



Implementation of Problem Based Learning Model to Improve Learning Outcomes of Fourth Grade Students at SDN 1 Jamblang

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ABSTRACT

The low learning outcomes of fourth-grade students at SD Negeri 1 Jamblang are the main reason for this research. This research uses a classroom action research (CAR) method with qualitative and quantitative approaches. The aim is to determine the effectiveness of the implementation of the Problem Based Learning (PBL) model in improving learning outcomes. The PBL model was chosen because it is able to encourage students to be more active, critical, and directly involved in problem solving. The results of the study showed an increase in learning outcomes at each stage. In the pre-cycle, only 5 students (15.15%) achieved the Minimum Competency (KKM) of 75. After the PBL model was implemented in cycle I, learning mastery increased to 21 students (63.63%). This increase continued in cycle II, where 30 students (90.90%) successfully achieved mastery. Based on these results, it can be concluded that the implementation of the Problem Based Learning model has proven effective in improving the activeness and learning outcomes of fourth-grade students, so this model is suitable for use as an alternative in efforts to improve the quality of learning in the classroom.

1. Introduction

Education plays a vital role in human life. Every individual in Indonesia has the right to a quality education. Education has the potential to transform a nation from underdeveloped to developed. A developed nation begins with quality education. Education is a means to develop the potential of each individual so they can live and contribute fully to life. This encompasses cognitive, affective, and psychomotor development (Rahman, 2021 in Arifudin, 2022 (Maskur, 2023: 190)). Elementary school education plays a crucial role in shaping students' knowledge and thinking

skills. One subject that contributes to the development of students' insights is Natural and Social Sciences (IPAS). This subject teaches basic concepts about the environment, natural phenomena, and social interactions that occur in everyday life. However, in practice, science and science learning in elementary schools are often dominated by conventional, teacher-centered methods, such as lectures and memorization, thus providing fewer opportunities for students to think critically and exploratively (Pokhrel, 2024 in Rafli, Arisanty, and Hartati, 2025: 20).

Learning is defined as the interaction between students, educators, and learning resources during the teaching and learning process. Teachers play a crucial role in organizing the classroom learning process and are a determining factor in the success of any educational endeavor. Collaborative learning is expected to run smoothly, ensuring the achievement of students' cognitive, affective, and psychomotor competencies (Fasza and Nugraheni, 2024: 22). Student learning outcomes are academic achievements achieved through exams, assignments, and the active questioning and answering skills that support these achievements. In academic settings, the view often arises that educational success is not solely measured by report card grades or diplomas. However, to measure success in the cognitive aspect, student learning outcomes can be a clear indicator (Somayana, 2020 in Sitoresmi and Untari, 2025:77).

According to (Salam et al., 2019 in Oktaviani et al., 2020:2), factors that influence science learning outcomes include motivation and interest in learning, interaction between teachers and students, students' ability to think critically and solve problems, critical thinking skills, and learning models. Based on these factors that influence learning outcomes, a teacher must be able to create interesting learning activities to improve internal factors, namely student interest and motivation. A teacher must facilitate students to actively participate in learning, collaborate actively with others, and have the courage to ask questions and express their opinions. One model that is considered effective is Problem-Based Learning (PBL), which focuses on problem-solving as the core of learning. PBL is a learning model that emphasizes student involvement and encourages their active involvement in solving problems that are clearly relevant to the material. Through PBL, students are involved in the process of problem identification, information collection, analysis, and problem-solving. This process not only deepens conceptual understanding but also hones critical thinking, collaboration, and communication skills (Safitri, Sati, and Andayana, 2025: 2).

According to Elizabeth and Sigahitong (2018 in Amaliyah and Darmini, 2025: 146), in Problem-Based Learning (PBL), students are confronted with practical problems as the foundation for learning; in other words, students learn through problems. This model encourages students to solve problems posed by the teacher. Problem-Based Learning (PBL) is an approach that uses real-world problems as a context to stimulate students' critical thinking and problem-solving skills in understanding the concepts and principles underlying a subject (Rahmadani and Anugraheni, 2017 in Aprina, Fatmawati, and Suhardi, 2024: 982). According to (Fauziyah, 2023: 58 in Lupik Nurasiah and Nurmeta., 2025; 457), PBL syntax includes five phases: student

orientation to the problem, student organization of learning, independent and group investigation, development and presentation of work results, and analysis and evaluation of the problem-solving process.

