

The Influence of Counting Apron Media on the Ability to Recognize Number Concepts in Children Aged 5-6 Years at Kindergarten Nusantara Banten

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Abstract

Understanding the concept of numbers is important because it is indirectly related to people's daily lives. The introduction to the concept of numbers in group B is still relatively poor; this is reflected in the children not being able to name numbers in sequence, or connect number symbols with object numbers. This research aims to improve the ability to recognize number concepts in preschool children through counting aprons. This research uses quantitative methods, quasi-experimental. The experimental design used in the research was non-equivalent control group design. The data was then analyzed using hypothesis test calculations using the Mann Whitney test. The post-test results in the experimental group were 15.33 and in the control group were 10.73. The post-test results for the control group and the experimental group at TK Nusantara Banten were 0.000. The value displayed is less than 0.05, which can be said to be the difference between the post-test results of the control group and the experimental group. Based on data analysis, it can be said that the use of numeracy materials can improve the ability to recognize number concepts in group B of TK Nusantara Banten.

Keywords: Apron Media, Number Concept.

INTRODUCTION

The Golden Age period is a golden period experienced by children once in their life cycle, so this period becomes a crisis situation which would be a shame if it were to be missed (Sistiarini, 2021). Kindergarten is a level of early childhood education for children aged 4-6 years. It helps children learn how to learn and develop skills such as cooperation, critical thinking, and problem solving. Currently the focus is on providing stimulation to help develop basic abilities through playing (Widyatmojo & Muhtadi, 2017). Playing is essentially a fun activity that children do every day and is a way for children to learn from their surroundings. Playing has an important role in children's development in almost all areas of development, including physical-motor, language, intellectual, moral, social and emotional development. (Susanto. S, 2005).

Every child has different potential, such as intellectual talents and interests, motivation, social and emotional abilities. The potential that exists in children must be developed. So that in the future children can achieve success in their lives. The role of parents is very important to develop the potential that exists in children. One of the potentials that must be developed from an early age is cognitive ability (Anisa Fitri, 2020). Cognitive ability is a

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thinking process, namely an individual's ability to connect, assess and consider an event or event. Cognitive development is related to the level of intelligence that characterizes a person with various interests, especially those directed at ideas and learning.(Susanto, 2011).

Cognition plays an important role in child development. Because cognitive is intelligence that can be used quickly and precisely for the brain's thinking process. The mind is used to recognize, know and understand(Afternoon, 2020). Human cognitive development develops from early childhood to adulthood. Every aspect of a child's development supports each other. Cognitive abilities consist of general and scientific knowledge, concepts of shape, color, size and pattern, concept of number development, number symbols and letters(Suryana, 2016). Therefore, early childhood education needs to provide various learning activities that can develop developmental aspects. One of them is developing mathematical abilities(Isna, 2019). KNumeracy skills need to be taught to children from an early age, because academic intelligence is prioritized in supporting children's subsequent learning success.(Batubara et al., 2019).According to theoryVygotsky quoted by (Sa'ida, 2018). A person's numeracy ability is greatly influenced by his cognitive abilities. The more skilled a child is at counting, the higher his cognitive level.

To improve numeracy skills, children need adults to provide various stimuli, both at home, at school and in the surrounding environment. Parents are responsible for the most important role in a person's lifeAchild. Parents playProleYwhich is veryPimportant in the development of numeracy children at every stage(Rita, 2019). If parents have limited time to stimulate language development, then media can help to stimulate itmmediaPlearningYinnovative and varied. WithBdevelopment of technology, teachersDand parentsDcan uselearning media that is more flexible and can be adapted to existing needs(Milawati, 2016). Apart from making the learning process easier, technological advances can also create various learning media that can be created freely(Putra & Ishartiwi, 2015).

