The Implementation of Cooperative Learning Model Think Talk Write Type to Improve Students' Learning Outcomes of Perimeter and Area of a Rectangle at Grade VII of SMPN 4 Palu

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ABSTRACT
The purpose of this study was to obtain a description of the application of cooperative learning model type Think Talk Write can improve student learning outcomes in problem-solving circumference and area of rectangles in class VII Gatot Subroto SMPN 4 Palu. This research is Classroom Action Research (CAR) which refers to the research design of Kemmis and Mc. Taggart namely (1) planning, (2) implementation of actions, (3) observation, and (4) reflection. The subjects of this study were 3 students. This research was conducted in two cycles. The application of the TTW cooperative learning model can improve student learning outcomes in the problem-solving circumference and area of rectangles in Class VII Gatot Subroto SMP 4 Palu through the following stages: (1) *think,* (2) *talk,* (3) *write.* The results of the study: (1) the percentage of classical learning completeness in the final test of action in the first cycle reached 53.84% and in the second cycle reached 76.92%, (2) the observation of the results of teacher activities in the first cycle obtained a total score of 26 or in the good category, and cycle II obtained a total score of 34 or is in a very good category, (3) the results observations of students activities in the first cycle obtained a total score of 29 or in the good category, and cycle II obtained a total score of 34 or is in a very good category. Based on the study results, it can be concluded that the application of the TTW type cooperative learning model can improve student learning outcomes in the problem-solving circumference and area of rectangles in Class VII Gatot Subroto SMPN 4 Palu.

Keywords: *Learning Model, Cooperative, Think Talk Write, Learning Outcomes, Problem Solving, Circumference and Area of Rectangles.*

1. INTRODUCTION

Mathematics is one of the knowledge that is considered to make a positive contribution to the acknowledgment. Therefore, mathematics becomes very important in efforts to improve the quality of education. This implies the importance of mastering mathematical knowledge for each individual and community group to solve problems in life related to mathematical calculations.

Marks in [1] argues that mathematics plays a very important role in providing supplies so that it can function effectively in the technological age. Mathematics must be taught at all levels of education, students who do not understand or even fail to achieve the specified competencies. As a result, starting from elementary school (SD) to the university level.

Mathematics is one of the subjects that are often encountered in everyday life, so it will be easier for students to understand. But in reality, today, many students think that mathematics is a difficult subject. Students assume that mathematics is synonymous with low grades. This is caused by several things, including less interesting learning in class, so students are less interested in taking it seriously. The teacher manages his learning simply by moving from the learning unit to the next learning unit, ignoring

students' motivation to learn is reduced so that their learning outcomes are low.

Based on the results of an interview with one of the seventh-grade mathematics teachers at SMP Negeri 4 Palu, information was obtained that there were still many students who had difficulty in solving the problems given, especially on the perimeter and area of rectangles correctly because of the low motivation of students to actively participate in the teaching and learning process in the classroom. In this material, students are wrong in using formulas and do not solve problems systematically. This results in low student learning outcomes.

Based on the results of interviews and identification test results, the researchers concluded that students did not understand the concept of perimeter and area of a rectangle, students only memorized formulas without knowing the concept, so that in its application, students quickly forgot the formulas that had been studied which had an impact on students' mistakes in solving perimeter and area of rectangle problems. This is because learning is more teacher-centered, which causes students to be less motivated to participate actively in the learning process.

These problems can be overcome by using models, methods, or approaches that are in accordance with the characteristics of students. Teachers must be able to choose learning strategies that can support student development in learning mathematics. Teachers must also make students construct their understanding and not receive full knowledge from the teacher. According to Muhammad [2], the mathematics learning process is not just a transfer of knowledge from teachers to students but a process conditioned or pursued by the teacher so that students are active in various ways to construct or build their knowledge.

The researcher tried to use the TTW type of cooperative learning model. This learning model makes students more active and plays a more dominant role than the teacher. The teacher's task in the TTW learning model is only as a facilitator and motivator in learning. Still, the teacher as a facilitator must always monitor the development of student activities and encourage students to achieve the goals to be completed.

