

The Implementation Cooperative Learning Model Course Review Horay (CRH) type to Improvement Of Student's Mathematical Problem-Solving Ability

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ABSTRACT

This research is a kind of classroom action research. The purpose of this research is to know the improvement of student's mathematical problem-solving ability by implementing cooperative learning model Course Review Horay (CRH) type at the twelve science 5 of SMA Negeri 2 Balikpapan academic year 2019/2020 for mathematic's subject is trigonometric function derivatives. This research used Kemmis & McTaggart's. This research also used test, observation, and documentation for collecting the data. The result of this research showed that 1) there was improvement classically on student's result that the mean of student's result on pre-cycle are 53,51 and then in the first cycle the mean of student's result increased of 20,95 from pre cycle to 74,46; and then in the second cycle, that mean increased again of 10,31 from the first cycle to 84,77. 2) there was improvement on the percentages of student's mathematical problem solving ability, which on pre-cycle the percentage was 46,75% then in the first cycle increased of 17 % from pre cycle to 63,73% and then in the second cycle, the percentage increased again of 22,5% from the first cycle to 86,25%. Based on those results, the conclusion of this research is the implementing of cooperative learning model Course Review Horay (CRH) type could improving the student's mathematical problem solving ability at the twelve science 5 of SMA Negeri 2 Balikpapan academic year 2019/2020.

Keywords: Cooperative Learning Model, Course Review Horay, Student's Mathematical Problem Solving Ability.

INTRODUCTION

Students are the main elements of the formation of a learning process, they play an important role in achieving the objectives of the process. Interest and motivation are no less important in achieving a successful learning. Interest and motivation to learn can be found in various ways, one of which is by using positive interactions between students to help the process of learning mathematics. Peer learning is a good learning model to be applied today. According to Indriani (2015, pp. 127-128) the learning model will greatly assist teachers in empowering all potentials possessed by students from various aspects, namely thinking ability and academic ability. In addition, Soeparjo (Indrianie, 2015, p. 128) also believes peer learning will allow students not to feel ashamed in asking questions in learning activities.

From the explanation above it appears that cooperative learning is something that is very much needed in contemporary learning, where students are given the opportunity to be active in finding their knowledge independently. Cooperative learning model is a learning in which students cooperatively or together with other students build knowledge in learning. The cooperative

learning model can also be interpreted as learning where students actively build their knowledge in groups, meaning students do mutual learning with peers to complement each other's understanding of the material being studied (Suprihatiningrum, 2013, p. 191).

Today's learning is often found still using teacher centered learning which is where the teacher is still more dominant in constructing students' mathematical knowledge.

Based on observations made by researchers, the lack of application of cooperative learning in specialization mathematics subjects is one of the special concerns in SMA Negeri 2 Balikpapan, one of them is in class XII Mathematics 5. The teacher has planned learning using a cooperative model, but due to several existing factors, the planning can not be implemented fully. In mathematics learning specialization, teachers in several learning meetings apply direct learning (conventional), namely the teacher has a greater role in the construction of knowledge in students.

Related to these conditions, some students in class XII Mathematics 5 are not very able to participate in learning to the fullest, there are some students who do not pay attention to the explanation given by the teacher, in addition there are also students who do activities that have no connection with mathematics learning specialization, such as playing cellphone, sleeping, or bothering other friends who are studying. This happens because of several factors of learning atmosphere in class XII Mathematics 5, some of them focus on learning mathematics always starts at noon, so many students are tired of following the previous learning so that they become sleepy and unable to follow the learning well. In addition, mathematics learning materials for class XII specialization has entered a stage that is complex enough to be understood so that extra time is needed for students to be able to understand the material being taught. Facing this, the teacher has tried to use several learning methods to foster student interest and learning motivation by using electronic learning media and playing games so that students become more enthusiastic in learning.

Some of the obstacles that have been described previously also have an impact on the mathematical ability of students of class XII MIPA 5, especially the ability to solve mathematical problems. What happens in the field is that the initial test results of the material derived from the algebra function as a precondition for the trigonometric function derivative, ie most of the scores obtained by students do not reach the completeness standard set by the teacher. It can be seen that students still have difficulty in solving the learning material questions that have actually been learned during class XI. Most students are still confused about the elements asked in the problem and how to solve the problem using the formula correctly. This happens because students do not really understand the concept of algebraic derivative functions properly, besides students also feel ashamed to ask the teacher about things that are not understood at the time of learning, the lack of training in working on the problems also causes this to happen.

