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Improvement of Student Learning Outcomes through Problem Based Learning Model Class IV Basic School

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ABSTRACT

This study improves student learning outcomes through the Model IV Problem Based Learning in elementary school. This study was designed using classroom action research comprising interconnected cycles where each cycle comprises several stages: 1) planning, 2) implementation, 3) observation, and 4) reflection. If the first cycle has not yet reached the targeted goals, then it continues with the second cycle, namely improvement of plans, actions, observations, and reflections. The subjects of this study were students in grade IV SDN Catur 3 Depok. Data collection techniques in this study were tested and non-test. Data collection instruments in the form of multiple-choice test questions, and non-test forms of observation sheets. The results showed that the application of the Problem Based Learning model could work very well or successfully. In each cycle of student learning outcomes has increased namely the first cycle the highest value got by students is 90, the lowest score is 45, the number of students is 25, many students have completed 9, classical learning completeness is 64, and the average value is 52.6. While the second cycle is known that 23 students (100%) have succeeded. The highest score got by students is 85 and the lowest score is 70 with an average score of 82.6 in the excellent category. Therefore, implementing the improvement of the first cycle can be ended in the second cycle. So, through research that has been done by applying the Problem Based Learning model, it is proven to improve the learning outcomes of Grade IV students whose learning outcomes are complete or meet the minimum completeness criteria (KKM).
KEYWORDS: Student learning outcomes, Problem Based Learning

1. INTRODUCTION

According to [1] about the National Education System, Article 3, the aim of national education is to develop the potential of students to become human beings who have faith and are devoted to God Almighty, of good morality, healthy, knowledgeable, capable, creative, independent, and become citizens who are democratic and responsible. As a component of education, educational objectives occupy a very important position among other educational components. It can be said that all components of all educational activities are carried out solely toward achieving these educational goals[2]. In achieving educational goals, the government has standardized and professional education as stipulated in PP[3] No. 19 of 2005 concerning National Education Standards (SNP), which has been amended in PP[4] No. 32 of 2013. National Standards of Education include 8 Standards. One of them is the Graduation Standards which are criteria regarding the qualifications of graduates' abilities which include attitudes, knowledge and skills.

Based on observations made by researchers in class IV SDN Caturtunggal 3 that in social studies learning teachers still use conventional models and only convey material giving nothing so students can be interested and happy to learn it. With these conditions will affect the achievement of learning objectives. Knowledge got by memorization can only last for a short period of time, whereas knowledge gained through experience alone will last a long time. Evaluation results (daily tests) are still many students who score below the minimum completeness criteria (KKM), which is 70. From the formative results found only 34.45% who have met the KKM, while those who have not 67.57%. To find solutions to these problems, it is necessary to find learning strategies so that the learning process is truly made in pleasant conditions so that students will continue to be motivated from beginning to end in teaching and learning activities. Here using the Problem Based Learning model as one solution to improve student learning outcomes of class IV which is known that student learning outcomes are still low.

Learning outcomes or achievements are the realization or expansion of potential skills or capacities that a person has, the level of student mastery of learning goals on the material taught by the teacher, which is measured based on the number of correct answer scores on questions arranged according to indicators. According to [5] learning outcomes result from an interaction of learning and teaching. From the teacher's point of view, the act of teaching ends with evaluating learning outcomes. From the student's side, the learning outcome is the end of the fragment and the top of the learning process. Meanwhile, according to [6] learning outcomes are attainment of

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forms of behavior change that settle from the cognitive, affective, and psychomotor domains of the learning process carried out in a certain time. In line with Bloom [7], that learning outcomes are behavioral changes that include three domains, namely the cognitive, affective, and psychomotor domains.

The results achieved by students are influenced by two factors, namely factors within students (internal) and factors from outside students (external), Munadi [8]. From these opinions the factors referred to are factors in students, changes in their abilities as stated by [9] that student learning outcomes in madrasas 70% are influenced by student abilities and 30% are influenced by the environment. Likewise, factors from outside of students are the most dominant environment in the form of learning quality. So, learning outcomes achieved by students are influenced by two main factors namely internal factors and external factors. Factors that come from students, especially the ability possessed a great influence on learning outcomes achieved.