The TTW type cooperative learning model has 3 important components, namely *Think, Talk, and Write*. *Think*, in this case, can develop students' creative thinking. At the stage *Think*, students will read the text in the form of questions or LKPD, then understand the contents of the LKPD and make a small note individually about the ideas that are known in the reading or text in their language. *Talk*, in this case, can train students to communicate using their language. In the Talk stage, students will discuss with their group friends the ideas obtained from *the Think stage*. *Writ*ing can train students to construct their knowledge gained from previous steps through writing.

Based on this background description, the researcher conducted a study on applying the TTW type cooperative learning model to the problem-solving material for the circumference and area of a rectangle in class VII Gatot Subroto SMPN 4 Palu.

2. METHOD

The approach used in this study is qualitative and is supported by a quantitative approach. The qualitative approach produces natural data from the activities or behavior of the subjects observed during the learning process. A quantitative approach is used when calculating the analysis of the final test of action. This approach is used because the researcher wants to investigate and present the data according to what happened during the research. This type of research is classroom action research (CAR). The design of this study refers to the model of Kemmis and Mc. Taggart in [3] consists of four components, namely planning, action implementation, observation, and reflection. The subjects of this study were the seventh-grade students of Gatot Subroto SMPN 4 Palu who were registered in the 2018/2019 academic year, which consisted of 29 students. The selection of research subjects was based on the advice of the seventh-grade math teacher Gatot Subroto at the school concerned.

This study's data collection techniques were observations, interviews, field notes, and data analysis tests carried out referring to the qualitative data analysis of the Miles and Huberman [4] model, namely data condensation, data presentation, and conclusion drawing. The success of the actions taken can be seen from the teacher's activities in managing learning in the classroom and student activities during learning using the TTW type cooperative learning model.

The success of the action can be seen from the results of students' written tests, teacher activities in managing learning, and student activities in participating in learning. Each cycle's teacher and student activity data are at least categorized as good or very good for each aspect on the observation sheet. Student learning outcomes data are said to be increasing if they meet the minimum completeness criteria (KKM) that apply in class VII SMPN 4 Palu, which is reaching a value of ≥ 75.

3. RESULT AND DISCUSSION

This research is a Classroom Action Research (CAR) that aims to improve student learning outcomes in solving perimeter and area of rectangles in class VII Gatot Subroto SMPN 4 Palu. This research was conducted in two cycles, each cycle consisting of 4 components, namely (1) planning, (2) action implementation, (3) observation, and (4) reflection. As stated by Kemmis and Mc. Taggart in [2].

The study begins by giving a pre-test of 3 numbers to students before entering the learning material, namely a rectangle that aims to determine students' initial abilities so that it becomes a guideline for deciding heterogeneous study groups and informants in research. The initial test material given is the material of rectangular shapes, the definition of rectangles, and the properties of rectangles. The initial test was followed by 26 students of class VII Gatot Subroto SMP Negeri 4 Palu. 26 students who were present at the time of learning were formed into 6 study groups based on the students' level of ability, which consisted of 4-5 people in each group. Next, the researcher determined the informants with the consideration of the mathematics teacher in class VII as many as 3 students, namely students with the initials MFPA (high ability), PNL (medium ability), and NDR (low ability). The initial test results showed that of the 26 students, 11 students achieved completeness scores while the other 15 students had not yet achieved completeness scores. In general, students are still wrong in writing down the characteristics of rectangles, wrongly determining the value of the parallel sides in the rectangle and wrongly determining the equal angles.

This research consists of two cycles. Each cycle is carried out in two meetings with details of the first meeting to implement the action and the second meeting for the final test of the action. The material presented in the first cycle is the material of the perimeter and area of a rectangle, while the material presented in the second cycle is the material for solving rectangular problems.

