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EFFORTS TO IMPROVE STUDENT LEARNING OUTCOMES IN MATHEMATICS THROUGH REALISTIC APPROACH IN CLASS VII SMP NEGERI 13 GORONTALO

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ABSTRACT
Learning mathematics so far still shows relatively low results. This is due, among others, to the strategy, model, technique and approach used is monotonous. This study aims to see the effect of a realistic mathematics learning approach on mathematics learning outcomes . As subjects in this PTK were class VII students at SMP Negeri 13 Gorontalo. Students in these subjects are considered to have problems in congruence material. This is shown by the results of previous observations.The data collection tool used is the instrument of observation and analysis of the results of daily tests .The data analysis technique used is a qualitative analysis taken from observational data from Cycle 1 to Cycle 2 which are converted to table l qualifications, then to table l daily returns. Testing the Classroom Action Research (PTK) hypothesis is based on the results of observations through action cycles during the learning process and the results of daily tests.This research produced two findings namely: (1) overall learning achievement can be increased in the learning process. This is indicated by an increase in the score obtained from observations and the qualification of the assessment component " **good enough"** to **"good and very good"** or from category **C** to categories **B** and **A.** (2) Realistic learning will be able to improve learning outcomes on congruence material.

Keywords: realistic mathematics learning, mathematics learning outcomes.

INTRODUCTION

To face the challenges of a dynamic, developing and progressively advanced era, human resources who have high-level intellectual skills are required which involve logical, systematic, critical, careful, creative reasoning abilities and in communicating ideas or in solving problems. These abilities can be developed through education which is basically a process of assisting humans in developing themselves so that they are able to face all changes and problems with an open and creative attitude without losing their identity as stated in our National Education goals. In line with the thoughts mentioned above, according to Sumar mo (2004: 2) mathematics teachers should master a collection of knowledge which is then passed on to students to think critically, use reason effectively and efficiently, and instill the seeds of a scientific, disciplined and responsible attitude. . Therefore how important mathematics education is given in schools from elementary, secondary to tertiary education. Even the measure of student achievement is often described by their achievements in mathematics. This is possible because most mathematics lessons are involved with other subjects so that if a student has a good understanding of mathematical concepts, he will easily be able to learn other subjects. Likewise with what was stated by Cockroft (in Abdurrahman, 2002: 32) about the need for mathematics lessons to be given at school. According to him, mathematics needs to be taught in schools because it is always used in all aspects of life, and all fields of study require mathematical skills.

One of the objectives of learning mathematics at school is to prepare students to be able to use mathematics as a mathematical mindset in everyday life and in studying various sciences (Diknas, 2002: 11). Several experts seem to have the same perception of that goal. Davis (1960: 3) describes many goals of teaching mathematics, one of which is to contribute to the problems of science, engineering philosophy, and other fields. Likewise, the opinion of Cornelius (in Ruspiani, 2000: 2) states that the purpose of teaching school mathematics is to provide the necessary tools and skills for use in the real world, everyday life. and with other subjects.

Based on the reality on the ground, not as good as expected. Indicators of low quality learning are usually measured by the low learning outcomes achieved by students so far. One of the symptoms of the low quality of education can be seen from the results of the data on the average value of mathematics in the last five semesters at SMP Negeri 13 Gorontalo . The average score of students' mathematics subjects in the odd semester is still low , while in the even semester of the same academic year it has increased but is also still below the maximum completeness. By paying attention to the results of the completeness percentage above, the benchmark is the extent of the teacher's success in the class. It is realized that improving the quality of graduates is determined by many factors, and one of them is the teacher. In order to carry out teaching tasks properly , teachers must be able to master the material, present material according to the cognitive structure of students and choose the right method. Many efforts have been made to improve the quality of learning mathematics, both by the government and by various parties concerned with learning mathematics at school. These efforts include: (1) teacher upgrading, (2) teacher education qualifications, (3) curriculum renewal, (4) application of new learning models or methods, (4) research on students' difficulties and mistakes in learning mathematics . However, these various efforts have not achieved optimal results, due to various obstacles in the field. As a result, until now the quality of learning mathematics in Indonesia is still low.

Efforts that can be made by the teacher are changing the mindset, replacing, concocting, changing the strategy, the approach method used, in order to create a learning situation in the classroom that is creative, innovative, and fun. One of the approaches in question is an approach that brings children to the reality encountered in everyday interactions.

