

The Effect of Problem Based Learning Model on Students' Social Sensitivity

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Abstract: This study aims to analyze the effect of Problem Based Learning on the Social Sensitivity of Fourth Elementary School students in the Karang Kusuma Cluster, Mranggen, Demak. The approach used in this research is quantitative research, with the data collection technique used as observation. The population of this study was 208 fourth-grade elementary school students in the Karang Kusuma Demak cluster, which then obtained a sample of 48 students. The results of the hypothesis test indicate that there is an effect of the Problem Based Learning model on the Social Sensitivity of Fourth Grade Elementary School Students in the Karang Kusuma Cluster, Mranggen, Demak. This is based on the t-test value = 7.456 > 2.07387 and the Sig (2-tailed) value obtained = 0.000 < 0.05. This means that there is an effect of the Problem-Based Learning model on students' social sensitivity.

Keywords: Problem-based learning, social sensitivity

1. Introduction

National education aims to develop the potential of students to become human beings who believe and fear God Almighty, have a noble character, are healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens (Setiawan, 2020). Teachers as the spearhead of education must be able to deliver their students to achieve these goals. Many obstacles hinder the achievement of these goals. These problems include incompetent human resources as educators, limited educational facilities, and problems in various fields of life that affect education in our beloved country (Sukmayadi & Yahya, 2020).

Technology development has brought us to a new era where the teacher's role is more dominant as a facilitator and motivator in learning. Students can easily find learning resources both in their environment and through Information and Communication Technology (ICT) devices that even fit in their hands (Vesudevan, 2021). However, behind this convenience, new problems arise, especially in the aspects of students' attitudes and activities. Attitudes that seem to be fading in the current generation include Social Sensitivity.

To change this situation, it is necessary to take the initiative of educators to create meaningful and fun learning, so that students can cultivate social sensitivity and increase student activities. These efforts include using cooperative learning methods so that students will interact and work with their friends (Laguador, 2014). The appropriate models include Problem-Based Learning.

Problem Based Learning (PBL) is seen by the Ministry of Education and Culture as a learning model that challenges students to "learn how to learn", working in groups to find solutions to real-world problems (Utaminingsih, Widjanarko, & Ismaya, 2022). The given problem is used as a stimulus for students to be able to work together to solve the problem before students learn the material related to the problem.

Based on the description above, the researcher sees that it is important to find out how much influence the use of the Problem Based Learning model has on students' social sensitivity to overcome the problems above.

The purpose of this study was to analyze how much influence the Problem Based Learning model had on students' social sensitivity. Through the results of this study, it is hoped that teachers will get alternative solutions to improve the quality of their learning, especially regarding aspects of the social sensitivity of students.

2. Literature Review

Problem-Based Learning (PBL) is learning that is obtained towards understanding the resolution of a problem, where the problem must be found first to start learning (Yew & Goh, 2016). Meanwhile, according to Savery (2015), Problem Based Learning shows various authentic and meaningful problematic situations to students, as intermediaries for conducting investigations. This authentic problem can help students construct their knowledge, develop higher skills and inquiry, make students independent and increase self-confidence.

The application of PBL in learning is carried out in groups. As stated by Hmelo-Silver & DeSimone (2013), PBL is an instructional method that challenges students to “learn to learn”, working together in groups to find solutions to real problems. This problem is used to relate students' curiosity and analytical skills and initiative to the subject matter. PBL prepares learners to think critically and analytically to find and use appropriate resources.

Humans are social creatures who cannot live alone and need to interact with other creatures. According to Naim (2015), social sensitivity is behavior, actions that individuals do to interact with other people, and can adjust to the group to provide comfort for those around them.

According to Setya Rachim, Majdji, & Santoso (2021), social sensitivity is how the relationship between peers in childhood as individuals with adults at school is not the main lesson value, but their behavior in the classroom at that time and the quality of their social relationships with children.

Social sensitivity varies from person to person. The more open a person is, the easier it is to understand other people's feelings. According to Way & Lieberman (2010), the dimensions of social sensitivity consist of three competencies, namely 1) Empathy: understanding the feelings of others and being able to give active attention to the problems experienced by others by helping to solve them, 2) Organizational Awareness: reading the emotional state of the group and the strength of the relationship between others, 3) Service Orientation: anticipating, recognizing, and meeting customer needs.

Another opinion according to Chen et al. (2018) regarding aspects of children's social sensitivity is divided into 7, namely 1) children's sensitivity to the feelings experienced by others, 2) children's ability to distinguish problem structures, 3) ability to analyze problems, 4) ability to solve problems and logical thinking, 5) the ability to build creativity, 6) the ability to express thoughts, feelings, and ideas to others, and 7) the ability to communicate and cooperate with others. It can be concluded that the notion of social sensitivity is the ability of a person to react quickly and precisely to certain situations or objects around him (Bender et al., 2012).

Based on the description above, it can be concluded that Problem-Based Learning is a learning model that uses problems in everyday life to be solved by students through systematic and scientific stages, and gain knowledge and concepts from the material studied directly. This research hypothesizes that there is an effect of the Problem Based Learning model on students' social sensitivity.

3. Methodology

The research design used in this research is quantitative research with experimental methods (Hamilton et al., 2021). This research approach is used to determine the effect of Problem Based Learning on the Social Sensitivity of Fourth Grade Elementary School Students in the Karang Kusuma Cluster, Mranggen Demak.

The population in this study was the fourth-grade elementary school students in the Karang Kusuma cluster, Mranggen, Demak Regency, totaling 208 students. The sample used in this study was 48 students. The independent variable (X) is the Problem Based Learning model and the dependent variable (Y) is the students' social sensitivity.

