

## The Effectiveness of Problem-Based Learning Model and Role Playing Assisted by Audio-Visual Media in Learning Outcomes of Social Studies at Fifth-grade Elementary School

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### Abstract

Social learning is necessary in daily life to meet human needs through identifiable problem solving. However, what happened was students did not have learning experience that connects the theories with real life, learning was focused on giving materials to the students. This study aims to determine the effectiveness of problem-based learning (PBL) model and role playing assisted by audio-visual media in learning outcomes of social studies at fifth grade state elementary school Sulang 2. The research method was used a quasi-experimental design with a non-equivalent group design. The sample for experiment 1 was thought by using PBL model assisted by audio-visual media, while the sample for experiment 2 was used role playing assisted by audio-visual media. Data analysis was performed by using Kolmogorov Smirnov test with SPSS 23 aids. The mean score of post-tests in experiment class 1 increased with 77.4 point and experiment 2 with 68.4 point. The results of the t-test analysis were homogeneous, with sig value = 0.130, so that  $p > 0.05$ , so as  $H_0$  was rejected, and  $H_a$  was accepted. The results showed that 21 students in the experiment 1 and 14 students in the experiment 2 reached minimum completeness criteria at social science in the fifth grade by 75. The results of the N-gain analysis for the experimental class 1 showed a result of 0.965 and the experimental class 2 of 0.525. Based on these findings, it was shown that learning in the experimental class 1 which experience PBL assisted by audio-visual media was more effective and could improve learning outcomes than that of the experimental class 2 which experience role playing assisted by audio-visual media.

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## INTRODUCTION

A decent education is a right for every citizen. as stated in article 31 paragraph 1 of the 1945 Indonesian constitution which reads "every citizen has the right to education". Education plays a significant role in the life of the nation and state because every development and change cannot be separated from education. According to the Minister of National Education Regulation Number 22 of 2006 concerning content standards for primary and secondary education units, It's that social sciences (IPS) examines a set of events, facts, concepts, and generalizations related to social issues.

Based on the results of observations in the learning-teaching process of the social science at the fifth grade state elementary school Sulang 2, it was found that the teacher had used the media in social science class room, but the use of the media was still not optimal to help in the learning process. Learning was still teacher centered that the learning situation in the classroom became less varied. Less interesting learning makes students passive. The Interest in learning, activeness, and students interest in the learning process of the social studies tended to have low attainment. Social studies activities in the classroom were monotonous and students experienced lack of enthusiasm quickly, so students were often busy and make the learning atmosphere less conducive. If the teacher held a question and answer activity, the students did not dare to express their opinion, even some of the the student was most likely to make noise. These problems made it difficult for students to accept the social studies activity properly, so that the social studies learning process in the class seemed memorization learning concepts that was less attractive and innovative.

In December 2016 the government issued new banknotes featuring Indonesia's national heroes which was a different with the previous edition, some of people already knew the hero and some of them did not. Lately it had been known that the development of technology had not been matched by the prevention of incorrect information so as to undermine the sense of

nationalism and spread hatred, with the emergence of latest edition money containing hero figures, even there were people spreading of racism issues and denouncing these heroes. for this reason, the social studies subject could be used as a means to increase the sense of nationalism that had begun to fade and maintained the integrity of *Bhinneka Tunggal Ika*.

The problem of reducing the sense of nationalism and maintaining the integrity of *Bhinneka Tunggal Ika* had an impact in learning outcomes in social science at fifth grade state elementary school Sulang 2. Based on the report card scores of social sciences in the odd semester (2016/2017), it was found that the VA class consisted of 25 students, only 11 students (44%) scored above the minimum completeness criteria, namely 75, while the remaining 14 students (56%) ) the value was below the minimum completeness criteria (75). For class VB consisting of 25 students, only 11 students (44%) got scores above the minimum completeness criteria, namely 75, while the remaining 14 students (56%) score below the minimum completeness criteria (75). This showed that most of students at fifth grade at state elementary school Sulang 2 had not fulfilled the minimum completeness criteria achievement of social studies learning.

