

The Influence of the Problem-Based Learning (PBL) Model on the Learning Motivation in Science and Social Studies (IPAS) of Fifth Grade Students at UPTD SD Negeri 12 Parepare

Muhammad Alfitrah Kaharuddin¹, Musfirah², Yulia³, Imron Burhan⁴

¹²³⁴ Universitas Negeri Makassar

Corresponding Author: alfitrah29@gmail.com

Abstract

This study aims to evaluate the effect of the Problem-Based Learning (PBL) model on the learning motivation in Science and Social Studies (IPAS) among fifth-grade students at UPTD SD Negeri 12 Parepare. The study was motivated by the low level of student motivation, particularly in IPAS subjects. A quantitative approach was employed using a Nonequivalent Pretest-Posttest Control Group Design. The research population consisted of 174 students, with a sample of 40 students divided into a control class (20 students from class VA) and an experimental class (20 students from class VB). Data were collected through a learning motivation questionnaire administered during both the pretest and posttest. Data analysis was conducted using descriptive and inferential statistics. The descriptive analysis showed that the experimental class obtained a higher average score (67.8) compared to the control class (61.15). Inferential analysis using the Independent Sample T-Test produced a significance value of $0.001 < 0.05$. Based on these results, it can be concluded that the Problem-Based Learning (PBL) model has a significant effect on increasing students' learning motivation in IPAS.

Keywords: Problem-Based Learning (PBL), Learning Motivation.

INTRODUCTION

Education is an act of teaching that is carried out rationally, intentionally, carefully prepared, and systematically organized in order to achieve certain goals, such as preparing students so that they can play an important role in their lives, be able to face various changes, problems, and developments of the times. This is in line with the Government Regulation of the

Republic of Indonesia Number 57 of 2021, Chapter 1, Article 1, Paragraph 1 concerning the National Education Standards, which states: *"Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to possess spiritual religious strength, self-control, personality, intelligence, noble character, as well as the skills needed by themselves, society, the nation, and the state."*

Education is something that is very important in human life. Education serves as a medium through which humans engage in a process that is carried out consciously and systematically to improve self-potential in relation to attitudes, knowledge, and skills so as not to be left behind by progress in the present era. In line with this, Musfirah et al. (2021) stated that education is a medium to develop students' potential. Quality education will produce quality human resources who will be able to compete in the era of globalization.

Education cannot be separated from learning because learning is an integral part of education. Learning becomes a determining factor in students' success in undergoing education. In this case, learning refers to teaching and learning activities in which there is interaction between teachers and students concerning learning material, thus attracting students' attention and stimulating their thoughts and interests to further develop their potential. According to Hakim et al. (2022), in order to achieve good results so that a person's potential can be developed, a good learning process is required. Therefore, one of the ways to achieve learning objectives through the learning process is the development of a curriculum.

The curriculum currently used is the *Merdeka Curriculum*, which carries new policies different from previous curricula. According to Rohman et al. (Septiana & Winangun, 2023), one of the policies in the Merdeka Curriculum is the integration of Natural Sciences (IPA) and Social Sciences (IPS) into IPAS (Integrated Science and Social Studies) as a solution for students to better understand the relationship between human interaction and nature with natural events.

The teaching of Natural Sciences (IPA) and Social Sciences (IPS) in elementary schools represents two important fields of study that play a major role in shaping students' critical, logical, and systematic thinking. IPA (Natural Sciences) is a field of knowledge that studies nature and its phenomena scientifically. The National Education Standards Board (BNSP) (Kumala, 2016) explains that science relates to a systematic way of exploring nature, meaning that science is not only the mastery of knowledge in the form of facts, concepts, or principles but also a process of discovery. In science learning, the main elements are attitudes, processes, products, and metacognitive dimensions of knowledge. Meanwhile, Social Sciences (IPS) is a field of study that integrates various disciplines scientifically to provide students, particularly at the elementary level, with insights and knowledge. According to Parni (Zainuddin, 2023), social studies



education is a field that examines the relationship between humans and their environment. This environment is where students grow through various social activities and face problems that arise within society. Thus, Social Sciences is a learning program that adopts multi/interdisciplinary or even transdisciplinary approaches that should be reflected in its teaching methods.

In the learning process, both in Natural Sciences and Social Sciences, students' success is not only determined by their understanding of the material but is also greatly influenced by the learning motivation possessed by each individual. According to Fatmawati et al. (2021), when a person has low motivation, they tend not to be encouraged or driven to achieve what they desire. Low motivation can also lead to a lack of persistence, reduced diligence, and reluctance to use their creative abilities to solve challenges. One of the main causes of low student motivation is an unengaging learning process. Many students feel bored due to monotonous teaching methods that do not involve them actively. Learning that is too focused on lectures, memorization, and individual assignments without variation in activities may cause students to feel bored and uninterested in learning. This directly affects students' low participation in discussions, lack of curiosity, and suboptimal learning outcomes.