The core activity starts from the *Think* stage. In the *Think* stage, *the* researcher directed students to read the text on the worksheet and make small notes individually. Then the students put their ideas on their paper about what they know in the LKPD using their language. In cycle I, some students still had difficulty writing down their thoughts in the form of small notes. Therefore, the researcher directed back to each student who did not understand making small notes. Most students can take small notes, among some small notes made by students are shown as follows:

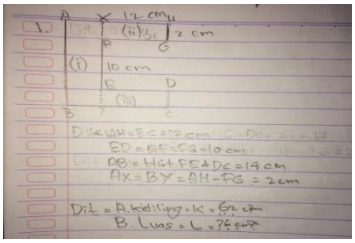

Figure 1 Small Notes of MFPA Students in Cycle I

Figure 1 shows the results obtained at the Think stage that MFPA students can write down the ideas contained in the LKPD in their language. Seven other students also made small notes like Figure 1.

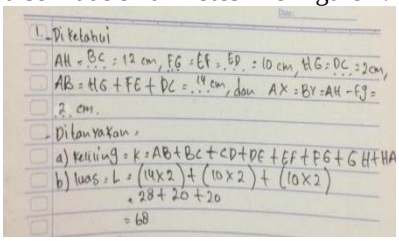

Figure 2 Notes of PNL Students In Cycle I

Figure 2 shows that PNL students did not write down notes they made using their language, but PNL students only wrote back what was on the LKPD, and eleven other students wrote as in Figure 2.

The activity at the *Talk* stage is that the researcher directs students to discuss the small notes they have made with their group friends. The researcher guides as needed for students who have difficulty making small notes. In the first cycle, some students were not brave enough to discuss small notes, while in the second cycle, all students had started to discuss small notes.

After the students discussed the contents of the small notes, the researcher directed the students to experiment to solve the problem of the perimeter and area of a rectangle according to the instructions on the LKPD. In the first cycle, when students work on the LKPD, some groups have not worked together optimally, namely group 3. At this stage, students are expected to complete the LKPD. The results at *Talk* the stage are that students can complete the perimeter and area of a rectangle through discussions with their groups. In cycle II, all groups have cooperated optimally. The results at the *Talk* stage are students can solve problems solving the perimeter and area of a rectangle in everyday life through discussions conducted by students with their groups.

The activity at the *Write* stage is that the researcher directs students to make conclusions from the discussion results into individual writing. In the first cycle, the results obtained are that most students can make conclusions individually. In cycle II, the

number of students who wrote findings from the discussion results, which was initially 10 students whose findings were incomplete in cycle II, was reduced by 5 students.

After the students wrote the conclusions, the researcher asked one of the groups to present the group discussion results and write them on the whiteboard. In the first cycle, it was seen that the students did not brave enough to come to the front of the class to present the results of their work. The researcher also allowed other groups to respond to the answers. The presentation went well even though high-ability students dominated it. In cycle II, it was seen that students were already brave enough to come to the front of the class to present the results of their work by being asked for their willingness by the teacher, and students looked much more active when given time to respond, not only high-skilled students.

In the second meeting of each cycle, the researcher gave the students the final test of the action. The final test of the first cycle of action consisted of 2 questions and the second cycle of the second action test consisted of 2 questions. The following are the answers to the final action tests of the cycle I and cycle II, respectively, as shown in Figure 3 and Figure 4.

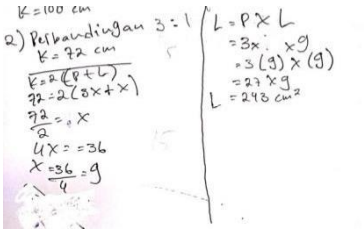

Figure 3 Answers to the Final Action Test for Cycle I NDR Students

Figure 3 shows that students have been able to solve the problem of the perimeter and area of a rectangle even though there are still some mistakes, namely forgetting to write down what is known and asked from the questions and not writing conclusions from the questions. NDR does not write down the length and width of the comparison, students make mistakes in adding and solving steps that are not sequential.

