

THE IMPLEMENTATION OF *PROJECT BASED LEARNING* (PJBL) MODEL TO IMPROVE THE SIXTH GRADERS' NATURAL SCIENCE CONCEPT UNDERSTANDING ON SIMPLE ELECTRICAL CIRCUIT MATERIALS AT SDN 3 PABEAN ILIR

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ABSTRACT

This study aims to examine one of the ways to increase the understanding of the science concept of class VI UPTD SDN 3 Pabean Ilir students on electrical circuit material. The type of research used is classroom action research consisting of two cycles. The stages of this research consisted of four stages, namely planning, action, observation, and reflection. The subjects in this study were students of class VI UPTD SDN 3 Pabean Ilir. The instrument in this study was a science concept understanding test. The data obtained from this study during the pre-cycle mean the test scores for students' understanding of science concepts during the pre-cycle were 71.64. In cycle I, the average score for students' understanding of science concepts was 77.92. In cycle II, the average score for students' understanding of science concepts was 88.42. It can be concluded that this study shows that the application of the project based learning (PjBL) model can improve students' understanding of science concepts in class VI on electrical circuits.

Keywords: project based learning, science concept, electrical circuits

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INTRODUCTION

Learning in the 2013 curriculum is contained in an integrative thematic which takes the subject matter based on the theme by combining several subjects including science subjects (Sukarini and Manuaba, 2021). Natural Science is one of the lessons considered important because, without realizing it, the material is often encountered by students in their surroundings (Dewi and Manuaba, 2021). According to BSNP (in Pratiwi, et al. 2022) one of the goals of learning science is to develop knowledge and understanding of science concepts that are useful and can be applied in everyday life.

Understanding the concept is fundamental to achieving learning outcomes and has an important role in learning. To be able to instill an understanding of the science concept, the teacher must package learning that can develop the students' own level of understanding of the science concept (Savitri and Meilana, 2022). Therefore, science

learning in the classroom must be planned. One of the learning plans outlined in learning tools is the learning model.

Based on the results of observations made by researchers in class VI UPTD SDN 3 Pabean Ilir, integrated thematic science learning is still carried out teacher-centered and does not use innovative learning models. One of the lessons observed was learning Theme 3 Sub-theme 2 with natural science content on simple electrical circuits. In this lesson, the students' understanding of concepts in science lessons on simple electrical circuits is still in the low category. This can be seen from the knowledge value of those who still got scores less than the minimum completeness criteria (KKM).

Table 1. Score List of the Sixth Graders' Science Concept Understanding on Simple Electrical Circuits (Pre-Cycle)

No	Name	Score	Description	
			Graduate	Passed
1	ABDL	73	√	
2	A Z A	75	√	
3	D A	60		√
4	D S W	80	√	
5	E S	77	√	
6	J A S	63		√
7	LLK	60		√
8	M K	85	√	
9	NK	72	√	
10	NC	75	√	
11	RD	65		√
12	SKR	63		√
13	TRN	85	√	
14	W D	70		6
Mean Score		71,64	8	6

Given the description of the existing problems, the researchers think that there is a need for learning that is able to make students more active and have an important role in the learning process. One of the innovative learning models that can be used as an alternative solution to these problems is the project based learning (PjBL) model.

Gunawan, et al. (2018) argued that PjBL is the students-centered learning model done by providing opportunities for them to work in groups, and placing the teacher as a motivator and facilitator during learning. The application of PjBL provides an opportunity for students to create a work through a project, so that it is expected to be

able to develop students' cognitive, affective, and psychomotor abilities (Rahayu and Samsudin, 2019).

Fuadin and Fauziya (2022) explain that the steps of the PjBL model are 1) determining basic questions; 2) preparing project plans; 3) compiling schedules; 4) monitoring students and project progress; 5) assessing results; 6) evaluating experiences.

Based on the explanation of the experts above, it can be concluded that the PjBL model has advantages including, student-centered learning, increasing student activity in learning, increasing student creativity through the creation of works/projects, and not only developing cognitive abilities, but affective and psychomotor abilities also.

