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Implementation of Problem-Based Learning Model to Improve Cooperation in Elementary Schools

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1. Abstract

This study aims to implement the Problem Based Learning (PBL) learning model to increase cooperation in the learning process of third grade elementary school students. The formulation of the problem in this research is to apply the problem-based learning model to improve cooperation in class III elementary school students. This research is Classroom Action Research which consists of 2 cycles and each cycle consists of 2 meetings. The design of this classroom action research uses the Kemmis and MC Taggart models, which include the planning, action and observation stages, and reflection. The object of this study was class III students, totaling 27 child students consisting of 15 boys and 12 girls. Instruments used in data collection include non-test instruments. Non-test instruments consist of observations, interviews and documents. The data analysis used consisted of qualitative and quantitative data analysis. Based on the research results in cycle I, the percentage of students' cooperative attitudes only reached 52%, and only 14 students were able to work well together in learning. Meanwhile, in cycle II there was a significant increase with the percentage of cooperative attitudes reaching 81%. Judging from the average score of observations of students' activities, there was an increase from 52% in cycle I to 81% in cycle II, resulting in an increase of 29% in the cooperative attitude of students from cycle I to cycle II. The research results show that: The application of the problem-based learning model can be implemented well in increasing the cooperative attitude of students. This can be proven by the activities carried out by teachers and students from cycle I to cycle II experiencing an increase in the attitude of students' cooperation in groups.
***Keywords**: Cooperation, Problem Based Learning (PBL)*

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2. Introduction

The achievement of good quality education depends on the management of the learning process that takes place in the classroom. The term education already exists in UUR.I No. 2 of 1989, chapter I, article 1 that "education is a conscious effort to accept students through guidance, teaching and training activities for their role in the future" (Oemar Hamalik, 2013). In the context of transformation, schools are a place to change student behavior for the better through a comprehensive educational process (Aji, 2016; Cahya et al., 2023; Warsita, 2017).

Current learning activities can be carried out with various innovations, one of which is by applying the problem-based learning model. According to Dewi (2015) the Problem Based Learning learning model consists of 5 steps that need to be carried out in carrying out learning including the first step is to direct students to the problem to be solved. Furthermore, students are organized to learn by understanding the problem. The teacher then guides students in experiencing the process of solving problems both individually and in groups. The next step is to develop and present the work that has been achieved by students. Finally, an analysis and evaluation of the problem solving process that has been carried out is carried out.The research results of Abdullah and Ridwan (2008) report that the PBL model can increase collaboration in the educational process on cognitive, affective and psychomotor aspects. Hasrul Bakri's research (2009), reports that PBL can increase learning attention.

Cooperation is important to foster mutual respect, responsibility and caring. Reni Akbar Hawadi (2006) explains that cooperation is dividing activities into small tasks for group members. With collaborative activities, the work will become lighter, quickly completed and foster a spirit of mutual cooperation, helping each student. Meanwhile,

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Suprijono (2014) said that not all group learning can be considered cooperative learning. To achieve maximum results, the five elements in the cooperative learning model are 1) interdependence, 2) individual responsibility, 3) promotive interactions, 4) communication between members, and 5) group processing. If these five elements exist in learning, then learning can be said to be cooperative learning. Cooperative learning has the nature of this collaboration will form students who can have fair character, can work together, support each other, be responsible and easy to mingle. When in learning there are students who do not understand, the need for cooperation to encourage peers is not to be embarrassed to ask questions so that the class atmosphere is freer.

When students are confronted in a group, there is no active interaction seen in learning. students tend to be more silent and be individual. So that the awareness to develop the cognitive abilities of each student is too little. The limited knowledge that these students have will interfere with the activeness of students in collaboration.

After the Covid-19 outbreak was over and the government issued a statement stating that schools were able to carry out offline learning and elementary schools allowed students to enter offline learning, with online learning occurring for approximately 2 years students did not participate and did not work together in groups. Based on interviews with educators at elementary schools conducted on May 15 2023, it was explained that it was difficult for students to work together in participating in group learning. This class has 27 students consisting of 15 male students and 12 female students. Students tend to group according to gender, so it is difficult when heterogeneous groups are formed and when teachers use group learning methods

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students find it difficult to cooperate well because they tend to work individually, so the planned learning process does not run optimally.