The approach to learning mathematics that uses everyday life as material and the starting point for learning is a realistic approach. The realistic approach, which has been researched and developed in the Netherlands starting in 1970 is known as Realistic Mathematics Education (RME) or in Indonesian is Realistic Mathematics Education which is operationally called Realistic Mathematics Learning (PMR) has shown satisfactory results. Realistic Mathematics Learning Approach is expected to provide space for students to develop their creativity.

With a realistic mathematics learning approach, students become the focus of all activities in all teaching and learning processes in the classroom. This makes students active in learning activities. The learning experience gained by students through acting, searching and finding their own activities so they don't easily forget. For this reason, the teacher teaches not only to impart knowledge, but to create situations that lead students to dare to ask questions, dare to express their own opinions and be able to accept opinions from their friends and discover for themselves the facts or concepts being learned. Thus, a realistic mathematics learning approach can provide new experiences for children to find or seek new things by using all the knowledge, skills and reasoning that they have before. Therefore,

teacher creativity is very important in designing learning with a realistic mathematics learning approach according to their respective environments.

The teacher functions as a guide, negotiator in selecting the various opinions of students through solving contextual problems in everyday life. Teachers are also expected to respect students. Students work on contextual problems that come from their environment by using an informal approach that is based on student experience.

Mathematics material in junior high schools that is often encountered in everyday life includes the subject of Congruence. This material is new material for class students, because it has never been explicitly encountered in previous classes. The material on this subject, especially the subject of congruence, is the basis for further mathematics learning, for example in high school or in college material. With an understanding of congruence that is solid and memorable, it is hoped that students will not experience difficulties in learning mathematics in the future.

The learning process carried out in schools so far is learning with a conventional approach, namely smart students dominate the discussion too much, so that the involvement of students who have slow reasoning power in the learning process is very lacking. In this case, slow learners are no longer learning subjects but learning objects. This greatly reduces the responsibility of students for their learning tasks which they should be required to develop their abilities to find, investigate and express all the results of processed information received in their minds during the learning process.

Teachers tend to teach mathematics in an abstract way that conflicts with children's cognitive development. In addition, the learning process is more concerned with results and pays less attention to the learning process of students. To pursue curriculum targets, the teacher breaks the material into small parts, such as giving theory, giving examples and followed by practice questions, by making the teacher the center of learning. With this conventional approach, the results obtained are not as expected. With this conventional approach it also tends to make students passive in accepting what is given by the teacher, so that creativity and mastery of concepts are less stable. This is not in accordance with the opinion that the teaching and learning process of mathematics needs to involve students optimally. Along with the above opinion, teachers are also reminded that education is not a process of filling empty bottles, meaning that teachers need to pay attention to the relationship between subject matter and the context of students' lives.

One of the important principles of educational psychology is that teachers not only provide knowledge to students, but also must help students to build knowledge from within their minds. Teachers can help this process, by using a learning approach that makes information very meaningful and relevant to students. Students are given the opportunity to find or apply their own ideas and invite students to consciously use their own approaches to learning, one of the characteristics that students need to internalize is personal responsibility in an effort to achieve goals.

The purpose of mathematics education is to provide students with the ability to use mathematics in solving various problems encountered in various situations. In addition, learning mathematics is closely related to the motivation of participants in learning . Mathematics learning outcomes which have tended to be low so far indicate low achievement motivation in learning mathematics. The role of motivation to learn mathematics in everyday mathematics learning can be seen from the students' enjoyment in learning mathematics , being diligent in working on the questions given and always showing enthusiasm in learning mathematics.

THEORETICAL FRAMEWORK

Results Learning Mathematics

Mathematics is one of the six types of science material (Dimyati and Mujiono 2002 : 5). The six types of science material are, mathematics, physics, biology, psychology, social sciences, and linguistics. Because mathematics is a type of science material, mathematics is one of the disciplines studied in schools. The characteristics of mathematics can be deductive, logical, as a formal number symbol system, abstract structure, symbolism, and constitute a collection of postulates of the human mind, or basic inspiration as well as thinking activity.

Due to such characteristics of mathematics, mathematics can be seen as a scientific discipline as stated by Ritzer (in Dimyati, Mudjiono 2002 : 10) that mathematics is an abstract idea that has a basis for studying it. Meanwhile, Suparno stated that constructivism views that in order to learn mathematics, what is important is how to form understanding in children. This means that learning mathematics emphasizes the child's learning process, while the teacher functions as a facilitator (in Uno, 200 8 : 20). In the view of constructivism, people studying mathematics always form their own understanding. According to Atkinson, people learn not only to imitate or reflect what is taught or read, but to create their own understanding. The question is what is the essence of learning mathematics? The essence of learning mathematics is a mental activity to understand the meaning and relationships and symbols, then apply it to real situations.

