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Optimization Of The Use Of Promotional Tools To Improve Students' Abilities In Solving Measurement Problems

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ABSTRACT

Mathematics lessons are often considered as frightening learning material for most students. In the view of students, mathematics is considered a complex subject because it involves various confusing formulas and concepts. The existing facts that occurred in the even semester of the 2022/2023 academic year, based on the results of the initial test given to grade IV students of SDN 4 Jeumpa on the Geometry and Measurement learning material were still very low, namely out of 18 students, only 1 (5.5%) student got a score of 80 or had reached the KKM, while 94.4% of students' level of mastery of the material given was still low. This study uses a qualitative descriptive research approach. Data collection techniques in this study are tests and observations. The tests conducted were pretest and posttest. The questions given in the pretest and posttest were 5 descriptive questions. The data analysis technique used is descriptive data analysis, namely data obtained from the pretest and posttest. From the research results that have been obtained, it can be concluded that there has been an increase in students' ability to solve measurement problems with the help of the use of teaching aids, namely an increase of 72.3% of students who have been able to solve the problems given related to measurement material.

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1. Introduction

Mathematics lessons are often considered as frightening learning material for most students. In the view of students, mathematics is considered a complex subject because it involves various confusing formulas and concepts. In addition, the learning process carried out by teachers in the classroom also greatly influences the motivation of students in understanding

the mathematics material presented. Often, mathematics learning is given only by conveying concepts that make the learning atmosphere boring. So that it has an impact on student learning outcomes which are still low.

Putra et all (2023) stated that mathematics learning is abstract. This is not in accordance with the cognitive development of elementary school students who are still constrained by things that are visible and vulnerable to the five senses. To help students understand the mathematics material presented by the teacher, aids in the form of media or teaching aids are needed. Therefore, students will understand the information offered more easily.

Teaching aids are aids used to facilitate the delivery of information (Lisa, 2018). By using teaching aids as a learning medium, the material being studied can be reduced to a more concrete abstraction and make it easier for students to understand learning concepts (Kharisma, 2020). In this regard, teachers can utilize interesting learning media in the form of objects around students, so that they can emphasize the process of full student involvement in order to find the material being studied and relate it to real life situations, thus encouraging students to be able to apply it in everyday life.

The facts on the ground in the even semester of the 2022/2023 academic year, based on the results of the initial test given to grade IV students of SDN 4 Jeumpa on the Geometry and Measurement learning material are still very low, namely out of 18 students, only 1 (5.5%) student got a score of 80 or had reached the KKM, while 94.4% of students' level of mastery of the material given was still low.

In addition, information obtained from class teachers also stated that students' ability to solve mathematical problems was still very low, students were less motivated to participate in mathematics learning, while teachers had tried to create pleasant classroom conditions.

The learning that is usually given by teachers is in the form of delivering material accompanied by an explanation of the concept and giving some practice questions to students. However, in reality, the mathematics ability of students in grade VI of SDN 4 Jeumpa is still low.

From the description above, the idea arises that the low grades in Mathematics subjects are due to students' lack of understanding of the basic concepts of Mathematics which have so far only been taught by teachers through lecture, exercise and assignment methods. One way to overcome this is to carry out follow-up activities in the form of teaching using learning media, one of the media that can be used is teaching aids.

There are several previous studies that are relevant to this study, including Resqueta (2022) whose research results state that the use of the abang oleng teaching aid in the subject of non-standard weight measurement is very good for use at the elementary school level in terms of student learning outcomes. Furthermore, research conducted by Tunnazriah (2022) showed that the use of teaching aids can improve the learning outcomes of class III students at SDN 031 Seminai.

Based on several problems faced by teachers and students at SDN 4 Jeumpa, it is necessary to improve learning through research entitled "Optimizing the Use of Teaching Aids to Improve Students' Ability in Solving Measurement Problems".

2. Research Methodology

This research was conducted at SDN 4 Jeumpa. SDN 4 Jeumpa is located on Jln. Nasional Blangpidie-Meulaboh, Alue Rambot, Jeumpa District, Southwest Aceh Regency, Aceh Province. The subjects in this study were 18 fourth grade students. This study uses a qualitative descriptive research approach. Data collection techniques in this study are tests and observations. The tests given are pretest and posttest. The questions given in the pretest and posttest are 5 descriptive questions. The data analysis technique used is descriptive data analysis, namely data obtained from the pretest and posttest.