For this reason, teachers need to make changes, namely by using interesting media to develop children's numeracy skills(Amaris et al., 2018). Learning media is one of the learning components that has an important role in the learning process. The use of media should be a part that must receive the attention of teachers as facilitators in every learning activity. Therefore, every educator needs to learn how to determine learning media, in order to effectively achieve learning goals(Rifmasari et al., 2022).

Preschool mathematics activities are learning activities that play an important role in helping children develop various potentials. Suriasumantri (InSusanto, 2011)) Mathematics is basically a way of learning to regulate one's thought process with the aim that through mathematics one can regulate one's thought process. Therefore, it is important to apply mathematics learning because children are still at this stage. According to(Sujiono, 2009)Demonstrate the concept of numbers. Criteria for the concept of counting or mentioning the sequence 1 to 10, counting by pointing to objects, showing the sequence of numbers up to 10 with objects and pointing to two groups that are the same or different, less and more. Children can know the time accurately and precisely if they can read number symbols correctly. Children who have not yet acquired the basic skills needed to fully understand the concept of numbers will experience difficulty in carrying out more complex number operations at the next level, namely in elementary school. This explains the poor ability of children to use numbers.

According to(Suyanto, 2011)The characteristics of understanding the concept of numbers for children aged 5-6 years or kindergarten group B children are as follows: 1) counting up to ten; 2) mention the order of numbers; 3) make a sequence of numbers 1-10 with objects; 4) connect number symbols with objects up to 10; 5) differentiate and make two groups of objects that have the same number, those that are not the same, more and less. According

to Bustomi in (Ulum, 2014)) explains the concept of numbers which is the basis of mathematics which consists of counting numbers, one-to-one relationships, calculating quantities, comparing and recognizing symbols that are connected to the number of objects. A symbol that represents the value of a number. The concept of numbers is in the form of number symbols which will make it easier for us to carry out operations number. Learning numbers for young children is more about introducing the concept of numbers and the symbols of a number.

Based on the results of observations carried out at the beginning of June 2023 in group B of TK Nusantara Banten, researchers observed one aspect of early childhood development, namely cognitive development, including the ability to recognize conceptual numbers. Based on score data from the B1 TK Nusantara Banten group, among 15 children consisting of 8 girls and 7 boys, the ability to recognize number concepts is still relatively weak, this can be seen in 4 children who have good abilities. children. know the concept of numbers, 6 children know the concept of perfect numbers and 5 children know the concept of imperfect numbers. Likewise, in the B2 group at TK Nusantara Banten, among 15 children consisting of 8 girls and 7 boys, the ability to recognize the concept of numbers was relatively low, this was reflected in the 4 children who were able to recognize this concept. numbers, 5 children know the concept of numbers perfectly and 6 children do not know the concept of numbers. In group B number concept activities, children are still relatively ineffective, reflected in their inability to pronounce numbers correctly and sequentially, name random numbers, and connect symbols and signs with the number of objects, distinguishing groups. objects that are more, less, and the same.

The factor that explains the low ability of number concepts in children is learning activities that introduce number concepts to children. Group B still uses student exercises (LKS), the teacher gives LKS and then distributes them to students, then learning rarely uses interesting material. This causes learning to recognize the concept of numbers to be less interesting, children are less interested and quickly feel bored when studying the concept of numbers in class, resulting in a low ability to recognize the concept of numbers in children.

According to (Sarinah, 2020) To help children's learning develop numeracy skills, it can be done using learning media. Learning media can be a learning resource for children that can help develop numeracy skills. Counting apron media is media that can be provided in learning to help develop children's counting skills. The use of counting apron media is one example of media that can be used to optimize numeracy skills in children aged 5-6 years. With counting apron media, early childhood mathematics learning can more easily understand the concepts of counting, be more motivated to learn to count, provide colors and interesting ways to learn mathematics, so that children can combine or add objects directly. (Alfitri et al., 2021).

