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Efforts to Improve Learning Outcomes Elementary School Science Thematic Through the Implementation of the Project Based Learning (PjBL) Learning Model

Makrumah [1]
[1] Madrasah Ibitidaiyah Negeri 2 Surabaya City, Indonesia

Abstract. The aim of this research is to improve elementary school science thematic learning outcomes through the application of the Project Based Learning (PjBL) learning model. The research method is classroom action research using cycle II. The research was carried out at Madrasah Ibtidaiyah Negeri (MIN) 2 Surabaya City on class V students. Data collection techniques used observation, questionnaires and tests. The research data obtained was analyzed using the Miles and Huberman data analysis technique which includes data collection, data reduction, data presentation, and drawing conclusions/verification. The results of the research show that a) Student learning activities during the implementation of the PjBL model have increased from fair to very good, b) Student learning evaluation test results have increased after implementing the PjBL model, with a completion percentage of 61% in cycle I increasing to 88% in cycle II, and 3) Student responses to the implementation of the PjBL learning model showed a positive response. Thus, overall it can be concluded that the application of the Project Based Learning (PjBL) learning model can improve elementary school science thematic learning outcomes.

Keywords: *Learning outcomes, science thematic, Project Based Learning (PjBL)..*

INTRODUCTION

Thematic learning is learning that uses themes to link several subjects so that it can provide meaningful learning experiences to students (Lubis, 2020). Science thematic learning is one of the learning materials taught at elementary school (SD) level. Thematic learning contains various subjects, namely natural sciences (IPA), social sciences (IPS), Indonesian, Mathematics, Citizenship Education (PKn), and Arts and Culture & Crafts (SBdP). One of the characteristics of thematic learning is student-centered learning. Students are encouraged to discover, do and experience contextually using the resources of the surrounding environment (Mokoginta, 2023). However, in practice, much of the learning carried out in schools is still teacher centered.

Teacher-centered learning tends to be synonymous with the use of lecture learning methods so that interaction between teachers and students is not developed well. Students tend to get bored easily during the learning process, apart from that, students also don't understand the material

Corresponding author: Makrumah. Email: makrumahsamsul@gmail.com

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presented but are reluctant to ask the teacher. This results in learning objectives and student learning outcomes not being achieved (Muhazaroh, 2023; Putra & Candra, 2023).

The daily test results obtained by students on science thematic material show that the average score is still low. Of the 30 students in class V MIN 2 Surabaya City, 11 students got the KKM (Minimum Completeness Criteria) score and 19 other students had not yet reached the KKM. This shows that 63% of students have not completely understood the material presented. So that student learning achievement needs to be improved considering that the indicator of student learning success is achieved if classically, students who have achieved the KKM of all students are at least 85%, whereas according to this data, classically, those who have fulfilled learning completeness have only reached 37%.

To overcome this problem, teachers need to plan their learning well. Learning planning includes preparing a learning implementation plan (RPP), preparing learning media and resources, as well as appropriate learning assessment tools (Plomp and Nieven, 2010). One learning model that can be applied is Project Based Learning (PjBL). The Project Based Learning (PjBL) learning model is a learning model that involves students in problem solving activities and other meaningful tasks, gives students the opportunity to work autonomously to construct their own learning, and produces student work products (Muskania et al. ., 2017; Setyowati et al., 2018). The project-based learning model has enormous potential to create a more interesting and useful learning experience for students (Mutakinati et al., 2018; Yamin et al., 2020).

Findings in previous research show that the PjBL learning model is able to significantly improve student learning outcomes. Mawar, et.al (2023) in their research revealed that the application of the PjBL learning model was able to improve student learning outcomes with the percentage of complete learning outcomes from 46.4% in cycle I to 85.7% in cycle II. Sari & Eliyasni (2020) stated that implementing the PjBL learning model can improve the learning outcomes of elementary school students. Anggraini, et.al (2020) stated that the PjBL learning model can be applied in the learning process to develop students' cognitive, affective and psychomotor abilities.

