

The Effect of Using The Problem Based Learning (PBL) Learning Model Using Video on Learning Results of Class VIII State 5 Padang Middle School

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Abstract: This study aims to determine the significant of the Problem Based Learning (PBL) model student learning outcomes in IPA on grade VIII. This study used quantitative approach in the form of quazy-experiment. The population of this study is all students of class VIII SMP Negeri 5 Padang, 2019 / 2020. Sample taken with purposive sampling technique. The sample was grade VIII.8 (experimental class) and gradenVIII.6 (control class). The research instrument was a test of learning outcomes in the form 40 multiple-choice question items. After obtaining the learning outcomes data, it was continued with normality test, homogeneity test and hypothesis test (t-test test). The results showed that the average grade of experimental class students (VIII.8) is 78.58 and the average value of control class (VIII.6) is 71.50. Based on t-test calculation obtained t-test value 3.649, while t-table at significant level α 0.05 is 2.000. If comparison, then t-test value $3.649 > t\text{-table } 2.000$. Thus, it can be concluded that there are significant differences between the student's learning outcomes that apply Problem Based Learning (PBL) model and the students who apply conventional model in IPA at grade VIII SMP Negeri 5 Padang.

Keywords: Problem Based Learning (PBL), Video, Learning Outcomes

I. INTRODUCTION

Teaching and learning is a two-way communication process, where teaching is carried out by the teacher as an educator, while learning is carried out by students. In the process of teaching and learning students not only interact with the teacher as one source of learning, but also interaction with the whole learning resources used to achieve the desired learning goals. This educational interaction occurs between the teacher and students and between students with each other and between students and their environment. This interaction needs to be designed so that it can achieve optimal results in accordance with the specified learning objectives (Lufri, 2007: 1).

Natural science (IPA) according to the 2013 curriculum is a subject that has an important role in developing all aspects of the level of student ability in the learning process, this is because science is part of subjects developed based on achieving three aspects, namely, knowledge, attitudes and skills, so that the development of the three aspects of science has a very important role in developing students' scientific attitude and skills. in accordance with the regulations of the Minister of Education and Culture No. 57 of 2014 article 5 paragraph 2 regarding the basic concepts of natural science subjects. One way to improve the quality of education is through improving the quality of the learning process. The task

and role of the teacher is not only to educate, teach, and train, but also how teachers can read class situations and student conditions in receiving lessons, one of them on natural science subjects, This can be seen from the low average daily science test scores of Grade VIII Semester students I school year 2018/2019.

Table 1
The Score on Science Test of Class VIII Students SMP Negeri 5 Padang

No	Class	Mean
1	VIII.1	70.02
2	VIII.2	71.18
3	VIII.3	66.78
4	VIII.4	68.18
5	VIII.5	67.71
6	VIII.6	70.00
7	VIII.7	66.20
8	VIII.8	70.00

From Table 1, it is obtained that students' grade VIII student achievement in Padang 5 Padang is still low and far from the predetermined completeness value of 80. The cause of the low student learning outcomes among other students, the lack of student concentration in science lessons, the lack of student interest and motivation in participating in natural science lessons. So many factors influence students to achieve maximum learning

outcomes, and this becomes an obstacle for students to improve their learning outcomes.

One learning model that is in line with the demands of the 2013 curriculum that is appropriate in learning science subjects is the Problem Based Learning (PBL) learning model. PBL is a learning strategy that involves students to solve a problem through stages of the scientific method so that students can learn knowledge related to the problem and at the same time have the skills to solve problems (Mudlofir, 2016).

Based on the results of research conducted by Marhamah Saleh (2013) with the title *Fiqh Learning Strategy with Problem-Based Learning*, explaining the results of the study showed that the PBL method is suitable for application in fiqh learning, and can be combined with other conventional methods to achieve optimal learning outcomes. Besides that, PBL is quite effective in facilitating students' understanding and connecting their knowledge with the reality of existing problems in society.

Furthermore Yunin Nurun Nafiah and Wardan Suyanto (2014) in their study entitled "The Implementation of Problem-Based Learning Models to Improve Critical Thinking Skills and Student Learning Outcomes" obtained research results that showed the following: (a) the application of PBL models in learning improvement materials and PC rearrangement can improve students' critical thinking skills in learning that is by 24.2%, (b) Students' critical thinking skills after PBL implementation are students with very high critical thinking skills categories by 20 students (69%), high categories by 7 students (24.2%), the low category was 2 students (6.9%) and the very low category was 0 students (0%), (c) the application of PBL could improve student learning outcomes by 31.03%, and (d) Student learning outcomes after the implementation of PBL namely the number of students who reach the KKM of 29 students (100%).