The Counting Apron is a media or tool aimed at students so that students understand the concepts of numbers more easily, children are more motivated to learn to count, and foster children's interest in learning to count. (Jusmiyanti, A., Aswandi, A., & Yuniarni, 2015). According to (Due & Ita, 2019) The Counting Apron media is a physical means in the form of a cloth covering the shirt (apron) attached to the chest which is used to help convey messages, information, and practice counting in a fun way.

Calculating Apron Media is an educational game tool (APE) in the form of a picture apron with dimensions of 30 cm x 30 cm, media made using colored rags attached to the chest then various fruit shapes made with flannel and dacron attached with adhesive. on the Counting Apron, this Counting Apron can be used to introduce the numbers 1-10 to children through the process of introducing numbers in the shape of fruit where the numbers can be removed because they are attached to the apron using adhesive. (Devita Philia, 2015). The use of the Counting Apron is an example of media that can be used to optimize the numeracy skills of children aged 5-6 years, and can foster children's interest

because this apron media is practical in making and using and is easy to remember because the media is colored so it attracts children's attention and is fun for them. child(Sarinah, 2020).

The use of counting apron learning media for kindergarten age children is necessary in order to develop counting skills so that children are mentally ready to take part in learning to instill the concept of numbers, which can be started by providing an understanding of many, small or big and small to teach addition and as a basis for subsequent counting skills.(Devita Philia, 2015).

Researchers use counting aprons in an effort to improve number planning skills in young children. This research was carried out at the Nusantara Banten Kindergarten Group B, based on the researcher's observations that the Group B children of the Nusantara Banten Kindergarten were still unable to understand the concept of numbers.

METHOD

The research process uses quantitative methods. This research method is quasi-experimental, with a non-equivalent control group design. The sampling technique used in this research is non-probability sampling, especially in(Sugiyono, 2016)is a sampling technique that does not provide an equal opportunity for each element or member of the population to be selected as a sample. The sampling technique used in this research used a purposive sampling technique. The purposive sampling technique does not involve random sampling but is deliberately chosen by the researcher himself, which group will be used as the experimental group and which group will be used as the control group. The sample for this research was children aged 5 to 6 years at the Nusantara Banten Kindergarten using two class groups, namely group B1 (experimental group) and group B2 (control group). The research sample consisted of 30 students, namely 15 students in group B1 (experimental group) and 15 students in group B2 (control group). In this research,

After going through the pre-test, the experimental group and the control group were given different treatment, the experimental group was treated with a counting apron, while the control group was treated with a counting apron and used a colored ball counting apron. After receiving treatment, the experimental group and control group underwent a post-test to determine the results of the treatment given by the researcher. The research was conducted in six sessions, with a pre-test, four treatments, and a post-test.

The tool used in this research is an observation sheet in the form of a checklist (√). The purpose of the observation sheet is to determine the initial and final ability to recognize number concepts of children in groups B1 and B2 at TK Nusantara Banten. Documentation was carried out on children to collect data in the form of footage of children's learning processes at the Nusantara Banten Kindergarten. Meanwhile, children's anecdotal notes were used to record events that occurred in class during learning using counting aprons and colorful balls. Instrument testing uses the validity and reliability of the instrument.

The research process includes five stages, namely analysis, design, development, implementation and evaluation. The analysis stage was carried out through interviews with group B1 and B2 teachers. Researchers conducted interviews with teachers to find out practices related to learning to recognize the concept of numbers. The design stage includes making a Daily Learning Implementation Plan (DLIP), questions for calculating the pre-test, designing post-test media, and aprons. Then comes the development stage, where the design of the computing media product has been developed by researchers. Implementation stage, this stage is carried out if the results of the communication expert test meet the correct criteria. The next step in the evaluation process is to analyze and

process research data and prepare a report.

The data analysis technique uses hypothesis testing with the Mann Whitney test formula using SPSS 16.0 software. The Mann Whitney test was used to determine whether there was a difference in the use of calculating tools on the ability to recognize number concepts in group B of TK Nusantara Banten.