Based on the description above, this research aims to determine the improvement in elementary school science thematic learning outcomes through the application of the Project Based Learning (PjBL) learning model for class V students of Madrasah Ibtidaiyah Negeri (MIN) 2 Surabaya City.

METHOD

The research method is classroom action research using cycle II. Where each cycle consists of planning, implementation, observation and follow-up. The research was carried out at Madrasah Ibtidaiyah Negeri (MIN) 2 Surabaya City on class V students. The object of the research was increasing activity, learning outcomes and student responses to science thematic material at elementary school level. Data collection techniques use observation, questionnaires and tests. Data analysis in this research includes learning outcomes, student responses, as well as teacher and student activities as seen from evaluation scores and observations in each cycle. The research data obtained was analyzed using the Miles and Huberman data analysis technique which includes data

collection, data reduction, data presentation, and drawing conclusions/verification. The determining factor for success in this research is an increase in students' English learning outcomes who achieve a score above 76 as set by the school's KKM with a minimum of 85% classical completeness.

RESULT AND DISCUSSION

The research begins by carrying out pre-cycle activities, namely preparatory activities related to carrying out the research so that it runs smoothly. Researchers made observations to identify problems by observing learning activities in the classroom, school situations and conditions. In making observations, the researcher also looked at the student's score list. This was done as a consideration in dividing groups when carrying out research actions.

Based on initial observations, the test results, as presented in Figure 1, show that the average score for class V MIN 2 Surabaya City students is still low or below the KKM score, namely 76. Of the 30 class V students, only 36% or 11 students got a score. above the KKM, while 76% or 19 other students have not reached the KKM. The average score obtained by students on science thematic material was only 72.

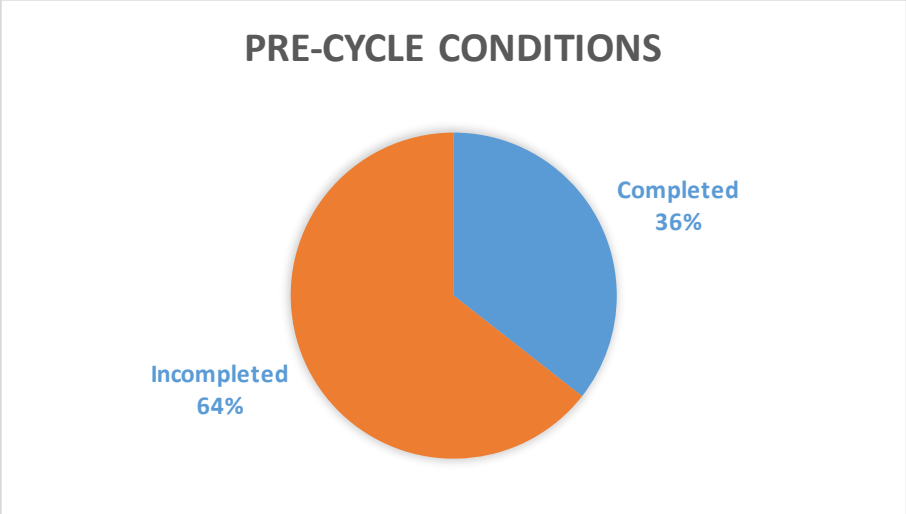

Figure 1. Condition Pre-Cycle

The implementation of classroom action research consists of two cycles. At the planning stage, the teacher prepares materials, lesson plans, learning tools and media as well as instruments needed during learning. The implementation stage of each cycle consists of two meetings using the Project Based Learning (PjBL) learning model. The teacher prepares the tools and media used in learning. The teacher prepares data collection instruments, namely observation sheets, questionnaires, question grids, evaluation questions, and assessment sheets.

Student Activities

Observation Results Activity Study student with use learning model *Project Based Learning* (PjBL) in cycle I is presented in **Table 1**.