Mathematical problem-solving ability is one of the types of mathematical abilities students must have. Student ability is measured by how to solve various mathematical problems, starting from determining the information needed to the

way to do calculations to obtain the results of the solution (Lestari & Yudhanegara, 2017, p. 84). As for some indicators that indicate the ability of mathematical solving as follows: 1) Identifying the elements that are known, asked, and the adequacy of the elements needed; 2) formulating mathematical problems and compiling mathematical models; 3) implementing strategies to solve problems; and 4) explain or interpret the results of problem solving.

The research solution determined was to use a cooperative learning model accompanied by a game called Course Review Horay. According to Yuliana (Yulianti, 2017, pp. 10-11) argues that CRH learning is learning that can encourage students to actively participate in learning. Course Review Horay learning is a learning that can create a lively and fun class atmosphere, each group that gets a check list (\surd) vertically, horizontally, and diagonally will shout "HORE" or other yells that are liked (Shoimin, 2014, p. 54). In this study the Course Review Horay game is a game where students in groups will compete with other groups in answering the questions correctly as many times as well as shouting the group's yells when they succeed in answering correctly. This game is done by linking learning material so that students can recall the material that has been taught. Through cooperative learning, researchers estimate that students will be more comfortable being able to ask questions or gain knowledge through peer learning, but student activities are still controlled by the teacher. In addition, by inserting the Course Review Horay game the researchers hope to increase the motivation and interest in learning for students of Class XII MIPA 5, so students can understand well what has been learned so that students' abilities in solving mathematical problems can improve.

The advantages of learning Course Review Horay according to Aris (2014, p. 55) are that the structure is interesting and can encourage students to be active in learning, a method that is not monotonous because it is interspersed with entertainment, so that the atmosphere is not tense, the learning enthusiasm is increased due to the learning atmosphere taking place fun and the ability to work together among students is increasingly trained. While the disadvantages are the opportunity to cheat, the leveling of values between students who are passive and active, and at risk of disrupting the learning atmosphere of other classes.

The research of Ulfa et al (2017) from the University of PGRI Semarang states that using the cooperative learning model type course review horay is effective in building students' mathematical problem-solving abilities that the individual or classical student grades have reached completion. And the percentage of completed learning individual learning is 83.87%. Jayanti and Amir's research (2017) from Muhammadiyah University of Sidoarjo also stated that through learning the review horay course had a major influence on students' mathematics learning achievement by 0.9374. This indicates that there is a good mathematical problem solving ability through learning course review horay so that it will affect students' mathematics learning achievement. Research by Fatma Kumalasari et al (2016), students majoring in mathematics education at the University of Riau with the research title "Application of the Course Review Horay (CRH) Cooperative

Learning Model to Improve Mathematics Learning Outcomes of Class VIII3 Middle School Students 4 Tapung" obtained a conclusion that the application of the model CRH type cooperative learning can show an increase in student mathematical learning outcomes, namely where there is an increase in the average value of students by 25% or there are 17 students out of 24 students whose mathematical grades achieve completeness. Based on these studies accompanied by conditions that occur in the field, the authors are interested in conducting classroom action research entitled Application of Coopertaive Learning Model Course Review Horay (CRH) To Improve Mathematical Problem Solving Ability of Students in Class XII MIPA 5 SMA Negeri 2 Balikpapan Academic Year 2019/2020.

RESEARCH METHODS

This type of research is classroom action research. This research was carried out for 2 months starting from the observation cycle class, pre cycle and cycle implementation. The subjects in this study were students of class XII MIPA 5 in SMA Negeri 2 Balikpapan consisting of 35 students. The object in this study is the ability to solve mathematical problems through the application of the Course Review Horay (CRH) type of cooperative learning model. The procedure of this study uses a classroom action research design model Kemmis & McTaggart.