RESULTS AND DISCUSSION

Researchers will explain students' initial abilities in cognitive development including the ability to recognize number concepts through the first test (pretest) and the students' final abilities in passing the final test (post-test).

This research was carried out from June 15 to August 15 2023 at TK Nusantara Banten. During the learning process, the researcher applied a processing method using a counting apron in the experimental class. Thanks to this, the ability of students in the experimental group or group B1 to recognize the concept of numbers increased and mastered the concept of numbers. Meanwhile, the control class or group B2 used colorful balloons.

Take the first test (pretest) for two class groups. The test given was an objective test in the form of children's practice questions on the topic of space carried out by 30 children, 15 children in group B1 (experimental group) and 15 children in group B2 (control group) at TK Nusantara Banten.

The following is a summary of the results of the initial test (pretest) for the experimental group and control group at TK Nusantara Banten. For the Experimental Group. This data can be presented in the following histogram (Figure 1).

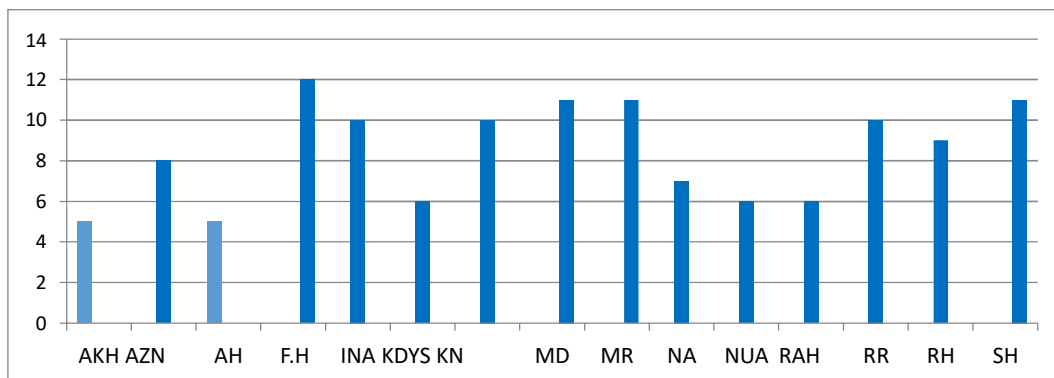


Figure 1 Histogram of Pretest Results for the Experimental Group

The frequency distribution of the pretest results of the experimental group at TK Nusantara Banten will be presented in the table:

Table 1. Initial Presentation Score (Pretest) for Experimental Group

No	Mark	Frequency (students)	Percent %
1	5	2	13.3%
2	6	3	20%
3	7	1	6.7%
4	8	1	6.7%
5	9	2	13.3%
6	10	2	13.3%
7	11	3	20%

8	12	1	6.7%
Amount		15	100%

From table 1 above, it is known that the experimental group's pretest score for the lowest score was 5, the highest score was 12. For scores 7, 8, 12, one child was obtained or the equivalent of 6.7%, for scores 5, 9, 10, two children were obtained or the equivalent. with 13.3%, for grades 6, 11 three children were obtained or the equivalent of 20%. For Control Group. This data can be presented in the following histogram (Figure 2).

