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Improving Learning Outcomes Through Cooperative Implementation Of Types *tps* With Concrete Tools In Mathematics Class VI SDN 025 Rokan IV Koto District

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Abstract, abstract
Mathematics as one of the subjects taught in elementary schools functions to develop the ability to communicate using numbers, symbols, and aims to train ways of thinking systematically, logically, critically, creatively and consistently. Children are expected to be skilled at applying it in everyday life, but in reality, children experience many difficulties, especially in the ability to calculate the volume of geometric shapes. In order to improve the ability to calculate volume in elementary school, it can utilize learning resources around students in the form of concrete objects. By using concrete objects children are able to carry out logical activities in solving problems, that is a way to overcome learning problems at SDN 025 Rokan IV Koto. To achieve this goal, classroom action research was conducted in class VI of SDN 025 Rokan IV Koto. The data from this study were obtained by observation, interview and documentation methods. The results of the research show that (1) Through concrete objects around students, students' ability to interact can be improved so that the class atmosphere is lively. (2) Learning activities that give students freedom to manipulate learning resources, namely with concrete objects can increase the ability to calculate the volume of geometric shapes, and children are more active, creative. (3) Learning activities through concrete objects around students are in accordance with the character of learning mathematics, and in accordance with the readiness of the child's thinking so that the ability to calculate the volume of rectangular prisms and circular tubes can be improved

Keywords : *Learning Outcome, Think Pair Share, Concrete tools, math*.

I. INTRODUCTION

Mathematics is a field of study that is studied at every level of school, both at the elementary, secondary and tertiary levels (Wulandari 2016). As a subject taught in elementary schools, mathematics functions to develop the ability to communicate using numbers, symbols and the sharpness of reasoning that can help clarify and solve everyday life problems. Elementary school mathematics learning as stated in the Elementary School GBPP 2004 aims "to train ways of thinking systematically, logically, critically, creatively and consistently" (Depdikbud,

2004:75). In addition, mathematics is one of the basic sciences in the learning process in the classroom which has an important role in everyday human life (Hartiningrum and Nugroho 2020).

In addition, the mathematics curriculum is carried out according to needs and continues to experience changes according to the development of Indonesian society (Wulandari 2016). Mathematical concepts must be understood by elementary school students early, who are ultimately skilled in applying them in everyday life. Mathematics is expected to shape the mindset of those who study it into a systematic, logical, critical mathematical mindset with great care but unfortunately, the development of systems or models of learning mathematics is not in line with the development of children's thinking, especially in elementary school age children. What teachers consider logical and clear and what is acceptable to those who have successfully learned it, is unreasonable and confusing to children.

This fact could be found after the researchers held discussions with the teachers of SD Negeri 025 Rokan IV Koto, Rokan IV Koto District, Rokan Hulu Regency. That in general children experience difficulties in mathematics. Especially calculating the surface area of the wake space.

Mathematics for elementary school children is useful for the benefit of life in their environment, to develop their mindset and many are found in the student's environment as a source of learning, for example "shapes and sizes of used packaging boxes. This is in accordance with the principle of learning to utilize the student's environment as a learning resource. Learning is a process of activity that can change student behavior from not knowing to knowing, from not understanding to understanding, which includes cognitive, affective and psychomotor aspects in order to gain new experiences or new knowledge (Ardianto and et al 2019).

The development of children is different from adults, this is evident both in their physical form and in ways of thinking and acting. This situation is often forgotten by teachers, that students are considered to be able to think like adults. Even though elementary school age children are generally at the stage of concrete operational thinking. The reality in the field of teachers in the learning model is only in verbal form, so that children cannot solve it, according to Piaget's theory that the age of 7-11 years of children's cognitive

development is called the concrete operational stage.

