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THE EFFECT OF MEDIA PUZZLE ON THE ABILITY OF MATHEMATICAL LOGICS IN CLASS 1 STUDENTS

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ABSTRACT

This research is motivated by problems found in SD GIKI in class 1, namely the ability of children's mathematical logic in the low and medium categories . The focus of the research is how the level of students 'mathematical logic ability before using media puzzle and how the level of students' mathematical logic ability after using media puzzle. Is there a significant influence on the use of media puzzles on students' mathematical logic abilities? The purpose of this research is to improve the results and improve the process of students' mathematical logic ability. The method used in this study is the pre-experimental method with the type of one-group pretest-posttest design. The subjects in this study were GIKI Elementary School students in Sukajadi Subdistrict, Bandung City class 1, totaling 11 people. Data collection techniques used in this research is to test and observation. The data processing technique used in this study uses SPSS 18.0. The average score of students' mathematical logic ability at pretest was 12 , 27 and increased to 25.73 at the posttest. The results showed that there were significant effects of using media puzzles on the mathematical logic ability of grade 1 students of SD GIKI . This is indicated by the increasing ability of students in compiling numbers in the category of large order to small, small to large, comparing numbers and classifying and solving problems.

Keywords: Media Puzzle, Student Mathematical Logic Ability.

INTRODUCTION

Education is a conscious and planned effort to realize a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, abilities, noble character, and skills needed by themselves, society, nation and State. Education as a process, both in the form of transfer and refinement, will involve and include various components in order to achieve the expected goals. Do lifelong education from an early age until the end of life, the importance of education given to early childhood contained in the National Education Act no. 20 of 2003.

There is one education policy outlined in Propenas 1999 - 2004 which is the improvement of the quality of national education. Various efforts to improve the quality of education have been and will continue to be carried out, including by equipping schools with various facilities and learning resources in schools. This is in line with the Law on National Education system no. 20 of 2003 Chapter 1 article 1 paragraph 20 which requires that the

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learning process in a learning environment must have a process of interaction between students and educators by using learning resources.

Basically the goal of Primary School education is to help students develop various abilities or intelligence possessed by every student both psychic and physical, which is commonly called "Multiple Intelligences". A lot of intelligence can be possessed by everyone, which must be developed and explored early.

According to Howard Gardner there are eight basic intelligences commonly called Multiple Intelligences. The eight intelligences include linguistic / verbal intelligence, logic-mathematics, spatial, kinesthetic, musical, interpersonal, intrapersonal, and naturalist. According to Moleong (2004: 1) defines the intelligence of mathematical logic as ". . . a set of children's abilities in recognizing shapes, recognizing colors, recognizing objects, grouping the same objects (classification), grouping the same two forms, recognizing size, repeating numbers, and making patterns.

One of the students' problems is low mathematical logic intelligence. According to Gardner (Musfiroh, 2004: 65) the intelligence of mathematical logic is related to the ability to process numbers or skills using logic. Students have an advantage in mathematical logic intelligence interested in manipulating the environment and tend to apply trial and error strategies. Smart students in mathematical logic like playing activities related to logical thinking, such as damage, searching for traces, counting objects, weighing up, and playing games.

Mulyani, Rini (2006: 20) argues that there are a variety of games that can develop logical-mathematical intelligence that is the way to solve puzzles. This game will help the child in practice hone the ability to solve various problems using logic. Besides that there are puzzle games, snake and ladders, guessing, geometry games, card games, knowing patterns, and so on.

Based on the explanation above, it can be concluded that the ability of mathematical logic is the ability of children to obtain numbers, recognize size, classify objects, repeat numbers create patterns and solve problems.

METHOD

The method used in this study is an experimental method in pre-experimental form with a type of *one-group pretest-posttest design* which aims to determine the effect of variables on

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the dependent variable. The approach used in this study is quantitative, namely the approach that uses data in the form of quantitative facts or data numbers and everything that can be calculated (Pohan, 2007: 7). The pre-experimental research design was carried out before the experiment called the pre test (O_1), while the observation after experiment was called the post test (O_2). The difference between O_1 and O_2 as O_1 - O_2 is assumed to be an experimental *(treatment).*

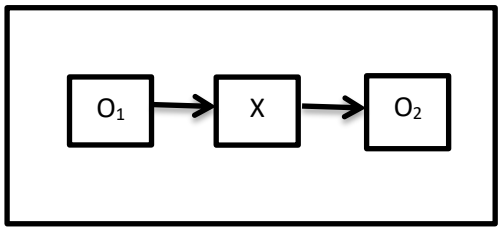

Figure 1 . Experiment Design

Information:
O_1 : pre test value, before being given treatment
X : treatment, in this study is the use of media puzzle
O_2 : posttest value, after being treated

RESULT AND DISCUSSION

Results

The results of the study found that before using the media puzzle it was found that there was one child whose mathematical logic abilities were in the low category and ten children the ability of mathematical logic was in the medium category.