Based on observations conducted on Thursday–Friday, November 07–08, 2024, in the fifth grade at UPTD SD Negeri 12 Parepare, it was found that students' learning motivation in the learning process was still not optimal. During the learning process, students tended to be passive when the teacher delivered lessons, with only a few students asking questions or responding when the teacher provided stimuli, as well as a lack of enthusiasm in completing school assignments. In addition, students were also less active in group discussions, rarely expressed opinions, and did not demonstrate high curiosity. This occurred because the learning model applied was less engaging and did not sufficiently involve students in the learning process. The learning process often focused more on lectures, reading textbooks, and doing exercises without much involvement in exploratory and engaging activities. Therefore, teachers are expected to be creative and innovative in providing opportunities for students to develop better and participate actively in learning by developing and implementing appropriate learning models in classroom practice.

Based on the problems described above, one learning model that can be used to address these issues is the Problem-Based Learning (PBL) model. This learning model can help overcome students' boredom and low motivation in class and increase their interest in learning IPAS. This is in line with Usman (2021:105), who explains that *"Problem-Based Learning (PBL) is a learning*



model based on the principle of using problems as a starting point for acquiring and integrating new knowledge."

Problem-Based Learning (PBL) is a learning model that emphasizes problem-solving activities. According to Amir (Yulianti & Gunawan, 2019), the Problem-Based Learning (PBL) model begins by presenting problems relevant to students' real-world context through group learning, followed by formulating problems and searching for related materials as well as solutions to the problems. Similarly, Siregar (Yulianti & Gunawan, 2019) argues that students are required to actively seek solutions to the problems provided by the teacher, who acts as a mediator and facilitator in helping students build knowledge actively.

Previous research conducted by Setyowati et al. (2022) on the influence of the Problem-Based Learning (PBL) model on student motivation and learning outcomes showed that there was an increase in both motivation and learning outcomes of second-grade students at SD Negeri 3 Girirejo. Thus, the use of the Problem-Based Learning (PBL) model can be applied to improve students' learning motivation.

Similar research was also carried out by Wahyuningtyas & Kristin (2021), which showed that the Problem-Based Learning model could enhance elementary school students' learning motivation. The increase in students' motivation was evident from the lowest to the highest levels, as reflected in the rise in average scores before and after the intervention. Further research by Ritonga et al. (2023), entitled *The Influence of Problem-Based Learning (PBL) Model to Improve the Learning Motivation of Fourth Grade Students at SD Negeri 200106 Padangsidempuan Utara*, also showed that the problem-based learning model had a significant influence on students' motivation.

Other relevant research was conducted by Mardani et al. (2021), which concluded that there was an effect on motivation and learning outcomes between students who followed the Problem-Based Learning model compared to those who learned through conventional methods in Social Studies learning in grade VIII at SMP Negeri 3 Sukasada. Subsequent research by Rahman (2024) concluded that the innovative Problem-Based Learning approach had a significant positive impact on elementary students' learning motivation at SD Negeri 69 Balang-balang. These findings indicate that the Problem-Based Learning (PBL) model has the potential to increase students' learning motivation.

Based on the background described above, this research was conducted under the title: *"The Influence of the Problem-Based Learning (PBL) Model on the Learning Motivation in Science and Social Studies (IPAS) of Fifth Grade Students at UPTD SD Negeri 12 Parepare."*

METHOD

The research approach used in this study is a quantitative approach. This research approach is related to measurement activities. This approach employs numbers and statistical analysis. According to Djaali (2020), quantitative research is inferential research, meaning that it draws conclusions based on hypothesis testing using statistical methods, with empirical data obtained through measurement.

The type of research used in this study is experimental research. According to Kusumawati (2023), experimental research is a method specifically designed to test and identify causal relationships through hypothesis testing using an analytical quantitative approach.

The research design employed in this study is a quasi-experimental design with the type of Nonequivalent Pretest-Posttest Control Group Design. This design falls under quasi-experiments. According to Abraham & Supriyati (2022), quasi-experiments are defined as experiments that include treatments, impact measurement, and experimental units, but do not use random assignment to create comparisons in order to conclude the changes caused by the treatment.