As previously described, learning is essentially an activity carried out by someone to find out something, resulting in a change in behavior within him, be it a change in knowledge, skills, attitudes or skills. Therefore the behavioristic school views that learning occurs when there is a change in behavior as a result of practice and experience. In another view, the cognitive school states that learning is a complex process that occurs in the minds of people who learn, only as a result of that thought process.

In relation to mathematics as the science of organized structure and logical and deductive proof, it means that learning mathematics must be tiered and structured according to a hierarchy. This means that a person studying mathematics must use his mind to understand mathematics by following rules and sequences, namely starting from understanding elements that are not defined, such as points, lines and curves, to understanding elements that are defined, such as straight lines, circles, angles and so on. , understanding the axioms or postulates, such as the angle formed by two intersecting rays, and so on based on these axioms or postulates can be derived postulates or theorems, such as the sum of the angles in a triangle 180°, one point outside the line a straight line can be drawn through that point. The theorem is formed into a pattern that must be accepted deductively, meaning that the truth is arranged based on facts that can be accepted logically and generally apply. Therefore the logistical school views that in learning mathematics one must use a logical way of thinking, namely logical concepts through clear and precise formulation, theorems that have been formulated can be derived from axioms or postulates by using deductive reasoning. Observing the examples above, it can be understood that learning math topics should not be arbitrary, there must be prerequisites, namely learning mathematics at a higher stage, must be based on a lower stage meaning, if someone wants to learn concept C which refers to the concept A and B, it is necessary to understand concept A in advance. Without understanding concept A, it is impossible for those people to understand concept B. Therefore, learning mathematics must go through definite paths that are arranged logically and hierarchically in the sense

of gradual and sequential and based on past learning experiences (Paneo, 2003 22). Based on previous learning experience, a student will easily transfer to a new or next lesson.

To understand mathematical concepts, it is not enough for students to just memorize existing symbols, definitions, or theorems, but what is more important is to understand, study, examine in depth each of these concepts, so that they are easy to apply in various things, situations or real situations. In addition, students have to practice solving math problems a lot, so that they better understand and explore each concept and are more skilled in solving math problems. This is in accordance with the opinion of Dienes (Russefendi: 1985, 21) states that learning mathematics which takes precedence is understanding rather than memorization, because memorization that is trained repeatedly is less meaningful and meaningful, if students do not understand what they memorize. Dienes' opinion was confirmed by the Gestalt school which stated that in teaching mathematics more emphasis is placed on understanding and meaningful learning. They agree that memorizing exercises are important, but memorizing exercises are done after students gain understanding.

Understanding and understanding of every fact, concept, principle and skill in mathematics is highly expected. Because someone will not be able to solve mathematical problems, if they do not understand the facts and concepts contained in the problem, the concepts and principles used in solving the problem, as well as the operational steps used. Problem solving in mathematics can be done, if students understand the problem, that is, students understand the facts, what concepts are contained in the problem; 1) thinking about a problem solving plan, meaning that students are able to think about what concepts and principles are most appropriate to use in solving problems; 2) carry out problem solving, meaning that students have the ability to solve problems; and (3) re-check whether the solution method used is correct.

About Sukmadinata's learning outcomes (2005 : 102) states that learning outcomes or achievements are the realization or expansion of potential skills or capacities possessed by a person. Meanwhile Sudjana (1998 : 22) states that learning outcomes are the abilities possessed by students after they receive their learning experience and are a measure of the success of a teaching and learning process, in the form of mastery of knowledge, skills and attitudes obtained through tests.

Bloom (in Sudjana, 19 9 8 : 135) said that the ability of students is based on three domains, namely cognitive, affective and psychomotor domains. Of the three domains, it is the cognitive domain that is often used to measure learning outcomes. There are six cognitive aspects as abilities that need to be measured in the teaching and learning process, namely: knowledge $(C_1$, understanding ($C_2)$, application (C_3) , analysis (C_4), synthesis (C_4), and evaluation ($C_6)$.

The six types of learning outcomes can be explained as follows: Knowledge is the most basic aspect in Bloom's taxonomy. Often called the memory aspect. However, this type of knowledge is very important as a prerequisite for mastering and learning other higher levels of ability. At least know memorization as a bridge to master other levels of ability.