Problem Based Learning is an innovation in 21st century learning because in that learning the ability to solve students' problems is really optimized through systematic group or team work, so students can develop their problem-solving skills going forward. Margetson argues that Problem Based Learning helps to improve lifelong learning skills in an open, reflective, critical, and active learning mindset [8], so Problem Based Learning is one alternative learning that can overcome student learning difficulties in understanding the learning process.

The syntax of the Problem Based Learning model adapted to social studies is: (1) phase I: problem orientation; (2) phase II: organizing students to learn; (3) phase III: independent and group investigations; (4) phase IV: developing and presenting artifacts and exibits; and (5) phase V: analyzing and evaluating the problem solving process[10].

Based on the explanation above, it can be concluded that the syntax or steps of the Problem Based Learning model is a very good step to apply, because it can emphasize the active role of students. The reason for taking the syntax of Problem Based Learning is because the language is easy to understand, so researchers are easy to apply this model in social studies learning. The role of researchers in Problem Based Learning is as a facilitator in the learning process. Finally, the researcher concluded that student learning outcomes were still low, one of which was influenced teachers taught using conventional models. Therefore, researchers apply the Problem Based Learning (PBL) model. PBL as one of the learning models is characterized by the use of real-life problems as something students must learn to improve the learning outcomes of grade IV elementary school students.

2. METHODOLOGY

The research to be carried out is classroom action research. [11-13] That a class action research is an examination of activities that are deliberately raised and occur in a class. This class action research has the aim to improve or improve the quality (quality) of learning in the classroom through a certain action (treatment) in one or several cycles as needed. The stages of this research according to [14], using a spiral system that starts from planning, implementation, observation, reflection, and proceed again to planning again as a basis for learning strategies.

The classroom action research model is spiral and continuous if the target results of the actions taken have not yet been achieved then proceed with the next cycle. The classroom action research design is Kemmis and Taggart's model as shown 1.

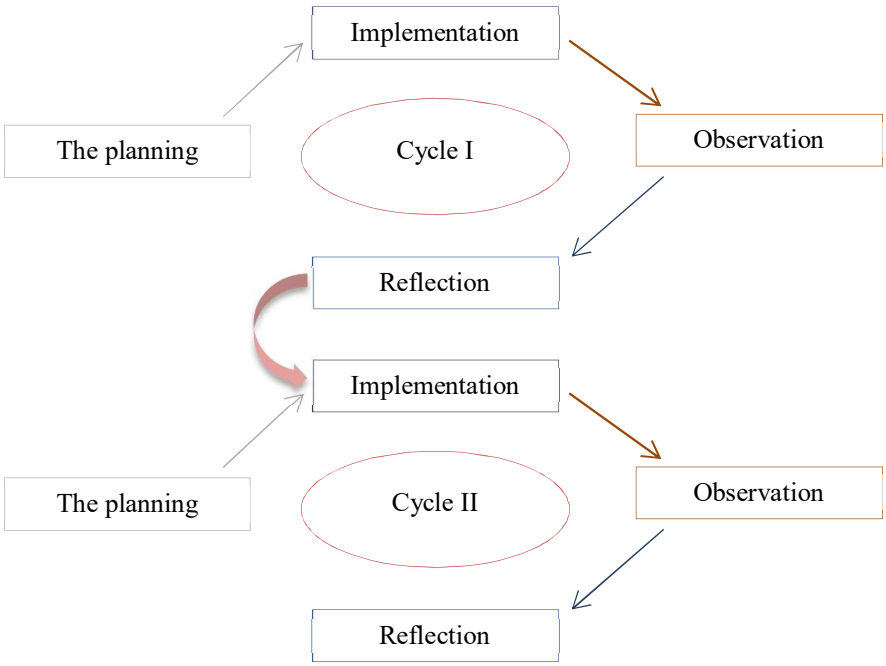

Figure 1. Action research model from Kemmis and Mc Taggart

Classroom action research (CAR) comprises four basic interrelated and continuous stages, namely:

a. The Planning
   Planning on identifying problems carried out in the pre-class action research (CAR) stage.
b. Implemenetation
   Implementation is the implementation or implementation of all plans that have been made.
c. Observation
   Observation activities are carried out simultaneously with implementing actions
d. Reflection
   Reflection is a stage for processing the data got during observation. Initially, the research process starts from the planning, but because the four components function in an activity in the form of a cycle, then each role plays an ongoing role.

The subjects of this study were students in class IV SDN Caturtunggal 3 Depok, totaling 25 students comprising 13 male students and 12 female students. Data collection techniques used in this study were observation and tests. Data analysis techniques in this study were carried out after data collection. This data analysis simplifies the data, so it is more easily understood and clarify the interpretation of the data got in the field. Researchers used data analysis techniques in qualitative and quantitative ways. Qualitative description in the form of learning outcome data, teacher observation results and student activities in social studies learning. While quantitative descriptions are data in the form of numbers which in the discussion also describe the results achieved in the form of numerical data.

Teacher and student activity data were got from observation sheets that were filled in during the learning process. According to [15] the formula for calculating teacher and student activity data uses the following percentage formula:

1. Percentage of teacher activity

   $$P\ \frac{f}{N}\ x\ 100\%$$

   Information

   P = Percentage figure
   f = frequency of teacher activity
   N = Total amount of activity

2. Percentage of student activity

   $$P\ \frac{f}{N}\ x\ 100\%$$

Information

P = Percentage figure
f = frequency of observed aspects
N = Total amount of activity

The results of observations of implementing the Problem Based Learning model are then converted to the criteria as in table 1 below.

Table 1. Evaluation Criteria for Observation Results

Skore	Criteria
1,00 – 1,99	Less
2,00 – 2,99	Enough
3,00 – 3,49	Well
3,50 – 4,00	Very well

3. Student learning outcomes
   According to [16] the formula for determining the final value of learning outcomes is in the form of multiple-choice questions namely:
   $$\text{Final score } \frac{B}{N} \text{ x } 100$$
   Information
   B = many items answered correctly
   N = many items
4. Classical completeness
   [15] the complete formula for classical learning completeness (TBK) is:
   $$\text{Completeness } \frac{\text{Many students complete KKM}}{\text{Total number of students}} \text{ x } 100\%$$
5. Average value
   [15] the formula for determining a student's grade point average is:
   $$M = \frac{\Sigma x}{N}$$
   Information
   M = Mean (average)
   Σx = Total grade of all students
   N = The number of students

Group student learning outcomes based on a range of grades. The range of grades is got based on the results of interviews with grade IV teachers and then converted to criteria such as table 2 below.

Table 2. Criteria for Evaluation of Student Learning Outcomes

Value Interval	Category
85 – 100	Very good
70 – 84	Well
55 – 69	Enough
40 – 54	Less
<40	Very less

3. RESULTS AND DISCUSSION

The procedure of the research carried out using classroom action research from Kemmis and Mc Taggart comprises the stages of planning, implementation, observation and reflection. At each stage of the activity the researcher always conducts together with the fourth grade teacher. The class teacher acts as a team in learning the Problem Based Learning model and also helps in classroom observation activities. Class action research that has been carried out comprises 2 cycles.

The action given is a Problem Based Learning model in social studies learning to produce raw materials into finished materials. Learning with Problem Based Learning is carried out through 5 phases comprising (1) Phase 1: Giving orientation to the problem to students (2) Phase 2: Organizing students to research, (3) Phase 3: Assisting independent and group investigations, (4) Phase 4: Develop and present artifacts / exhibits, and (5) Phase 5: Analyze and test the problem-solving process. In learning with the Problem Based Learning model, students are divided into 5 groups and each group comprises 5 students who have different academic abilities. Each group is

given one result of producing raw materials into finished materials to be completed through the stages of PBL and presented in the problem solving sheet and presented. The following are presented research data.

