The Use of Snakes and Ladders Game Media on Learning Outcomes of Calculation and Addition Operations in Blind Children

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Abstract: *Mathematics has an important role in human life. So the math is taught at all levels and types of schools, including special schools and special schools. One material that is taught in mathematics lessons are arithmetic operations addition and subtraction. Learning addition and subtraction arithmetic operations on children with visual impairments use only the lecture method. So that learning becomes boring and less fun. Therefore, it required learning media. Based on the above issues, the authors conducted research using a media. Media appropriate for material addition and subtraction arithmetic operation is a modified snake game ladder to be used by blind children. Research was conducted with the aim to improve learning outcomes arithmetic operations addition and subtraction in children with visual impairments through the use of the media snake ladder game in SLB-AYPABX. To achieve that objective quantitative approach was used with some methods of data collection are: 1. Method of observation 2. Method of test 3. Documentation methods for the analysis of research data using Non- Parametric analysis techniques to test the formula Signs (Sign Test). From the analysis of pre-test and post-test with the sign test formula (ZH) obtained, count (ZH) is 2.05 with the critical value α = 5% (test one side) we know that the critical value (Z table)=1.64and critical value α=5%(two-sided test) with a critical value (Z table) =1.96.So that H_o is rejected because ZH > ZH 1.64 and > 1.96. With Ho rejection means Ha received which means there is significant influence media use snake ladder game against the results of learning arithmetic operations addition and subtraction in blind children in the class III SLB-A YPABX.*

Keywords: Media Games Snakes and Ladders, Operation Calculate the sum of Learning Outcomes and Reduction, Blind Children

1. Introduction

Education plays an important role in the development of a nation because through education will create quality human resources, knowledgeable and broad-minded. Every citizen has the same right to get proper education, not least for children with special needs. Children with special needs are categorized as children who have physical, mental and emotional abnormalities. One of the children with special needs is a blind child.

Children with visual impairment are children who experience impaired sense of vision so they experience obstacles in carrying out daily activities, such as walking, socializing with the environment and learning activities. In learning activities, many blind children experience obstacles due to their visual impairment, so that blind children need to get special learning services by modifying learning that is adjusted to their level of visual impairment. In general, special schools for blind children use Braille writing or media for their learning by optimizing the senses of blind children.

At school, blind children get various kinds of lessons, one of which is mathematics with material on arithmetic operations. Mathematics is a symbol language; deductive science that does not receive proof inductively (Ruseffendi, 1991). Mathematics is very important for human life, so mathematics is taught at all levels and types of schools, including in special schools and special schools.

One of the materials taught in mathematics is the arithmetic operation of addition and subtraction. Learning operations to calculate the addition and subtraction in primary schools

aims to provide a basic foundation in everyday life that is needed by children, especially children with visual impairments in life in the community. But in learning, arithmetic operations are taught by metode or existing media, for example the lecture method and blockjass media. So that children become bored easily and learning is not fun. Therefore, the learning media is very necessary in learning.

Learning media makes it easy for students to understand a concept. Learning media related to arithmetic operations is the snake ladder game media which must be modified in advance so that it can be used by blind children. Through this snake ladder media, blind children are expected to be able to more easily understand the operations of addition and subtraction calculations.

From the results of preliminary observations, in learning, in SLB-A YPAB X in class III the teacher teaches without using media. Teachers in the delivery of material tend to use the lecture method, so students do not fully pay attention and are enthusiastic about learning given. However, when blind students are taught by students who carry out teaching practices using media, students look very enthusiastic and active in learning. Based on these problems the author tries to teach using game media. Students are given the opportunity to learn while playing. Students give very good responses.

According Galuh (2009) states that "playing ladder snakes have enormous benefits, including children can learn simple mathematics (simple addition and subtraction)". This reason strengthens the author's interest to conduct research whether using the snake ladder game media can be an effort in improving learning outcomes of the sum and reduction

operations in blind children in class III SLB-A YPAB X.

2. Methodology

2.1 Type of Research

This research uses quantitative research using pre-experimental design with one group pretest-posttest design, which is an experiment carried out in a group without control or comparison groups (Suryabrata, 2002: 41).