However, the PjBL model also has several drawbacks, including requiring a longer time, allowing students to be less active in group work, and requiring more creativity from teachers and students.

Guided by statements regarding the low understanding of science concepts in grade VI students in simple electrical circuit material and regarding the learning model that is considered appropriate, namely the project based learning (PjBL) model, this research examines more broadly the application of the project based learning (PjBL) model for improve understanding of class VI science concepts at UPTD SDN 3 Pabean Ilir on simple electrical circuit material.

METHODS

The method used in this research is a class action research method (PTK). It is a study that uses self-reflection as the main method with the aim of improving learning. The research design is in accordance with Kemmis and Taggart's class action research design, namely the spiral model that begins with planning, action, observation, reflection, and planning again. (Subakti, et al. 2022)

The subjects in this study were the students of class VI UPTD SDN 3 Pabean Ilir with a total of 14 students with details of 8 male students and 6 female students. This research was conducted in 2 cycles. Cycle I was held in one meeting; and Cycle II was held in one meeting. Those involved in this study were the writer as a practitioner/researcher, one teacher as an observer, and students as research subjects.

The research procedure consists of four stages, namely the planning stage, the action and observation stage, and reflection. The planning stage is to observe the learning process before the action. It aims to identify problems that exist in the research class. The action stage, namely carrying out learning by applying the project based learning model. The next stage is observation, namely observing the changes or impacts that occur in students after being given an action. Furthermore, the reflection stage is the assessment stage to see and consider the results obtained from each action based on the reflection results. The instrument used in this study was a test instrument for understanding science concepts in thematic learning.

RESULTS AND DISCUSSIONS

Result

Cycle I

The implementation of cycle I actions was carried out in one meeting. The activities carried out in cycle I consisted of: 1) Planning, namely compiling learning tools, observation sheets, interview guidelines, and student response questionnaires; 2) Implementation, namely applying the project based learning model in learning 3) Observation, namely observing the impact that occurs after being given an action; 4) Reflection, at this stage the researcher examines the successes and deficiencies found from the implementation of cycle I to be used as a guide in planning for cycle II again.

The results of the students' science concepts understanding assessment in cycle I were included in the sufficient category with an average value of 77.92. The following is a table of test results on the understanding of science concepts for class VI students in cycle I.

Table 2. The Test Results of the Sixth Graders' Science Concept Understanding on Simple Electrical Circuits

No	Name	Score	Description	
			Graduate	Passed
1	ABDL	88	√	
2	A Z A	88	√	
3	D A	66		√
4	D S W	88	√	
5	E S	77	√	
6	J A S	66		√
7	LLK	66		√
8	M K	100	√	

No	Name	Score	Description	
			Graduate	Passed
9	NK	77	√	
10	NC	88	√	
11	RD	66		√
12	SKR	66		√
13	TRN	100	√	
14	W D	88	√	
Means		77,92	9	5

Based on the data obtained in cycle I, grade VI students' understanding of science concepts in electrical circuit material has increased from pre-cycle abilities. However, the increase experienced is still not significant. This is because in cycle I there were still some deficiencies including the need to develop learning tools again, develop assessment instruments for understanding science concepts.

Cycle II

Cycle II was carried out in one meeting. The activities carried out in cycle II refer to the results of cycle I, namely 1) The planning stage, namely planning improvements that have been found during the reflection of cycle I. 2) The implementation stage, namely carrying out learning using the project based learning model by making improvements according to the planned. 3) Observation stage, namely observing the impacts that occur after the learning improvement is carried out in cycle II. 4) The reflection stage, namely the researcher examines the success of the actions that have been given. The results of students' understanding of science concept tests in cycle II are as follows.