3. Results and Discussion

The results of this study are data on students' ability to solve measurement problems in grade IV of SDN 4 Jeumpa. Before the test was conducted, the researcher conducted a learning process using teaching aids on geometry and measurement materials.

At the first meeting, the researcher conducted an initial test (pretest) to determine students' initial abilities in solving measurement problems. The following are the results of the initial test (pretest) that was carried out:

Table 1: Student pre-test data in completing measurement questions.

No	Student Name	Pretest	Information
1	Rindi Khairun Nisa	10	Not pass
2	Abel	50	Not pass
3	Rizka	40	Not pass
4	Furqanul Hakimal	50	Not pass
5	Zahrul fuadi	40	Not pass
6	Syariful Al Fatawa	40	Not pass
7	Safrijal	40	Not pass
8	Safaraz Akma Fdahil	17	Not pass
9	M. Rafaldi	20	Not pass
10	Mahira Fitya	50	Not pass
11	Asyila rahma	80	Passed
12	Cut Nurul Fatiha	30	Not pass
13	Isam Humam Zulidar	40	Not pass
14	Putri Amelia	10	Not pass
15	Suci	10	Not pass
16	Ziyal Rahman	50	Not pass

17	Bela	25	Not pass
18	Nia	10	Not pass

From the data in table 1, it is obtained that out of 18 students who took the initial test, only 1 student obtained a score of 80 or was declared to have passed, or in other words, 5.5% of students were able to solve the questions given during the initial test and 94.4% of other students were still unable to solve the questions given so that improvements or new innovations need to be made in the learning process so that they can help students understand and solve the problems given in the measurement material.

The learning was conducted in 2 meetings by utilizing teaching aids in the learning process. In the first meeting, the material taught was measuring length with teaching aids in the form of meters and rulers. In this meeting, students are given student worksheets (LKPD) that have been prepared previously. In completing the LKPD questions given, students are asked to measure objects around them, such as stationery, tree branches, leaves, etc.
In the second meeting, namely with the material of weight measurement. Similar to the learning in the first meeting, students are given LKPD and asked to complete it. In this material, the teaching aids used are digital scales.

Students' activities in participating in mathematics learning using teaching aids look very active and enthusiastic in participating in learning and in completing the LKPD given. Students are very enthusiastic in completing the tasks given so that the class is very conducive. Then, at the end of the meeting, students were given a re-test, namely a final test (posttest) to determine whether there was an increase in students' ability to solve problems on measurement material after learning was carried out on measurement material with the help of teaching aids. The following are the results of the final test (posttest) of grade IV students at SDN 4 Jeumpa.

Table 2: Final test results (posttest) data for grade IV students at SDN 4 Jeumpa.

No	**Student Name**	**Postest**	**Information**
1	Rindi Khairun Nisa	30	Not Pass
2	Abel	80	Passed
3	Rizka	80	Passed
4	Furqanul Hakimal	100	Passed
5	Zahrul fuadi	90	Passed
6	Syariful Al Fatawa	95	Passed
7	Safrijal	100	Passed
8	Safaraz Akma Fdahil	80	Passed
9	M. Rafaldi	50	Not Pass
10	Mahira Fitya	15	Not Pass
11	Asyila rahma	100	Passed
12	Cut Nurul Fatiha	100	Passed
13	Isam Humam Zulidar	90	Passed

14	Putri Amelia	55	Not Pass
15	Suci	80	Passed
16	Ziyal Rahman	100	Passed
17	Bela	80	Passed
18	Nia	40	Not Pass

From the data above, it can be seen that out of 18 students who participated in the measurement material learning with the help of teaching aids, there were 5 students who had not passed or their scores were still below the KKM. So there were 27.7% of students who had not passed and 72.3% of students passed.

The research results were analyzed using the SPSS 22 application. The following are the results of the research data analysis that has been carried out.