2.2 Research Subjects

The subjects of this study were 6th grade students at SLB-A YPAB X, amounting to 6 students:

Table 1: Research Subjects

No	Name	Class
1	ERK	III
2	MKN	III
3	NHI	III
4	MH	III
5	DDW	III
6	FAD	III

2.3 Data Collection Techniques

The techniques used in collecting data in this study are (1), the observation method is used to collect data (2), the test technique used is in the form of a written test to find out the results of the pre-test and post-test (3) Documentation is carried out to support the data obtained from notes in the form of student data and visual acuity. In measuring the effect of the use of snakes and ladders game media on learning outcomes, operations of addition and subtraction in blind children. The first step students are given a pre-test to determine the ability to count and subtract count operations in children with visual impairment before being given treatment.

2.4 Data Analysis

The data analysis method used in this study is a non parametric statistical data analysis technique. This formula is used to determine the presence or absence of the influence of snake ladder media on learning outcomes of operations of addition and subtraction in blind children in Class III SLB-A YPAB X. By using statistical analysis with the sign test formula, the formulas used are:

$$ZH = \frac{\chi - \mu}{\Sigma}$$

Information:
ZH = Statistical Calculation
Results χ = Direct Observation Results
μ = Average (Mean)
σ = Standard Deviation (Saleh, 1996: 5)

3. Results and Discussions

This research produced data from 6 students before giving treatment in the form of pre-test and after being given treatment in the form of post-test, after the research data was obtained then began the next process by analyzing using non-parametric data analysis techniques using the Test Sign (Sign Test). The following is a summary table of pretest and posttest values:

Table 2: Recapitulation of Pretest and Posttest Value Data

No	Subjects	Pretest	Posttest
1	ERK	46,7	73,3
2	MKN	43,3	66,7
3	NHI	43,3	66,7
4	MH	50	76,7
5	DDW	40	63,3
6	FAD	43,3	66,7
Average		44,4	68,9

The data obtained are then analyzed using non-parametric data analysis techniques using the Sign Test. The following is a table of changes in marks on the sum and subtraction count operations.

Table 3: Sign test analysis

No	Subjects	∑ X	∑ Y	Change of Sign Y – X
1	ERK	46,7	73,3	+
2	MKN	43,3	66,7	+
3	NHI	43,3	66,7	+
4	MH	50	76,7	+
5	DDW	40	63,3	+
6	FAD	43,3	66,7	+
Average		44,4	68,9	∑ = 6

Research data in the form of pretest and posttest values that have been included in the work table above changes, then analyzed using the sign test (ZH) formula. Because the value of ZH (2.05) is greater than the value of Z table 5% (1.64) / ZH (2.05)> Z table (1.64) then Ho is rejected, which reads "No significant effect use of snakes and ladders game media on learning outcomes of operations of addition and subtraction in blind children in class II SLB-A YPAB X ". Because the ZH value (2.05) is greater than the Z value of the table 5% (1.96) / ZH (2.05)> Z table (1.96) then Ho is rejected, which reads "There is no significant effect of the use of snake ladder media on learning outcomes of addition and subtraction operations in blind children in class III SLB- A YPAB X In the calculation of the critical value of 5% for one-sided (1.64) and two-sided (1.96) tests, it is a fact that the Z value obtained in the count (ZH = 2.05) is greater than the critical value Z 5% one side (1.64) and two sides (1.96) so the null hypothesis (Ho) is rejected and the working hypothesis (Ha) is accepted. If Ha is accepted, it means "There is a significant influence of the use of snakes and ladders game media on the learning outcomes of the addition and subtraction operations in children with visual impairment in class III SLB-A YPABX"

4. Conclusion

Before the intervention was carried out through the use of snake ladder media, the learning outcomes of the calculation and addition and subtraction operations of blind children in class II SLB-A YPAB X were very low between ± 40-50. After an intervention through the use of snakes and ladders game media, learning outcomes of the operations of addition and subtraction in blind children in class II SLB-A X

Surabaya began to have a change marked by an increased value ± 63.3-76.7. The results of data analysis with the sign test formula show that "There is a significant influence on the use of snakes and ladders media on learning outcomes of the addition and subtraction operations in children with visual impairment in class II SLB-A YPAB X".

Furthermore, the authors advise blind students to be able to independently play while learning to use media that already exist and are indeed used for visually impaired including snakes and ladders, for readers or other researchers if they wish to carry out similar or advanced research, to be able to complete the deficiencies in this study the authors hope that the findings of this study can be used as a reference for classroom teachers or mathematics subject teachers in learning the operations of addition and subtraction calculations for blind students.

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