According to Piaget's theory of development, elementary school children are in the concrete operational period. Elementary students are still bound by realistic concrete objects, mathematics is no longer something that can be captured by the five senses (Budianto 2018). For this reason, the teacher must be able to adjust the media in learning. Learning media is any material or tool used to support the learning process (Putro et al. 2022).

With the existence of media using concrete objects, it is hoped that children will be able to carry out logical activities within concrete limits, to solve problems. Using concrete objects around students' environment can increase understanding of mathematical concepts. This is in accordance with Bruner's opinion (in Resniek, 1981: 110) that children's cognitive development begins with learning through concrete objects, continuing with learning through pictures and diagrams (semi-concrete and semi-abstract) then learning through symbols or sign.

Based on field observations conducted by researchers at SDN 025 Rokan IV Koto. Rokan IV Koto District, Rokan Hulu Regency, the implementation of mathematics learning has not been student-centered, it tends to be teacher-centered so that students are passive in learning, this tendency is due to the lack of teachers using media on concrete objects around students which are very supportive in the learning process.

Lack of math teaching aids, curriculum demands that must be met by teachers so that the target of achieving the curriculum is appropriate, then learning mathematics in elementary schools tends to be monotonous regardless of the process so that understanding the area of geometric shapes experiences difficulties. The teacher's understanding of the development of students is not given enough attention. Basically the child is not a clone of adults. Children are not micro forms of adults. Children have intellectual abilities that are very different from adults. The ways of thinking of children are different from the ways of thinking of adults. This requires attention, especially regarding readiness to learn and how their thinking changes according to their age. So that in the implementation of learning it is necessary that the mathematics learning strategy must be in accordance with the intellectual development of the development of the child's level of thinking.

The teacher's habit of limiting freedom of expression is very detrimental to the creativity of his students, so that what students learn in mathematics is less

meaningful. A teacher should use objects or objects around students to teach mathematics to students. This is very useful what students learn in mathematics is more meaningful both logically and psychologically because it is in accordance with the child's experience. The aforementioned learning circumstances must be taken into account when using learning models that allow students to reconstruct their own knowledge (Aras et al. 2022).

For this reason, in dealing with this, one strategy must be used to overcome this problem, namely by using a Cooperative Type TPS (Think Pair Share) strategy. Think Pair Share learning is cooperative learning that begins with the teacher with a "Thinking" activity in the form of asking questions to students then followed by "Pairing" activities, in this activity the teacher asks students to pair up to discuss, and the last activity is "sharing". this activity is the activity of presenting the results of student discussions (Ardianto and et al 2019)

II. RESEARCH METHODS

This type of research is Classroom Action Research (PTK). The research design used in this study is the spiral model proposed by Kemmis & MC Taggart where each cycle consists of 4 stages, namely planning, implementation, observation, and reflection (Saputra, 2016: 3). The research subjects were class VI students at SDN 25 Rokan IV Koto with a total of 27 students.

III. RESEARCH RESULTS AND DISCUSSION

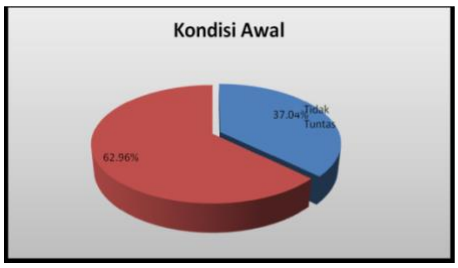
1. Research result

The implementation of learning in the initial conditions did not utilize group work with peers and stone tools with concrete objects. Student involvement in learning is still low, students tend to be passive and listen more to explanations from the teacher. When the teacher explains the subject matter, many students pay less attention. Low student learning activity or motivation has an effect on low learning outcomes, so that success indicators have not been achieved in accordance with the KKM, namely (60). The initial condition test results can be seen in the appendix 5. From the initial condition test results, it can be seen the number of students who complete and those who do not complete, the minimum score, the maximum score, and the class average score. The following are the categories of student learning completeness in Mathematics in the initial conditions:

Description of the Mathematics Learning Completeness Category Initial Conditions

Category	Frequency	Percentage
complete	10	37,04%
Not Completed	17	62,96%
Total	27	100%

In the table above, it can be seen that the number of students who completed and did not complete from students totaled 27. The number of students who completed was 10 children with a percentage of 37.04%. While students who did not complete were 17 children with a percentage of 62.96%. It can also be seen in the following image:



In addition to being able to see the number and percentage of students who complete according to the expected performance indicators, namely 80% of students get a score of ~ 60. Based on the results of observations that have been made, the researcher wants to improve the learning outcomes of class VI students at SDN 025 Rokan IV Koto. can be realized by carrying out cycle I actions by utilizing small groups and using concrete objects.

Action Results

Description of Minimum, Maximum and Average Values of Learning Management Cycle I Measurement

	Number of items	Shoes minimum	Score maximum	Rate-rate
Management Learning	16	25	100	62,5

Based on the table above, it is known that the maximum score for learning management is 100 while the minimum score is 25 and the average score is 62.5. To determine the high and low level of learning management, 5 categories are used, namely, very poor category, poor category, good enough category, good category, and very good category. The number of items used to measure the level of learning management is 10 items.

Learning success can be seen that the majority of respondents, namely 70.38% have a high level of learning motivation, 14.81% of respondents have a very high level of learning motivation,

14.81% have a medium level of learning motivation, while respondents who have a very high level of learning motivation motivation is low, and very low is 0%. So, it can be said that the majority of respondents have a high level of learning motivation.

Formative Test results data

Description of Cycle 1 Mathematics Learning Completeness Category

Category	Freq	Percentage
complete	17	62,96%
Not Completed	10	37,04%
Total	27	100%

From the table above it can be seen that 17 students who passed in this cycle with a percentage of 62.96% and students who had not completed this cycle were 10 students with a percentage of 37.04%. These results indicate that in the first cycle classically students have not yet completed their studies, because students who score ~ 60 are only 62.96% less than the desired completeness percentage of 80%. This is because students still feel new and do not get used to or understand what is meant by small group work with colleagues. For more details, see the diagram

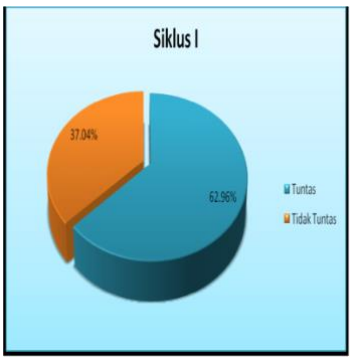


Figure 4.2 Diagram of Cycle I Mathematics Learning Outcomes

In addition to the student completeness category, data can also be presented for minimum, maximum, mean or average grades. The following is the minimum, maximum, mean or average value data:

The maximum value, minimum value, and mean or average value of Cycle 1 Mathematics learning outcomes

No	Data	Is
1	Nilai Minimum	40
2	Maximum Value	80
3	Mean (average value)	60

From this table it can be seen that the minimum value is 40 and the maximum is 80. While the mean or average value obtained in cycle 1 is 60. These results indicate that in this first cycle the

maximum, minimum and average values also increased.

Table of Descriptive Observation Results of Student Activeness in Learning

No	Value Range	Freq	Percent	Category
1.	90 - 100	6	22,23%	Very high
2.	75 - 89	21	77,77%	Height
3.	60 - 74	0	0%	Currently
4.	50 - 59	0	0%	Low
5.	0 - 49	0	0%	Very low -
Total		27	100%	

Based on table 4.17 it can be seen that the majority of students, namely 77.77% have a high level of active learning with a score range of 75 – 89, achieved by 21 people, 22.23% show a very high level of active learning with a value range of 90 – 100, achieved 6 students, while students who show moderate, low and very low levels of learning activity are 0% achieved by 0 students or none. Therefore, from the measurement results it can be said that most of the learning activity levels of the 6th grade students at SD Negeri 025 Rokan IV Koto in cycle II were in the high category.

