Influence Application of Learning Models Problem Based Learning (PBL) Against Results Study Mathematics Student Class VII SMP Negeri 1 Pangkur

Chintia Inka Riana Putri[1*], Budi Sasomo[2], Anwas Mashuri[3]
STKIP Modern Ngawi , Java East
Corresponding Author: Chintia Inka Riana Putri chintiainka@gmail.com

ABSTRACT

This research aims to determine the effect of the Problem Based learning model Learning (PBL) on student learning outcomes in Mathematics class VII SMP Negeri 1 Pangkur . This research is experimental research. Where is the population of This research consisted of 7 class VII students of SMP Negeri 1 Pangkur. Meanwhile, the sample from this research was an experimental group from class VII F with PBL model totaling 2 8 students and the Control Class group from class VII G which totaling 2 8 students. The data collection technique used in this research is observation , test And documentation . From the test carried out at the last meeting, a Significant value was obtained test "t" 0.01 which means it is smaller than the significance level of 0.05 (0.01 < 0.05) so that the hypothesis nil is rejected and the alternative hypothesis is accepted. Based on the results of data analysis, it can be concluded that the mathematics learning outcomes of students who use the Problem Based Learning (PBL) model experienced better improvement than students who did not use the model Problem Based Learning (PBL).

INTRODUCTION

Education has a very important role for the development of a country. The quality of education is determined by several factors, curriculum, teachers or teaching staff, facilities and learning resources. Teachers as educators play a very important role in the world of education. One way to improve the quality of education in schools is to improve the quality of learning in the classroom (Rilahwati et al., 2020) . In everyday life we cannot be separated from things called mathematics. Kurnia (2017) explains that Mathematics is one of the main subjects in schools from elementary school to university. Mathematics is a lesson that is difficult to understand so that student learning activity in Mathematics subjects decreases (Oktaviani et al., 2019) . In general, Mathematics in junior high school (SMP) is considered a very difficult and boring subject. Thus, the current trend in learning in Mathematics subjects is still a lack of student attention and participation in the learning process, students are less active, the learning process is still teacher centered (teacher centered learning) which is dominated by the lecture method, and makes students less active in the learning process. This will have an impact on student learning outcomes.

Based on results observation problem Which found in learning Mathematics in class VII of SMP Negeri 1 Pangkur Subdistrict Pickaxe Regency Ngawi , it seems that results learn it Still classified low . It can be seen from the standard KKM score obtained from a combination of six classes VII that obtained a KKM score above ≥ 70 , getting a percentage of 72%, expressed as a cumulative "Complete", while a score below KKM < 70 , getting a percentage of 28%, was expressed as a cumulative " No Complete." Lesson Mathematics considered eye very lesson _ difficult , scary And considered as specter for part big students . Thus , p _ the cause student reluctant For learn mathematics.

Problem learning mathematics student requires an appropriate learning model For increase results learn . Use of appropriate learning models will influence the learning process in the classroom , so can increase results learn . A learning model that can increase results Study is a Problem Based Learning (PBL) model . Learning model Problem Based Learning (PBL) or learning based stressing problem _ Study as an involved process solution problem And think critical in actual context . _ Through student PBL obtain experience in handle realistic problems , and _ stress on use communication , cooperation , and existing sources _ For formulate ideas and develop Skills reasoning (Mutawali , 2014) . For reach results Study eye lesson Mathematics in the classroom VII JUNIOR HIGH SCHOOL in a way optimal, effort Which can done a teacher is using a learning model in accordance in convey material to students .

Learning model Problem Based Learning is Wrong a learning - centered model on participant educate in a way confront the participants educate in a variety of ways problems faced _ in his life (Dwi Junita et al., 2020) . Learning model problem based learning is method presentation material lesson by making problem as point reject For look for solution or the answer by students . In the Problem Based Learning model the role of the teacher is guiding student pass step by step in activity learning , teachers too role in use For finish

something problem as well as create atmosphere flexible class _ And oriented on effort investigation students .

By Because that , that thing background back writer For do research " Influence Application of Learning Models Problem Based Learning (PBL) Against Results Study Mathematics Student Class VII of SMP Negeri 1 Pangkur ".

LITERATURE REVIEW

This framework of thinking is structured based on the variables used in the research, namely the problem learning model based learning *(PBL)* and learning outcomes. The success of the teaching and learning process can be seen from student learning outcomes. Many factors influence student success, including the learning methods used by teachers. The use of learning models has quite a big influence on teacher success. The low student learning outcomes in mathematics learning are the lack of student interest in mathematics lessons . By Because Therefore , choosing an inappropriate learning model will hinder the achievement of learning objectives. The P roblem B ased L earning learning model is a learning model that stimulates students' thinking with problems that exist in their daily lives, so that they are able to think critically in dealing with every problem that exists around them.

Problem Based Learning learning model on the mathematics learning outcomes of VI I students at SMP Negeri 1 Pangkur .

H_0 rejected There is a difference in the influence between the Pro 3 Blem Based Learning Model and direct learning in Class VII SMPN 1 Pangkur on students' mathematics learning outcomes.