Table 1. Observation Results Activity Study Students in Cycle I

No	Activities carried out student	Score						Amount whole	Average (%)
		P1		Total	P2		Total		
		O1	O2		O1	O2			
1	Student Ready For start lesson	4	3	7	4	3	7	7	70
2	Student participate in answer questions given by the teacher	3	3	6	4	3	7	6.5	65
3	Student notice teacher's explanation about indicators and goals learning	4	3	7	3	3	6	6.5	65
4	Student notice teacher's explanation	3	4	7	4	3	7	7	70
5	Student participate active in Study	4	4	8	4	4	8	8	80
6	Participate in activity discussion and investigation	3	4	7	3	4	7	7	70
7	Student brave in put forward opinion	3	3	6	3	3	6	6	60
8	Skills in control group discussion	4	4	8	4	4	8	8	80
9	Student participate in summarize material learning	3	4	7	4	4	8	7.5	75
10	Not quite enough answer on Assigned job	3	4	7	3	4	7	7	70
	Amount	**3.4**	**3.6**	**7**	**3.6**	**3.5**	**7.1**	**7.05**	**70.5**
	Overall Average (%)								

Based on the results of the observations above as shown in table 1, it can be seen that the results of student learning activities using the Project Based Learning (PjBL) learning model are in the quite good category, namely with an average percentage of 70.5%, because there are still several shortcomings, namely students still less active in asking questions during learning, as seen from the presentation, 65%, apart from that, students still don't have the courage to express their opinions, as seen from the presentation, 50%, and students haven't been able to do their assignments on time, as seen from the presentation, namely 60%.

In cycle II, the results of observations of student learning activities using the Project Based Learning (PjBL) learning model experienced an increase, as presented in table 2.

Table 2. Observation Results Activity Study students in Cycle II

No	Activities carried out student	Score						Amount whole	Average (%)
		P1		Total	P2		Total		
		O1	O2		O1	O2			
1	Student Ready For start lesson	4	4	8	4	4	8	8	80
2	Student participate in answer questions given by the teacher	4	5	9	4	4	8	8.5	85
3	Student notice teacher's explanation about indicators and goals learning	4	4	8	5	5	10	9	90
4	Student notice teacher's explanation	4	5	9	4	4	8	8.5	85
5	Student participate active in Study	5	4	9	5	5	10	9.5	95
6	Participate in activity discussion and investigation	4	4	9	4	5	8	8.5	85
7	Student brave in put forward opinion	4	4	8	5	4	9	8.5	85
8	Skills in control group discussion	4	5	9	4	5	9	9	90
9	Student participate in summarize material learning	4	4	8	4	5	9	8.5	85
10	Not quite enough answer on Assigned job	4	5	9	4	5	9	9	90
Amount		**4,1**	**4,5**	**8,6**	**4,3**	**4,5**	**8,8**	**8,7**	
Overall Average (%)									**87**

Based on the results of the observations above as shown in Table 2, it can be seen that the results of student learning activities using the Project Based Learning (PjBL) learning model in cycle II are in the Very Good category, namely with an average percentage of 87%. So, based on the results of the table above, it can be concluded that the percentage of student learning activities in cycle II was successful according to the criteria for success in the action being classified as good.

Test Results Evaluation

The results of the evaluation test in cycle I obtained an average score of 76.7. From the results of the evaluation test, it can be seen that the results obtained by the majority of students show better

completeness compared to the completeness during the pre-cycle through the Project Based Learning (PjBL) type cooperative learning model. From the evaluation test results data above, it was found that 20 students had obtained a score of ≥76 and 10 students had not met the minimum completeness criteria. The completeness of student learning outcomes using Project Based Learning (PjBL) in Cycle I is presented in Figure 2.

