

The Effect of GPBL (Generative and Problem Based Learning) Models on Self Efficacy of Students

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Abstract—The background of this study is the real facts, namely the low self-efficacy of students. This problem is because the learning process is still dominated by the teacher's role in learning. Besides that, the low ability of students when doing assignments. As a result, it will give a negative impact on students and make student's self-efficacy will be low. The type of research is quantitative research with the research design of Nonequivalent Control Group Design. Based on the results of the data obtained after the homogeneity test calculation showed that the samples have the same variant or homogeneous. Based on the test of the Mann-Whitney U Test, it shows that the Asymp value is obtained. Sig. (2-tailed) 0.000 5 0.05 therefore, it can be concluded that H1 is accepted and H0 is rejected. These results can be concluded that there is an effect of the GPBL learning model on student's self-efficacy.

Keywords—GPBL learning model, students' self-efficacy

I. INTRODUCTION

Indonesia is one of the countries that consistently follows TIMSS and PISA assessment. The measurement results from the Program for International Student Assessment (PISA) and Trends in the International Mathematics and Science Study (TIMSS), Indonesia is in the lowest position in terms quality of education. Indonesia's achievements always under international standards, Indonesia in the TIMSS study 2015 was at ranked 36 of the 39 countries that have the lowest score [1]. The surreal results carried out by the *Program for International Student Assessment (PISA)* and *Trends in the International Mathematics and Science Study (TIMSS)* are also supported by one of the problem factors found during learning is not optimal efficacy students in learning [2]. The low self-efficacy of students is supported by research Ardika (2014) who found that there were still many students who had self-efficacy or low-level confidence that is shown often delaying the task especially in challenging and difficult tasks, cheating if students are not able to work or complete the task and lack of asking the teacher to complete the task. This matter illustrates that the student's self-confidence or efficacy is still low [3].

Students who have low self-efficacy also show surrender behavior when meeting difficulty in learning or solving problems. This behavior also occurs when students get information about a material that the material is difficult, so students tend not to have the confidence to learn it or even solve related problems with the problem. This is consistent with Bandura's statement that students who have Low self-efficacy have difficulty solving tasks and assuming these tasks as a threat to him [4]. Meanwhile, Sunaryo [5] explained that the low self-efficacy of students in carrying out tasks would tend to avoid the task which is difficult and not capable of being solved while students those who have high self-efficacy will continue to try to complete the task. Self-efficacy is a sense of confidence in the ability owned by trying to feel, think, motivate, organize and carry out a series of actions needed by each individual in completing the task that faced in certain situations and conditions, so as to overcome obstacles and achieve predetermined goals [6], [7]. Self-efficacy help someone in making choices, their efforts to progress, perseverance and the perseverance they show in facing difficulties, and the degree of anxiety or the calm they experience when they maintain tasks related to their lives [5].

Other facts show that there are still many teachers who teach lessons in the school uses the conventional method where the teacher acts more as a role student learning center, the teacher, is involved more actively in the learning process activities as a giver knowledge to students and many teachers still do not know the learning method can motivate and improve students' ability to work on problems, improve student self-efficacy or student confidence and create an atmosphere of learning fun, so the ability of students to solve problems is still low [8].

Observation results and teaching experiences that have been conducted by researchers at the time at SMAN 6 Bone obtained the fact that there is still low self-efficacy of students, which is still many students do not have the confidence to complete the task despite the assignment related to everyday life. This can be used as an indicator of lack of self-efficacy in students. Based on these problems it is necessary to improve the teaching and learning process

direct students to be able to build their confidence in the completion of tasks or efficacy himself. The process can begin with the application of learning models that can improve student self-efficacy in completing assignments. The learning model in this research is the GPBL learning model which is a combination of Generative learning and Problem models Based Learning (PBL).

Generative learning model and Problem Based Learning (PBL) learning model have several weaknesses and advantages, based on several weaknesses of both models the researcher took the initiative to elaborate a learning model overcome the various obstacles faced by students and teachers today. There is a model learning that can make students be more active in the teaching and learning process with a sense of student confidence in solving a problem by associating learning with daily life. The use of media is very important in the teaching and learning process because learning media is very helpful for education or teaching in providing learning maximum, effective and efficient so that the learning process reaches the goals that have been determined. The use of media in this study is very necessary in order to be able to improve student interest and attention, have confidence in expressing own opinions and shared in finding solutions to solve problems and responsible for gaining knowledge and information [9].

