



### THE IMPACT OF LEARNING MODELS PROBLEMS-BASED LEARNING IN STUDENTS' SCIENCE LEARNING OUTCOMES AT SDN 3 RAJABASA BANDAR LAMPUNG CITY

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#### Abstrak

Kurang terlibatnya siswa dalam kegiatan pembelajaran IPA menyebabkan hasil belajar kurang maksimal. Penelitian ini bertujuan untuk menganalisis pengaruh model pembelajaran Problem Based Learning (PBL) terhadap hasil belajar IPA peserta didik kelas IV SD. Penelitian menggunakan metode kuantitatif eksperimen, pre-experimental design dengan bentuk one group pretest-posttest. Penelitian dilaksanakan selama 2 bulan di kelas IVA SD Negeri 3 Rajabasa Kota Bandar Lampung. Populasi penelitian adalah seluruh peserta didik kelas IV di SD Negeri 3 Rajabasa Kota Bandar Lampung. Sampel yang digunakan dalam penelitian ini yaitu seluruh peserta didik kelas IVA di SD. Teknik pengumpulan data dengan tes 25 soal pilihan ganda, dengan tingkat perkembangan kognitif C4 dan C5 materi struktur tumbuhan dan fungsinya dan bagian bagian tumbuhan. Data dianalisis dengan uji paired sample t test. Kesimpulan penelitian, menunjukkan bahwa model pembelajaran PBL dapat meningkatkan hasil belajar siswa kelas IV SD, dengan nilai signifikansi (2-tailed)  $0,00 < 0,05$ .

**Kata kunci** : Model Pembelajaran, PBL, Hasil Belajar IPA, Peserta Didik Kelas IV

#### Abstract

*Lack of student involvement in science learning activities causes learning outcomes to be less than optimal. This study aims to analyze the effect of the Problem Based Learning (PBL) learning model on science learning outcomes of grade IV elementary school students. The study used a quantitative experimental method, pre-experimental design with a one group pretest-posttest form. The study was conducted for 2 months in grade IV of State Elementary School 3 Rajabasa, Bandar Lampung City. The population of the study was all grade IV students at State Elementary School 3 Rajabasa, Bandar Lampung City. The sample used in this study was all grade IV students at the elementary school. Data collection technique with 25 multiple choice questions, with cognitive development levels C4 and C5 on plant structure and function and plant parts. Data were analyzed using paired sample t-test. The conclusion of the study shows that the PBL learning model can improve the learning outcomes of grade IV elementary school students, with a significance value (2-tailed) of  $0.00 < 0.05$ .*

**Keywords:** Learning Model, PBL, Learning Outcomes, Science, Grade IV Students

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## I. Introduction

The contents of education in Indonesia have an important role in the progress of the learning process. According to (Anggiehlia et al., 2019), one of the human efforts is educating life, so that humans can change their lives and future for the better. For the objectives of education to be achieved properly, the teacher must create active learning and the teacher must use an appropriate learning model. According to (Saputri et al., 2017), a learning model is a plan, pattern, or framework that can be used to design a learning mechanism from start to finish systematically and has certain stages.

Based on the results of observations that the authors have made at SDN 3 Rajabasa Bandar Lampung, problems are still found, especially in science lessons. During this time the teacher did not apply learning models, the teacher only used the one direct method, questions and answers, and assignments, besides that the teacher also did not use a variety of models resulting in students being less motivated to learn. This causes the average score of students' abilities to also be below the standards applied in the school. The following is data on science learning outcomes in class IV SDN 3 Rajabasa.

Table 1.1 Science Daily Test scores of class IV at SDN 3 Rajabasa

No	Interval Score	Results	%	Description
1	75-85	6	17,65	Above KKM
2	64-74	9	26,47	Above KKM
3	53-63	9	26,47	Under KKM
4	42-52	8	23,53	Under KKM
5	31-41	2	5,88	Under KKM
Total		34	100	

Source: DocumentationSDN3 Rajabasa

Based on Table 1.1, it can be concluded that the science daily test of class IV students above the KKM is 17.65%, where the KKM value is 75, while 82.35 have not reached the KKM. Therefore, teachers are required to use a learning model by the learning material, one of which is by using the Problem-Based Learning (PBL) learning model.

The implementation of the PBL model can make students more active, and creative and can encourage students to increase their courage in expressing opinions and the ability to work together in solving problems related to the material being studied to obtain various learning outcomes such as knowledge, skills, and attitudes. According to (Saputri et al., 2017) Learning outcomes are a product of evaluation carried out to see whether or not there is a change in students, or whether or not the learning has been carried out. Learning outcomes are also the abilities obtained by students after the learning process, which is usually indicated by the value or score obtained from the test results knowing a certain number of lesson meters.

According to (Ariyani & Kristin, 2021) the PBL learning model is a learning model that begins with problems found in an environment to collect and integrate new

knowledge developed by students independently. According to (Lestari, 2019) the PBL learning model is carried out by grouping heterogeneous subjects in the quality of ability to socialize, students' intelligence, learning motivation, and students' learning interests.

