



The Effect of Stick Box Portable Game to Increase Basic Mathematics Ability Children Five to Six Age (Study Eksperimen in Aisyiyah Bustanul Athfal Kindergarten Kaliwungu)

Oktari Wulan Maghfiroh✉, Diana

Department of Early Childhood Teacher Education, Faculty of Science of Education, Semarang State University, Indonesia

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Abstract

Mathematic is important ability to be taught by teacher to kindergarten children so that they have skill in solving simple problems in modern technology. Introduction of basic mathematics concept should be given from an five to six age. Stick box portable game is One of the way to develop basic mathematics to children. The purpose of the research was to determine the effectiveness of the Stick box portable game as the introduction of the concept basic mathematics from an five to six age children in Aisyiyah Bustanul Athfal kindergarten. This research uses experimental methods of Posttest Only Control Design. Using a Purposive random sampling. Elected to the Aisyiyah Bustanul Athfal Kindergarten 3 Sarirejo (experimentation) and Aisyiyah Bustanul Athfal Kindergarten 6 Kutoharjo (control). Based on t-test data Independent t-test results data control group and experimental group was significant because it has the value $t_{\text{calculate}} = -5,511$ with Sig (2-tailed) $0.00 < 0.05$. Introduction of basic mathematics concept mean in children there is a significant difference between the experimental and control groups.

INTRODUCTION

Early childhood education is a development effort aimed at children from birth to the age of six, which is done through the provision of educational stimulus to assist the growth and development of the physical and spiritual child to have readiness in entering further education (Act No. 20 of 2003 on Education System).

In education, mathematics is one of the educational content. According Ismayani (2010) revealed mathematics is the language of symbols or a universal language that can be understood without a double meaning thereby eliminating blur nature, pluralistic and emosional. Standard mathematical concept of early childhood given for early childhood adapted to the age and development of children.

Nowadays, it can be seen that the demands of various parties so that children master math concepts and skills become more frequent as well as encouraging some early childhood education institutions to teach math skills sporadically and radical. It is intended that the child can understand the mathematical concepts at an early age. Various methods of teachers so that children can understand mathematical concepts well. One of them is by using media worksheet child should be completed by the child. As a result, many children are getting lazy when asked to complete the task in a worksheet children. This resulted in lagging children understand mathematical concepts beginning because of the activities carried out continuously from sheets of child.

In fact, the introduction of mathematics learning in early childhood kindergarten mostly still use the less active learning patterns and even tend to be boring and not fun for children. As noted Rusman (2013) in learning situations that take place because of the compulsion and pressure, the child will quickly feel tired and less likely to want to learn. Manipulative toys can improve mathematical abilities of children (Ardini, 2013).

Evident from the results of observations in children in kindergarten ABA B1 group 3 and group B1 Sarirejo in TK ABA 6 Kutoharjo districts Kaliwungu still found learning more teachers utilize learning resources such as magazines, books, small boxes of books and pencil. This learning resource is used to teach the child to know mathematics as study adds, distinguish and classify the size of the items available in the magazine. This learning according to the instructions of teachers first explain the activities carried out by children and children living emulate the example of the teacher. Teachers often make their

own media in teaching activities. Teachers assume that the magazine is more practical, easy, and does not bother the teacher himself. Though the magazine has a weakness that can make children become less creative and less independent.

Therefore, should be considered for designing learning activities that will give a pleasant impression of pleasure for children in learning. One of the stimuli used so that learning can be fun is to play. Based on the research results Maryani (2009), said that the introduction of mathematical concepts through games, especially on the concept of objects and concepts of these numbers can be managed to achieve mastery of 84%. Use appropriate methods to facilitate educators to achieve educational goals. While the research conducted Rahmat (2011) revealed that in early childhood or pre-school age, mathematics is very useful for them to develop the thinking process.

Learning mathematics can be given at the level of early childhood is still a non-formal, where the child has not fully given math actual material but the introduction of a new character. In the learning method that will be used is learning to stick box portable game media so that the learning process more attractive for kids to be able to improve math skills beginning in children aged 5-6 years.