Understanding abilities are generally emphasized in the teaching and learning process, students are required to understand or understand what is being taught. In other words, not only memorizing verbally, but understanding the concept of the problem or fact being asked. In the level of application ability (implementation) requires the ability to use general ideas , procedures or methods, principles

and theories in new and concrete situations. Application is the use of an abstraction in a concrete or special situation, the abstraction is in the form of an idea, theory or technical guide.

According to Dimyati and Mudjiono (200 2 : 19) learning outcomes, namely a teaching and learning activity that requires the achievement of teaching objectives where student learning outcomes are marked by a value scale. Learning outcomes are one of the important factors for measuring a person's success in learning in the form of abilities possessed after he receives a learning experience.

Learning outcomes by a person can be seen from his behavior, both behavior in the form of mastery of knowledge, thinking skills and motor skills. Learning outcomes are the result of an interaction of acts of learning and acts of teaching or an increase in students' mental abilities. Student learning outcomes are assessed from three aspects, namely knowledge, attitudes and skills, after participating in the teaching and learning process. The expected student learning outcomes are an ability that is in the lowest cognitive domain area until the learning outcomes show that students have carried out learning actions which generally include knowledge, skills and achievement motivation that are only expected to be achieved by students.

Based on the description above, it can be stated that what is meant by learning outcomes in this study is the ability of students to receive and process information in the form of main ideas as outlined in the form of teaching that is delivered instructionally.

Realistic Mathematics Learning Approach

The learning approach is a way, way or policy that is taken by the teacher or students in achieving learning goals (Ruseffendi 1985, 240). The approach to learning mathematics is divided into two, namely (1) material approach, namely the process of explaining certain mathematical topics with other mathematical material. (2) The learning approach (teaching approach), namely the process of conveying or presenting certain mathematical topics in order to make it easier for students to understand them .

The four differences in learning in mathematics education emphasize the extent to which the approach contains or uses the two components of mathematization. Table 2.1 below shows these differences (the "+" sign means more emphasis on mathematization (vertical/horizontal) and the "-" sign means less /little emphasis on mathematization (vertical/horizontal).

Table 1: Differences in the Four Approaches to Learning Mathematics Based on the Intensity of Mathematics Education

No	Types of learning approaches	Emphasis on mathematics education	
		Horizontal	Vertical
1.	Mechanistic	-	-
2.	Empirical	+	-
3.	Structuralistic	-	+
4.	realistic	+	+

Source: in Hulukati, 2008: 56

Treffers (in Hulukati, 2008 : 56) classifies mathematics education based on horizontal and vertical mathematization into four types: Mechanistic , or 'traditional approach', which is based on "drill-practice" and patterns or patterns, which consider people like computers or a machine (mechanical). In the approximation, neither horizontal nor vertical mathematization is used.

Empirical , the world is reality, where students are faced with situations where they have to use horizontal mathematization activities. Treffer (1991) says that this approach is generally rarely used in mathematics education; s tructuralist , or 'modern mathematician', based on set and game theory that can be categorized into horizontal mathematization but is defined as a world made up of nothing in common with the world of students; Realistic , namely an approach that uses a real world situation or a context as a starting point in learning mathematics (Arfianti, 2004, 22). At this stage students carry out horizontal mathematization activities. That is, students organize problems and try to identify the mathematical aspects of the problem. Then, by using vertical mathematization students arrive at the stage of concept formation.

Based on the various opinions and descriptions above, in this study a realistic mathematics learning approach was used, as a method or systematic way carried out by the teacher to convey material or mathematics subject matter so that the learning objectives as determined can be achieved.

Realistic mathematics education (RME) is a theory in mathematics education that was first developed in the Netherlands. This theory is based on the idea that mathematics is a human activity and mathematics must be related in a real way to the context of students' daily lives as a source of development and as an area of application through a process of mathematization both horizontally and vertically **.** In Indonesian, operationally RME means Realistic Mathematics Learning. Therefore, after going through various adjustments, RME was tried to be developed and implemented in Indonesia under the name Realistic Mathematics Learning (PMR).

Realistic mathematics learning is basically the use of reality and the environment that students understand to facilitate the process of learning mathematics, with the hope that the objectives of learning mathematics can be achieved better than in the past. What is meant by reality are real or concrete things, which students can observe or understand through imagining. Meanwhile, what is meant by the environment is the environment where students are, both the school environment, family and community that students can understand (Soedjadi , 200 1: 2)

There are three main principles in Realistic Mathematics Learning, namely: (1) Guided reinvention/progressive mathematizing , (2) Didactical phenomenology and (3) Self-developed models. These three principles can be briefly explained as follows.