Table 1. Nonequivalent Pretest-Posttest Control Group Design

	<i>Pretest</i>	<i>Treatment</i>	<i>Posttest</i>
Experimental Class	O1	X1	O2
Control Class	O3	X2	O4

Source: (Gay, Milss & Airasian, 2018)

Description:

X1 : Implementation of the Problem-Based Learning (PBL) model

X2 : Implementation of the conventional learning model

O1 : Pretest (Experimental Class)

O2 : Posttest (Experimental Class)

O3 : Pretest (Control Class)

O4 : Posttest (Control Class)

According to Roflin et al. (2021), population is the group of people who are the subject of research or whose characteristics are to be studied. The population of this study was all students of UPTD SD Negeri 12 Parepare, totaling 174 students. The sample is part of the population taken using a certain method and able to represent the characteristics of the population. The sampling technique used in this study was non-probability sampling in the form

of purposive sampling. According to Sugiyono (2019), purposive sampling is a sampling technique used to determine the sample based on specific reasons or considerations. The sample in this study consisted of students of class VA and VB at UPTD SD Negeri 12 Parepare, with a total of 40 students. Class VA consisted of 20 students (12 male and 8 female), while class VB consisted of 20 students (13 male and 7 female).

Data collection techniques are methods used to obtain data in a study. The data collection methods used in this research were a learning motivation questionnaire, observation, and documentation. The learning motivation questionnaire used in this study was developed based on Uno (2023), who defined the indicators of learning motivation as follows:

- (1) the desire and will to succeed;
- (2) the drive and need for learning;
- (3) expectations and future aspirations;
- (4) rewards in learning;
- (5) interesting learning activities;
- (6) a conducive learning environment, which allows students to learn well.

Based on these indicators, the researcher compiled 20 statement items, each directed at measuring students' learning motivation.

Table 2. Categories of Students' Learning Motivation

Score Interval	Description
66 – 80	Very High
51 – 65	High
36 – 50	Moderate
20 – 35	Low

The research procedure was carried out in three stages, namely Pretest, Treatment, and Posttest. According to Dhewy (2022), quantitative data analysis is a research method that deals with data in numerical form. The data analysis technique used in quantitative research is statistical data analysis. The data obtained were analyzed using descriptive and inferential statistical analysis techniques.

RESULTS AND DISCUSSION

Results

Experimental Class

The results of statistical analysis related to the initial and final conditions of fifth-grade students in the experimental class at UPTD SD Negeri 12 Parepare regarding students' learning motivation in IPAS are presented in the table below:

Table 3. Results of Descriptive Statistical Analysis of the Experimental Class

Statistics	Pretest	Posttest
<i>Number of Samples</i>	20	20
<i>Mean</i>	42,9	67,8
<i>Median</i>	44,5	67
<i>Maximum</i>	53	76
<i>Minimum</i>	26	62
<i>Range</i>	27	14
<i>Standard Deviation</i>	6,774	4.060
<i>Variance</i>	45,884	16.484

Source: IBM SPSS Statistic Version 29

Control Class

The results of statistical analysis related to the initial and final conditions of fifth-grade students in the control class at UPTD SD Negeri 12 Parepare regarding students' learning motivation in IPAS are presented in the table below:

Table 4. Results of Descriptive Statistical Analysis of the Control Class

Statistics	Pretest	Posttest
Number of Samples	20	20
Mean	47,15	61,15
Median	48,5	61
Maximum	58	74
Minimum	31	52
Range	27	22
Standard Deviation	7,407	4,945
Variance	54,871	24,450

Uji N-Gain

Pretest and posttest data in the experimental and control classes were analyzed using descriptive statistics in SPSS Version 29 by calculating the N-Gain Score or Normalized Gain. This test was performed by calculating the difference between pretest and posttest scores, then determining the effectiveness and success of the treatment.

Table 5. N-Gain Test Results

Class	Criteria	Frequency
Experimental	High	8
	Medium	12
	Low	0
Control	High	1
	Medium	16
	Low	3

Based on the N-Gain data presented above, the results show three criteria: high, medium, and low. In the experimental class, 8 students were categorized as high, 12 students as medium, and none as low. In the control class, 1 student was categorized as high, 16 as medium, and 3 as low. From these results, the experimental class had more students with higher N-Gain scores compared to the control class. This proves that the Problem-Based Learning (PBL) model influenced the learning motivation of fifth-grade students in IPAS at UPTD SD Negeri 12 Parepare.