From the problems occurring in the fifth grade at state elementary school Sulang 2, it needed to be corrected to raise a sense of nationalism to improve learning outcomes in social sciences. In this case, an innovative and creative learning approach were needed, so that the learning process was able to be active, effective, and enjoyable. The researcher used one of the solutions that was expected to improve social studies learning outcomes, namely comparing more effective model between learning through problem-based learning models and role playing assisted by audio visual.

The problem-based learning model with audio-visual aid was proven to show enhancement in learning outcomes for elementary school students on research

conducted by Perdana (2016). Research by Purbayanti (2017) was based on the results of implemented learning that the application of role playing models was effective to improve students' learning outcomes. Murti (2017) in her study conducted using audio-visual media might improve student learning outcomes.

Problem-based learning took cognitive psychology as its theoretical support. The focus was not on what students were doing (student behavior) but on what they thought (their cognition). In this learning activity, the teacher Performed more as a guide and facilitator so that students might learn to think and solved their own problems (Arends, 2013: 45-46). Role playing was a powerful model for this thing, because it allowed teachers to use students' new and past experiences as resources in solving personal and social problems (Shaftel, 1982: 58). Hamdani (2011: 245) defined audio-visual media as media that contained sound elements and also had visible image elements, such as video recordings, films, and so on. According to Prastowo (2012: 301) audio-visual media was a method that combined two materials, namely visual material and auditive material. The purpose of the auditive material was to stimulate the sense of hearing, while the visual material was meant to stimulate the sense of seeing. By integrating both, educators also were able to build a quality learning method because communication took place effectively.

Based on the description above, it proved

that the application of problem-based learning and role playing models could boost student learning outcomes, as well as the use of audio-visual media. Therefore, it is an important effort to conducted a research on the effectiveness of problem-based learning and role playing models assisted by audio-visual media on material of respecting service and the role of figures in proclaiming independence to improve student learning outcomes. This study intended forfinding out which was more effective in improving social studies learning outcomes in 5thgrade elementary school between learning with audio-visual media aid in problem-based learning and role playing models.

**METHOD**

This study used a quasi-experimental design in the form of nonequivalent control group design. Quasi experimental design was applied because in learning research it did not fully control all existing variables, it could only control a few variables. The first experimental group was the group given treatment by applying problem-based learning model assisted by the audio visual, while the second experimental group applied role playing learning model with the audio-visual aid. After therapy was given to the study group, a final test was given to the group to find out the influence that had been given of the treatment. The research design used was seen in Table 1:

**Table 1.** Experimental research design

Group	Pretest	Treatmen	Posttest
Experiment 1	$o_1$	$X_1$	$o_2$
Experiment 2	$o_3$	$X_2$	$o_4$

Description:

X1 : treatment using problem based learning model assisted by audio visual

X2 : treatment using a role playing modelassisted by audio visual

01: pretest results of the experimental group 1

02: posttest results of the experimental group 1

03: pretest results of the experimental group 2

04: posttest results of the experimental group 2

The population in this study was classVA and classVB at state elementary school Sulang 2, Sulang District, Rembang Regency. This population had met the requirements as a homogeneous population based on the homogeneity test using SPSS 23 on the final semester test scores (UAS) of odd semester for the 2016/2017 academic year. There were 25 students in classVA and 25 students in classVB.

The sample in this study was determined using non-probability sampling techniques which was full sampling type. All members of the population were used as the research sample because the total population consisted of only two classes and in determining the requirement test for elementary school that fulfilled the homogeneity of data. Therefore, the sample used in this study was the classVA as experiment class 1 using problem-based learning model assisted by the audio-visual and the classVB as the second experimental class using role playing model assisted by the audio visual.

The independent variable in this study was problem-based learning model and role playing model assisted by the audio visual used in social studies learning for classV. The independent variable in this study was problem-based learning model and role playing model assisted by the audio visual used in social studies learning for classV.

The dependent variable in this study was cognitive learning outcomes on social studies of grade V students. This study was conducted for social studies subjects in grade V at state elementary school Sulang 2. The study was conducted during the even semester of the 2016/2017 academic year, from March 19, 2017 to June 3, 2017. The study was carried out by providing treatment for three meetings of experimental groups 1 and 2, which were alternately organized according to lesson schedule concerned.