Guided reinvention/progressive mathematizing (rediscovery with progressive guidance/ mathematization process) This principle requires that, in Realistic Mathematics Learning through solving contextual problems given by the teacher at the beginning of learning, with the guidance and instructions of the teacher given in a limited way, students are directed in such a way so, it is as if students are experiencing a process of rediscovering mathematical concepts, principles, properties and formulas, as when the concepts, principles, properties and mathematical formulas are found.

As a source of inspiration for designing learning with a Realistic Mathematics Learning Approach that emphasizes the principle of re -invention, among others, the history of the discovery of mathematical concepts/principles/formulas or procedures or ways of solving students informally can be used. This informal approach to completion can often be interpreted by students when they encounter more

formal procedures. In certain cases these two things can be considered to show that learning has gone through a process of progressive mathematization.

Self-developed models (models built by students themselves). This principle serves as a bridge between informal mathematical knowledge and formal mathematical knowledge. In solving contextual problems, students are given the freedom to build their own mathematical models related to the contextual problems being solved. As a consequence of that freedom, it is very possible to have various models built by students.

At first these various models may still be similar or clearly related to contextual problems. This is a follow-up step from re-invention and at the same time shows that the bottom-up nature is starting to occur. It is hoped that these models will change and lead to better forms towards formal mathematical knowledge. In Realistic Mathematics Learning it is hoped that there will be a bottom up learning sequence , in the following order:

"from a real situation " → "model of that situation" → "model to a formal direction" → "formal knowledge " . (Gravemeijer in Hulukati, 2008 :20)

Realistic Mathematics Learning has five characteristics, namely: 1) the use of context (using contextual problems), 2) the use of models (using various models), 3) student contributions (student contributions), 4) interactivity (interactivity) and 5) intertwining (integrated).

By taking into account the understanding, main principles and characteristics of Realistic Mathematics Learning, as stated above, the steps for the core learning activities of Realistic Mathematics Learning used in this study consist of four steps, namely: (1) Understanding contextual problems, (2) Describing and solve contextual problems, (3) compare and discuss answers and (4) draw conclusions.

METHOD

This classroom action research was conducted at SMP Negeri 13 Gorontalo . Implementation time of action for three months. This study was observed by school supervisors and subject teachers using observation sheets. In this study, learning with a realistic mathematics approach can improve student learning outcomes if after the learning process the learning outcomes of 85% of students can achieve an average value of 75 or more.

Research Procedure

1. Preparation Stage

The preparations made in conducting class action research are:

a. Consult with school superintendents and partner teachers.
b. Hold meetings with teachers to cooperate in implementing research activities so that they can run smoothly
c. Discuss activity plans with partner teachers regarding activities to be carried out
d. Studying the problem as well as creating activity scenarios
e. Prepare activity media tools
f. Prepare an observation sheet for the activity process.

2. Action Implementation Stage

Action Preparation Stage

a. Develop a schedule for implementing actions

b. Develop an Action Plan (RPP) and prepare learning aids, in this case the necessary teaching aids are, ruler, meter, large triangle

c. Make an Observation Sheet

Action Implementation Stage

In this stage, researchers together with partner teachers carry out activities according to activity scenarios that have been planned using learning preparations that must be carried out by teachers in improving student learning outcomes in mathematics, especially congruence material .

Monitoring Stage.

Monitoring and evaluation takes place in each cycle, the results of which are discussed in the analysis and reflection stage. Monitoring and evaluation is carried out through strengthening the implementation of actions using observation sheets that have been made. The researcher was assisted by partner teachers as observers. By using the observation sheets that had been prepared, the observers paid close attention to all the factors observed, both those concerning group guidance actions and the factors of students who took part in the action process, especially the results they showed. Besides the observation sheet, journals and recording devices were also presented as supporting instruments.