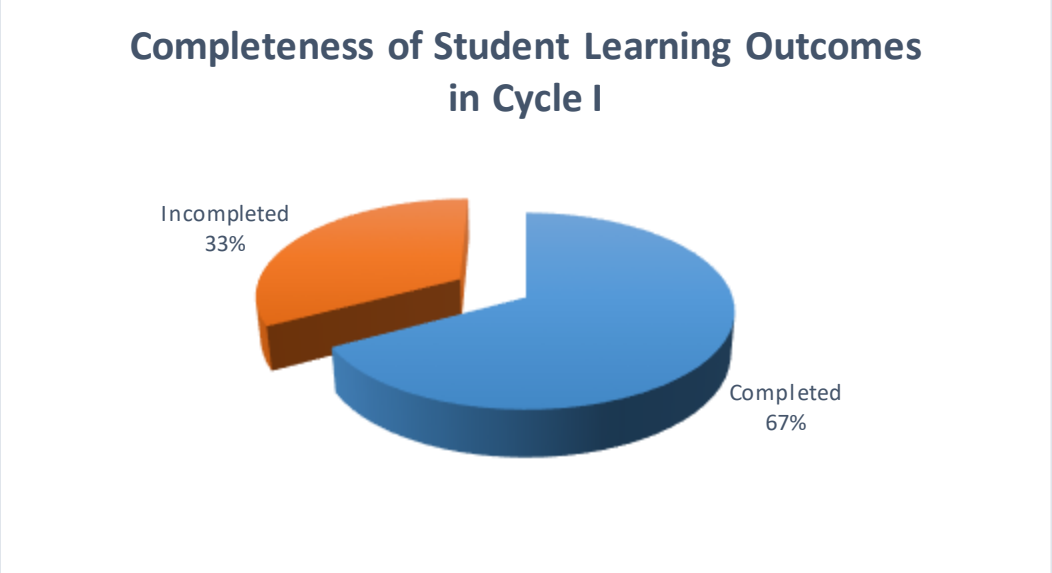

Figure 2. Completeness of Learning Outcomes Diagram Student Cycle I

Based on Figure 2, it is known that the percentage of learning completeness in cycle I is 67%, this percentage means that the student's score is still below the predetermined criteria for completeness, namely 85%. Thus, the next cycle is still needed to prove that the Project Based Learning (PjBL) learning model is able to improve science thematic learning outcomes.

The final results of the second cycle evaluation test obtained an average student score of 81.8. From the results of the second evaluation test, it can be seen that student learning outcomes have improved compared to the results of the first cycle evaluation test, namely 76.7. Thus, it can be said that the application of the Project Based Learning (PjBL) learning model can improve the learning outcomes of class V MIN 2 Surabaya City students. From the data from the evaluation test II above, it was found that 26 students had obtained a score of ≥76 and 4 students had not met the minimum completeness criteria.

The percentage of learning completeness in cycle II was 87%, this percentage illustrates that the student's score has met the predetermined criteria for completeness, namely 85%, as presented in Figure 3.