Edi Prayitno and Aini Indriasih (2014) in their study entitled "The Role of Creative Problem Solving and Problem Based Learning Models in Improving Mathematical Problem Solving Ability" obtained the percentage of classical completeness of the PBL and CPS classes each reaching or more than 80%. The activeness of students in learning mathematics with the Problem Based Learning (PBL) learning model is better than the Creative Problem Solving (CPS) learning model due to individual assignments in an effort to find a solution to the problem before group discussion. Individual assignments in PBL learning that initially foster curiosity want to know the resolution of problems, after successfully found the solution raises a sense of satisfaction that underlies the absorption of abilities that last longer in the minds of students.

From the above studies, it is clear to us that the Problem Based Learning (PBL) learning model can stimulate students to be active in solving problems contained in the learning process, so that this will continuously stimulate students to be able to think critically, actively and creatively. Especially if it is applied to science learning, where science is a subject which is related to scientific thinking in daily life.

Based on the problems found above, the authors argue that research needs to be done in connection with student learning outcomes. For this reason, researchers conducted research with the title "The Effect of Application of Modeling Learning with Problem Based Learning (PBL) on Student Learning Outcomes in Science Subjects in grade VIII of SMP Negeri 5 Padang."

II. RESEARCH METHODS

This type of research uses quantitative methods in the form of quasy experiment, in which students are grouped into two classes, namely the experimental class and the control class. In this study the treatment given in the experimental class was Problem Based Learning (PBL) Learning Model, whereas in the experimental class the Conventional Learning Model was used.

The population in this study were all class VIII in Padang 5 Middle School registered in the 2019/2020 school year totaling 250 people. The sample in this study was Class VIII.8 (experimental class) and Class VIII.6 (control class), with 30 people in each class.

The type of data needed in this study is primary data. The primary data in this study are the learning outcomes of students who learn to apply the Problem Based Learning (PBL) Learning Model in the experimental class while for the control class apply learning with the Conventional Learning Model in science subjects in SMP Negeri 5 Padang. Data collected in this study were then analyzed using the "t" test.

III. RESEARCH RESULTS AND DISCUSSION

In this section presented the data description, data analysis and discussion. The data analyzed are in accordance with the factual findings in the field as they were carried out starting from July 15, 2019 to August 1, 2019. The results of this analysis are a picture of the "Effect of Application of Problem Based Learning (PBL) Learning Model on Student Learning Outcomes in Natural Sciences in class VIII SMP Negeri 5 Padang ". This research was conducted with an experimental form, in this study there were 2 sample classes, each class totaling 30 students. Class VIII.8 as an experimental class (which applies the Problem Based Learning (PBL) model) and VIII.6 as a control class (which implements a conventional learning model). Then between the two classes is continued by providing tests in the form of multiple choice (objective). The number of items given was 40 items. Based on research that has been done in the sample class, obtained data about student learning outcomes. The data is obtained from the final test on learning activities.

1. Analysis of Data

a. Normality Test

Normality test aims to determine whether the data obtained comes from data that is normally distributed or not. This test is very important because one of the assumptions in statistical testing is that the data must be normally distributed. In this normality test Lilliefors test is used as stated in the data analysis technique.

Based on testing that has been done with Liliefors technique in the experimental class (Problem Based Learning (PBL)), and the control class (Conventional Model), the results show that the experimental class has a Lhitung of 0.1262 while the Ltable with $N = 30$ is 0.161 for the level significant $\alpha = 0.05$. So it can be concluded that in the experimental class the data is normally distributed.