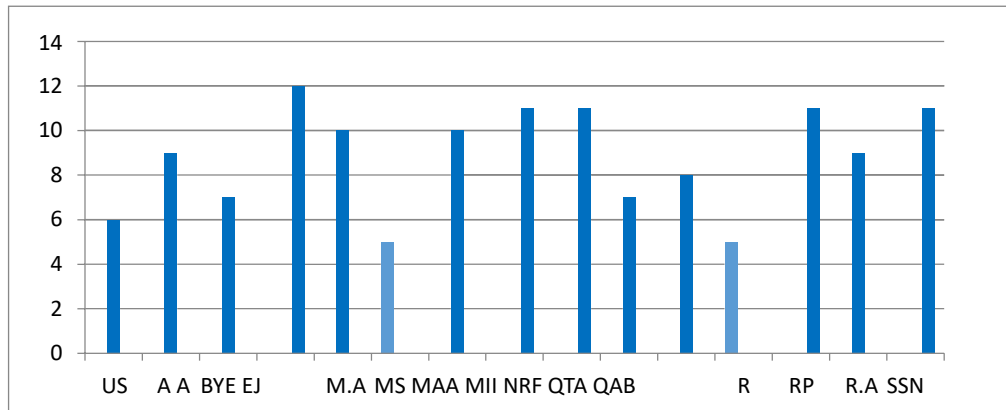


Figure 2 Histogram of Control Group Pretest Results

The frequency distribution of the control group pretest results at TK Nusantara Banten will be presented in the table below:

Table 2. Initial Presentation Score (Pretest) of Control Group

No	Mark	Frequency (students)	Percent %
1	5	2	13.3%
2	6	1	6.7%
3	7	2	13.3%
4	8	1	6.7%
5	9	2	13.3%
6	10	2	13.3%
7	11	4	26.7%
8	12	1	6.7%
Amount		15	100%

From table 2 it is known that the experimental group's pretest score for the lowest score was 5, the highest score was 12. For scores 6, 8, 12, one child was obtained or the equivalent of 6.7%, for scores 5, 7, 9, 10, two children were obtained or equivalent to 13.3%, for a score of 11 four children were obtained or equivalent to 26.7%.

Table 3 Average Results of Pretest (Pretest) for Experimental and Control Groups

No	Group	The number of students	Average
1	B1 (Experimental)	15	8.40
2	B2 (Control)	15	8.80

Total	30	17.20
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The results of the statistical calculations in table 3 show that the average pretest score for the experimental group was 8.40 (eight point forty) and for the control group 8.80 (eight point eighty). This means that there is no significant difference in the pretest results of the experimental class (B1) and the control class (B2) before being given treatment. The experimental class and control class at TK Nusantara Banten have the same initial abilities.

The average pretest results of the BI group (experimental group) and B2 group (control group) at TK Nusantara Banten can be presented in the following histogram:

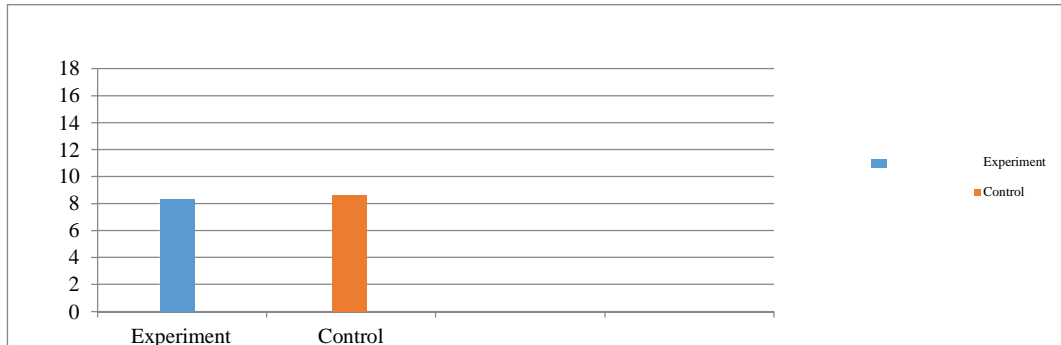


Figure 3 Histogram of the average initial test results for the experimental and control

After carrying out the experiment and knowing the results of the experiment, treatment was carried out on the experimental group and the control group at TK Nusantara Banten. The treatment was carried out in the control group, specifically in group B2, learning activities to recognize the concept of numbers were carried out with the support of colored balls. When playing with colored balls, the teacher divides the students into several groups, 1 group consists of 2 people. The colored balls have the numbers 1 to 10. Then, a child takes out a colored ball from the basket and runs while walking or holds the ball and puts it in a small basket. And someone else names the numbers on the colored balls. Repeat until all children have had a chance to play with these colored balls.