A test as an Instrument was used to assess the cognitive aspects of learning outcomes. The instruments used in this study were a pretest and a posttest. Questions were given before and after treatment. The question type was multiple choice, with the aim of determining student

learning outcomes. Documentation and instructor interviews were used to gather information about student identities and initial circumstances. Documentation and interviews were conducted before and after the research took place. The results of the interview were used as a reference for determining the learning model to be used in the experimental class.

The observations used in this study were transparent observations, meaning that they were recognized publicly when carrying out their duties in the midst of the respondent's activities. So there was nothing to conceal for researchers and respondents. This observation was used to collect the requisite data, and with this data, information about student behaviors during learning activities can be collected.

Before it was used in the research, the test instrument was tested. The trial was held at state elementary school Sulang 1. There were 29 students who were the subjects of the test questions. The trial's aim was to obtain valid and reliable questions in measuring the desired data in order to obtain valid and reliable research results.. Furthermore, the test questions were analyzed to determine the level of difficulty and difference in the questions. There were 60 multiple-choice questions on the test.

Data analysis of students' cognitive learning outcomes was calculated using the Kolmogorov Smirnov test with the SPSS 23 help. If the sig value was greater than 0.05, Ho was approved and the data was normal distribution. The levene test, assisted by SPSS 23, was used to determine homogeneity at a significant level of 0.05 percent ( 5% ). If the sig value was greater than 0.05, Ho was approved. It meant that the variance was homogeneous. The average similarity test was calculated using the SPSS 23 program and the independent sample t-test, with the Ho test criteria agreed if the significance value was greater than 0.05. Ho was accepted if  $t \text{ count} > t \text{ table}$  and the degrees of freedom for the t distribution list were  $d(k) = n1 + n2 - 2$ . The posttest data analysis was divided into two parts: the analysis of the application of the problem-based learning model and the analysis of role playing learning model

with the audio-visual aids. The final data analysis was tested after everyone received a different treatment. Classical learning completion (KKM) was reached if the average value  $\geq 75\%$  of students fulfilled the minimum completeness criteria. Minimum completeness criteria were set to 70. Students achieved individual learning completeness if they received a final score of 70. N-Gain was used to measure the progress of student learning outcomes. The N-Gain was obtained from the pretest and posttest results. The N-Gain value was calculated using the formula:

$$\text{N-Gain} = (\text{posttest score} - \text{pretest score}) / (\text{maximum score} - \text{pretest score})$$

## RESULTS AND DISCUSSION

Experimental groups 1 and 2 must have the same initial conditions before they receive any type of medical treatment, so it is necessary to test of normality and homogeneity. The data used in the preliminary test is the pretest value. The preliminary test was analyzed using the SPSS version 23. The pretest values can be seen in Table 2.

**Table2.** Pretest Value of Experiment Class 1 and Experiment Class 2

Class	Number of Students	Highest Score	Lowest Score	Average	KKM (%)
E1	25	75	35	55.6	20
E2	25	75	25	51.8	20

The normality test was calculated using the Kolmogorov-Smirnov test with SPSS version 23 program assistance. The results of the calculation on the pretest value of experimental class 1 and 2 were obtained sig = 0.200. Because the sig value  $> 0.05$ ,  $H_0$  was accepted so that the class data was normally distributed.

This homogeneity test used the SPSS 23 program. If the significance value is  $> 0.05$ , the

two classes in this study are homogeneous. The homogeneity test result was 0.676. This showed that the two classes were homogeneous because they had a significance value  $> 0.05$ .

The results of the two tests showed that the experimental classes 1 and 2 had the same initial conditions or abilities. Table 3 displays the preliminary test analysis results.