Problems in this study is whether there are differences in mathematical ability between the beginning of the experimental group and the control group based stick box portable game. The aim of this study was to determine whether there are differences in mathematical ability between the beginning of the experimental group and the control group based stick box portable game

Ability according to (Rimm, 2003) is a capacity range of tasks in a particular job and the potential or ability of a person who is an inborn where the potential or capacity is generated from nature and also exercises that supports a person to complete the task. According Nungki (2008: 16), mathematics is an important capability needed in the future to face the world of technology and solve the problem in detail. According to The Principles and Standards for School Mathematics (Principles and standards for school mathematics), which was developed by a group of educators from the National Council of Teachers of Mathematics (NCTM, 2000) describes the mathematical expectation for early childhood. concepts that can be understood early childhood include: numbers, algebra, compare, compose, patterns, geometry, and measurement.

According Semiawan (2008: 20), the play is an activity that is serious, but exciting because

through play activities can explore a variety of jobs that can be realized. According to Hurlock (1987: 320), "Play" (play) is a term used freely so that its main significance may be lost.

The game is something that is used to play (Fadhillah, 2014: 25). According Iswati (2008: 1), says the game for children is a form of fun activities undertaken solely generated from such activities. According to Mujib (2011: 29), the game is an educational element obtained from something that exists and attached. Stick box portable game is a game that is rectangular made of objects that can be shaped boxes to store objects that are in the box. This portable drawers made of duplex paper that has been given a color to make it more attractive for children. In addition, the outside of the stick box portable game have been given numbers 1-15 in order before the child opened the drawer portable, children can name a number of how they are going to open. The steps of the game Stick Drawer Portable is as follows: Cast consists of 30 children in a circle, then each child sings and sticks must spin until the song is finished, after the song finished, the last child holding a baton should run toward portable drawer after drawer next to the portable, the child must put the figure will be opened, after a number of portable drawer is opened, then the child must complete activities in the figures of the portable drawer.

RESEARCH METHOD

This research method is classified in quantitative research using experimental research, because this study examined the validity of a media game for learning. Methods of experimental study is part of a quantitative method that has its own characteristics, especially with the control group (Sugiyono, 2010). In this case tested are stick box portable game. In this study using design penelitian True Experimental Design Type Posttest Only Control Design (Sugiyono, 2010).

The population in this study were all students kindergarten ABA Kaliwungu districts. Total population in this study was 140 students. Teknik purposive sampling using random sampling, drawn two samples are all students in grade kindergarten ABA 03 Sarirejo B1 and B1 class TK ABA 06 Kutoharjo. Total population in this study is 60 students.

The independent variable in this study is the beginning of mathematical ability and the dependent variable was the game stick box portable game.

Methods of data is done through structured observation in the form of a checklist. Ob-

servations using the charging sheet checklist based on the indicators mentioned in the research instrument. As for the analysis of data using a child's math skills beginning normality test, homogeneity test and t test.

RESULTS AND DISCUSSION

The results of tests obtained value data shows that in the control group had a total value amount beginning math skills based stick box portable game for 1682, while the experimental group number of the total value of 2370. So the number of scores in the experimental group was higher than the control group. Data obtained by calculations with SPSS 21.0 for windows a significant influence is the average difference in the two groups that can be seen in the table that the mean difference of the control group and the experimental group at 56.07 at 79.00, so that the difference amounted to 22.93.

Test of normality in the experimental group was 0,017 which is greater than the value of α (0.05), because the sig. > α then H_0 diterima. It can be concluded that the experimental class data derived from populations that are normally distributed. While the homogeneity test has significance level is 0.758, which means greater (>) than 0.05, so H_0 accepted.

Test of normality in the control group gained a significance level of 0.200., Because sig > α then H_0 is accepted. Thus the control class data derived from populations that are normally distributed. While the homogeneity test has significance level is 0.412, which means greater than 0.05. So we can conclude the sample data came from a homogeneous population, and H_0 accepted.