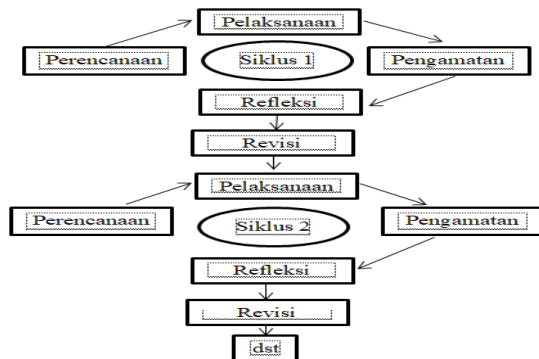


Figure 1. Kemmis & McTaggart Research Model (Hanifah & Julia, 2014)

The study was conducted in two cycles. Data collection techniques in this study were the results of observational data, evaluation test results, and documentation in the form of photos of cycle implementation. The research instruments used included the Learning Implementation Plan (RPP) on the trigonometric function derivative material, learning media in the form of power point slides, tests of mathematical problem solving abilities, and observation sheets consisting of observation sheets of students, teachers, and the implementation of learning models.

RESULTS AND DISCUSSION

Description of Pre Cycle Implementation Data

The description of the pre-cycle implementation data ie students look less conducive to learning and many students are not focused in participating in learning because they are still adapting to the teaching practitioner who is teaching. The initial ability of students to solve the problems given by the teacher is still in the low category because most students have forgotten or do not understand the prerequisite material that is a derivative of the algebraic functions that have been taught during class XI.

Table 1. Obtaining Pre-Cycle Test Results

Jumlah Siswa	Jumlah Nilai Kelas	Nilai Rata-Rata	Nilai Minimum	Nilai Maksimum	Jumlah Siswa Tuntas	Jumlah Siswa Tidak Tuntas
35	1873	53.51	33	83	1	34

In Table 1. shows that only 1 student can meet the KKM value and 34 students do not meet the KKM value. Based on this it can be seen that student learning outcomes in pre-cycle is still relatively low

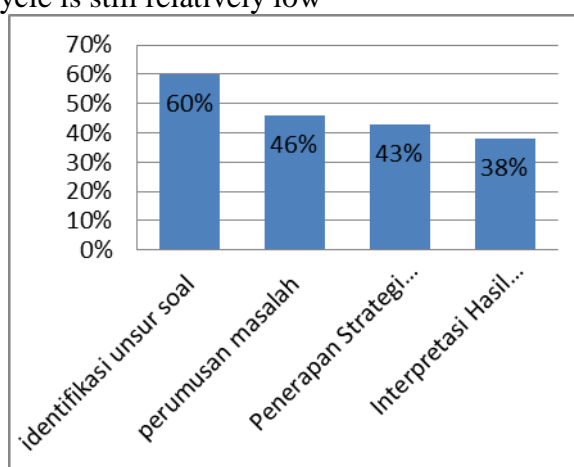


Figure 2. Percentage of Achievement Indicators of Students' Mathematical Problem Solving Ability Indicators

From this percentage in Figure 2 an average percentage of 46.75% is obtained, which is still in the criteria of lack. Based on the things that have been explained above, it is necessary to apply a learning model that is able to increase the activity of students to be able to participate in learning. The researcher determined to use the Course Review Horay learning model which will be carried out in two cycles.

Description of Cycle I Implementation Data

The results of the implementation of the first cycle that most students are still passive in participating in learning, there are some students who are still adapting to the Cooperative Course Review type type of learning, the teacher is too fast when explaining the material to students, the teacher has not been able to organize time well so that there are still some learning steps that are passed, when implementing the Course Review Horay type of cooperative learning model, the teacher reads the questions randomly and the group works on the questions in the allotted time is less effective to apply, because it can break the concentration of students to work on the next questions.

Table 2. Acquisition of Cycle I Test Results

Jumlah Nilai Kelas	Nilai Rata-Rata	Nilai Minimum	Nilai Maksimum	Jumlah Siswa Tuntas	Jumlah Siswa Tidak Tuntas
2606	74.46	63	88	12	23

In Table 2. shows that there is an increase in the amount of 12 students who meet the KKM grades and 23 students who do not meet the KKM grades. The completeness of student learning outcomes in the first cycle has not met the specified success criteria.

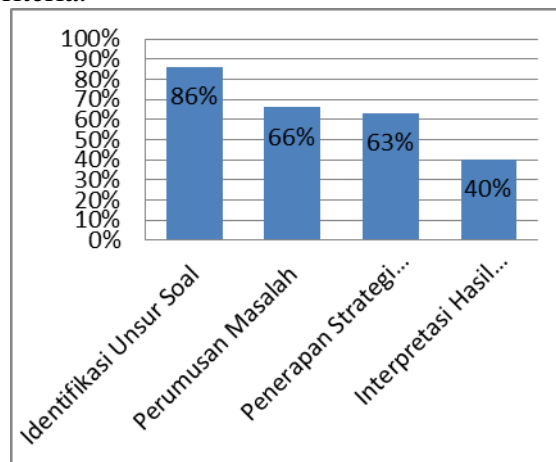


Figure 3. Percentage of Mathematical Problem Solving Ability Indicators on Cycle I Learning Outcomes I

From these percentages in Figure 3 an average percentage of 63.75% is obtained that is in the sufficient category, so the percentage of students' mathematical problem solving abilities still does not meet the predetermined success criteria.