**Table3.** Results of Preliminary Test Analysis

Test	Class	Grade	Description
Normality	Experiment 1 and Experiment 2	Sig=0.200	Accepting $H_0$ , normal distribution of data
Homogeneity	Experiment 1 and Experiment 2	Sig=0.676	Accepting $H_0$ , the variance of the two homogeneous classes

To determine student achievement after given treatment using the learning results of the pretest and posttest on experimental class 1

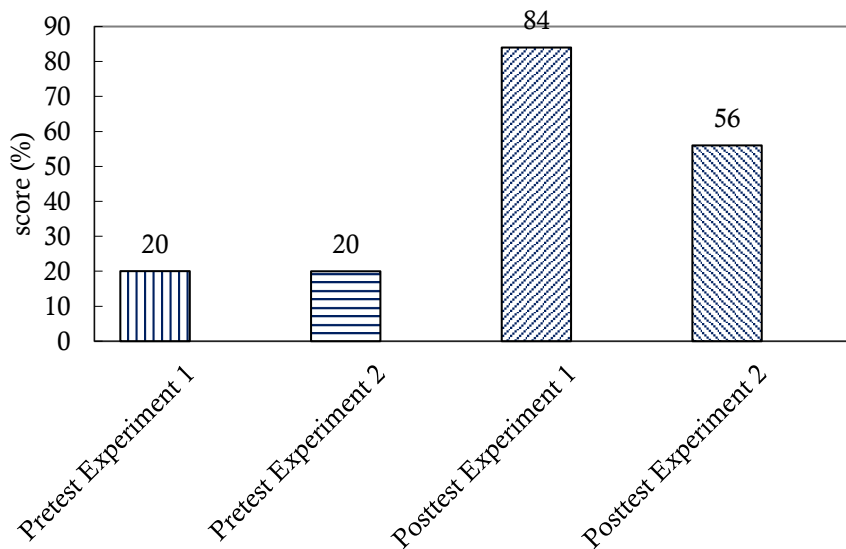
which was analyzed. The results of the pretest and posttest on experimental class 1 can be seen in Table 4:

**Table 4.** Pretest and Posttest Results for Experiment Class 1

Data	Highest score	Lowest score	Average	Classical Completeness (%)	Criteria
<i>Pretest</i>	75	20	55.6	20	very poor
<i>Posttest</i>	85	60	77.4	84	high

The posttest data above shows an increase in student learning outcomes after the treatment is applied using problem-based learning model assisted by audio visual. Before given the treatment, the class average score was only 55.6 with classical completeness as much as 20% (very low). However, after applying for problem-based learning with audio visual aid, the class average score increased to 77.4 with classical

completeness of 84% (high). The material presented by the teacher was adjusted to the problems that occurred in events that were often experienced by students, so that students are motivated to solve problems. The percentage of completeness and improvement in learning outcomes in the treated class using problem-based learning with audio visual aids can be seen in Figure 1.



**Figure 1.** The percentage increase in completeness of learning outcomes

Student learning outcomes in experimental class 1 indicate that problem-based learning with audio-visual assistance can improve student learning outcomes in social studies learning in class V elementary school.

The strategy of role playing learning with audio-visual assistance was applied to the experimental class 2 to determine student learning outcomes. The results of the pretest and posttest experimental class 2 can be seen in Table 5:

**Table5.** Pretest and Posttest Results of Experiment Class 2

Data	Highest score	Lowest score	Average	Classical (%)	Completeness	Criteria
Pretest	75	25	51.8	20		very poor
Post test	85	50	68.4	56		high

Table 5 shows an increase in student learning outcomes after the implementation of role playing learning strategies assisted by audio visual. Before given the treatment, the class average score was only 51.8. However, after implementing of the role playing learning strategy with audio visual aids, the class average score increased to 68.4 with classical completeness of 56% (high). The percentage of completeness and improvement of learning outcomes in classes that are treated using role playing learning strategies can be seen in Figure 1.

Implementing roleplaying activities as a character in learning can increase the passion and enthusiasm of students, so that the aims and objectives of learning can be understood by

students well. The role of the teacher is very necessary so that activities run orderly and smoothly. The improvement of student learning outcomes in experimental class 2 shows that the role playing learning strategy with audio visual aids can improve student learning outcomes in social studies learning in classVelementary school.