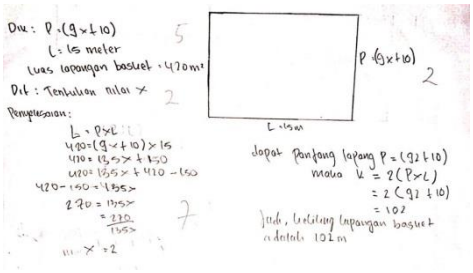

Figure 4 Answers to the Final Action Test for Cycle II NDR Students

Figure 4 shows that students have solved problems solving the perimeter and area of a rectangle even though there are still some mistakes, namely, students forget to write down the perimeter of the question and are wrong in substituting the value of *x*.

The final test results obtained in the first cycle showed that from 26 students who took the test, 14 students completed or got a minimum score of 75, and 12 students who did not complete or scored less than 75. The percentage of classical completeness achieved was 53.84%, which still has not reached the minimum classical completeness percentage of 75%. These results indicate that there are still shortcomings in the implementation of learning, so improvements need to be made for the next cycle.

The final test results obtained in the second cycle showed that from 26 students who took the test, 20 students completed or got a minimum score of 75, and 6 students who did not complete or scored less than 75. The percentage of classical completeness achieved was 76.92% who have reached the indicator of the success of the action, namely 75%.

The aspects observed in the teacher's activities in managing learning using the TTW model in each cycle, namely: (1) presenting information to students about the problem solving material of perimeter and area of a rectangle, (2) providing opportunities for students to ask questions about material studied that has not been understood, (3) dividing students into heterogeneous groups consisting of 4-5 students, (4) giving problems in the form of LKPD, (5) directing students to read the text on the LKPD and making small notes individually about what they know and understand in the LKPD, (6) directing students to discuss the small notes they made with their group friends and directing students to work on the LKPD, (7) monitor the student activities and guiding students who have difficulty as necessary, (8) directing students to write down the results of the discussion on the LKPD , (9) asked representatives from each

group to present the results of their discussions and other groups to respond, (10) give awards to groups that work well, for example asking all students to applaud. During the first cycle of learning, the results obtained from observers on the activities of teachers or researchers showed that learning by applying the TTW type cooperative learning model was good. This was indicated by the percentage of the total score from the observers, namely 65%, which was in the good category. When learning cycle II, the observations obtained by observers on the activities of teachers or researchers indicate that learning by applying the TTW type cooperative learning model has been carried out well. This is indicated by the percentage of the total score of 85%, which is in the very good category. The researcher saw that the teacher's activities in learning using the TTW type cooperative learning model had shown an increase from the previous cycle.

Aspects observed in students' activities in participating in learning using the TTW model in each cycle, namely: (1) listening to the teacher's explanation, (2) asking about material that has not been understood, (3) joining the group, (4) taking The LKPD that has been distributed to each group, (5) reads the LKPD and makes small notes individually about what is known and unknown in the LKPD, (6) discusses with group friends and discusses the contents of the notes made and works on the LKPD in groups, (7) ask questions about things that are not understood, (8) write down the results of the discussion on the LKPD, (9) present the results of group discussions and other groups provide responses, (10) receive assessments from the teacher and give awards to groups that have presented the results of their group work. The results obtained from observers on student activities during the first learning cycle indicate that learning by applying the TTW type cooperative learning model is good. This is indicated by the percentage of the total score of 72.5%, which is in the good category. However, several aspects have not been implemented in accordance with the RPP that has been prepared. Namely, there are still many students who are less active in responding to other groups. Some students let other friends in their group work on the questions in the worksheet given. Therefore, researchers need to motivate students to be more active in participating in learning in the next cycle. The results of the second cycle of observations obtained from observers on student activities indicate that learning by applying the TTW type cooperative learning model has been carried out very well. This is indicated by the percentage of the total score of the observers, which is 85%.

Before the implementation of the Think *(thinking)* stage, the researchers first briefly presented the material. Researchers provide information on the main points of the material studied to students, called class presentations. This is done so that students get basic information about the material to be developed in groups. This is in accordance with the opinion of Usman [5], which states that class presentation means providing information on the basic knowledge and skills needed by students in developing the concept of the material learned in group activities.

