth (2008: 26) by using dominoes, children find it easier to understand the concept of numbers, children also feel happy because they can learn through playing. The concept of a domino card game modified by researchers is:



Picture 1

Domino cards to introduce the concept of number.

Through domino card games, it is expected that children aged 4-6 years are more skilled in recognizing the concept of numbers through counting, counting the number of

objects, comparing the number of objects, and calculating the number of objects with numbers.

### **Research Methodology**

The type of research used is quasi-experimental research, the design in the study involved two groups, namely the experimental group and the control group. This design takes the initial (pretest) measurements of the two groups. Then give treatment to the experimental group only. Furthermore, the two groups were measured again (post-test).

This research was conducted in Dwijorini 2 Kindergarten (TK) Jl. Telaga Sarangan No. 252 Kampung Jaranan Kelurahan Rejowianngun Utara Subdistrict Central Magelang City of Magelang 56127. The research subjects used in this study were children of group A as many as 20 children. This research activity is conducted in the first semester (odd) of the 2018/2019 academic year in July, August, September and October 2018, where for 5 months this will be planned for observation, data collection, analyzing data, determining the results of the analysis.

Measuring instruments in research are called research instruments. (Sugiyono, 2001: 84). The instruments used in this study were obtained through: 1) Documentation Study, 2) Observation, 3) Interview. This research instrument uses a scale of 0-1 scale measurement or Guttman scale technique. The scale used is the value scale using the value category 1 to appear and 0 to not appear. Before the instrument is used, a trial is conducted first. The trials were carried out on the children of group A as many as 10 children in TK Dwijorini 2. After being tested, items were selected by looking at the results of instrument validation. Calculation of product moment correlation coefficient /  $r$  count with the help of Ms. application Excell 2010. And 49 items are declared valid. Furthermore, the calculation of reliability uses the SPSS Version 21.0 application with the alpha-cronbach's method with the results of 0.990.

### **Findings and Discussion**

The form of the implementation of the research is as follows: in the experimental group there were 8 treatments, in one treatment carried out approximately 30 minutes. The results showed that there was an increase in the ability to recognize the concept of numbers in TK Dwijorini 2 in the 2018-2019 school year before and after using domino card games. In more detail about improving the ability to recognize the concept of numbers is presented in the following table:

Table 1

State of the Ability to Know the Concept of Experimental Group Numbers

No	Name	Pretest	Posttest	Progress
1	GA	30	49	19
2	GW	26	44	18
3	MA	34	41	7
4	IA	39	48	9
5	VB	31	46	15
6	NB	13	49	36
7	CA	39	43	4
8	RR	37	48	11
9	NZ	24	35	11
10	JI	44	48	4

Based on the table above, all children have increased. A significant increase was experienced by NB as many as 36 scores, GA as many as 19 scores, GW as many as 18 scores and VB as many as 15 scores. While the other children have increased, the increase is not high enough.

Next, the following are the conditions of the control group presented in the following table 2:

Table 2

State of the Ability to Know the Concept of Control Group Numbers

No	Name	Pretest	Posttest	Progress
1	RH	18	21	3
2	AZ	45	46	1
3	AH	22	26	4
4	YC	42	42	0
5	SC	43	43	0
6	KP	33	41	8
7	CN	29	33	4
8	AY	13	20	7
9	KP	36	36	0
10	MD	47	47	0

Based on the table above, not all children experience an increase. A high increase was experienced by KP as many as 8 scores, AY as many as 7 scores, CN and AH as many as 4 scores, RH as many as 3 scores and AZ as many as 1 score. While the other children did not experience an increase in ability or get 0 scores.