H_0 accepted: the population has no difference in the influence between *the* Problem Based Learning Model and Direct Learning in Class VII SMPN 1 Pangkur on students' mathematics learning outcomes.

Based on the background that has been described previously, the formulation of the problem and objectives of this research supported by a theoretical review and review of previous research, So schematically the framework of thinking in this research is described as following .
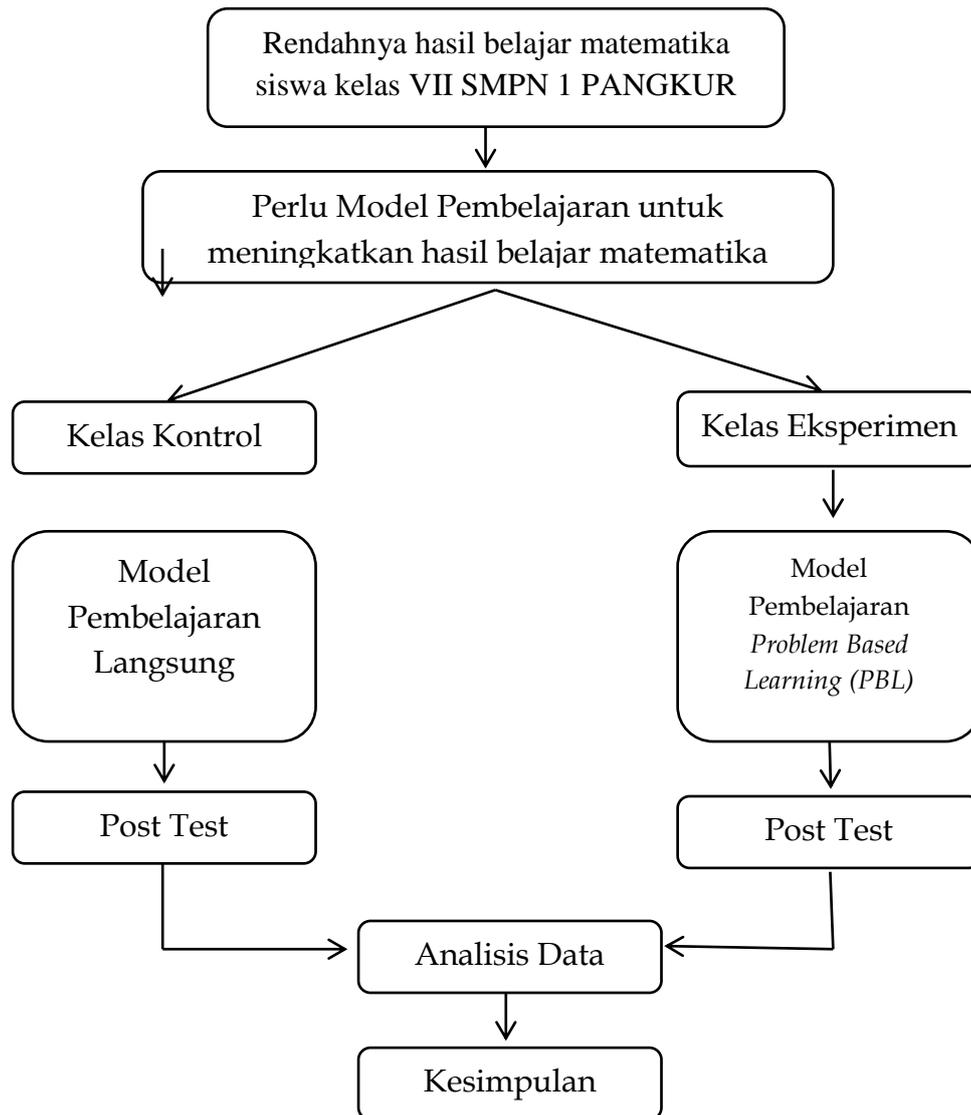
Figure 1. Problem Based Learning *(PBL)* Learning Methods on Student Mathematics Learning Outcomes

METHODOLOGY

Method research used _ in study This is experiment . The design carried out in this research was a Posttest only Control Design , namely an experimental design by placing research subjects in two classes which were divided into experimental class and control class categories.

Population in study This is all over student class VII of SMP Negeri 1 Pangkur , totaling 208 students divided in 7 classes namely VII A, VII B, VII C, VII D, VII E, VII F and VII G. Engineering taking sample in study This use Cluster Random Sampling technique . Sample in this research class used _ chosen randomly, that is class VII F has 28 students as the experimental class and class VII G totaling 28 students as the control class .

Technique researcher data collection use posttest For know results Study students . Test in study This shaped choice multiple questions totaling 35

questions . Before test given to sample research , especially formerly the instrument is tested try it to students outside _ sample in population research . Designated class _ Still in One population , that is class VII E. Test try instrument done For know validity , reliability , level difficulty And Power differentiator matter .

techniques are the most important role in research, because the end of research is obtaining data. Next, the test results data will be prerequisitely tested with a normality test and then a homogeneity test Hypothesis test calculations use the independent t test.