Based on pre-cycle observations in grade IV of SD Negeri 1 Jamblang, Jamblang District, Cirebon Regency, data obtained showed that in the pre-cycle there were 5 (15.15%) students who met the completion criteria and 28 (75.85%) students who did not meet the criteria. Thus, it can be said that student learning outcomes are still low, especially in the Natural Sciences and Social Sciences (IPAS) material. This is because teachers have not implemented innovative learning models. As a result, students are less able to find, analyze and conclude changes in the state of matter. One innovative learning model that can improve student learning outcomes is the PBL model. The aim is to determine the effectiveness of the application of the Problem Based Learning (PBL) model in improving learning outcomes.

2. Methodology

Method

The research location was SDN Jamblang 1, Jamblang District, Cirebon Regency. The research subjects were 33 fourth-grade students of SDN Jamblang 1, Jamblang District, Cirebon Regency, consisting of 17 female students and 16 male students. This research used the classroom action research (CAR) method. CAR is defined as an effort or action taken by teachers or researchers to address learning problems through research. According to Kemmis and McTaggart, each CAR cycle consists of four stages: Planning, Implementation, Observation, and Reflection (Mertayasmini, 2023: 53). As seen in Figure 1.



Figure 1. Design of PTK Kemmis and McTaggart Model

This research aims to improve the learning process and the quality of education. Two methods were used in this study: observation and questionnaire/survey. The research instruments used were observation, learning achievement tests,

documentation, and student worksheets (LKPD). Data collection techniques included photographs, text, numbers, and others. Data collection methods included observation to obtain qualitative data, Learning Achievement Tests to obtain quantitative data, and documentation.

3. Results and Discussion

Results

In this study, the first stage was the pre-cycle, where researchers also conducted observations to identify problems occurring in the classroom. Based on observations in the fourth grade, consisting of 33 students 16 boys and 17 girls, it was found that student learning outcomes were still relatively low. This problem arose from low student activity during the learning process. They tended to be passive and showed signs of boredom during the lesson. This was clearly evident from direct observations in the classroom. When the teacher delivered the material, many students were unfocused, paid little attention to the explanation, and often engaged in irrelevant activities, such as playing with friends or objects around them. This condition directly impacted their low learning outcomes. Furthermore, the learning process implemented by the teacher tended to be monotonous with minimal strategy variation and limited use of teaching aids. As a result, interaction between teachers and students, as well as between students, was very limited. The learning atmosphere became less interesting and tended to be boring, both for students and teachers. One solution to overcome this problem is to improve the learning process through the implementation of more innovative and interactive learning models. Teachers, as learning facilitators, are required to continuously develop their competencies, one way of doing this is by implementing approaches that can increase student activity and engagement. The Problem-Based Learning (PBL) model is a relevant alternative, as it requires students to be more actively involved in the learning process through collaborative problem-solving. Through group discussions and teamwork, students not only develop understanding of the material but also critical reasoning skills, communication skills, and responsibility in learning.

In the pre-cycle stage, the researcher has not yet implemented the PBL model, so that student learning outcomes are still relatively low. Data collected in each cycle are student learning outcomes obtained through evaluation tests at the end of the cycle. This classroom action research was conducted on fourth-grade students of SD Negeri 1 Jamblang, with a focus on improving learning outcomes in the subject of science through the application of the PBL model. It is known that in the pre-cycle stage, most students obtained scores below the Minimum Completion Criteria (KKM), which is 75. Of the total 33 students, only 5 (15.15%) students achieved scores above the KKM, while as many as 28 (84.84%) students obtained scores below the KKM. In addition, the level of student activeness in the learning process is also still low. These data indicate that the learning outcomes of fourth-grade students of SD Negeri 1 Jamblang in the pre-cycle stage are still below the expected

standard. Therefore, the researcher continued to the first cycle stage as an effort to improve the learning process in the pre-cycle stage. Cycle 1 was designed by applying the PBL model to improve learning outcomes as well as student activity in science learning.

