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The Use of Fingerboard Media to Improve the Ability to Count Addition Operations in Grade V Intellectual Disability Students at SDLB Sumber Dharma Malang City

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A B S T R A C T

The purpose of this study was to determine the effectiveness of the fingerboard media on the ability to perform arithmetic addition operations on students with mild mental retardation. The research method used is quantitative with test data collection techniques and documentation. Meanwhile, the research design used was one group pre-test and post-test design. Data analysis used the Willcoxon Non-Parametric Test using the SPSS program. The subjects of this study were students with mild mental retardation at SLB Sumber Dharma, Malang City. The results showed that there was a change in student learning outcomes after being treated using the media of the fingerboard. This is shown by the Willcoxon hypothesis test data found Z count = -2.251 and $\alpha = 0.05$, then sig = 0.024. This shows that Sig 0.024 is smaller than 0.05 (0.024 <0.05)

INTRODUCTION

Education is a conscious and planned effort to create a generation that is active in developing its potential. In the life of society education is important to shape humans as social beings. According to Alpian, et al. (2019) education is a process in life to be able to develop one's own potential and live life in society. This view gives the meaning that being an educated human being is very important. Thus education is all life situations that affect individual growth including children with special needs.

Children with special needs are children who have physical, intellectual, social and emotional barriers. Children with special needs experience obstacles in their development compared to their peers. UU no. 20 of 2003 concerning the National Education system Article 32 states that "Education is education organized for children who have difficulties in following the learning process due to physical, emotional, mental, social disorders". The existence of these laws provides meaningful opportunities for children with special needs so that they get the opportunity to learn like children in general. In terms of education, this is without exception teaching children with intellectual disabilities who can be called mentally retarded children.

Mentally retarded children have intelligence below the average child in general. Mentally retarded children in their thinking and learning processes tend to be slower than children of their age. According to Widiastuti & Winaya (2019) mentally retarded children experience obstacles in the development of their intelligence so that they will experience obstacles in meeting their needs. Mentally retarded children are also less skilled in living their daily lives. According to Hitipeuw (purnomo, et al, 2019) children with mental retardation (mentally retarded) are children who have difficulty learning due to their limited cognitive abilities.

Mild mentally retarded children have the same physical condition as children in general, so they are difficult to recognize. If seen academically they will not be able to follow the learning process at school. this results in mild mentally retarded children experiencing lagging behind in the achievement of learning outcomes. According to Yanni, et al (2020) mentally retarded children have barriers to intellectual abilities so they cannot immediately grasp the concepts presented.

Thus mentally retarded children need special education services so that their learning achievement is not left behind compared to their peers. Education for children with special needs is very important to explore their potential and enable them to interact with other people (Halidu: 2021). One of them is by providing educational services that learn about the process of counting. According to Irvan (2020: 11) in the learning process mentally retarded children require a different approach from children in general because the speed of the process of receiving knowledge of mentally retarded children is relatively slower

In the development of science and technological progress which is growing rapidly, it is certainly inseparable from the big role of mathematics. Counting is work in the field of mathematics which includes addition, subtraction, multiplication and division. According to Subarinah (2006: 34) arithmetic addition is a combination of one set with another set so that it can be made into one group. In everyday life, of course, humans cannot be separated from counting activities, for example counting money, the number of objects around them, and so on.

With this statement, it can be concluded that mentally retarded children are children who have below average intellectual barriers. Mentally retarded children in education services also need special treatment and must adapt to the abilities of mentally retarded students. Learning media must be in accordance with the needs of students. Learning media is a tool for learning media in the process of delivering learning material with the aim of facilitating the teaching process. Learning media is needed to increase students' interest in learning and to help problems in the difficulty of adding operations. According to Chasanah & Pradipta (2019: 12) in the process of learning the concept of counting, it must be designed using media, so that

when the learning given can be conveyed properly. With innovative learning media, students will not get bored easily when learning takes place. Students are able to participate in learning happily and not get bored easily when learning takes place. So as to create a more interesting and fun learning process.

From the results of initial observations at SLB Sumber Dharma Malang City in teaching and learning activities mentally retarded students seem bored with monotonous learning. So that it causes students to focus less on the material explained by the teacher. They have difficulty especially in learning to count. They have difficulty in operating additions 1-10. The media used to learn to count are the abacus and objects around it. Thus creative and innovative learning media is needed to support student needs. Using creative media will certainly make students feel happier and able to foster their enthusiasm for learning.

By using this fingerboard, the researcher hopes that mild mentally retarded students can be interested and motivated to take part in learning math operations arithmetic 1 to 10. Using this fingerboard media students draw several fingers on a board made of gloves that have been given adhesive to stick to their palms. then under the gloves are written several numbers and symbols of numbers that have been adapted to the questions given. The learning media of this fingerboard media can stimulate students' thoughts, attention, and willingness. So that it can facilitate and introduce numbers to fifth grade mild mental retardation students at Sumber Dharma SLB.

Thus students with mild mental retardation are expected to be able to understand and be able to recognize the concept of arithmetic addition properly and correctly. It is because of this problem that the researcher is interested in taking the title "Effectiveness of Using Fingerprint Board Media to Improve the Ability to Count Addition Operations in Grade V Mild Mentally Disabled Students at SDLB Sumber Dharma Malang City"

METHODS

This study uses experimental research methods. This research approach uses pre-experimental. Here the researcher uses a pre-experimental design in the form of one group pretest-posttest. This design compares the conditions before and after being given a treatment or treatment so that the results can be known more accurately. Whether or not the influence of the use of media on the ability of students' simple arithmetic operations can be determined by measuring students' numeracy skills before and after treatment. The pre-test was carried out once, then the treatment or intervention was carried out in 3 meetings and the post-test was carried out in one meeting.