Table 1. Students' Mathematical Logic Ability Before Using Media

Name	Score	Criteria
Natan	9	Low
Haura	14	Medium
Audrey	13	Medium
Dhea	10	Medium
Tiara	11	Medium
Lili	15	Medium
Ios	16	Medium
Ramon	11	Medium
Kiani	16	Medium
Alia	10	Medium
Manar	10	Medium

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The results of the study found that after using media puzzle it was found that all children had mathematical logic abilities that were in the high category. For more details about the table of students' mathematical logic ability after using media puzzle can be seen in table 2.

Table 2. Students' Mathematical Logic Ability After Using Media

Name	Score	Criteria
Natan	25	Low
Haura	28	Medium
Audrey	27	Medium
Dhea	25	Medium
Tiara	26	Medium
Lili	26	Medium
Ios	26	Medium
Ramon	24	Medium
Kiani	25	Medium
Alia	25	Medium
Manar	26	Medium

The results showed that there was an increase in the ability of the mathematical logic of the first grade students of SD GIKI in Sukajadi Subdistrict, Bandung City in the 2011/2012 Academic Year before and after using the media puzzle.

Table 3. Improving Students' Mathematical Logic Ability Before and After Using Media Puzzle

Name	Pre Test	Post Test	Criteria
Natan	9	25	16
Haura	14	28	14
Audrey	13	27	14
Dhea	10	25	15
Tiara	11	26	15
Lili	15	26	11
Ios	16	26	10
Ramon	11	24	13
Kiani	16	25	9
Alia	10	25	15
Manar	10	26	16

The ability of the mathematical logic of the early elementary school students of GIKI (pre test) tends to be in the medium category, but there is one child who is in the low category. Based on observations, when students were tested using the test kits provided, it can be seen that there are some children who have not been able to draw pictures from large to small or

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small to large. They tend to be reversed when composing the picture . In addition there are some students who cannot answer addition and subtraction using media puzzles.

Discussion

The overall post-test condition showed an increase, this can be seen from the results of research that shows that all students have the ability of mathematical logic in the high category. When compared with the pre-test condition, no students are in the low category. Initially most of the children were in the medium category and one student in the low category, but after being given treatment using the media puzzle the ability of children's mathematical logic all changed to high.

After giving the treatment (*treatment*) there were significant results on the ability of grade 1 mathematical logic at SD GIKI Bandung. Of course this is very different from the situation before the treatment. This indicates that media puzzles can improve students' mathematical logic abilities. From this increase it can be concluded that the media puzzle affects the ability of students' mathematical logic.

The average score of students' mathematical logic ability in the pre-test was 12, 27 and increased to 25, 73 in the post test. In other words, media puzzle has an effect on increasing the ability of students' mathematical logic. Of course this is in line with the theory revealed by Sudono (1995: 25) ". . . puzzle is an educational game tool that can improve students' development. ”The puzzle media is intended to hone basic skills possessed by each grade 1 student, so that they can better understand the learning process of mathematics in a practical, efficient and effective way.

Increasing the ability of students' mathematical logic after being given treatment can be influenced by several factors, including during the learning process, researchers create a pleasant learning atmosphere so that all children feel comfortable with the learning process provided. Students are very enthusiastic when researchers bring media to the learning process. All students want to continue to try the media brought by researchers. Student expressions look very happy when given media puzzles. Through media puzzle, the ability of students' mathematical logic can increase. Of course this is in line with Coughlin's theory (Djoehaeni, 2010) the center of activities that will help children in developing mathematical abilities is through games that can help children to match, count, classify and create their own games.

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CONCLUSION

Based on the research and testing the hypothesis of the influence of media puzzles on the improvement of students' mathematical logic skills in SD GIKI, Sukajadi Subdistrict, Bandung City, it can be concluded that:

1. The ability of mathematical logic of the first grade students of SD GIKI before being given treatment or pretest has a varying level, namely there are two categories, namely ten students in the medium category and one child in the low category .
2. The mathematical logic ability of SD GIKI Class I students after being given treatment showed a significant increase. Based on the results of data processing, it was found that the mathematical logic ability of SD GIKI Class I students had a high level of ability. This can be seen from changes in student data in the high category to eleven people. There are no students in the middle and low categories.
3. The media puzzle proved to be able to improve the mathematical logic ability of class 1 students. It was seen from the paired test, the pretest data was 12 , 27 and increased to 25.73 in the post test. Increased mathematical logic abilities include: (1) arranging things in categories (large to small, long to short), (2) comparing, (3) solving problems, (4) classifying objects of the same nature .

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