Based on the results of the first cycle that has been done by researchers, researchers determine the need for improvement in the implementation of learning cycle II, so that the results of the study can reach the predetermined success criteria.

Description of Cycle II Implementation Data

The implementation of cycle II is based on the results of reflection cycle I, researchers trying to minimize the deficiencies carried out in cycle I. The conditions of students in the implementation of cycle II are getting used to the application of the Course Review Horay (CRH) type of cooperative learning making it easier for teachers in learning. The results of the implementation of the first cycle that most students have been active in participating in learning, students have adapted to the Course Review Horay (CRH) type of cooperative learning model well, the teacher explains the material to students slowly until students come to understand, the teacher organizes time well enough so that there is only one learning step that is passed as a whole, when calculating group scores on the use of the Course Review Horay learning model. The teacher should be more careful in making calculations so that they can give clear decisions about the winning group. When implementing the Course Review Horay type of cooperative learning model, the use of problem cards is effectively used by students because students can work on problems that are considered easy in advance so as not to waste time on work questions that are considered difficult at the beginning, besides that with the problem cards group members can become active because each member gets the task of doing one of the questions.

Table 3. Acquisition of Cycle Test Results II

Jumlah Nilai Kelas	Nilai Rata-Rata	Nilai Minimum	Nilai Maksimum	Jumlah Siswa Tuntas	Jumlah Siswa Tidak Tuntas
2967	84.77	79	94	35	0

In Table 3. shows that there is an increase of 35 students who meet the KKM grades and there are no students who do not meet the KKM grades.

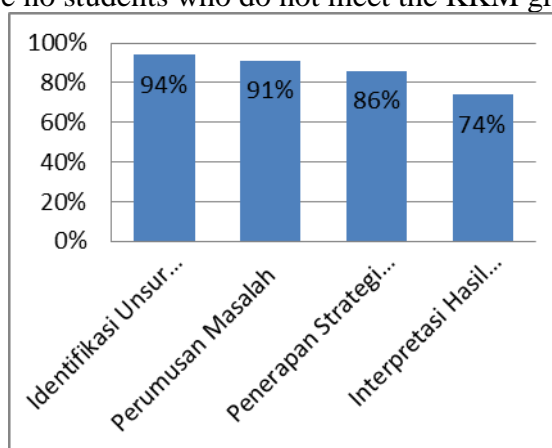


Figure 4. Percentage of Mathematical Problem Solving Ability Indicators on Cycle II Learning Outcomes

From these percentages in Figure 4 an average percentage of 86.25% is found in the good category, the percentage of students' mathematical problem solving abilities has met the specified success criteria.

Table 4. Comparison of Achievement of Cycle Implementation Results

Cycle I	Cycle II
Most students are still passive in participating in learning	Most students are already active in participating in learning
There are some students who are still adapting to the Course Review Horay type of cooperative learning model	Students have adapted to the Course Review Horay (CRH) type of cooperative learning model
The teacher is too fast when explaining the material to students	The teacher explains the material to students slowly until students come to understand
The teacher has not been able to organize time properly so there are still a number of learning steps that are passed	The teacher organizes time well enough so that only one learning step is passed as a whole
When implementing the Course Review Horay type of cooperative learning model, the teacher reads the questions randomly and the group works on the questions in the allotted time is less effective to apply, because it can break the concentration of students to work on the next questions	When implementing Course Review Horay type cooperative learning models, the use of problem cards is effectively used by students
Learning outcomes in the first cycle increased by 20.95 from pre-cycle learning outcomes so that the average value of students became 74.46	Learning outcomes in the second cycle increased by 10.31 from the learning outcomes of the first cycle so that the mean value of students became 84.77
Mastery learning outcomes of students in the first cycle does not meet the criteria of mastery learning outcomes in a classical way.	The mastery of student learning outcomes in cycle II has met the criteria of mastery learning outcomes classically well.
The number of students who completed the first cycle learning outcomes compared with pre-cycle learning outcomes is an increase of 11 students	The number of students who completed the second cycle learning outcomes compared with the first cycle learning outcomes is an increase of 23 students
the percentage of students' mathematical problem solving abilities has not met the specified success criteria	the percentage of students' mathematical problem solving abilities already meets the specified success criteria