In the control group TK Nusantara Banten learning is done using colored balls. Student participation in learning activities still seems to be lacking. When learning to use colored balls, the priority is to listen and answer the teacher's questions. The level of activity, interest, creativity and thinking ability of students in the experimental group was higher than the control group at TK Nusantara Banten.



Figure 4. Learning Activities in the Control Class

Meanwhile, in the experimental group, especially group B1, learning activities to recognize the concept of numbers were carried out using calculating tools, in learning

activities to recognize the concept of numbers were carried out using calculating tools. How to play children's counting aprons first look at the counting aprons, then move forward in pairs, the first child uses the counting apron stand, the second child sticks the number, reads the number then calls the number. 1 to 10 on the apron counting media, counting the number of images of the sun, stars, moon, clouds and sun and comparing the number of similar objects and different objects.

On student activities in the experimental group in TK Nusantara Banten, during learning activities students pay attention to what the researcher says when explaining. Most students are very interested in participating in learning using computing facilities. This can be seen from the happiness and enthusiasm of the children, making it easier for researchers to carry out treatment in the experimental group.



Figure 5. Learning Activities in the Experimental Class

After carrying out the treatment, the final test (posttest) was carried out on the second control group at TK Nusantara Banten. This final test (posttest) aims to reveal whether there are differences in student learning outcomes after being given treatment using counting apron media on number concept abilities in the experimental group at TK Nusantara Banten.

The following is a summary of the posttest results of the experimental group and control group at TK Nusantara Banten. For the Experimental Group. This data can be presented in the following histogram (Figure 6).

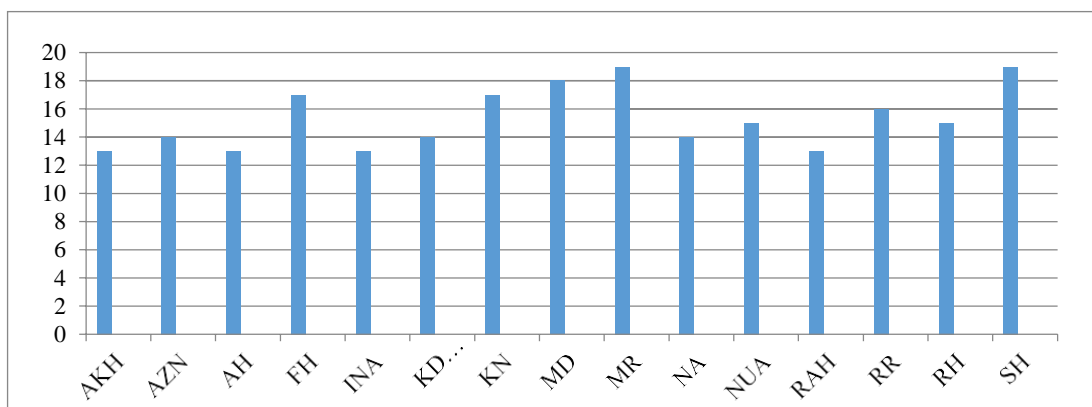


Figure 6 Histogram of Final Test Results (Posttest) for Experimental Group

The frequency distribution of the experimental group posttest results will be presented in the following table:

Table 4 Final Presentation Score (Posttest) Experimental Group

No	Mark	Frequency (students)	Percent %
1	13	4	26.7 %
2	14	3	20 %
3	15	2	13.3 %
4	16	1	6.7 %
5	17	2	13.3 %
6	18	1	6.7 %
7	19	2	13.3 %
	Amount	15	100%

From table 4 above, it is known that the experimental group's posttest score for the lowest score was 13, the highest score was 19. For scores 16, 18, one child was obtained or equivalent to 6.7%, for scores 15, 17, 19 two children were obtained or equivalent to 13.3%, for a score of 14 three children were obtained or the equivalent of 20%, for a score of 13 four children were obtained or the equivalent of 26.7%. For Control Group. This data can be presented in the following histogram (Figure 7)