Cycle I dan II results

The results of teacher and student activities in the problem based learning model

Implementing learning by applying the Problem Based Learning model is observed and written the observations in the observation sheet. In summary, the data from the results of implementing Social Studies learning model PBL are presented in table 3:

Table 3. Results of teacher and student activities in cycles I and II

Number	Instrument	Implementation	
		Cycle I	Cycle II
1.	Observation results of teacher activities	2,48%	3,57
2.	Observation results of student activities	2,44%	3,65

Teacher and student activity data got by observation during learning takes place. Based on table 1 above that the observer's assessment got the value of the activity of the first cycle teacher 2.48% with enough categories and the second cycle 3.57% very good category. While the activities of students in the first cycle 2.44% and 3.65% the second cycle is very good, the value got is always increasing in each cycle. Researchers also present in the form of the following diagram.

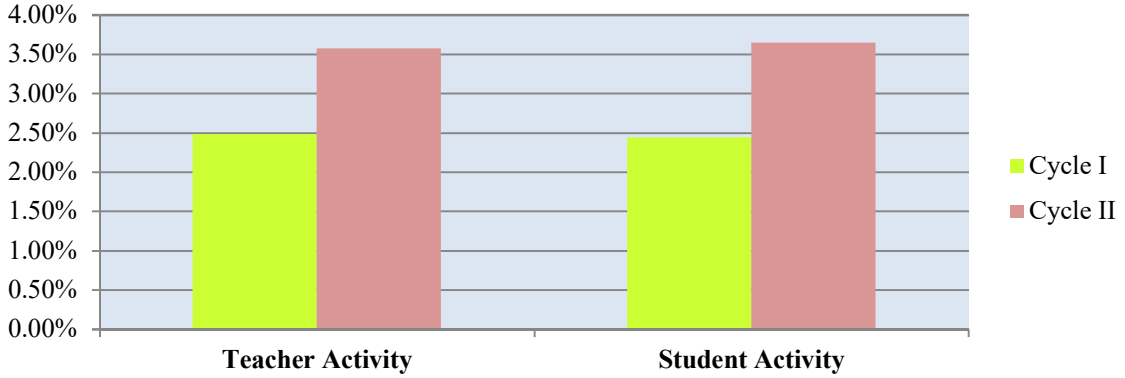

Diagram 1. Results of Teacher and Student Cycle I and II Activities

From the diagram above, the activities of teachers and students always increase in each cycle. So it can be concluded that the Problem Based Learning model can increase teacher and student activities that have reached indicators of success and increase each cycle. This shows that the activities of teachers and students in Problem Based Learning are good.

Student learning outcomes in cycles I and II

After learning activities in RPP I and II take place, it is known that students can add more experience compared to learning that only uses the lecture method. In the core activity, the teacher distributes questions to measure students' abilities after learning using the Problem Based Learning model. All students looked serious in working on the questions that were followed by 25 students in the first cycle and the second cycle was followed by 23 students. After all students have finished working, the teacher closes the learning and then greets. Scores of student learning test results in cycles I and II can be seen in table 4 below:

Table 4. Student Learning Test Results

Number	Student code	Value	
		Cycle I	Cycle II
1	S_1	75	75
2	S_2	50	85
3	S_3	75	
4	S_4	70	85
5	S_5	60	85
6	S_6	75	80
7	S_7	80	85