Based on the discussion above, it is necessary to make improvements in the learning process, especially in the learning process for third grade elementary school students. This improvement aims to develop students' ability to work together. Based on this discussion, the researchers took the initiative to carry out learning innovations entitled "Implementation of Problem Based Learning Models to Improve Cooperation in Class III Elementary School Students".

3. Methods

3.1. Participants and context

This research was carried out using a collaborative Classroom Action Research (PTKK) design. (PTK) or Classroom Action Research uses the Kemmis and Mc Taggart Models which use an interrelated spiral system. This model divides one cycle of classroom action research procedures into four stages, namely planning, acting, observing, and reflecting (Trianto, 2011: 13). The action and observation components become one component because these two activities are carried out simultaneously. The object of this study was class III students, totaling 27 child students consisting of 15 boys and 12 girls. The PTK method follows the spiral approach developed by Kemmis and McTaggart which can be seen in Figure 1.

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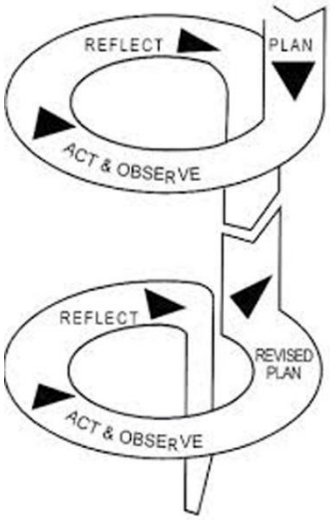

Figure 1. Schematic of Kemmis & Mc's PTK steps. Taggart

3.2. Material

The research instrument used in this study was the observation sheet of cooperation skills. Observation or observation is a phenomenon of activity or recording of activities carried out systematically (Nuraini & Kristin, 2017). Details of the observation instrument for the attitude of cooperation can be seen in table 1.

Table 1. cooperation

Student name	The indicators assessed		
	Can work in groups	Can respect differences of opinion	Like to help

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	4	3	2	1	4	3	2	1	4	3	2	1

Information regarding the values in the cooperative attitude observation sheet is as follows:

Table 2. Information regarding the values

Indicators	Skor	Assessment criteria
Can work in groups	4	Very good
	3	Good
	2	Fairly good
	1	Needs guidance
Can respect differences of opinion	4	Very good
	3	Good
	2	Fairly good
	1	Needs guidance
Like to help	4	Very good
	3	Good
	2	Fairly good
	1	Needs guidance

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3.3. Data Collection and analysis

The data analysis technique applied is in the form of a non-test. Data analysis in one cycle is used as a guideline for the next cycle activities. Data on the implementation of students' cooperation skills were obtained from observations using observation sheets of cooperation skills using an assessment rubric with scores of 1, 2, 3, and 4. The scores of cooperation skills obtained were then analyzed descriptively using percentages. The implementation of the cycle in this PTKK is considered successful if the students' cooperation abilities reach 70% of the total number of class III students. The following is a table of the percentage of successful student cooperation:

Table 3. Percentage of Student Cooperation Success

Success percentage action	Level of Success	Letter Value
85-90	Very good	A
70-84	Good	B
60-69	Enough	C
50-59	Not enough	D
0-49	Very less	E

The value of the attitude of cooperation can be known by the following formula:

a. Looking for individual student cooperation:

$X = (\Sigma x)/(\Sigma N)$

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Information :

X: Average attitude score

∑x: Sum of values obtained

∑N: Sum of all values (Sudjana, 2012: 109).

b. The value of the attitude of cooperation in a classical way

The formula for knowing the attitude of classical cooperation is as follows:

$X = (\sum x)/(\sum N)$

X: Average attitude score

∑x: The average number of all students

∑N: Number of students (Sudjana, 2012: 109).

3.4. Ethical Considerations

The purpose of carrying out these research steps is to understand the learning process carried out by the teacher in the classroom. The implementation was carried out in several cycles, including cycle I and cycle II, with the same learning model, namely applying the PBL model. Cycle II is carried out if there is no significant improvement from cycle I. If the level of completeness in cycle II has not been reached, then the research will continue in the next cycle. The implementation of the cycle is considered successful if the students' cooperation abilities reach 70% of the total number of class III students.