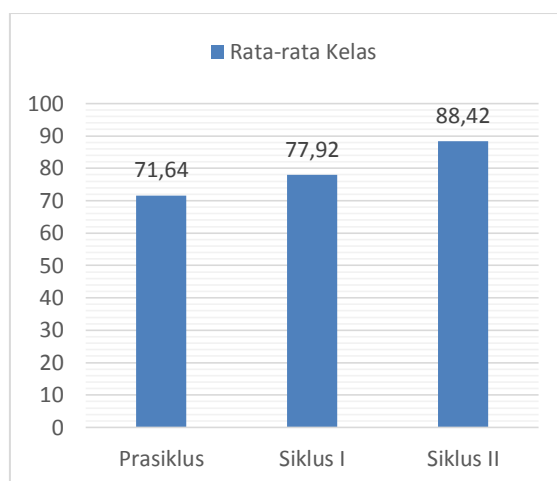
Table 3. The Cycle II Test Results of the Sixth Graders' Science Concept Understanding on Simple Electrical Circuits

No	Name	Score	Description	
			Graduate	Passed
1	ABDL	88	√	
2	A Z A	94	√	
3	D A	76	√	
4	D S W	100	√	
5	E S	88	√	
6	J A S	82	√	
7	LLK	76	√	

No	Name	Score	Description	
			Graduate	Passed
8	M K	100	√	
9	NK	88	√	
10	NC	94	√	
11	RD	88	√	
12	SKR	76	√	
13	TRN	100	√	
14	W D	88	√	
Means		88,42	14	0

Based on the data obtained in cycle II, students' understanding of science concepts in class VI on electrical circuit material experienced a significant increase. Judging from the value of student knowledge, 100% of students scored above the KKM with the mean score of 88.42.

The data that was obtained during the study showed an increase in the ability to understand science concepts in class VI UPTD SDN 3 Pabean Ilir students. It can be seen from the number of students who get students' concept understanding scores exceeding the KKM which is increasing with the class average also increasing. The following is a graph of increasing the ability to understand science concepts for class VI UPTD SDN 3 Pabean Ilir students.



Graph 1. The Ability Improvement of the Sixth Graders' Natural Science Understanding on Simple Electrical Circuits

Discussion

Based on the results of observations made by researchers in class VI UPTD SDN 3 Pabean Ilir, a problem was found, namely the low ability to understand science concepts

in class VI students on simple electrical circuit material. This problem was strengthened by the results of the supervision of the principal who considered that the learning carried out was still teacher-centered. Adnan (2022) explains that one of the drawbacks of teacher-centered learning is that student learning activities are passive and monotonous so that students do not make sense of learning. These results in the understanding of the concepts received by students are still not optimal, resulting in a low ability to understand science concepts in class VI students.

According to the researchers, the results of the research that has been carried out show that the application of the project based learning model is to improve the ability to understand science concepts in grade VI students in simple electrical circuit material. Aisah (2022) states that the application of the project based learning model makes students more active during learning which ultimately has implications for understanding science concepts.

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Learning in cycle I was carried out by applying a project based learning model. In this study, found some advantages and disadvantages. The drawback that occurred in cycle I was that students were not used to this kind of learning model, so that it made students a little confused about how to learn. However, the advantage is that most students are able to adapt so that the concepts applied can be understood by students. This has an impact on increasing the understanding of science concepts for class VI students in simple electric circuit material which is not yet significant.

In the second cycle of action, learning is carried out by applying the project based learning model with the planned improvements. During the second cycle of learning, it was seen that all students were active in group discussions and increasingly understood science concepts in simple electrical circuit material. This is evidenced by all students passing and obtaining scores exceeding the KKM.

Referring to the results of this study, the researcher believes that the application of the project based learning model can improve the understanding of science concepts for class VI students at UPTD SDN 3 Pabean Ilir. This opinion is in line with previous research conducted by Mukhlisin (2022) which stated that the average score of students in thematic learning of science content increased after the project-based learning model was applied.

CONCLUSION

Based on the results of the research that has been done, it can be concluded that students experience difficulty understanding when the teacher only carries out learning using the lecture method and teacher-centered learning only. After being given action by applying the project based learning model, the ability to understand science concepts in grade VI students has increased. This indicates that the application of the project based learning model in thematic learning of natural science content on electrical circuits can improve the learning process and increase students' ability to understand science concepts in grade VI. This is evidenced by the acquisition of evaluation test scores for each cycle; both Cycle I and Cycle II.

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