Before the data on the influence of domino card play on the ability to recognize the concept of further processed numbers, the normality and homogeneity test of the data was first carried out with the help of SPSS Version 21.0 software with the following results:

Table 3

Normality Test of Pre-Test Data and Post Test of Experimental and Control Groups

Group	Treatment	Z	Value p	Description
Eksperimen	Pre-Test	0,397	0,763	Normal
	Post-Test	0,998	0,606	Normal
Control	Pre-Test	0,565	0,907	Normal
	Post-Test	0,654	0,785	Normal

Based on the table above it can be seen that all data is distributed normally because it has a value of  $p > 0.05$ . Next, the following results of homogeneity tests are presented as presented in the following table:

Table 4

Homogeneity Test Data Variance Experimental and Control Groups

Data	F Test	df1	df2	Sig	Description
Pre-Test	1,334	18	16,743	0,265	Homogen
Post-Test	7,989	18	12,747	0,111	Homogen

From table 4 above, shows the variance of the pre-test and post-test data of the experimental group and homogeneous controls because it has a p value (sig)  $> 0.05$ . Based on the normality test table and homogeneity test it can be seen that the results are normal and homogeneous. Next the researchers looked for significant differences in the experimental group and the control group using the t test:

Table 5

Independent t-test results Pre-test and post-test data of experimental groups and control groups

Data	Group	Average	Sd	Difference Average	Statistik Uji t	Value p	Description
Pre-Test	Eksperimen	31,7	9,04	-1,1	-0,232	0,263	Not Signifikan
	Control	32,8	11,97				
Pos-Test	Eksperimen	45,1	4,48	9,6	2,747	0,011	Signifikan
	Control	35,5	10,10				

From table 5 above, the results of the independent t test pre-test and experimental groups and the control group are not significant because they have a value of  $p (0,263) > \alpha 0,05$ , so  $H_0$  is accepted. So there is no significant difference in the initial ability to recognize the concept of numbers in Dwijorini TK 2. While the results of the independent t test the post-test data of the experimental group and the control group are significant because they have a value of  $p (0,011) < \alpha 0,05$ . This means that the treatment with domino cards influences the ability to recognize the concept of numbers in TK Dwijorini 2 Magelang City Academic Year 2018-2019.

Table 6

Pre-Test Results and Experimental and Control Group Post-Test Groups

Group	Treatment	Amount	Average	Difference
Eksperimen	Pre-Test	317	31,7	13,4
	Post-Test	451	45,1	
Control	Pre-Test	328	32,8	2,7
	Post-Test	355	35,5	

The post-test value in the experimental group experienced a significant increase, namely having an average value of 45.1 from the average pre-test value of 31.7 or experiencing an increase in the average value of 13.4. The final condition of the experimental group that experienced an increase in ability recognized the concept of significant numbers because the experimental group received treatment using domino card games that can stimulate children's thinking skills and provide opportunities for children to interact and provide motivation in the form of interesting and interesting learning, so that in implementation can produce meaningful learning experiences and direct experience for children.

The post-test average value in the control group did not experience a significant increase, namely an increase of 2.7 from the initial average value of 32.8 to the final average value of 35.5. This shows that the application of conventional methods does not provide much change in the improvement of ability to recognize the concept of numbers in the control group. Conventional methods are monotonous, boring and children feel burdened when participating in learning, so the development of the ability to recognize the concept of numbers does not develop optimally.

The above results are also strengthened by the results of the independent t test in the post-test data of the experimental group and the control group having a value of  $p < 0.05$ , which is equal to 2,747. This means that the ability to recognize the concept of child numbers shows a significant difference between the experimental group and the control group. It appears that the final ability to recognize the concept of numbers in the experimental group has an average value greater than the control group, this means that the use of domino cards applied in the experimental group in class A at TK Dwijorini 2 in Magelang City influences the ability to recognize the concept of numbers.

## **Conclusion**

Based on the results of the research and testing of the hypothesis about the influence of domino cards on the ability to recognize the concept of numbers, it can be concluded that the use of dominoes has a significant influence on the ability to recognize the concept of numbers.

## **Suggestion**

Based on the conclusions and findings in the field, the author can provide some suggestions, namely the use of various interesting media that can be given by the teacher to the child in each lesson to be able to influence the ability to recognize the concept of child numbers. One effective medium to develop the ability to recognize the concept of numbers of children aged 4-6 years (kindergarten age) is to use domino cards with various modifications that are tailored to the theme. Further researchers are expected to conduct research on the use of this card game in developing the ability to recognize concepts child numbers but also on all aspects of a child's development

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