For data collection, the instruments used in this classroom action research include:

Teacher Activity Observation Sheet

This teacher's activity observation sheet is in tabular form using a checklist consisting of aspects of assessment and level of assessment. for more details can be seen in the table below

TABLE 2. TEACHER ACTIVITY OBSERVATION SHEET

No.	Rated aspect	Rating Level			Ket
		Q	K	TT	
1.	Make lesson plans				
2.	apperception				
3.	Formulate goals				
4.	Presentation of material				
5.	Time settings				
6.	Student participation				
7.	Material mastery				
8.	Guiding students				
9.	Provide evaluation				

Information:

Q : Exactly

K : Less

ST : Not Exactly

RESEARCH RESULTS AND DISCUSSION

A.Preliminary Stage

Before the research began, the researcher identified the problems that occurred in class VII during the learning process. To get more in-depth information, researchers held special discussions with teachers, especially teachers math . Then the researcher gave the students a questionnaire as an initial reflection which would be used as a basis for determining the focus of the problem in this study . Before presenting the results of classroom action research, data will first be presented on the results of the initial reflections obtained from the student questionnaire. The results of the initial reflection are in Table 1.

Table 3 Student Questionnaire Results as Initial Reflection

No	Aspect	Evaluation	
		Yes	No
1.	Mathematics is a difficult subject	51.61%	48.39%
2.	The teacher never used the cooperative learning model	30%	70%
3.	You feel happy with the method applied by your teacher so far	58.06%	41.94%
4.	You feel motivated to learn when your teacher teaches You want a new learning model	51.61%	48.39%
5.	Are you satisfied with the daily test results that you get	90%	10%
6.		51.61%	48.39%

Table 3 shows that the majority of students at SMP Negeri 13 Gorontalo stated that mathematics was a difficult subject (51.61%) and 51.61% of students were dissatisfied with the test results obtained. Students feel bored with the teaching methods that have been applied so far. All students (93.33%) wanted a variety of learning models, and students felt less motivated to learn with the methods that had been applied so far.

Researchers prepared data in the form of daily test scores from the previous concept (Appendix 2) . From the daily test scores , the teacher and observer divide students into study groups. The formation of groups aims to create a learning community or students learn in groups (Nurhadi et al., 2004).

After that the researchers and observers prepared the learning tools for cycle 1. The steps taken in compiling the learning tools were as follows: (1) compiling observation sheets for the management of cooperative learning (Appendix 3), (2) compiling lesson plans (Appendix 4) , make question cards (Appendix 5), and answer keys.

B. Action Data Description

1. Cycle 1

In cycle 1 consists of 4 stages of action. The action stages in cycle 1 consist of :

a. Action plan

The action plan carried out in cycle 1 is as follows:

1. Prepare learning tools such as lesson implementation plans (RPP), and research instruments such as observation sheets for learning management with a realistic mathematics approach, question cards, and answer keys.
2. Organize division of tasks between researchers and observers. Researchers as executors of action. The observers in this study were colleagues who were tasked with filling out observation sheets for the management of realistic mathematics learning approaches .
3. Prepare the equipment needed in learning activities such as: media, stationery, and paper.

b. Action Implementation

Implementation of the action in cycle 1 is divided into 2 meetings. The first meeting was held in October 2019. The first meeting lasted 2 X 4 0 minutes. The implementation of the action begins with preliminary activities in the form of the teacher opening the lesson and checking students' prior knowledge about the position of two parallel or intersecting lines . This preliminary activity lasts for 10 minutes.

In the main activity, the teacher divides students into study groups then distributes LKS to each group and asks students to read relevant LKS or books. At the time of the formation of student groups rather noisy and crowded. The teacher makes a class presentation followed by questions and answers and asks each group to prepare the tools needed to work on the LKS book . There are some students who are less active in the group. The teacher guides each group to discuss in completing Activities 1 and 2. There are one or two students in each group who are less concerned about the activities carried out by other friends. The teacher asks several groups to present the results of group work and asks other groups to respond. The teacher asks each group to collect their work. The teacher assesses the results of group work. The teacher provides feedback on class discussion activities and gives suggestions on how to do practice questions. The teacher gives awards to the best group. The core activity lasts for 60 minutes .

In the closing activity the teacher invites students to reflect by holding a question and answer orally. The teacher asks students to make conclusions. The teacher gives assignments to do at home. This closing activity lasted for 10 minutes.

The second meeting was held in December 2019 with a time allocation of 2 x 40 minutes. The implementation of the action begins with an introductory activity in the form of the teacher asking several students to write down the answers from the task in the previous meeting on the blackboard. The teacher checks students' prior knowledge about how to determine the size of a circle's angle. The teacher writes the learning objectives on the blackboard. The pre-activity lasted 10 minutes.