The next stage is the *Think* stage. At this stage, the researcher first distributed LKPD. Then the researcher informs the students to read and understand the contents of the questions in the LKPD. Students make small notes that aim to analyze the purpose of the content of the questions in the LKPD and as a guide to facilitate discussion. This is in line with Widerhold ([6]), which states that taking notes means analyzing the purpose of the text and examining the written materials. In addition, Narode ([6]) also says that a reading text is followed by a guide that aims to facilitate discussion and develop students' mathematical concepts. At the stage of *Think* the first cycle, some students were able to write down their knowledge related to the LKPD given, and some other students made a mistake in writing small notes because they only rewrote the text in the LKPD.

However, during the stage of the second *Think* cycle, most of the students were able to write down their knowledge related to the ideas contained in the LKPD, and other students wrote that their knowledge was still incomplete. The next stage is the *Talk* (talking or discussing) stage. The researcher directs students to discuss the small notes they made with their group friends to solve problems in the LKPD together. This is done so that students can communicate well between students and teachers, making it easier for them to find answers on the LKPD and understand the material. Yamin and Ansari (2012) stated that good communication or dialogue between students and teachers could improve understanding. The results obtained at the stage of *Talk* the first cycle were students in each group discussing small notes and writing down solutions on the LKPD. This can be seen when students ask the researchers things that have not been understood. However, only one to three students were actively involved in each group. This is because the student is lazy, and the student is not happy with the group's division. There was an increase from the first to the second cycle; namely, most of the students were active in discussing and taking small notes. This can be seen through the collaboration and discussion

carried out by students with their group members. Students in each group are more daring to ask questions that have not been understood by researchers or friends who have high abilities. Then students who are not happy with their group division friends have started to get used to working with their group friends. Meanwhile, the researcher acts as a facilitator and motivator whose task is to observe, motivate, direct students during the discussion, and guide students who are having difficulties. Sliver and Smith ([6]) state that the teacher's task is to monitor and assess student participation in discussions and decide when and how to encourage each student to participate.

Activities at the *Write* stage are researchers directing students to write down the results of their discussions about solving problems in the LKPD. Students are asked to fill in the blanks in the LKPD according to the results of conversations with their group friends. This is in accordance with the opinion expressed by Hamdayana [7], which states that writing activity means constructing ideas after discussing between friends and telling them through writing. The results obtained at the stage of *Write* the first cycle are that some students begin to write their answers on the LKPD by filling in the blanks that have been provided. However, some students are still having difficulties in answering the questions in the LKPD, so the researcher assists as necessary to the students who have difficulty solving problems as expected in LKPD. In cycle II, there was an increase from cycle I; namely, most students began to write their answers on the LKPD by filling in the blanks that had been provided. In addition, there are still one to two students who still have difficulty answering the questions in the LKPD. However, the assistance provided by the researcher was less than in cycle I because students were able to write down their answers well. This makes it easy for students to forget the material being taught.

Next, the researcher asked one of the group representatives to present the results of the group discussion. This is done so that class discussions occur so that students can share their opinions. This is in accordance with the opinion of Hamdayana [7], which states that the presentation is intended so that students can share opinions in a larger scope, namely with classmates. After that, the researcher allowed other groups to respond. Furthermore, the teacher provides feedback on student responses. The presentation went quite well in the first cycle, although high-ability students still dominated those who responded. In cycle II, the presentation went very well; not only did students with high abilities react to the presentation, but all students actively responded to other groups presenting.

Researchers guide students to make conclusions from the material that has been studied in the closing activities of the implementation of the action. The conclusion obtained by students in the first cycle of learning is that students have been able to solve the problem of the perimeter and area of a rectangle.