According to (Asfadi et al., 2014), PBL is a learning model designed so that students gain important knowledge, which makes them proficient in solving problems, and has a self-learning model and can participate in teams. According to (Primadonati, 2020), PBL learning is a problem-solving learning system by places students in an active role as solvers of everyday problems that are not well structured. According to (Ariyani & Kristin, 2021) Problem Based Learning is a learning model that begins with problems found in a work environment to collect and integrate new knowledge developed by students independently.

According to (Istiqomah, 2019) Science lesson is knowledge related to how to find out about nature systematically so that science is not only mastery of a collection of knowledge in the form of facts, concepts, or principles but also a discovery process. According to (Istiqomah, 2019) Science is the study of the universe and all its contents, both symptoms, events, and the lives of living things.

## **II. Research Method**

This Research uses experimental quantitative methods, manipulates a stimulant, treatment, or condition, and then measures the effect caused by the treatment or manipulation. This study used a pre-experimental design with a one-group pretest-posttest form, (Fauziyati, 2018). The research was conducted for 2 months in the IVA class of SD Negeri 3 Rajabasa, Bandar Lampung City.

The study population was all fourth-grade students at SDN 3 Rajabasa Bandar Lampung City. The sample used in this study were all IVA class students at SDN 3 Rajabasa Bandar Lampung City. Data collection techniques with a test of 25 multiple choice questions, cognitive development level C4 / analyze and C5 / evaluate with the material of plant structure and function and parts of the plant.

The validity of the item values  $r_{count}$  is greater than the  $r_{table}$  value, so it can be stated that all items are valid. The reliability test can be seen that Cronvach's alpha is greater than 0.6, so the data is declared reliable and has a very high level of reliability with a value of 0.916. The differentiation of the questions is in the excellent category and the level of difficulty of the difficult questions category there are 4 questions and 21 questions. Data were analyzed with a paired sample t-test.

## **III. Findings and Discussion**

The results showed that there was an effect of the PBL learning model on the science learning outcomes of class IV A students at SDN 3 Rajabasa, Bandar Lampung City (Tables 1 and 2).

Table 1 Paired Test Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	9.89	28	1.571	.297
	Posttest	20.89	28	1.595	.301

Source: Data Processing Results

Based on the table above, it is known that the pretest and posttest results have an increase of 11. This increase shows that the use of problem-based learning affects improving student learning outcomes.

Table 2 Paired Samples Test

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Pretest - Posttest	-11.000	1.563	.295	-11.606	-10.394	-37.229	27	.000

Source: Data Processing Results (2024)

Based on Table 2, it is known that if the Sig value. (2-tailed)  $0.00 < 0.05$  which is interpreted as significant  $H_a$  is accepted and  $H_o$  is rejected against the hypothesis proposed.

The PBL learning model helps students become more active and think critically in solving the problems they face in learning. According to Hosnan (2014), the purpose of PBL is to help students gain various experiences and change their behavior of students, both in terms of quality and quantity. PBL is not the delivery of a large amount of knowledge to students but is oriented towards developing critical thinking skills and problem-solving skills and at the same time developing the ability of students to actively build their knowledge, Fathurrohman (2015).

The PBL model is one of the learning models that gives students problems related to everyday life that can help students' understanding of learning materials. In this model the problem is presented at the beginning of learning and students are asked to solve the problem. The PBL model is learning that starts with authentic (real) problems that are by the subject matter so that it can train students to think critically in solving a problem, and can foster students' skills in solving a problem.

It is also explained by Riyanto (2010) that, problem-based learning is a learning model designed and developed to develop students' ability to solve problems. In addition, the PBL model also makes students more active because, in the learning process, students are allowed to develop their thinking skills, directing students to be able to solve problems in the field of study.

According to Ngalimun (2016), PBL is a learning model that involves the student solving a problem through the stages of the scientific method so that the student can learn the knowledge related to the problem and at the same time have the skills to resolve the problem. The problem given in the PBL model is a problem that matches the characteristics of the student, which is a simple problem and does not require difficult thinking. This problem is used as a trigger for the student's learning process before learning the concepts of the materials studied. The PBL model makes everyday problems as triggers for the learning process of the students before they know the formal concepts. (Hosnan, 2014).

The fourth-grade pupil, according to Piaget, is at the concrete operational stage. At this stage, the child is mature enough to use logical thinking or operation, but only for physical objects. At this stage, the child has lost a tendency to animism and racialism. His egocentrism is diminished and his ability in conservation tasks is improved. However, without physical objects in front of them, children at the concrete operational stage still have great difficulties in completing logical tasks, (Matt Jarvis, 2011). PBL makes students more interested and absorb lessons more optimally. Students also become more active in attending lessons as well as more courageous in expressing opinions, (Rahmasari, 2016).

#### **IV. Conclusion**

The implementation of the PBL model can improve the learning outcomes of 4th-grade students because it can train students to think at a high level, students not only understand and solve problems but can also dig into their knowledge and skills.

Research recommendation, the teachers should creatively create problems that will be solved by students, so that they are truly contextual. Research still has its limitations, so it is recommended in subsequent research related to learning with the PBL model for careful consideration of each PBL syntax.

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