8	S_8	50	80
9	S_9	55	80
10	S_{10}	85	85
11	S_{11}	80	80
12	S_{12}	70	85
13	S_{13}	80	85
14	S_{14}	90	85
15	S_{15}	50	80
16	S_{16}	45	70
17	S_{17}	85	
18	S_{18}	70	85
19	S_{19}	45	85
20	S_{20}	85	85
21	S_{21}	60	85
22	S_{22}	80	85
23	S_{23}	65	85
24	S_{24}	90	80
25	S_{25}	75	85
The number of students who reach KKM		16	23
Complete classical learning		64	100
ΣAverage		52.6	82.6
Categori		Enough	Very good

Based on table 4 above that the actual number of students is 25, but at the second cycle meeting, 2 students were absent (sick). The above table is known that the classical completeness of students for the first cycle has not been reached is 64 with sufficient categories and the average value of 52.6 in cycle I. While the second cycle of classical learning completeness is got 100% and the average value of 82.6 with very good categories and has been achieved KKM. It was seen an increase in student learning outcomes in cycle II using the Problem Based Learning model. In summary, the test student learning outcomes can be seen in the diagram below

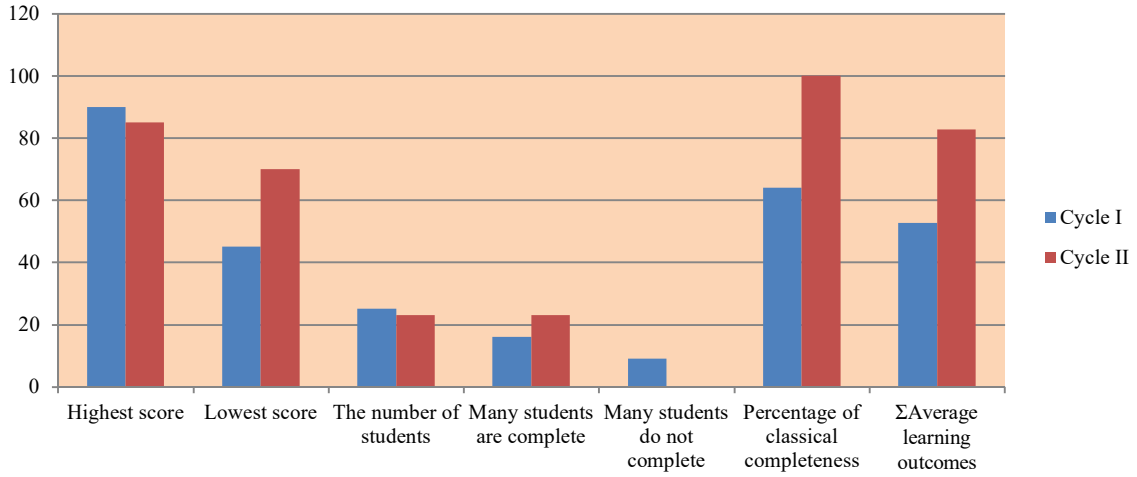

Diagram 2. Cycle I and II Student Learning Outcomes

Based on the diagram above, student learning outcomes in the first cycle the highest score of 90, the lowest score of 45, the number of students 25, many students who completed 9, classical learning completeness 64, and an average value of 52.6. While the second cycle is known that 23 students (100%) have succeeded. The highest score got by students is 85 and the lowest score is 70 with an average score of 82.6 in the excellent category. Therefore, implementing this cycle of improvement can be ended in cycle II. So, through research that has been done by applying the Problem Based Learning model, it is proven to improve the learning outcomes of Grade IV students whose learning outcomes are complete or meet KKM.

DISCUSSION

The purpose of Classroom Action Research (CAR) is to improve student learning outcomes using the Problem Based Learning model, the data in the learning outcomes section above is clear that the CAR goals are achieved as desired. Achievement of the goals of PTK has only occurred in the second cycle, because the first cycle

there are still student activities that have not been carried out properly, namely related to the lack of students' habit of asking questions about the material being taught and their lack of skill in conducting discussions. These deficiencies were then corrected in cycle II and were successful.