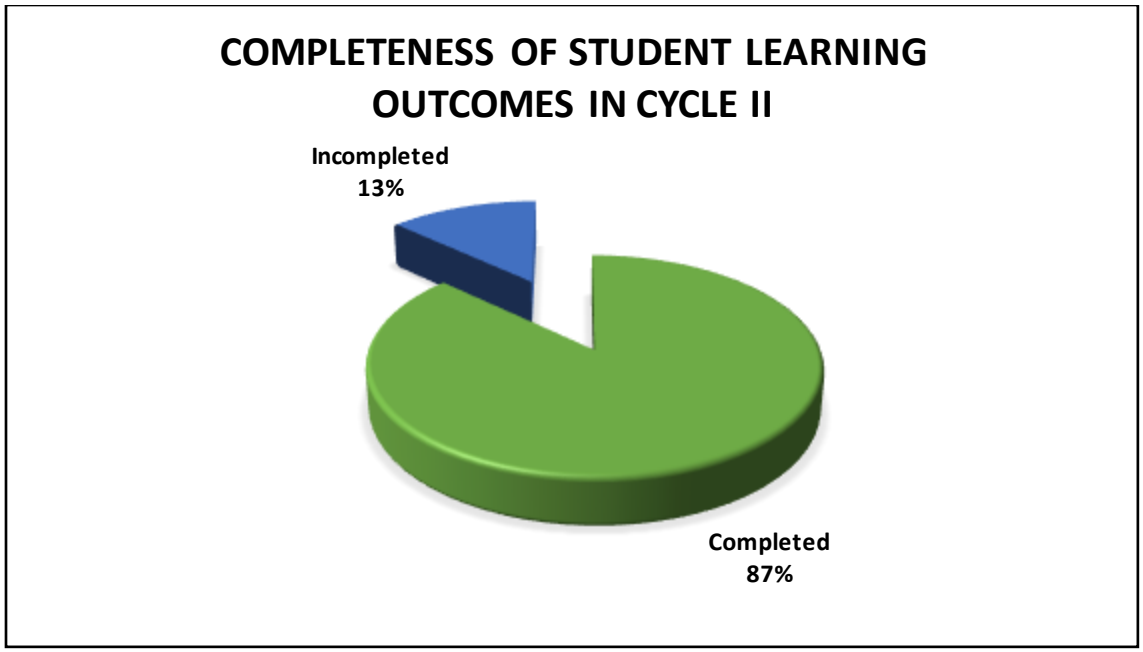

Figure 3. Completeness Diagram Study Student Test Evaluation Cycle II

Thus, it can be said that the application of the Project Based Learning (PjBL) learning model can improve the learning outcomes of class V MIN 2 Surabaya City students. This is proven by an increase in learning completeness from cycle I to cycle II as presented in table 3.

Table 3. Comparison Test Evaluation between Cycle I and Cycle II

Criteria	Pre Cycle	Test Cycle I	Test Cycle II	Information
Learning average student	72	76.7	81.8	Increase
Completeness Study student	33%	67%	87%	Increase

Student Responses

Student responses were measured using a student response questionnaire. The student response questionnaire is shown after the teacher has completed the learning process for 2 meetings and is given at the end of the lesson to determine student responses to the science thematic material. Students responded very positively. In summary, the results of the analysis of student response questionnaires can be seen in Table 4.

Table 4. Comparison of Questionnaire Data Response Student between Cycle I and Cycle II

No	Question	Percentage (%)			
		Cycle I		Cycle II	
		Yes	No	Yes	No
1	Is it before the implementation of the model This Project Based Learning PjBL) lesson , do you enjoy participating in learning activities?	40	60	34.28	65.71

No	Question	Percentage (%)			
		Cycle I		Cycle II	
		Yes	No	Yes	No
2	is teacher 's explanation during KBM Can comprehended and comprehended ?	51.42	48.58	80	20
3	is You in Learn English _ using a learning model Cooperative GI type feel more motivated ?	91.42	8.57	94.28	5.71
4	Im motivated in look for information from various necessary sources (books, internet, etc). in activity discussion .	71.42	28.58	85.71	14.29
5	Learning use Project Based Learning (PjBL) learning model with activity discussion make I more responsible answer in finish task group .	91.42	8.57	91.42	8.57
6	Learn English with using the Project Based Learning (PjBL) learning model to train I For Can put forward opinion .	76	24	88, 57	11.42
7	is written teaching materials in an easy worksheet understood ?	94.28	5.71	94.28	5.71
8	is according to you questions in test in accordance with required competencies ?	100	0	100	0
9	is You interested For follow learning as you have done moment This is an activity learning next ?	91.42	8.57	100	0
Average response student		**84.83% (Very Strong)**			

Based on the results of the analysis of student responses to the development of learning tools and implementation of learning using the Project Based Learning (PjBL) learning model, the average results were 84.83%. Students responded with very strong criteria (Riduwan, 2010)

CONCLUSION

Based on the data analysis above, it can be concluded that applying the Project Based Learning (PjBL) learning model to science thematic material in class V MIN 2 Surabaya City can improve student learning outcomes. This can be seen from the results of student learning activities using the Project Based Learning (PjBL) learning model which has increased from the quite good category, namely with an average percentage of 70.5% to a very good category with an average percentage of 85%. Completeness of learning outcomes also increased in cycle 1, the percentage of student learning completeness was 67% and there was an increase in cycle II of 87%, and the student response questionnaire showed positive response results to the application of the Project Based Learning learning model on science thematic material.

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