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4. Results and Discussion

This Collaborative Classroom Action Research was conducted in elementary schools which were carried out in 2 research cycles using the problem-based learning model. In the first cycle, meetings were held on May 19 and May 25. Then, the second cycle was held on May 26 and May 30, 2023 with a focus on Thematic subjects. The cycle in this study has four stages, namely, planning, implementing actions, observing and reflecting. The lesson plan for each research cycle will be discussed with the class teacher a few days before the implementation of the action, so that the teacher can implement it according to the lesson plans and models that are used properly, and prepare the research instruments used. The attitude assessment observation sheet is used to assess students' cooperative attitudes.

This Classroom Action Research collaborated with the homeroom teacher, the researcher as the executor of the action, fellow researchers as observer I and observer II. The research results from each cycle were analyzed and reflected with the aim of knowing the weaknesses or strengths of subsequent learning activities and to measure the percentage of student cooperation.

Precycle Analysis

Pre-cycle activities are the initial stage in Classroom Action Research (CAR) activities which are carried out like previous learning without special treatment. At this stage, preliminary observations are made to find out and understand events or phenomena that occur in the classroom, as well as identify obstacles that arise from both the perspective of students and teachers.

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During the implementation of learning activities in class for 3 hours of learning the observer detected several problems that arose during learning. The results of observations/observations on the problems found during class learning are presented in table 4 as follows:

Table 4 . Student Observation Results

Students do not want to be divided into heterogeneous groups
Students tend to work on their own when working in groups
Participants do not respect the opinions of friends in the group

Based on the results of observations in table 4, it can be concluded that students experience problems in working together.

Cycle 1 Analysis

The results of observations of class action cycle I on observing students' activities in working together during the learning process using the Problem Based Learning learning model can be seen from table 5, as follows:

Table 5. Percentage of Student Cooperation in Cycle I

Learners are able to work together/Students have not been able to work together	Presentase (%)
14 Students are able to work together	52 %

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13 Students have not been able to work together	48%

Based on Table 3, it can be seen that in the first cycle of Thematic learning with the problem based learning model, there were 14 students who were able to work well together in learning. Of these, 3 students managed to score above 84% in the very good category. Furthermore, there were 11 students who scored above 74% in the good category. While the remaining 13 students still get scores under the good category.

Cycle Analysis 1I

The results of observations of class action cycle II on observing students' activities in working together during the learning process using the Problem Based Learning learning model can be seen from table 4, as follows:

Table 4. Percentage of Student Cooperation in Cycle II

Learners are able to work together/Students have not been able to work together	Presentase (%)
22 Students are able to work together	81%
5 Students have not been able to work together	19%

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Based on Table 4, it can be seen that in the first cycle of Thematic learning with the problem based learning model, there were 22 students who were able to work well together in learning. Of these, 5 students managed to score above 84% in the very good category. Furthermore, there were 17 students who scored above 74% in the good category. While the remaining 5 students, are still under the good category in terms of achieving the value of the attitude of cooperation.

Because the percentage of success has been fulfilled from the implementation of cycle II, cycle II is the end of carrying out corrective actions in this PTK. Thus the cycle ends and there is no need to hold cycle III or so on. So it can be concluded that the learning cycle was stopped and it can be said that the Problem Based Learning model succeeded in increasing student cooperation.

5. Conclusion

Based on the results of the above research it can be concluded as follows:

1. The application of the problem-based learning model can be implemented well in increasing the cooperative attitude of students. This can be proven by the activities carried out by teachers and students from cycle I to cycle II experiencing an increase in the cooperative attitude of students in groups.
2. Based on the results of the implementation of cycle I, there were 52% of students who reached the predetermined limit values and 48% of students had not reached the predetermined limit values. Whereas in the implementation of cycle II, this value increased to 81% of students who reached the predetermined limit value and 19% of students had not reached the predetermined limit value. This proves that most students succeed in exceeding the predetermined limit value.

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