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# Improving the Learning Achievement of Fifth Grade Students through Problem-based Learning with Environmental Perspective

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## 1. Abstract

This research is entitled " Improving the Learning Achievement of Fifth Grade Students through Problem-based Learning with Environmental Perspective." This research began because learning activities were carried out only listening, doing assignments and only focusing on books so that learning in class was less active. This causes a lack of interaction between teachers and students, or students and other students so that learning becomes less effective. This has an impact on the low mathematics learning achievement of fifth grade students. The purpose of this study was to find out how to improve mathematics learning achievement using an environmentally sound Problem Based Learning (PBL) model. The approach used in this research is Collaborative Classroom Action Research (CAR). This research was conducted in two cycles. Each cycle consists of the stages of planning, implementing, observing, and reflecting. There are two data used, quantitative data and qualitative data. Data collection techniques using observation and tests. The results of this

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study are that the application of the Problem Based Learning with an enviromental perspective model can improve the mathematics learning outcomes of fifth grade students with learning steps (1) Orientation of students to problems, (2) Organizing students to learn, (3) Guiding individual and group investigations, (4) Developing and presenting works, (5) Analyzing and evaluating problem-solving processes. The implications of this research are expected to assist teachers in choosing the application of appropriate learning models to improve student learning outcomes. The results showed that the application of a problem-based learning model with an environmental perspective could improve the mathematics learning achievement of fifth grade students with evidence of achieving more than 85% of students whose grades were above the KKM after 2 cycles of learning.

***Keywords:*** *Problem-Based Learning with Environmental Perspective, Learning Outcomes*

## 2. Introduction

The learning process is a process of educative communication between teachers and students. In the learning process the teacher's role is to help and guide students so that they are able to become good members of society in accordance with the goals of education and teaching. Students must be equipped with the ability to learn for life, learn from various sources, learn to work together, adapt and solve problems.

Education is an effort to build and develop human personality both spiritually and physically. With education we can grow up because education can have a very positive impact on us, can give us skills, mental abilities, and so on. As stated in Sisdiknas (2003)

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education is a basic and planned effort to create a learning atmosphere and learning process so that the student actively develops his or her potential to possess spiritual powers of religion, self-control, personality, intelligence, noble morals, as well as skills, necessary to himself, society, and the country.

Teachers play a major role in developing interesting and fun learning strategies so that students are motivated to excel and can understand lessons well. High and low student learning outcomes in learning can not be separated from the selection and use of learning models. By using the right learning model, it can improve student achievement in learning activities. For this reason, innovation in learning is needed, one of which is by applying a learning model that is in accordance with the material and conditions of the surrounding environment.

Based on the results of observations made in class V of one of the public elementary schools in Yogyakarta, information was obtained that learning activities were not optimal in involving students directly. The observation results show that the average student learning outcomes are low. Data obtained from the Middle Semester Assessment (PTS) in class V showed that 50% of students scored under the Minimum Completeness criteria (KKM). This means that there are 14 out of 28 students who score below the KKM determined by the school, which is 75. The learning model applied to the conventional learning model is by

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lecturing, asking questions, and giving assignments, so the results are still insufficient to improve students' mathematics learning achievement. Seeing the problems that arise, one of the efforts to improve student learning achievement is by using innovative models.

Various studies have proven that the Problem Based Learning Model can improve: Mathematics learning outcomes, critical thinking skills, problem solving skills, motivation & self-efficacy, creative thinking skills & independent learning, metacognition abilities and mathematical connection abilities of students in Elementary Schools (Abidin, 2020; Andayani et al., 2019; Herzamzam, 2021; Lestari et al., 2019; Suprapto et al., 2020).

The author tries to use a problem-based learning model with an environmental perspective, because the learning approach that can be applied through alternatives with efforts to improve students' mathematics learning achievement includes using an environmental problem-based learning model. the environment is an important element for humans. In this study will trace through five cycles with each cycle consisting of one meeting. The purpose of this study is to find out how to improve mathematics learning achievement using a problem-based learning model with an environmental perspective.

## 3. Methods

The research was conducted at one of the public elementary schools in the city of Yogyakarta. The subjects of this study were 28 students of class V. The focus of this study

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was an effort to improve mathematics learning achievement through the application of Problem-Based Learning with an environmental perspective model. This study uses a collaborative classroom action research approach. Sources of data in this study were students and teachers. Data collection techniques in the form of observation and tests. Test the validity of the data using source triangulation techniques and technical triangulation. Data analysis used in this study includes quantitative analysis and qualitative analysis. Descriptive analysis is used to analyze data in the form of numbers presented in the form of tables/graphs. Qualitative data analysis includes data reduction, data presentation, and conclusion/data verification.

## 4. Results and Discussion

There are many thinkers and educators whose ideas are related to the principles of Problem Based Learning (PBL). For example (Servant-Miklos et al., 2019): 1) Dewey's idea is in the form of a problem-method where the use of open problems is the starting point for learning problem solving and from specific problems which are induced to become general principles; 2) Constructivist psychology which states that learning is an accommodation (or change) of mental schemas (or representations); 3) Rogers thought that a person must experience a deep and meaningful learning process. Therefore, the teacher does not act as a giver of knowledge but as a guide in the learning process.

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some definitions of Problem Based Learning according to experts: 1) PBL is a learning model based on student-centered social constructivist theory which is characterized by the construction of various perspectives of knowledge with various representations, to social activities, and focuses on discovery and collaborative learning, scaffolding, training, and authentic assessment (Grant & Tamim, 2019); 2) PBL is defined as a process of inquiry that resolves questions, curiosity, doubts, and uncertainties about complex phenomena in life (Suh & Seshaiyer, 2019),

The application of the Problem Based Learning with an enviromental Perspective model to improve mathematics learning outcomes in class V SD is carried out in two cycles and each cycle consists of 2 meeting.

The learning process is carried out with the steps of (1) organization of the problem, (2) organizing students to learn, (3) guiding individual and group investigations, (4) presenting the work, and 5) evaluation. The learning outcomes of students through the application of model Problem Based Learning with Environmental Perspective have increased and decreased in each cycle as described in the following table

| Description | Cycle 1 | | Cycle 2 | |
|---|---|---|---|---|
| | 1st meeting | 2nd meeting | 1st meeting | 2nd meeting |

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| | | | | |
|---|---|---|---|---|
| **Higest Score** | 84 | 100 | 90 | 100 |
| **Lowest Score** | 50 | 58 | 60 | 64 |
| **Average Score** | 76.6 | 78.8 | 82.6 | 86.5 |
| **Complete** | 17 | 20 | 24 | 25 |
| **Incomplete** | 11 | 8 | 4 | 3 |

Based on the table above, it can be seen that the completeness of students' mathematics learning outcomes tends to increase in each cycle. In cycle 1, the average percentage of students who achieved completeness in firs meeting was 60,7%, at second meeting it increased to 71,4%. Meanwhile in cycle 2 the first meeting the percentage of completeness reached 85,7%, at the second meeting it increased 89,3%.

Thus the average completeness of student learning outcomes in the first cycle is 66.05% while the average mastery in the second cycle is 87.5%. The final results in cycle 2 have reached the specified target.

## 5. Conclusion

Based on the research, it can be concluded that the problem-based learning model with an environmental perspective can improve the mathematics learning achievement of

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fifth grade elementary school students. This is evidenced by the learning achievement increased from cycle 1 to cycle 2 with an increase of 21.45%. The suggestion is (1) The application of a problem-based learning model with an environmental perspective can be used as an option to solve problems faced by teachers in the classroom (2) students play a more active role and are directly involved in learning.

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