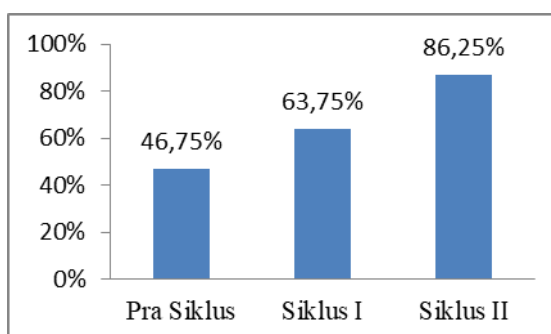


Figure 5. Percentage of Mathematical Problem Solving Ability Indicators

In Figure 5. there is an increase in the percentage of students' mathematical problem solving abilities in each cycle that is the results of the pre-cycle implementation obtained the percentage of students' mathematical problem solving abilities by 46.75% then increased to 63.75% after getting the cycle I action, then the percentage continues to increase to 86.25% after the implementation of the second cycle which is accompanied by improvements to minimize errors made in cycle I. The increase in students' mathematical problem solving abilities in cycles I and II is due to the use of Course Review Horay type cooperative learning models. This learning model is a group learning model where students can discuss with each other members of the group to be able to jointly solve the problem at hand. So that the learning model in addition to increasing student motivation, this learning model can also increase student activity in figuring out how to solve a given problem.

The things that have been explained above are in accordance with Vygotsky's theory (Ardiani, Waluya, & Kurniasih, 2015, p. 135) which states that social aspects can influence learning where students can work together with each other in a small group, discussing solving problems in mutual ways exchange ideas according to the abilities of each group member. So students can hone their problem solving abilities and can learn how to value various opinions in groups. In addition, according to Ardiani et al (2015, p. 135) the combination of social aspects in a learning will facilitate students to be able to easily, quickly, and independently in solving problems faced. Therefore the ability to solve mathematical problems can be improved well through the Course Review Horay type of cooperative learning model. The learning model is useful for reviewing material that has been taught so that students can get used to solving these problems.

Increased mathematical problem solving abilities obtained by researchers in line with previous relevant studies namely research Eli Pri et al (2013), Ardiani (2015), and Nurhabibi (2018) who also obtained research results namely an increase in students' mathematical problem solving abilities after being given action the application of the Course Review Horay (CRH) type of cooperative learning model to mathematics learning.

In implementing Course Review Horay type cooperative learning models, the teacher also gives prizes to the winning groups. This is what spurs students to be able to do the questions given right, and indirectly students hone their mathematical problem solving abilities by utilizing socialization among group members in determining problem solving. Based on the discussion above, it can be concluded that the application of the Course Review Horay type of cooperative learning model in class XII MIPA 5 of SMA Negeri 2 Balikpapan is considered successful in improving students' mathematical problem solving abilities

CONCLUSION

The results of this study indicate that the application of the Course Review Horay type of cooperative learning model can improve the mathematical problem solving ability of students of class XII MIPA 5 SMA Negeri 2 Balikpapan in the academic year 2019/2020. This is indicated by an increase in student activity in learning, other than that there is an increase in student learning outcomes that starts from the average value of student learning outcomes in the pre cycle 53.51 increased to 74.46 in the first cycle, then increased to 84.77 in the cycle II. In addition, there was also an increase in the percentage of students' mathematical problem solving abilities that started with 46.75% in the pre cycle then increased to 63.75% in the first cycle, and increased again in the second cycle to 86.25% which is in the good category .

The researcher hopes that each party who applies the Course Review Horay (CRH) cooperative learning model can run well and achieve the learning objectives well. Therefore, there are a number of suggestions that students are expected to be more enthusiastic about learning, active, focused and cooperative in participating in the learning process and it is hoped that the teacher can implement more ice breaking activities in starting learning and hopefully the teacher can apply the Course Review Horay (CRH) type of cooperative learning model) in reviewing learning that has been taught. However, the teacher should pay attention to the learning material along with the learning time, because this model takes quite a long time depending on the material being taught.

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