Together with the mathematics teacher and observer, the researcher reflected on all the learning activities carried out after the first cycle of learning ended. This reflection is carried out to find out the shortcomings that occur in implementing the first cycle and recommendations for improvement activities in the next second cycle. This is in accordance with the opinion of Arikunto [3] which states that reflection is an activity to analyze data that has been obtained based on initial tests carried out before learning activities take place, observations, field notes, and interview results as a basis for improving the next cycle plan if it is still needed.

The results of teacher observations in cycle I showed that the teacher's activities in managing learning were not optimal because the researcher directed only a few students in making small notes from some students who had difficulty. The researchers were still not skilled in managing time because some students in several groups had not finished working on the LKPD in the allotted time. The results of the teacher activity observation sheet in the first cycle obtained a total score of 29. This indicates that the teacher's activity in learning using the TTW type cooperative learning model is in a good category. In cycle II, the teacher has been maximal in guiding students to make small notes, and the teacher has optimally managed the time. The results of the teacher activity observation sheet in cycle II obtained a total score of 34. This indicates that the teacher's activity from cycle I to cycle II has increased using the TTW type cooperative learning model, which is in the very good category.

The results of observations of student activities in the first cycle, namely, students are still less active in learning. Students tend to be still not brave enough to express opinions or ask questions that have not been understood; students with high abilities still dominate group work. The student observation sheets in the first cycle obtained a total score of 26 or were in a good category. In cycle II, there was an increase. Namely, students were more active in this case; it could be seen when students dared to express their opinions, asked if there was something they did not know, students were able to discuss, solve LKPD questions in groups, were able to conclude the material well. Students were able to work equally

well when solving problems in the LKPD. The student observation sheets in cycle II obtained a total score of 34 or were in the very good category.

The results of the final action test in cycle I showed that from 26 students who took the test, 14 students completed or scored 75, and 12 students who did not complete or scored 75. The percentage of classical completeness achieved was 53.84% or not reached the percentage of classical completeness yet, so it is necessary to make improvements to the process of implementing learning both from teacher activities and student activities by applying the TTW type cooperative learning model so that it is expected to improve student learning outcomes for class VII Gatot Subroto in the next cycle.

The results of the final action test in cycle II have increased from 26 students who took the test, 20 students completed or obtained a score of 75, and 6 students who did not complete or received a score of 75, so that the percentage of classical completeness of students in cycle I was obtained, 53.84% experienced an increase in the second cycle, 76.92%.

Based on the results and discussion above, it is found that the activities of teachers and students have increased. Student learning outcomes also improve because students no longer have difficulty solving rectangular problems, which are marked by students' ability to solve problems of perimeter and area of rectangles. Students can solve the problems of perimeter and area of rectangles.

4. CONCLUSION AND SUGGESTION

4.1. Conclusion

Based on the research and discussion results, the researchers concluded that the application of TTW type cooperative learning could improve student learning outcomes in solving problems of perimeter and area of rectangles in class VII Gatot Subroto SMPN 4 Palu by following the stages of cooperative learning type TTW.

The stages of implementing the TTW type cooperative learning model in this study are: 1) *Think*, 2) *Talk* and 3) *Write*. Phase activities *Think*, the students read the text in the form of questions. In this stage, students individually think about possible answers (completion strategies) and make small notes about the reading ideas in their language. The answers or ideas written by students do not need to be correct. The most important thing is that students can state reasons that support each of their opinions.

Activities at the *Talk* (talking or discussing) stage, where students discuss the small notes they have made at the *Think* stage with their group friends to find solutions to the problems given.

Phase activities *Write*, the researchers directed students to write the results of the discussion on resolving the existing problems in LKPD. Writing activities will help students make connections and also allow teachers to see students' concept development.

4.2. Suggestion

The researcher's suggestion is to pay attention to the conclusion above, namely in carrying out mathematics learning. It is hoped that the teacher can make the TTW learning model an alternative that can support efforts to improve students' understanding, especially in solving perimeter and area of rectangles.

For researchers who want to apply the TTW type cooperative learning model, it is necessary to pay attention to time and class arrangements to run according to the achieved learning plans and objectives.

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