The following is a diagram of the results of observing students' activeness in learning cycle II:

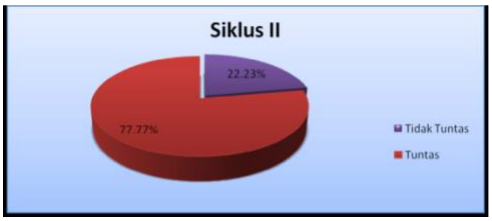


Figure 4.3
Diagram of Observation Results of Student Activity in Mathematics Learning cycle II

3. Data on the Results of the Student Activity Questionnaire in cycle II

To obtain data on student responses to learning using power point media, the researcher gave a questionnaire. The questionnaire contains statements that students must answer according to the actual situation, which includes 10 aspects of student behavior. As for the statements given are: (1) The lesson becomes interesting after the teacher shows the power point media about the earth's rotation, so I enjoy participating in learning, (2) When the subject matter is delivered I pay attention seriously or seriously, (3) I ask the teacher or friends if they have difficulties, (4) I do every task given by the teacher in earnest, (5) If there are friends/study groups who have difficulties I help, (6) I am involved/participated in

concluding the material and make summaries, (7) Whether there are tests or not, I still study every day, (8) By studying, I really believe I will get good grades, (9) I feel satisfied if I get good grades, (10) Because of my diligent study, grades be increasing. And the results of the measurements are grouped according to predetermined categories.

Thus the questionnaire data on student learning motivation cycle II can be described as follows: Questionnaire data on student learning activity can be described as follows:

Description of Minimum, Maximum, and Average Student Learning Cycle II

	Number of items	Shoes minimum	Maximum score	Rate-rate
Student motivation	10	0	100	50

Shows that the maximum score of the learning activeness questionnaire is 100 while the minimum score is 0. To determine the high or low of the learning activeness variable, 5 categories are used, namely, very low, low, medium, high, and very high. The number of items used to measure active learning is 10 items.

Thus, the high and low measurement results are categorized as follows:

Table of Descriptive Questionnaire Results of Student Learning Activeness cycle II

No	**Value Range**	**Freq**	**Percent**	**Category**
1.	90 - 100	4	14,81%	Very high
2.	75 - 89	23	85,19%	Height
3.	60 - 65	0	0%	Currently
4.	50 - 59	0	0%	Low
5.	0- 49	0	0%	Very low
	Amount	27	100%	

Table 4.19 can be seen that the majority of respondents, namely 85.19% have a high level of active learning with a score range of 75 - 89 achieved by 23 students, 14.81% have a very high level of active learning with a value range of 90 - 100 achieved by 5 people. While the average level of learning activity is 0% with a range of 56-65 achieved by 0 students, a low level of 0% with a range of values of 40-55 is achieved by 0 students, and very low is also 0% with a range of values of 0-39 achieved by 0 students or none. So, it can be said that the majority of respondents in cycle II have a high level of active learning.

Formative Test results data

Table of Descriptive Student Formative Test Results in Cycle II

Category	Frequency	Percent
complete	24	88,88%
Not Completed	3	11,12%
Total	27	100

Table 4.20 can be seen that students who completed this cycle were 24 students with a percentage of 88.88% and students who had not completed this cycle were 3 students with a percentage of 11.12%. These results indicate that in the second cycle, classically the learning completeness that has been achieved is 88.88% (including the complete category) according to predetermined indicators, namely 80% of students get a score of ~ 60. The results in this second cycle have improved better than cycle I. The increase in learning outcomes in cycle II was influenced by an increase in teacher motivation and ability to utilize small groups and concrete object props in learning, so that students became more happy and accustomed to learning like this so that students more easily understood the material that had been given .