The data collection technique in this study used the observation method. Data analysis includes instrument testing (validity and reliability test), data description, analysis prerequisite test (normality and homogeneity test), and hypothesis testing t-test and N-gain.

4. Results

The classical assumption test was carried out as an initial requirement before testing the research hypothesis. Two prerequisite tests will be used, namely normality and homogeneity tests.

4.1 Normality Test

Based on Table 1, it can be seen that the value of Asymp Sig. (2-tailed) is $0.80 > 0.05$ and Exact Sig. (2-tailed) is $0.461 > 0.05$, so that according to the basis of decision making on the Kolmogorov-Smirnov normality test. It can be concluded that the data on the Problem Based Learning (X) variable on Social Sensitivity (Y) is normally distributed.

Table 1 - One sample kolmogorov-smirnov test normality test for PBL variables (X) and student sensitivity (Y).

Project Based Learning Sensitivity		
N		24
Normal Parameters ^{a,b}	Mean	6.54
	Std. Deviation	1.250
Most Extreme Differences	Absolute	.168

	Positive	.168
	Negative	-.143
Test Statistic		.168
Asymp. Sig. (2-tailed)		.080 ^c
Exact Sig. (2-tailed)		.461
Point Probability		.000
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		
d. This is a lower bound of the true significance.		

4.2 Homogeneity Test

In Table 2 it can be seen the significance value (Sig) of SPSS Version 25 output with a Sig value. is $0.453 > 0.05$. From these results, it can be concluded that the observed data have the same variance or are homogeneous.

Table 2 - Homogeneity test result.

		Levene Statistic	df1	df2	Sig.
Results	Based on Mean	.950	5	140	.451
	Based on Median	.832	5	140	.529
	Based on Median and with adjusted df	.832	5	129.767	.529
	Based on trimmed mean	.947	5	140	.453

4.3 Hypothesis Test

Table 3 shows that in the pretest, the average score obtained is 3.38 while the post-test result is 6.54. It can be concluded that there is an average difference between the two observations.

Table 3 - Group statistics.

Results	Class	Mean	Std. Deviation	Std. Error Mean
	Pretest	3.38	1.663	.340
	Posttest	6.54	1.250	.255

Based on Table 4, it can be seen that the value of sig (2-tailed) = $0.000 < 0.05$, and $t\text{-arithmetic} > t\text{-table}$ is $7.456 > 2.01290$ (df = 46) so that the hypothesis (H_a) is accepted and (H_0) is rejected. This means that there is an effect of the Problem Based Learning (PBL) model on the Social Sensitivity of fourth-grade elementary school students in the Karang Kusuma Cluster, Mranggen Demak.

Table 4 - SPSS hypothesis test output.

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Upper	Lower
Score	Equal variances assumed	1.384	.245	7.456	46	.000	3.167	.425	4.022	2.312
	Equal variances not assumed			7.456	42.704	.000	3.167	.425	4.023	2.310

4.4 N-Gain Test

Based on Table 5, it can be described that the average value of N-Gain for the Experiment class is 0.5648 with moderate criteria. N-Gain % for the Experiment class is 56 with an effective interpretation. So, it can be concluded that PBL is quite effective in increasing the Social Sensitivity of Fourth Grade Elementary School Students with moderate criteria.

Table 5 - N-gain test result.

	Class	
	Experiment	Control
Mean	56.4831	29.6627
Minimum	20.00	00.00
Maximum	100	80.00
N-Gain	0.5648	0.2966
Criteria	Moderate	Low
N-Gain%	56	30
Interpretation	Quite effective	Not effective

5. Discussion

The research data shows there is an increase in the average value of students' Social Sensitivity from 3.38 at the pretest to 6.54 at the posttest after the implementation of PBL. The results of the t-test test also show the value of sig (2-tailed) = 0.000 < 0.05, meaning that there is an effect of the PBL model on the Social Sensitivity of fourth-grade elementary school students. The N-Gain test shows that PBL is quite effective in increasing social sensitivity in the moderate criteria. These results are supported by the opinion of several experts as well as similar research that has been done previously.

In line with the opinion of Utaminingsih et al. (2022), Problem-Based Learning shows various problem situations that are authentic and meaningful to students, as intermediaries for conducting investigations and investigations. This authentic problem can help students construct their knowledge, develop higher skills and inquiry, make students independent and increase self-confidence. PBL as learning is obtained towards understanding the resolution of a problem, where the problem must be found first to start learning.

The results of this study are following research conducted by Research also conducted by Primayanti, Suarjana, & Astawan (2019) research shows the results of this study indicate that there are simultaneous differences in social attitudes and critical thinking skills of groups of students who follow the PBL and conventional models with a significance value of 0.000 < 0.05. Research from Nurtanto, Fawaid, & Sofyan (2020) shows PBL can have noble characteristics such as religious, responsible, hard-working, independent, democratic, tolerant, environmental and socio-religious care, and love for the homeland and nation.

6. Conclusion

Based on the results of the research, the opinions of experts and relevant research, it can be concluded that there is a quite effective effect of the PBL model on Social Sensitivity of Grade IV Elementary School Students in the Karang Kusuma Cluster, Mranggen District, Demak Regency in the medium category. The application of the problem-based learning model is supported by constructivist learning theory, which is student-centered learning. Problem-based learning is a learning model that uses real-world problems, in the context of problems, to enable students to learn critical thinking and problem-solving skills, as well as acquire basic knowledge and concepts from the subject. The superiority of student problem-based learning lies not only in understanding the concept of the problem but also in how to solve the problem faced. Thus, the socially sensitive PBL model enables students to overcome problems that arise in the social context and find these ideas.

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Conflict of Interest

The authors declare no conflicts of interest.

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