The action activities undertaken by the teacher using the Problem Based Learning model, show that the results of the actions in cycle 1 amounted to 25 of the 23 indicators that have been carried out by the teacher, only when before learning begins the teacher does not make a presence and provides motivation to students during the learning of the concluding section does not provide opportunities for students who do not understand the material that is not yet understood. However, in cycle II the teacher carried out all activities well. The action activity observation sheet using the PBL model conducted by the teacher in cycle II shows that implementing the actions at each meeting in cycle II has been carried out 100% of the 23 indicators when the learning process is going well. This means that in the second cycle the action activities carried out by teachers have increased by 3.57 excellent categories.

Action activities using the Problem Based Learning model conducted by students in the first cycle showed that implementing action activities numbered 25 out of 23 indicators, while the researchers delivered the material there were still many students who were busy talking to themselves, and did not record the material. In addition, there are also students who take turns to go to the toilet, even though they only want to sit in front of the restroom, some students are embarrassed to express their opinions, there are students who are less able to adjust during the learning process, because at home these students do not want learning, many students like to talk, so it takes a lot of time. However, in cycle II students carry out all activities well. Under the observation sheet of the activity activities the Problem Based Learning model conducted by students shows that implementing action activities in cycle II has been carried out all the 23 indicators, or 100%. In this second cycle the action activities that students carry out have been carried out well ie 3.65 with excellent categories. Increased activity of teachers and class IV students in learning activities through the PBL model, also increased learning outcomes of class IV students in the 2014/2015 academic year.

Based on student learning outcomes in the first cycle the highest score is 90, the lowest score is 45, the number of students is 25, many students have completed 9, classical learning completeness is 64, and the average score is 52.6. While the second cycle is known that 23 students (100%) have succeeded. The highest score got by students in the second cycle is 85 and the lowest score is 70 with an average score of 82.6 with a very good category. So, through research that has been done at SDN Caturtunggal 3 by applying the Problem Based Learning model, it is proven to improve student learning outcomes.

Compared with previous studies that the findings of the Problem Based Learning model can improve student learning outcomes are in line with previous studies that also apply the Problem Based Learning model [18] that Problem Based Learning can improve student learning outcomes. Further research on the Problem Based Learning model is better in the second cycle after improvements in the first cycle are in line with research conducted by [19]. Student learning outcomes got are supported by the opinion [20] that this Problem Based Learning prepares students to think critically and analytically, and to find and use learning resources. [19] further explained Problem Based Learning is a learning model that involves students to solve a problem through stages of the scientific method so that students can learn knowledge related to the problem and have the skills to solve problems. Thus, the Problem Based Learning model can create a conducive, active, creative and fun classroom environment, and shape students' personalities, resulting in deeper understanding of social studies learning, the value achieved by students from the low becomes more improved in social studies learning using Problem Based Learning.

4. CONCLUSION

Based on the formulation of the problem and the results of the research discussed earlier, the following conclusions can be drawn:

First, using the Problem Based Learning model can increase teacher activity and student activity in social studies learning. This happens because the Problem Based Learning model has been implemented well. Some steps such as Orienting students to a problem, organizing students to learn, investigating in groups, developing and presenting their work, and analyzing and testing the problem solving process are done well.

Second, the success of social studies learning for fourth grade students, marked by an increase in student learning outcomes. Judging from the evaluation of cycle I and cycle II, student learning outcomes continue to experience a significant increase in cycle II, where as23 students (100%) have succeeded. The highest score got by students is 85 and the lowest value is 70 with an average score of 82.6 with a very good category and has met the minimum completeness criteria (KKM) of 70. Therefore, implementing the improvement cycle I can be ended in the second cycle. Constraints faced, have been overcome properly using solutions to solving problems from the results of reflection activities with class teachers and peers at the end of cycle II.

5. SUGGESTION

For teachers, it should be better able to create a pleasant and varied learning atmosphere, one of which is by using the Problem Based Learning model so that students are more interested and absorb a more optimal subject. For students, students are more active in following the lessons and brave in expressing opinions. Good learning outcomes must be maintained and improved again.

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