To clarify the description of table 4.20, you can see the formative results diagram of Cycle II in circle diagram 4.7

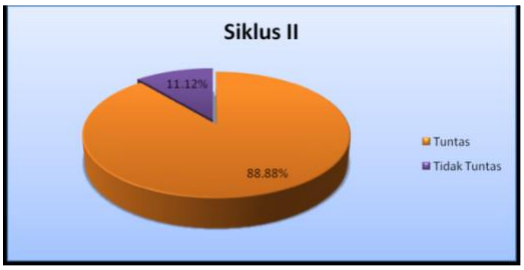


Figure 4.4 Diagram of Cycle II Mathematical Formative Test Results

In addition to the student completeness category, data can also be presented for the minimum, maximum, mean or average grades. The following is the minimum, maximum, mean or average value data in cycle 2:

Table of maximum scores, minimum scores, and average learning outcomes in Mathematics Cycle II

No	Data	Is
1	Nilai Minimum	50
2	Maximum Value	100
3	Mean (average value)	75

Table 4.21 shows that the minimum value is 50 and the maximum is 100. While the mean or average value obtained in cycle 2 is 75.

. **Discussion**

a. Initial Conditions

The learning process during the initial conditions still applies teacher-centered learning. Students are only recipients of material by listening. In conveying learning material, the teacher does not use learning media.

The results of learning Mathematics during the initial conditions can be seen that the number of students who scored <60 is still large, or it can be said that almost half of the students did not complete. Students who did not complete, namely 17 children from the total number of students, namely 27 children, while students who completed were 10 children. When viewed from the percentage of completeness, during this initial condition, 62.96% of students who did not complete and who completed were 37.04%. The maximum score obtained by students in this initial condition is 70, but the minimum score obtained by students is still very low, namely 30. Thus it can be seen that the range is very far between the minimum score and the maximum score. The average value obtained by students during the initial conditions was 50.35.

b. Cycle 1

In the learning process of cycle 1 the teacher in conveying subject matter has used small groups and concrete object props. When learning took place, students were very enthusiastic. Student enthusiasm can be seen by the activeness of students in answering questions from the teacher.

The results of the Mathematics test in this cycle who achieved a score of ~ 60 or who achieved completeness according to performance indicators were 17 students (602.96%). While students who have not completed are 10 children (37.04%). When compared to the initial conditions, the learning outcomes have increased, namely from the initial conditions where the percentage of completeness was 37.04% to 62.96% in this 1st cycle. The increase in the percentage of completeness from the initial conditions to cycle 1 is 25%.

The minimum value in cycle I is 40, higher than in the initial conditions which were only 30. Meanwhile, the maximum value has also increased, in pre-cycle the maximum value is 70 while in cycle 1 it is 80.

The average score achieved by students in this cycle was 60 and when compared to the initial conditions the average value was 50.35, this also happened in cycle one. Thus, the research in this cycle has not been successful and needs improvement in the next cycle, especially regarding the use of small groups and concrete object props.

Cycle 2

The learning process by utilizing small groups and concrete object props in cycle 2 is already better than learning in cycle 1 learning as well as the accuracy of student answers in answering questions from the teacher.

The results of the IPA test in this cycle compared to the results during the initial conditions and cycle 1 were much better. This can be seen from the number of students who achieved a score of ~ 60 or who achieved completeness according to performance indicators were 25 students (88.88%), while students who had not completed were 3 students (11.12%). When compared to the initial conditions where only 10 students completed (37.04%) and cycle 1 there were 17 students who completed (62.96%), cycle 2 is

has the highest number of completeness. From the existing data, we can see that the increase in the percentage of completeness from cycle 1 to cycle 2 is 25%.

The minimum value in this cycle is 50, much higher than during the initial conditions which were only 30 and cycle 1 which was only 40. Meanwhile the maximum value increased to 100, which was in cycle 1 the maximum value achieved was 80

The average score achieved by students in this cycle was 75, when compared to the initial conditions where the average value was 50.35 and cycle 1 which was only 60. In this cycle there was also an increase in the average value from cycle 1 to cycle 2, namely by 15.