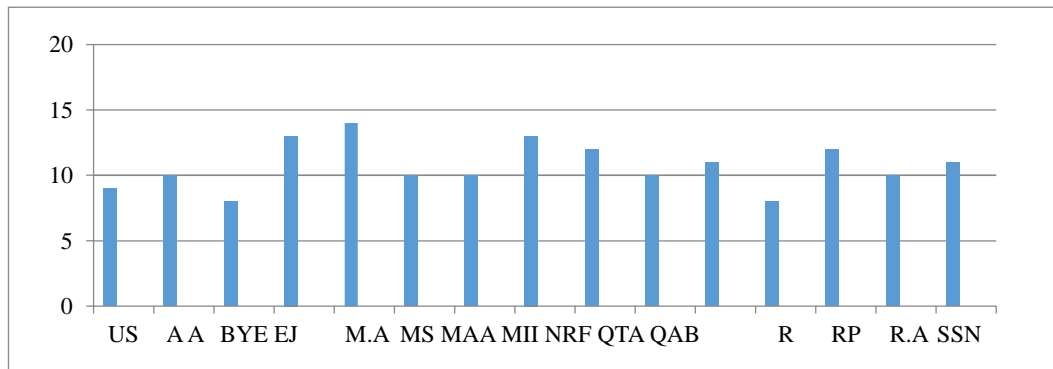


Figure 7 Histogram of the Control Group's Posttest

The frequency distribution of the control group posttest results will be presented in the following table:

Table 5 Final Presentation Score (Posttest) Control Group

No	Mark	Frequency (students)	Percent %
1	8	2	13.3
2	9	1	6.7 %
3	10	5	33.4 %
4	11	2	13.3 %
5	12	2	13.3 %
6	13	2	13.3 %
7	14	1	6.7 %
	Amount	15	100%

From table 5 above, it is known that the control group's posttest score for the lowest score was 9 and the highest score was 14. For a score of 14, one child was obtained or the

equivalent of 6.7%, for scores of 11, 12, 13, two children were obtained or the equivalent of 13.3%, for a score of 9 three children were obtained or the equivalent of 20%, for a score of 10 five children were obtained or the equivalent of 33.4%.

The following are the average posttest results for the experimental and control groups:

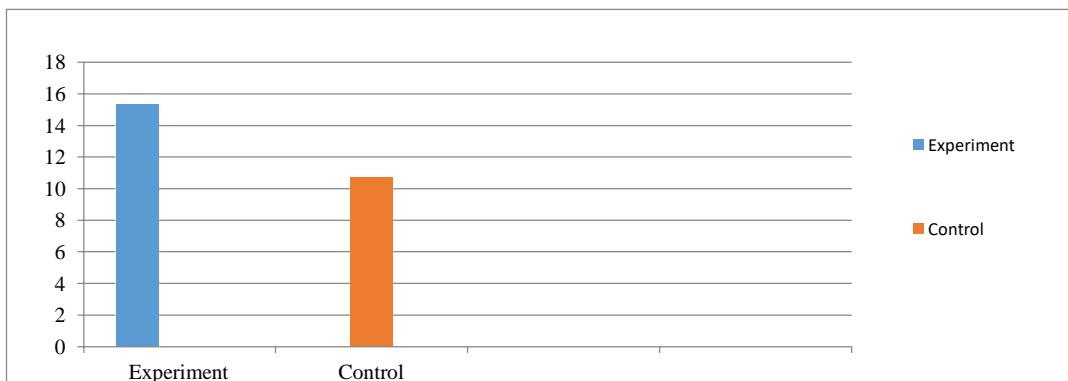
Table 6 Average Results of the Final Test (Posttest) of the Experimental Group and Control Group

No	Group	The number of students	Average
1	B1 (Experimental)	15	15.33
2	B2 (Control)	15	10.73
Total		30	26.06

Based on table 6 of the results of statistical calculations, it was found that the average score of the initial test (pretest) for the experimental group was 15.33 (fifteen point thirty three) and for the control group 10.87 (Ten point eighty seven).