This research uses data analysis and hypothesis testing Willcoxon The Signed Rank Test. According to Sugiyono (2015) data analysis is a way to answer the problem formulation or test the hypothesis that has been formulated. Test the hypothesis in research using SPSS. To test the hypothesis using the following formula:

The significant level used is 0.05

If the price of Tcount > Ttable then Ho is accepted

If the price of Tcount <Ttable then Ho is rejected

RESULT AND DISCUSSION

The results showed that the fingerboard media had effectiveness in increasing the ability to count in fifth grade mild mental retardation students at Sumber Dharma SLB Malang City. This is stated in the results of the study in the form of pre-test and post-test results which were carried out for 3 meetings with 3 treatments using the media of the fingerboard. As long as they are given treatment using the media of the fingerboard, students look happy and grow enthusiastic to learn. The research data is used to analyze the research results. It can be seen in Tables 1 and 2. Based on the average of the pre-test results obtained 60 and the average post-test is 75. And the results obtained for each student are then processed into SPSS with the non-parametric Willcoxon test, Table 1 is a comparison of the results pre-test and post-test.

Table 1. Comparison Results of Post-test and Pre-test Values

No.	Nama	Pre - test	Post - test
1.	AD	50	70
2.	MA	70	80
3.	YD	40	50
4.	DA	60	80
5.	RF	60	70
6.	SW	80	100
Jumlah		**360**	**450**
Skor rata – rata		**60**	**75**

Source: Data Analysis

It can be seen from the table above that the average pre-test value is 60 and the post-test average value is 75. So it can be concluded that there has been an increase in the numeracy skills of fifth grade students at SDLB Sumber Dharma Malang City.

Based on the results of the pre-test and post-test, the data was analyzed using SPSS using the Willcoxon Sign Rank Test to determine differences between the pre-test and post-test. Table 2 is the result of the SPSS Sign Rank Test pre-test and post-test.

Table 2. Hypothesis Test (Rank Test)

Ranks Test

		N	Mean Rank	Sum of Ranks
Post Test - Pre Test	Negative Ranks	0[a]	.00	.00
	Positive Ranks	6[b]	3.50	21.00
	Ties	0[c]		
	Total	6		

a. Post Test < Pre Test
b. Post Test > Pre Test
c. Post Test = Pre Test

It can be seen from the table above that the mean rank is negative or the average value of students is negative 0, which means that there are no negative scores or no one has experienced a decrease in grades.

In the table above that the mean rank is positive or the average value of students is positive 3.50, which means there is an increase in student scores.

Table 3. Hypothesis Test (Test Statistic)

Test Statistic

	Post Test - Pre Test
Z	-2.251[b]
Asymp. Sig. (2-tailed)	.024

a. Wilcoxon Signed Ranks Test

b. Based on Negative Ranks

Based on the study results table in the experimental group, it shows that the Z count is -2.251 and the Sig is 0.024. This shows that Sig 0.024 is smaller than 0.05 (0.024 <0.05). So it can be concluded that there are differences in learning outcomes after and before being given treatment using the media of the fingerboard.

Based on the Hypothesis Test that has been described, it can be seen that statistical calculations use the Wilcoxon Test, namely because the asymp value. Sig (2-tailed) of 0.024 is smaller than the value of α (0.05). So it is determined that 0.024 <0.05, then H0 is rejected. It can be concluded that there is the effectiveness of the ability to count operations before and after using the media of the fingerboard.

From the results of the research above, it is known that the fingerboard media is able to improve students' numeracy skills as seen from the average pre-test results of 60 then during the post-test the average increases to 75. This shows that in the statistical test the asymp value hypothesis test . Sig (2-tailed) of 0.024 is smaller than the value of α (0.05). So it is determined that 0.024 <0.05, then H0 is rejected. Thus showing increased results. So it can be concluded that the fingerboard media provides the effectiveness of increasing numeracy skills for mild mentally retarded children in class V SLB Sumber Dharma Malang City.

Learning media is an important role in every lesson. Especially for mentally retarded students who have difficulty in abstract thinking. By using a learning media they will be helped so they have no trouble thinking abstractly. One of them uses the media fingerboard. The fingerboard media helps students in learning addition arithmetic operations 1-10. Students are trained to operate addition using the fingerboard media. Not only that, the fingerboard media also adds to the knowledge of mentally retarded students to recognize the shape of numbers 1-10 which are made from colorful bottle caps.

CONCLUSION

Based on the results of the discussion, it can be concluded that there was an increase after students were given treatment using the fingerboard media. This is shown through the Willcoxon hypothesis test using SPSS that the asymp. Sig (2-tailed) of 0.024 is smaller than the value of α (0.05). So it is determined that 0.024 <0.05, then H0 is rejected.

These results concluded that there was an increase after students were treated using the media of the fingerboard. It is proven that the fingerboard media is effectively used to help learning arithmetic operations for fifth grade mild mental retardation students at SDLB Sumber Dharma Malang City.

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