Whereas in the control class it was found that the results for Lhitung 0.1328 and for Ltable with $nN = 30$ were 0.161 for a significant level of 0.05. So it can be concluded that the data control class is normally distributed.

b. Homogeneity Test

After testing the normality is continued with the second conditional test, namely homogeneity testing. Homogeneity testing using the Barlett test. This test aims to determine whether the data comes from the homogeneous group, between the experimental class and the control class. It appears that the square value (χ^2) count is 0.267 while the price of chi squared (χ^2) table is 3.841 at a significant 0.05, then the chi square squared $< \chi^2 \text{ count} < \chi^2 \text{ table}$ is $0.267 < 3.841$. So, it was concluded that the data from the experimental class and the control class came from homogeneous groups.

c. Hypothesis Testing

After homogeneity test and normality test then proceed with t-test, to find out whether there are significant differences for the values of the two groups. if $t_{count} < t_{table}$ means that there is no significant difference between the two groups. This is in accordance with what was stated by Syafril (2010: 169), namely:

"If t_{count} is greater than t_{table} then for $\alpha = 0.05$ it means there is a significant difference for the value of the learning outcomes. If the t_{count} is smaller or equal to the table then there is no significant difference for the value of the learning outcomes".

From the results of the t-test calculations it can be concluded that the learning outcomes of students participating in learning with the Model Learning Problem Based Learning (PBL) are higher than those of student learning outcomes with the conventional learning model, and there is a significant influence on student learning outcomes between the experimental classes using the Problem Based Learning (PBL) Learning Model with the conventional learning model, and there is a significant influence on student learning outcomes between the experimental classes using conventional learning

2. Discussion

Based on the results of hypothesis testing that has been done, it is clear that there are differences in learning outcomes between students who learn by using Problem Based Learning (PBL) Learning Models and students who use Conventional Learning Models. The difference in learning outcomes can be seen from the average student learning outcomes when using the Olive Based Problem Learning (PBL) Learning Model 78.58 more than

avoiding the average learning outcomes of students using the conventional learning model 71.50.

Based on the analysis of data that has been done, then to test the significance of learning outcomes that have been formulated in the working hypothesis (H1), then a t test is carried out at the level of 0.05 by obtaining $t_{count} = 3.649$ and $t_{table} = 2,000$ means that t_{count} is greater than t_{table} ($t_{count} > t_{table}$). Based on this it can be concluded that the hypothesis is accepted. Thus it can be concluded that: "There is a significant influence using the Problem Based Learning Model (PBL) on student learning outcomes in natural science subjects in class VIII SMP Negeri 5 Padang" accepted at the 0.05 level. Thus, the application of science learning by using the Problem Based Learning (PBL) Learning Model can improve student learning outcomes. This can also be proven by seeing the level of student understanding and the large number of students who complete the experimental class compared to the control class.

Based on the explanation above, it can be concluded that the use of Problem Based Learning (PBL) Learning Model has a significant influence on student learning outcomes in Natural Sciences subject class VIII of SMP Negeri 5 Padang.

IV. CONCLUSION AND SUGGESTION

1. Conclusion

Based on the results of data description, data analysis, and the discussion that has been described previously, it can be concluded that:

The results showed that the average value of learning outcomes of students who learned using the Problem Based Learning Model (PBL) was higher than the average value of student learning outcomes applying the Conventional Learning Model

The application of the Problem Based Learning (PBL) Learning Model is significantly different from the conventional learning model. Student learning outcomes in science subjects in class VIII SMP Ne at a significance level of $\alpha = 0.05$ obtained t_{count} value of 3.649 is greater than the value of $t_{table} = 2.000$. This shows that student learning outcomes that Model Problem Based Learning (PBL) uses video significantly influence the learning outcomes of students who learn by applying conventional learning models.

2. Suggestion

It is expected that teachers especially teachers who teach science subjects can be able to apply the Problem Based Learning (PBL) learning model in the learning process as an alternative learning that can improve student learning outcomes.

The application of the Problem Based Learning (PBL) learning model should not only be applied to natural science subjects. This is intended because learning by using the Problem Based Learning (PBL) learning model has had a positive impact on student learning outcomes, so it is deemed necessary to apply to other subjects in order to improve ability, mastery levels and student learning outcomes in all subjects in school.

For the Principal of Padang 5 Middle School, supervisors and related education staff in order to improve

the performance and quality of teachers, especially teachers on science subjects through upgrading about the application of models in learning so that they can be used in learning activities to improve the quality of education in future.

For further researchers to continue this research on a different subject. Because the use of Problem Based Learning (PBL) learning models can not only be used in natural science subjects, but can also be used in other subjects that are adapted to academic characteristics and objectives.

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