RESEARCH RESULT

Results data analysis on study This use technique statistics descriptive . Following This is results from Post- test containing mark minimum , maximum , range, average value (mean), and deviation standard (standard deviation) can seen in the following table :

Table 1. Results *Post- test*

Statistics	Control Post-Test	Experiment Post-Test
N	28	28
Mean	64.10	78.57
Median	62.5	80
Mode	55	85
Std Dev	10.80	10.07
Vars	116.76	101.58

Based on the table above, the test results obtained for the control class mean value (Mean) 64.10, Median 62.5, Mode 55, Standard Deviation 10.80, Variance 116.76. Results test obtained class experiment average value (mean) 78.57, Median 80, Mode 85, Standard Deviation 10.07, Variance 101.58.

1. Test Normality

Test normality used For know normality is test used _ For know population data is normally distributed or no , if normal distribution satisfies criteria mark *Sing* > 0.05 or Mark t_{hitung} < t_{tabel}. Kolmogorov - Smirnov test of counts 28 students own t_{tabel} 0.255 .

For clarify results test normality learning with the Problem Based Learning (PBL) model . Can seen on Table 2 Kolmogorov-Smirnov normality results.

Table 2. Kolmogorov-Smirnov Normality Test Results for Control Class and Experimental Class

Class	Mark t_{hitung}	Mark t_{tabel}	Test Decision
Control	0.112	0.255	Normal
Experiment	0.123	0.255	Normal

Source: Results of statistical analysis using Microsoft Excel

2. Test Homogeneity

The homogeneity test is used to find out whether the two samples have the same variance or not. The homogeneity test in this study used the F test. The calculation results can be seen in the following table:

Table 3 Results of the Homogeneity Test of the Learning Model Control Class Direct and Experimental Classroom Learning Models Problem Based Learning (PBL)

Class	F count	F table	Conclusion
Control & *Experiment*	0.870	1,904	Homogeneous

Source: Results of statistical analysis using Microsoft Excel

Based on table 3, it can be concluded that this distribution states that it is homogeneous, because the value of F_{hitung} 0.870 < F_{tabel} 1.904 means that the Control Class and Experimental Class are Homogeneous. The process of calculating the homogeneity test for the Control Class and Experimental Class is calculated using *Microsoft Excel* .

3. Test Hypothesis

The hypothesis test used in this research is the t-test Test: Two-Sample Assuming Equal Variances. t-Test : t-Test: Two-Sample Assuming Equal Variances is used as an alternative to normal distribution. The test is used to compare the mathematics learning outcomes of students in the control class and the experimental class. The results of the t-Test hypothesis test *: Test: Two-Sample Assuming Equal Variances using Microsoft Excel* , are presented in table 4

Table 4 t-Test Hypothesis: Two-Sample Assuming Equal Variances

Class	T_{hitung}	T_{tabel}	Conclusion
Post-Test Control Class and Experimental Class	5,179	2,004	Problem Based Learning (PBL) learning model on student learning outcomes

Source: Results of statistical analysis using Microsoft Excel

DISCUSSION

Problem learning mathematics participant educate requires an appropriate learning model For increase results learn . Use of appropriate learning models will influence the learning process in the classroom , so can increase results learn . A learning model that can increase results Study is a Problem Based Learning (PBL) model . Learning model Problem Based Learning (PBL) or learning based stressing problem _ Study as an involved process solution problem And think critical in actual context . _ Through student PBL obtain

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CONCLUSIONS AND RECOMMENDATIONS

Based on results study And discussion that has been done , then can concluded that the problem based learning (PBL) model is influential to results Study student on eye lesson mathematics at SMP Neger 1 Pangkur year lessons 2022/2023. This thing proven by results test hypothesis use t- test formula independent samples are obtained $_{calculated}$ t value = 5.179 and t $_{table}$ value = 2.004. Thus t $_{count}$ > t $_{table = 5.179}$ > 2.004, meaning there is influence of learning models problem basedlearning (PBL) towards results Studystudents on eye lesson mathematics at SMP Negeri 1 Pangkur. Likewise _can seen on acquisition class average _ experiment And control class, where class experiments 78.57 and class control 64.10, so it can seen its influence on class given experiment_treatment in the form of a learning model problem based learning (PBL) with a control class that does not given treatment .

ADVANCED RESEARCH

Based on the research results and conclusions described above, several suggestions can be given as follows:
1. In the learning process using the problem based learning (PBL) model, you must be truly skilled and choose the ability to organize material in class so that students can participate actively so that good communication occurs between teachers and students.
2. Students need to get used to being involved in the learning process in class, expressing opinions, solving problems and respecting the opinions of other students.
3. Students need to get used to group learning in problem solving and identifying problems, for successful learning.
4. Teachers must design scenarios and design learning materials as well as possible so that the desired competencies achieved in learning can be achieved with good learning outcomes.
5. Implementing teacher evaluations must master and organize students well so that learning evaluations run conducively.

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