The average posttest results for the B1 group (experimental group) and B2 group (control group) can be seen in the following table. Can be presented in the following histogram:

Figure 8 Histogram of Average Final Test Results (Posttest) for Experimental Group and



Control Group

Next, analyze the data using hypothesis testing using the Mann Whitney test. Mann Whitney test help statistical program SPSS 16.0 program. This hypothesis test was carried out to determine whether there were differences between the experimental group and the control group.

The following is a summary of each Mann Whitney test. For the Mann Whitney pretest, the control and experimental groups. The statistical hypotheses tested in this research are:

If the Asymp.Sig value < 0.05 , then the hypothesis is accepted. If the Asymp.Sig value is > 0.05 , then the hypothesis is rejected.

The following are the results of the pretest hypothesis test for the experimental and control groups.

Table 7 Mann Whitney Pretest Results for Experimental and Control Groups

Variable	Mean	Asymp. Sig. (2-tailed)	Information
Experimental Group	8.40	0.644	No Difference
Control Group	8.80		

Based on table 7 above, the analysis results for the Mann Whitney test show that the

significance value is 0.644. The significance value is greater than 0.05, so it can be stated that the hypothesis is rejected, which means there is no significant difference in the pretest results of the experimental group and the control group. So it can be concluded that the experimental group and the control group have the same abilities.

Meanwhile, the results of the Mann Whitney posttest for the control and experimental groups. The statistical hypotheses tested in this research are:

If the Asymp.Sig value < 0.05 , then the hypothesis is accepted. If the Asymp.Sig value is > 0.05 , then the hypothesis is rejected.

The following are the results of the posttest hypothesis test for the experimental and control groups.

Table 8 Mann Whitney Posttest Results for Experimental and Control Groups

Variable	Mean	Asymp. Sig. (2-tailed)	Information
Experimental Group	15.33	0,000	There's a difference
Control Group	10.73		

Based on Table 8 above, the results of the Mann Whitney test analysis show a significance value of 0.000. The significance value shows less than 0.05. then it can be said that the hypothesis is accepted, which means there is a significant difference between the post-test results of the experimental group and the control group. Thus, it can be concluded that there is a significant difference in the post-test results of the experimental group which used counting materials and the control group which used glossy colored materials.

Based on the results of data analysis, the results of introducing the concept of numbers in the experimental group using counting aids obtained an average score of 15.3, the highest score was 19, and the lowest score was 19.3, the highest score was 13, while in the control group the using colored balls obtained an average score of 15.3, the highest score was 19, and the lowest score was 19.3. The average score is 10.73 with the highest score being 14 and the post-test score for cognitive learning outcomes, recognizing the concept of numbers for children as low as 8. If we look at the average scores before and after the test for the ability to recognize the concept of numbers in the two groups above, there is visible improvement. The average academic results of the experimental group were higher than those of the control group at TK Nusantara Banten.

CONCLUSION

The research carried out by researchers used a quasi-experimental method. Researchers used counting aprons in an effort to improve the number design skills of group B children at the Nusantara Banten Kindergarten. Based on the results of hypothesis testing using the Mann Whitney test, the post-test results for the experimental and control groups at TK Nusantara Banten were 0.000. This significance value represents less than 0.05 so it can be said that there is a significant difference between the post-test results of the experimental group and the control group at TK Nusantara Banten. It can be seen that the average score after the test using the counting frame was 15.33, where the highest score was 19 and the lowest was 13, while the average score using the colored shading frame was 10.73, the highest was 14 and the lowest was 8. For future researchers,

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