The next data analysis was the analysis of the posttest results of the two classes to determine the difference in the average posttest results between the experimental class 1 using problem-based learning with audio visual aids and the experimental class 2 using role playing learning with audio visual aids. The posttest values of experimental class 1 and experimental class 2 can be seen in Table 6:

**Table6.** Posttest Value for Experiment Class 1 (E1) and Experiment Class 2 (E2)

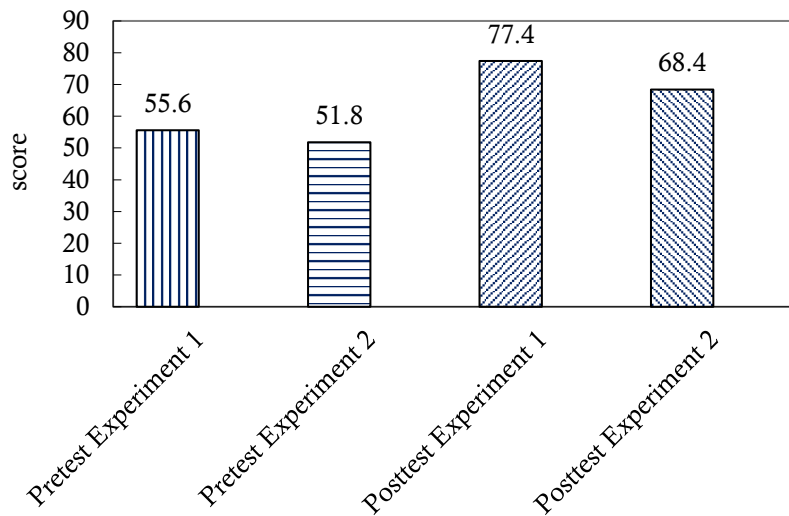
Data	Class	The number of students	The highest score	The Lowest Score	Average
Posttest	E1	25	95	60	77.4
	E2	25	85	50	68.4

Based on the results of the t-test analysis, it shows that the data is homogeneous (sig = 0.130;  $p > 0.05$ ). This means that there is no variance between the experimental group 1 and the experimental group 2. In other words, the data variations in the two groups are the same.

The calculation result of t-test analysis also shows the t value in the t-test column for equality of means sig. (2-tailed)  $0.013 < 0.05$  then  $H_0$  is rejected and  $H_a$  is accepted. This means that there is a difference in the average cognitive learning outcomes of the experimental

class students who use problem-based learning with the experimental class that uses role playing learning.

The minimum completeness criteria for social studies in class V is 75. A total of 21 students (84%) of experimental class 1 scored above the minimum completeness criteria. Meanwhile, in the experimental class 2, there were 14 students (56%) who scored above the minimum completeness criteria. The average pretest and posttest scores of experimental class 1 and experimental class 2 can be seen in Figure 2:



**Figure 2.** Value average of pretest and posttest in Class experiments 1 and 2

Gain analysis was used to analyze the increase in the achievement of student learning outcomes after given learning Process using problem-based learning and role playing assisted with audio visual. The results of the calculation of gain analysis showed that the experimental class 1 obtained a score of 0.965 in the high category. Meanwhile, the results of the calculation of gain analysis for the experimental class 2 obtained a score of 0.525 in the moderate category.

Before given the treatment, the class average score was only 55.6 with very low classical completeness. However, after implementing the problem-based learning with audio visual aids, the class average score increased to 77.4 with high classical completeness.

There is IIL class VA students who got 85 during the posttest. IIL is an active student in class, his interest in history increases his curiosity to understand the problems that presented. MAZ class VB students get a 85 during the posttest, MAZ always listen when the teacher explains the lesson and he is the best student in role playing activity. IIL and MAZ are students with the best grades in their class, they have no different scores at the pretest and posttest. The data shows that there is no

difference in the pretest and there is an increase in the posttest results.

**Table 7.** Pretest dan Posttest Value for Sample Experiment Class 1 (IIL) and Experiment Class 2 (MAZ)

Indicator	IIL class VA		MAZ class VB	
	Pretest (%)	Posttest (%)	Pretest (%)	Posttest (%)
2.2.1	89	89	78	89
2.2.2	73	80	80	87
2.2.3	83	83	67	83
2.3.1	79	86	79	86
2.3.2	67	93	79	86
2.3.3	75	100	75	100

The percentage of completeness and improvement of learning outcomes in the treated class using problem-based learning with audio visual aids in accordance with previous findings Asniadarni (2018) PBL model could increase student activity and learning outcomes. Ahamad (2017) concluded that there was a positive effect of PBL on knowledge acquisition and retention in learning. Hartuti (2018) stated that the problem-based learning model with audio visual assist affected students' conceptual understanding. Vera (2018) concluded that the use of the PBL model assisted with audio visual can improve students' critical thinking skills.