In the core activities the teacher asks students to be in their respective groups and asks students to read LKS and relevant books. The teacher makes a class presentation and continues with a question and answer session. The teacher asks each group to work on activities in the LKS . All students look active in group work. The teacher guides students in doing the exercises . The teacher asked each group to stick the results of their group work and asked several groups to present the results of their group work while other groups responded . All group members submit reports on the results of activities. The teacher provides feedback on class discussion activities by giving the correct answer . The teacher gives awards to the best group. The core activity lasts for 70 minutes.

In the closing activity the teacher invites students to reflect by holding question and answer orally. The teacher asks students to make conclusions. This closing activity lasted for 5 minutes.

c. Observation

During the learning activities, observations and assessments were held of teachers and students. Observations and assessments of teachers are carried out by observers by filling out observation sheets for managing learning with a realistic mathematics approach. From the observations, it was found that the implementation of learning as a whole was going quite well with an average of 78.75 (Appendix 8). In the learning activities that have been carried out, the teacher has tried to appear optimally and fulfill all aspects of learning with a realistic mathematics approach.

Observation and assessment of students is carried out by observer. In cycle 1, not all students enthusiastically took part in the lesson. The results of students' daily tests also did not show satisfactory results. Classical completeness reached 23.07% with an average of 67.15.

d. Reflection

Based on the results of observations and evaluations during the implementation of cycle 1, there are several important things that need to be considered and improved for action plans in the next cycle. In the learning activities that have been carried out, the teacher has tried to perform well and fulfill all aspects of learning with a realistic mathematics approach. From the observations there are several things that need to be improved in the management of learning, including: the teacher does not motivate students in learning and does not guide the whole group in group activities so that not all students are involved in group activities. To overcome this, researchers and observers provide input to each other so that in the next cycle the teacher performs better. The teacher must try to provide equal guidance to all groups so that no group feels neglected and all students are actively involved in learning.

From the results of observations on the learning process there are things that need to be corrected for action plans in the next cycle, namely in cooperative groups, not all students are active in working on activities in worksheets, especially at the first meeting. There are one or two students in each group who are less concerned about the activities carried out by other friends. To anticipate that this will not be repeated in the next cycle, the teacher's guidance must be thorough for all groups and it is hoped that there will be an even distribution of tasks among group members.

Cycle 2

In cycle 2 as well consists of 4 stages of action. The action stages in cycle 2 consist of:

a. Action plan

Based on the reflection results of cycle 1, the action plan for cycle 2 is as follows:

1. Develop lesson plans
2. Prepare research instruments in the form of: daily test question cards (Appendix 11) , answer keys
3. Prepare observation sheets for managing learning with a realistic mathematical approach .
4. Prepare learning media.

b. Action Implementation

Implementation of the action in cycle 2 is divided into 2 meetings. The first meeting was held in November 2019 9 . The first meeting lasted for 2 X 4 0 minutes. The implementation of the action begins with an introductory activity in the form of the teacher checking students' prior knowledge about how to draw corners in a circle . The teacher writes learning objectives. The pre-activity lasted 10 minutes.

In the core activities the teacher asks students to be in their respective groups. The most tertip students and not so crowded. The teacher asks students to read LKS and other relevant books. Almost all students read LKS and books. The teacher makes a class presentation and continues with a question and answer session. The teacher asks students to work on LKS.

The teacher reminds the students that when working in groups, all students in the group must work together. Likewise during group discussion activities and class discussions so that all students are actively involved , both in asking questions and giving answers. The teacher guides students in working on activities and drawing conclusions. The teacher tries to guide all groups. All students in groups work together to complete the task.

The teacher asks each group to stick the results of the group's work on the class wall. All groups stick their work on the classroom wall. The teacher gives value to the results of group work. The teacher asks several groups to present the results of group work and other groups respond . The teacher gives feedback on class discussion activities. The teacher gives awards to the best group. The core activity lasts for 60 minutes.

In the closing activity the teacher invites students to reflect by holding a question and answer orally. The teacher asks about the material that has been learned orally to the designated student. The teacher asks students to make conclusions. This closing activity lasted for 10 minutes.

The second meeting was held in December 2019 with a time allocation of 2 X 40 minutes. Preliminary activities begin with the teacher asking students to collect assignments. The teacher checks students' prior knowledge. The teacher conveys the learning objectives. The pre-activity lasted 10 minutes.

In the core activities the teacher asks students to be in predetermined study groups as in the previous meeting. Students go to the place determined by the teacher. Students are not that crowded. The teacher asks students to read the LKS and other relevant books. The teacher makes a class presentation and continues with a question and answer session. The teacher guides each group to discuss in completing activities in LKS . The teacher tries to serve all groups. All students in groups work together to complete the task. All students are involved in group activities.