Inferential Statistical Analysis

Hypothesis Testing

		Levene's Test for Equality of Variances				t-test for Equality of Means				95% Confidence Interval of the Difference	
		F	Sig.	t	df	Significance One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Pretest	Equal variances assumed	.254	.617	1.894	38	.033	.066	4.250	2.244	-.294	8.794
	Equal variances not assumed			1.894	37.700	.033	.066	4.250	2.244	-.295	8.795
Posttest	Equal variances assumed	.018	.895	-4.648	38	< .001	< .001	-6.650	1.431	-9.546	-3.754
	Equal variances not assumed			-4.648	36.613	< .001	< .001	-6.650	1.431	-9.550	-3.750

Figure 1. Independent Samples Test

Sumber: IBM SPSS Statistic Version 29

Based on the Independent Samples T-Test results, the significance value for the pretest was 0.066, which is greater than 0.05. This indicates that there was no significant difference in the initial ability of students in the control and experimental classes. Meanwhile, the posttest significance value (Two-Sided P) was 0.001, which is less than 0.05. The calculated t-value was negative (-4.648). According to Kurniasih et al. (2020), a negative t-value occurs due to the difference between the pretest mean and posttest mean, where the posttest mean is greater than the pretest mean. Therefore, this negative value can be considered positive. Since the t-value (4.648) is greater than the t-table (2.024), it can be concluded that H_0 is rejected and H_1 is accepted. This means that the Problem-Based Learning (PBL) model has a significant effect on the learning motivation of fifth-grade students in IPAS at UPTD SD Negeri 12 Parepare.

DISCUSSION

Description of Students' Learning Motivation in IPAS: Experimental and Control Classes

Experimental Class

Based on the descriptive statistical analysis using SPSS Version 29, the average pretest score of learning motivation in the experimental class was 42.9, with the highest score being 53 and the lowest 26. After the treatment, the posttest mean increased to 67.8, with the highest score being 76 and the lowest 62. These results indicate a significant increase of 24.9.

The application of PBL demonstrated its advantages in Class VB (experimental class). Through problem orientation, students showed increased motivation, reflected in their active participation in finding information, creative thinking to solve problems, and efforts to resolve challenges. Problem-based learning also made the material more relevant and engaging, resulting in students being more enthusiastic, responsive to tasks, and deeply involved in collaborative learning. This aligns with Utami & Giarti (Yustina & Mahadi, 2021), who explain that Problem-Based Learning emphasizes solving real-world problems, encouraging students to understand how they learn and collaborate in groups.

Control Class

Based on the descriptive statistical analysis using SPSS Version 29, the average pretest score in the control class was 47.15, with the highest score being 58 and the lowest 31. After the learning process, the posttest mean increased to 61.15, with the highest score being 74 and the lowest 52.

Although there was an improvement in students' learning motivation in the control class, it was not as significant as in the experimental class. This difference may be due to the limited

teaching methods and minimal student interaction in the learning process.

The Effect of PBL on Students' Motivation

Based on descriptive analysis, the average score of the experimental class after treatment was higher than that of the control class. This indicates that students' learning motivation in the experimental class was better than in the control class. The success of the PBL model can be explained by its characteristics that emphasize active and collaborative learning. In PBL, students are encouraged to explore, analyze, and solve problems independently or in groups. This promotes greater student involvement, initiative, and interaction.

These findings are consistent with Setyowati et al. (2022), who found that the PBL model positively affected motivation and learning outcomes. Similarly, Wahyuningtyas & Kristin (2021) and Ritonga et al. (2023) confirmed that problem-based learning significantly improves motivation in elementary school students. Mardani et al. (2021) also concluded that there was an effect of PBL on motivation and learning outcomes compared to conventional methods. Additionally, Rahman (2024) found that innovative PBL approaches had a significant positive impact on student motivation in elementary schools.

Overall, this study shows that the implementation of Problem-Based Learning (PBL) significantly influences students' motivation in learning IPAS, supported by higher motivation scores in the experimental class compared to the control class. These findings provide important insights for teachers in selecting effective learning models to foster active student participation.

CONCLUSION AND SUGGESTIONS

Based on the research questions, results, and discussion, it can be concluded that:

1. Students' learning motivation before being taught using the Problem-Based Learning (PBL) model was relatively low, as shown by the pretest mean score of 42.9, with the highest score being 53 and the lowest 26.
2. Students' learning motivation after being taught with the Problem-Based Learning (PBL) model increased compared to before treatment. The mean score increased from 42.9 in the pretest to 67.8 in the posttest, with the highest score being 76 and the lowest 62.
3. There is a significant influence of the PBL model on students' motivation in IPAS. This is proven by the Independent Sample T-Test result showing $0.001 < 0.05$, indicating a significant difference between the class that applied PBL and the class that applied conventional learning methods.



Suggestions:

1. For teachers: the PBL model can be applied sustainably, with problems presented to students being relevant to the material and adjusted to their abilities.
2. For students: the use of PBL helps in understanding the material more effectively.
3. For schools: the PBL model should be considered as it contributes positively to students' comprehension and can improve school quality.
4. For future researchers: this study provides insights into learning models that enhance student engagement and understanding in the learning process.

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