Based on the results of the implementation in cycle 1, it can be concluded that the learning process has not been fully successful, because the students' learning outcomes are still relatively low. However, there was an improvement compared to the pre-cycle stage. Of the total 33 students, 21 (63.63%) students managed to achieve scores above the Minimum Competency (KKM), while 12 (37.37%) students still obtained scores below the Minimum Competency (KKM). This improvement indicates a significant development in students' learning outcomes after the implementation of the PBL model and the use of visual aids in the form of a state change board before working on the Student Worksheet (LKPD). The use of these visual aids was able to attract students' attention and make them start to be interested and more active in participating in the learning process. However, because there were still some students who had not achieved completeness, the researcher continued to the next stage, namely cycle 2. Learning in cycle 2 was designed as a development of cycle 1 with the hope of further improving learning outcomes and students' activeness in understanding the material on state changes in the science subject.

In cycle 2, the researcher used the PBL model with the help of different teaching aids, namely smart books. In cycle 2, it was seen that out of 33 students, 30 (90.90%) students obtained scores above the Minimum Completion Criteria (KKM), while 3 (09.10%) students obtained scores below the Minimum Completion Criteria (KKM). These results indicate a significant increase in student learning outcomes. This indicates that learning in cycle 2 using the PBL model can improve the learning outcomes of fourth-grade students at SD Negeri 1 Jamblang. For more details, a recapitulation of improvements in student learning outcomes after the implementation of the Problem Based Learning (PBL) model to improve the learning outcomes of fourth grade students at SD Negeri 1 Jamblang can be seen in Table 1 below:

Table 1. Recapitulation of Learner Learning Results in Pre-cycle to Cycle II

No	Aspect	Pre-Cycle	Cycle I	Cycle II
1	Number of Learners	33	33	33
2	Total score	1.339	2.384	2.793
3	Minimum Completeness Criteria (KKM)	75	75	75
4	Average Score	40,57	72,24	84,63
5	Highest Score	79	87	95
6	Lowest Score	15	50	69
7	Number of Learners Completed	5	21	30
8	Number of Incomplete Learners	28	12	3
9	Percentage of Learning Completeness	17,85%	63,63%	90,90%

Discussion

Learning planning is a systematic step taken by an educator to guide, support, and mentor students to experience an efficient learning process and achieve predetermined learning objectives. This involves developing learning materials, using various media, implementing appropriate learning approaches and methods, and conducting assessments within a specific timeframe (Widiyanto and Wahyuni, 2020, in Irawan et al., 2023: 42). Lesson planning is crucial and inseparable from the learning process. With lesson planning, teachers can determine what needs to be done during the learning process. In other words, lesson planning serves as a guideline for implementing the learning process (Nurjannah, Apriliya, and Mustajin, 2020: 49).

So, it can be concluded that learning planning is a design of activities that will be carried out by teachers during the learning process to achieve what actions will be carried out in a learning process, namely by coordinating learning components, so that learning objectives, materials, methods, techniques, tools and sources and how to measure learning outcomes become clear and systematic. This is in line with Nurrahma's research (2024: 5507), the results of the research showed that the planning of teaching modules in cycle 1 was 87.5% and increased in cycle 2 to 96.5%. For further details, a recapitulation of the results of planning the implementation of the Problem Based Learning (PBL) model to improve the learning outcomes of grade IV students at SD Negeri 1 Jamblang can be seen in the table 2 below:

Table 2. Recapitulation of Planning Results

Cycle	Total Score	Percentage
Pre-cycle	12	44,44%
Cycle 1	26	96,29%
Cycle 2	27	100%

Implementation is related to teacher performance and student learning activities. Teacher performance is a teacher's ability to carry out learning tasks and be responsible for the students under their guidance, thereby improving student achievement (Ikbal et al., 2021: 10). Meanwhile, Pujoandika and Sobandi (2021:3) in Krisnayanti and Wijaya (2022:1778) stated that teacher performance is one of the main elements and has a broad influence on the learning achievements of students during the teaching and learning process. Thus, it can be concluded that teacher performance is the teacher's ability and responsibility in teaching and guiding students, with the goal of improving their learning outcomes. This performance is reflected in how teachers carry out their daily duties in the classroom, how effective their teaching methods are, and the extent to which they influence student development and achievement. This is in line with Putri's research, 2025: 163-167, the results of the study showed that teacher performance in cycle 1 was 76.78% and increased in cycle 2 to 85.71%. For further details, a recapitulation of the results of the implementation of the Problem Based Learning (PBL) model to improve the learning outcomes of grade IV students at SD Negeri 1 Jamblang (teacher performance) can be seen in the table 3 below:

Table 3. Recapitulation of Teacher Performance Implementation

Cycle	Total Score	Percentage
Pre-cycle	8	38,09%
Cycle 1	20	95,23%
Cycle 2	21	100%

Furthermore, students' learning activities are all series of activities or activities consciously carried out by someone which results in changes in themselves, in the form of changes in knowledge or skills (Ariaten, et al, 2019 in Besare, 2020: 19). According to Hartono, (2018) in Salam (2020: 200) student learning activities are student activities in the learning process that involve emotional abilities which include active activities in being enthusiastic about being a tutor for other students, working on questions in front of the class, expressing opinions in the form of asking or refuting opinions from other students or teachers. So, it can be concluded that student learning activities are individual activities that can bring about changes towards the better in the individual due to interactions between individuals and individuals and individuals with the environment, in the form of cognitive, affective and psychomotor changes. This is in line with research by Tampubolon., (2016: 190) the results of the research showed that student learning activities in cycle 1 were 43.75%, then increased in cycle 2 to 82.5%. For further details, a recapitulation of the results of the implementation of the Problem Based Learning (PBL) model to improve the learning outcomes of grade IV students at SD Negeri 1 Jamblang (student learning activities) can be seen in the table 4 below:

Table 4. Recapitulation of Student Learning Activity Implementation

Cycle	Total Score (Affective)	Percentage	Total Score (Psychomotor)	Percentage
Pre- Cycle	5	15,15%	5	15,15%
Cycle 1	19	57,57%	19	57,57%
Cycle 2	31	93,93%	31	93,93%

According to Dakhi (2020: 468), student learning outcomes are achievements achieved by students academically through exams and assignments, active asking and answering questions that support the achievement of these learning outcomes. Meanwhile, Fernando, Andriani, and Syam (2024: 66) stated that learning outcomes are results given to students in the form of assessments after participating in the learning process by assessing the knowledge, attitudes, and skills of students with changes in behavior. So, it can be concluded that learning outcomes are student achievements obtained through the learning process, both academically and in terms of behavioral changes, which include cognitive, affective, and psychomotor aspects. This is in line with research by Sitoesmi and Untari (2025: 76) where the results of the study showed that student learning outcomes in cycle 1 increased from 43% to 86% in cycle 2. For more details on the recapitulation of student results, please see the table 5 below:

Table 5. Recapitulation of Improvement in Student Learning Outcomes

Cycle	Total Score	Percentage
Pre-cycle	5	15,15%
Cycle 1	21	63,63%
Cycle 2	30	90,90%

Based on the results of the classroom action research conducted, there was an increase in student learning outcomes on the material of changes in the state of matter in science subjects. This increase occurred after the implementation of the Problem Based Learning (PBL) model in the learning process. The PBL model has been proven to be able to increase student learning motivation. They become more enthusiastic, active and not easily bored during learning activities. Direct involvement in solving problems related to the material allows students to understand the concepts more deeply. The implementation of PBL also has a positive impact on learning activities in the classroom. Students are involved in group discussions, exchange ideas and express opinions with more confidence. This contributes to the improvement of overall learning outcomes. Thus, the use of the PBL model can be an alternative learning strategy that is effective in increasing student motivation, participation, and learning outcomes, especially on the material of changes in the state of matter.

4. Conclusion

Based on the results of the research and discussion, it can be concluded that there is an increase in student learning outcomes. This can be seen before the treatment is given, namely at the pre-cycle stage it is still low. Continued in cycle 1 there is an increase but still below the KKM. So, there still needs to be improvement in the next cycle, namely in cycle 2, there is a significant increase in the learning outcomes of fourth-grade students of SD Negeri 1 Jamblang. By applying the same learning model but with different actions carried out on smart book teaching aids, there is a significant increase. This shows that the classroom action research conducted by the researcher is successful, namely the Application of the Problem Based Learning (PBL) model to improve the learning outcomes of fourth-grade students of SD Negeri 1 Jamblang.

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