Statistics

		Pretest	Postest
N	Valid	18	18
	Missing	0	0
Mean		34.00	75.83
Median		40.00	80.00
Mode		40	80[a]
Std. Deviation		19.107	26.527
Variance		365.059	703.676
Minimum		10	15
Maximum		80	100
Sum		612	1365

Multiple modes exist. The smallest value is shown

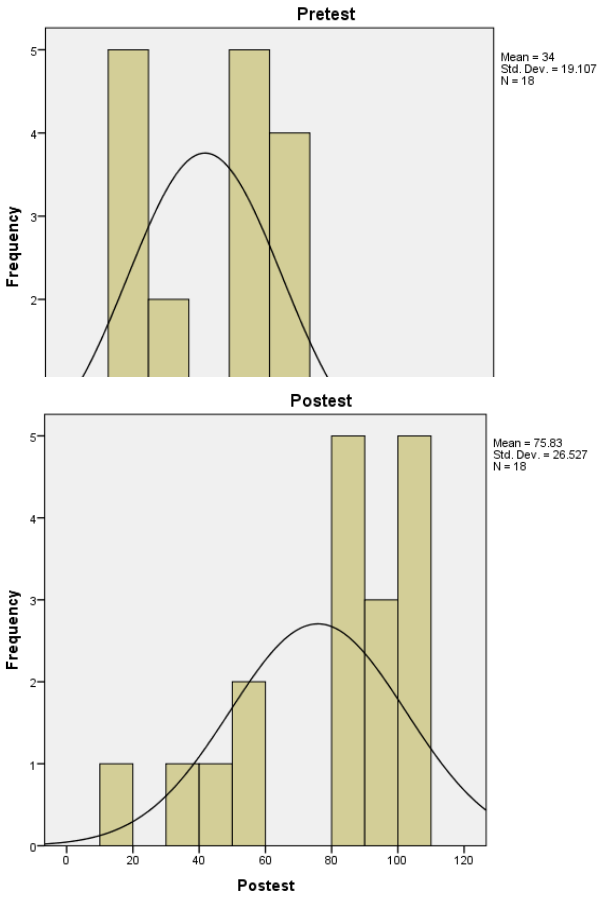
Pretest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	10	4	22.2	22.2	22.2
	17	1	5.6	5.6	27.8
	20	1	5.6	5.6	33.3
	25	1	5.6	5.6	38.9
	30	1	5.6	5.6	44.4
	40	5	27.8	27.8	72.2
	50	4	22.2	22.2	94.4
	80	1	5.6	5.6	100.0
	Total	18	100.0	100.0	

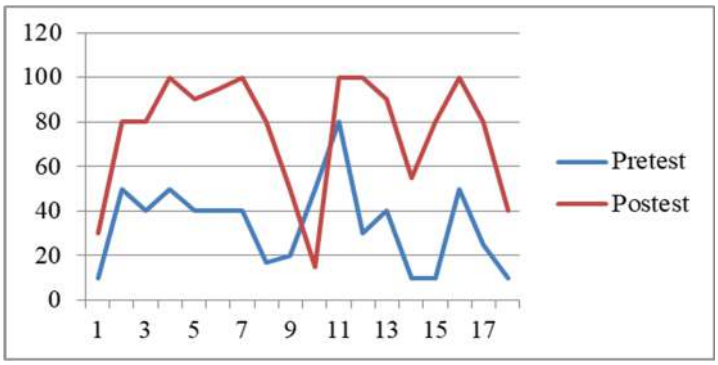
Postest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	15	1	5.6	5.6	5.6
	30	1	5.6	5.6	11.1
	40	1	5.6	5.6	16.7
	50	1	5.6	5.6	22.2
	55	1	5.6	5.6	27.8
	80	5	27.8	27.8	55.6
	90	2	11.1	11.1	66.7
	95	1	5.6	5.6	72.2
	100	5	27.8	27.8	100.0
	Total	18	100.0	100.0	

Histogram



From the results of data analysis using the SPSS 22 application, the results obtained are that the pretest and posttest data have a mean or average of 34.00 and 75.83. Both research data results are normally distributed. Next, by using the following line diagram, the increase that occurs between the pretest and posttest scores will be seen more clearly.



So it can be concluded that learning with the help of teaching aids on measurement material can improve students' ability to solve the problems given so that as many as 72.3% of students are able to solve the problems given related to the material on measuring length and weight.

The results of this study are also in line with research conducted by Saputro et al (2021) with the results of their research, namely that the use of concrete object teaching aids can increase the motivation and learning outcomes of mathematics students.

4. Conclusion

From the research results that have been obtained, it can be concluded that there has been an increase in students' ability to solve measurement problems with the help of the use of teaching aids, namely an increase of 72.3% of students who have been able to solve the problems given related to measurement material.

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