In cycle 2, students' learning completeness classically has not been achieved, but has achieved the expected performance indicators so that the research is stopped until cycle 2. Meanwhile for students who have not achieved the expected indicators, remedial activities will be given outside of cycle activities. To clarify the description of the completeness of student learning outcomes above can be seen in diagram 4.5

Game bar 4.5
Diagram of Comparison of Completeness Values of Mathematics Learning Outcomes Initial Conditions, cycle I, andcycle II

4.2.2 Teacher's Ability to Manage Learning

Based on data analysis of the teacher's ability to manage learning activities, it shows that the teacher's ability to manage learning using small groups and concrete object teaching aids in grade VI can be categorized as good and effective, although among the aspects observed there are still categories that receive sufficient marks. This is because this activity is a new thing for the teacher and this can be seen in the first cycle, and the second cycle shows a better score. As long as the learning activities take place, students participate enthusiastically, happily, and actively, as shown by the results of data analysis on student motivation in the process of using small groups and teaching aids for concrete objects in learning mathematics in each cycle. This has a positive impact on student learning outcomes, which can be shown by increasing learning completeness and the average value of students in each cycle which continues to increase.

Based on data analysis, student motivation/activity was obtained in the process of learning Mathematics on the subject matter "Volume of cubes and blocks" in cycle I and "Volume of triangular pyramids and circular tubes" in cycle II by utilizing small groups and concrete object props students are actively involved in learning activities. Active student involvement in this learning can be seen from the high percentage of student motivation/activity in carrying out learning activities which include: (1) students are enthusiastic in responding to teacher motivation, (2) Able to answer teacher questions correctly, (3) Pay attention to teacher explanations, (4) Asking questions, (5) Doing assignments seriously, (6) Discussing with friends, (7) Helping friends who are having trouble, (8) Presenting the results of discussions and providing responses to other groups, (9) Making summaries, (10) Do the test with enthusiasm. Achievement of the percentage of indicators of success in each cycle has increased, namely in the first cycle 66.66% of students have a high level of motivation/learning activity, while in cycle II it increases to 77.77% of students also have a high level of motivation/learning activity, an increase of 10.72%. So it can be said that the motivation/activity of students in participating in learning can be said to be active.

This high increase in student learning motivation is influenced by the quality of learning that utilizes small groups and good, interesting and fun concrete object props, so that students are motivated to learn. Where the percentage for motivation / student

learning activity above is quite large, and students can be categorized as having a high level of learning motivation which ultimately has a positive impact on high student learning outcomes as well.

IV. CONCLUSION

Based on the results of the research and discussion carried out, it can be concluded that the application of TPS (Think Pairs Share) cooperative learning strategies can improve student learning outcomes in Mathematics class VI semester I basic competence Calculating the volume of triangular prisms and circular tubes SD Negeri 025 Rokan IV Koto District Rokan IV Koto Rokan Hulu Regency 2022/2023 academic year..

This is marked by an increase in motivation and student learning completeness in each cycle, namely the initial conditions of low student learning outcomes, cycle I increased to a high level category and cycle II student learning outcomes also included in the high level category and increased from cycle I While students who completed the condition Initially, 10 children (37.04%) in cycle I increased to 17 children (62.96%), and cycle II increased to 24 children (88.88%). As well as the average class value obtained in each cycle has increased, namely from the initial condition of 50.35, increased by 9.65 in cycle 1 to 60 and increased by 15 in cycle 2 to 75. In addition to increasing student learning outcomes, the TPS type learning strategy also increases student activity. in learning and improving students' social skills. Courage in expressing opinions and ideas is needed to expedite the learning process at SD Negeri 025 Rokan IV Koto.

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