Based on the results of the study, it was obtained the data that the problem-based learning aided by audio-visual media was able to improve student learning outcomes in social studies learning. Problems that were used as material for finding solutions were proven to increase students' curiosity to solve problems well. Educators provided the motivation so that students did not easily give up in finding solutions to their problems, so there was good interaction between educators and students. In accordance with the results of previous studies by Cahyo (2018) concluded that the PBL model could improve the quality of learning that was evidenced by the increase in social studies learning outcomes. Herdini (2019) stated that the problem-based learning model assisted by manipulative teaching aids could increase self-efficacy in each dimension, the dimension of magnitude, the dimension of strength, and the general dimension. Rivaldi (2018) concluded that there was an effect of the problem based learning model assisted by audio visual media on the mastery of knowledge competencies, namely an increase in learning outcomes. Syaribuddin (2016) stated that there was an effect of the application of the PBL learning model with audio-visual media on the mastery of concepts and critical thinking skills of students. The average score increased and the indicator of critical thinking skills gained a high score.

Research conducted by Wahyuni (2018) stated that the role-playing assisted with PBL learning model increased student motivation and social studies learning outcomes. Wardono (2018) concluded that PBL learning was able to improve mathematical literacy in students. Prima (2017) concluded that there was an increase in learning outcomes between pre-role playing and post-role playing. Mustafa (2018) stated that the learning process had shown the enthusiasm of students in learning because the role playing method of students directly performed learning and improved Civics education learning outcomes. Mardalena (2018) showed that the implementation of a role

playing learning model could improve science learning outcomes.

The minimum completeness criteria for social studies in grade 5 was 75. A total of 21 students of experimental class 1 scored above the minimum completeness criteria. Meanwhile, in the experimental class 2, there were 14 students who scored above the minimum completeness criteria. From these results, the problem-based learning model assisted by Audio Visual was more effective than the role playing model assisted by audio-visual media. This can be seen from Table 6, namely the results of cognitive tests in the experimental class 1 which applied the problem-based learning assisted by audio visual were higher than the experimental class 2 which used the role playing model assisted by audio visual. Then there must be an interaction between the teacher and students so that the learning process becomes active, it can be in the form of questions and answers during discussion activities. The teacher as a moderator can respond to the results of the discussion presented in front of the class or give other groups the opportunity to provide responses. In accordance with the results of research by Purbiyanti (2017) that increasing student learning activities was a continuous process, so it took time to achieve it.

The use of audio-visual media can increase students' enthusiasm and curiosity in learning, with the presence of videos can make students more focused and pay attention to the material presented by the teacher. Research conducted by Ernaledy (2016), Ananda (2017) and Salamah (2017) concluded that audio-visual media could improve learning outcomes. Prayudi (2017) stated that there was an effect of audio-visual media with a problem-based metacognitive approach on student learning outcomes, namely an increase in learning outcomes. Imanudin (2016) concluded that the magnitude of the influence of the use of audio-visual media on student learning outcomes in civics learning using the effect size calculation was obtained by 1.52 in the high category.

Based on the results of the assessment it was found out that there was an enhancement, the experimental class 1 got higher learning

outcomes than the experimental class 2. So it can be concluded that learning experiment 1 is more effective which uses the problem-based learning model with audio visual aids compared to experiment 2 with its learning using role playing learning strategies with audio visual aids.

## CONCLUSION

A total of 21 students (84%) of experimental class 1 scored above the minimum completeness criteria. In the experimental class 2, there were 14 students (56%) who scored above the minimum completeness criteria. The conclusion of this research is a problem based learning model and role playing assisted with audio-visual media is effective in improving social studies learning outcomes in class V at state elementary school Sulang 2.

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