The teacher asks each group to stick the results of the group's work . The teacher gives value to the results of group work. The teacher asks several groups to present the results of group work while other groups respond. Teacher gives award to the best group . The core activity lasted for 7 0 minutes.

In the closing activity the teacher invites students to reflect by conducting question and answer verbally. The teacher asks students to make conclusions. The closing activity lasted 10 minutes .

c. Observation

During the learning activities, observations and assessments were made of teachers and students. Observations and assessments of teachers are carried out by observers by filling out observation sheets for managing learning with a realistic mathematics approach. From the observations, it was found that the implementation of realistic mathematics learning as a whole has been going well .

In learning activities, teachers have fulfilled all aspects of cooperative learning. This happens because the teacher has been able to foster student motivation in learning. The teacher has conducted thorough guidance on all groups. The results of daily tests reached an average of 87.00 with a classical completeness of 84.61% (Appendix 14).

d. Reflection

Based on the results of observations and cognitive tests during cycle 2, it was found that the teacher had succeeded in implementing a realistic mathematics learning approach. Learning realistic mathematics approach has been going on with good category (B). The learning implementation of the realistic mathematics approach has increased from cycle 1 with the sufficient category (63.75) to cycle 2 with the good category (87.00).

The management of cooperative learning in cycle 1 has not fully gone well. It can be seen that teachers are less able to manage learning and students are not used to cooperative learning. Students do not understand their task in this cooperative learning. This is due to a lack of teacher motivation and guidance so that most students are passive. Only a small number of students are active in learning activities, both during group work and during class discussions. The time allocation available in the lesson plan was not achieved precisely, where the teacher did not make transitions efficiently when forming groups so that the time available was not enough.

In cycle 2 the teacher was able to manage learning quite well and students seemed to be able to adapt to cooperative learning. Teachers have been able to generate student learning motivation and teacher guidance evenly distributed to all students. Only a small number of students seemed passive in learning activities both during group work and during class discussions. The timing is very good so that the KBM runs according to the scenario. In cycle 2, the teacher has been able to overcome all the things that hinder teaching and learning activities by making improvements to several aspects that are still lacking. Overall cooperative learning activities are going well so that it can be said that the management of learning activities takes place effectively.

In the daily test results data increased from cycle 1 to cycle 2, both from the percentage of classical completeness and the class average. The completeness is 87.00% for classical completeness and 84.61% for class average. This increase is due to the effective management of cooperative learning. This is in accordance with the opinion of Ibrahim (2000), that this model excels in helping students understand difficult concepts and cooperative reward structures have been able to improve student assessment of academic learning and changes in norms related to learning outcomes. Supported by the opinion of Nur et al. (2000) that the benefits of cooperative learning for students with low learning outcomes include increasing the time devoted to tasks, a higher sense of self-esteem, improving attendance, lower dropout rates, greater acceptance of individual differences, disruptive behavior becomes smaller, less interpersonal conflict, less apathy, deeper understanding, greater motivation, higher learning outcomes, longer retention and increased kindness, sensitivity, and tolerance.

Learning The realistic mathematical approach implemented by the teacher has been able to grow and increase student learning motivation so that the learning achievement of class VII students of SMP Negeri 13 Gorontalo increases. Especially the award given by the teacher to the best group. This award has had a positive effect on students. students are more enthusiastic to learn. This is supported by the opinion of Nur (2001) that one way to generate motivation in students is to highlight positive things,

by knowing the strengths of students and using these strengths as a basis for building. Get rid of negativity by not trivializing students' weaknesses but addressing those weaknesses directly by using wise ways.

CONCLUSION

Based on the results of the research discussion, it can be concluded as follows.

1. The learning outcomes of students who are given a realistic mathematical approach are better.
2. There is an interaction between realistic mathematics learning approaches with students and learning outcomes.

   Based on the conclusions and implications of the research put forward, the following suggestions can be made.

1. Because each learning model has its advantages and disadvantages, to measure student learning outcomes, especially the realistic mathematics learning approach, it is necessary to adjust it to the learning objectives to be achieved, the level of ability to be measured, the type and level of education, the nature of each lesson, the time and the scope of the material to be tested.
2. The knowledge and skills possessed by a teacher in applying learning models in class need to be improved.
3. In developing a mathematical approach it is hoped that teachers can consider the characteristics of students who learn.
4. For researchers who intend to continue this research, it is expected to carry out more stringent controls in the entire series of this research.

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