Testing the hypothesis in this study using t-test to see the difference on each test and to see how much difference the beginning of the mathematical abilities in children aged 5-6 years based Stick box portable game. Analysis of the test results of the control group and the experimental group using Independent t tests were a significant outcome because it has a value of $t = -5.511$ with Sig. (2 tailed) < 0.05, which is 0.00. This means that beginning on child's math skills were no significant differences between the experimental group and the control group. Conclusion H_0 is rejected and H_a accepted, which means that there is an increase in portable drawers stick with the introduction of mathematics beginning. Values greater experimental group with the control group values.

Based on the results of hypothesis testing

showed the data of test results are a significant improvement between the drawer portable stick game with the introduction of mathematical concepts starters. Indicated by an increase in math scores introduction of the concept of significant beginning in the experimental group between before and after the treatment was given, in the form of a stick box portable game.

Hypothesis test obtained that H_0 is rejected, H_a accepted. This conclusion suggests that the experimental group had increased beginning mathematics introduction is higher than in the control group. In the experimental group obtained 79.00 value while the control group scored 56.07. Although both groups are equally increased, but the increase in the experimental group was higher than the increase in the control group. The conclusion that can be drawn is stick box portable game in this study effectively used in knowing the beginning math skills of children aged 5-6 years. This can be evidenced by the higher experimental results. Mathematics according to (Siswono, 2008) is learning about the introduction of mathematical concepts through play activities in their daily lives close to the child of a scientific nature and fun.

Beginning stages of the introduction of mathematical abilities in children aged 5-6 years among which recognize numbers, algebra, compare, compose, patterns, geometry, and measurement. Mentioned in the results of the research journal Maryani about laying the foundations of math concepts through game experience, it was concluded that the introduction of mathematical concepts through games, especially on the concept of objects and concepts of these numbers can be managed to achieve mastery of 84%.

In addition, there are the results of the research journal Reni Siti manipulative media to recognize the concept of numbers on the ability of children who said that using manipulative media capabilities meningkat. Hal a child can recognize these numbers as the manipulative media can eliminate boredom and saturation in children. In addition manipulative media is concrete models that can be touched and moved by the child, so the learning is usually centered on the teacher turns into a child-centered.

Drawing conclusions from the above theory is also owned by a stick drawer portable due to the use of stick box portable game provide an introduction to mathematical concepts beginning in children aged 5-6 years. Treatment or treatment used in this study refers to the introduction

of the concept of mathematics beginning in children aged 5-6 years. Mathematics is the basis for human knowledge. At the age of 5-6 years old children's absorption of information received is so high, so it is advisable to practice basic skills and formation of behavior at this age, especially introduce mathematics. The introduction of mathematical concepts in early childhood can not be equated with the introduction of an adult mathematics. The introduction of mathematics in early childhood should be provided through the media familiar with the game and are not harmful to children. Piaget also says that in order to improve the child's mental development to a higher stage can be an enriching experience, especially children concrete experience, as the basis of mental development is through active experiences with using objects in the vicinity (MONE, 2007: 5).

Stick box portable game is one game that can introduce beginning math concepts to children. Modifications Stick box portable game used in this study is a drawer made of duplex paper which has a length of 60 centimeters, with a width of 30 centimeters and 50 centimeters high. Duplex paper that has been given a color to make it more attractive for children. In addition, the outside of the portable drawers have been given numbers 1-15 in order before the child opened the stick box portable game, children can name a number of how they are going to open.

At the time of execution of the study, an ongoing theme is the theme of the environment and needs. The theme of the environment and the need to have some images that represent such image cleaning tools, cutlery and drink, and so forth. The introduction of mathematical concepts beginning with stick box portable game can be an alternative for children who are less like math. The game sticks portable drawer can introduce beginning math concepts through games. So the child can recognize the beginning math concepts by playing.

CONCLUSION

Based on the above, it can be concluded that there are differences in mathematical ability between the beginning of the experimental group and the control group based stick box portable game. Provide stick box portable game a big influence in introducing math concepts that will support the child beginning preparation for children entering further education. This can be

evidenced by the results of treatment in children in introducing beginning math skills.

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