II. METHOD

The research design is a step on how to conclude and analyze data so that it can be implemented economically and in accordance with the research objectives. The form of research design used is Quasi-Experimental design with the Nonequivalent Control Group

Design research design. There are two classes in this research namely the experimental class and the control class. The research design includes:

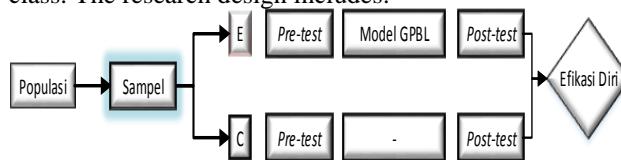


Fig. 1. Design of Nonequivalent Control Group Design Research

Information:

E = Experimental class (class X IPS 5)

C = Control class (class X IPS 2)

O₁= Pre-test experimental class

O₂= Post-test experimental class

O₃= Pre-test control class

O₄= Post-test control class

The sample is part of the number and characteristics of the population. The sampling technique in this study uses purposive sampling. Purposive sampling is a sample determination technique with certain considerations [10]. Sampling in research based on consideration by the teacher that the teacher chooses. Direct control class and experimental class, which is X IPS 2 is due to the control class considered as a superior class, while for experiment class is X IPS 5 because the average score of students has not yet reached the KKM. The research instruments used in this study are questionnaires, written tests, and

documentation. In addition, a student questionnaire was used for learning to see how the model affected to learning process and documentation as evidence of the results of the study.

III. RESULTS AND DISCUSSION

A. Testing data normality

The normality test has a purpose of finding out whether the data is analyzed come from a population with a normal distribution or not. The technique used is Kolmogorov Smirnov with a significant level of 0.05. Data Normality test aims to test whether the data tested is normally distributed or not. To test the normality of the data in this study using the test the distribution of Kolmogorov Smirnov and Shapiro wilk in SMAN 6 Bone X IPS 5. The results of the data normality test in the pre-test and post-test values in the experimental class by using the Shapiro Wilk test can be seen in table 1.

TABLE I. PRE-TEST AND POST-TEST NORMALITY TEST EXPERIMENT CLASS AND CONTROL CLASS

Test	Shapiro-Wilk		
	Statistic	df	Sig.
Posttest eksperimental	0.949	27	0.208
Pretest eksperimental	0.872	27	0.003
Posttest control	0.928	29	0.049
Pretest control	0.854	29	0.001

Based on the normality analysis of the results in the pre-test and post-test using Shapiro Wilk test obtained a significance value of 0.208 which means that the data are derived from the normal distribution in the post-test and 0.003 which means that the data comes from data that are not normally distributed in the pre-test. Sig value. (0.003) < α (0.05) so that H_0 is rejected while the value of Sig. (0.208) > α (0.05) so that H_0 is accepted. Then it can be concluded that the pre-test results are not a normal distribution and post-test normal distribution in the experimental class. And Based on the normality analysis of the results in the pre-test and post-test using the test Shapiro Wilk obtained a significance value of 0.049 which means that the data derived from normal distribution data in the post-test and 0.001 which means that the data it comes from data that is not normally distributed in the pre-test. Sig value. (0.001) < α (0.05) so that H_0 is rejected while the value of Sig. (0.049) > α (0.05) so that H_0 is accepted. Then it can be concluded that the pre-test results are not a normal distribution and post-test normal distribution in the control class.

B. Data homogeneity testing

The next step After the two sample groups are declared a normal distribution, then homogeneity testing. Homogeneity testing is done to find out. Research data has a homogeneous variant or not. In this study test Homogeneity is carried out based on the test of the similarity of the two classes, using the test fisher at the significance level (α) = 0.05 with the test criteria, that is, if F counts \leq F table, then the data of both groups have the same or homogeneous variants.

TABLE II. HOMOGENEITY TEST RESULTS OF RESEARCH SAMPLE DATA

Levene Statistic	df1	df2	Sig.
.531	1	54	.469
1.999	1	54	.163

Based on table 2, homogeneity testing shows that obtained significant results of the pre-test control and experimental pre-test testing 0.469 and for post-test control and post-test experiments amounted to 0.163 with $n = 25$, significance level (α) = 0.05. Because of the significant value $\geq (\alpha)$, so it can be concluded that both samples had the same or homogeneous variant.

C. Mann Whitney test

Hypothesis testing is done to find out significant differences based on the value of the experimental group and the control group. After testing for normality and testing homogeneity obtained results that the data of the two groups in this study were not a normal distribution and not homogeneous, so the testing of the two groups continued by using non-parametric tests namely Mann-Whitney Test. Based on the output table test the hypothesis below by using Mann- test Whitney obtained a U value of 19,000 and a Wilcoxon value of 397,000. When the converted value of Z then the amount is -6.048. So the Mann-Whitney test obtained values significance (2- tailed) that is $0.000 < 0.05$ there is a significant difference between the two groups; therefore H_1 is accepted and H_0 is rejected.

TABLE III. THE OUTPUT OF THE MANN-WHITNEY U TEST

	Experimental class test
Mann-Whitney U	19.000
Wilcoxon W	397.000
Z	-6.048
Asymp. Sig. (2-tailed)	0.000

D. N- Gain test

Gain is the difference between the pre-test value and the post-test value. The gain shows influence GPBL learning model in improving student self-efficacy (self-efficacy). The gain test shows that the excess use of GPBL based learning models comparison of the normalized gain value (N- gain) between the control class and the class experiment. Following is the test results of the gain test data seen in table 4.

TABLE IV. TEST GAIN TEST

Group Statistics					
	VAR 00009	N	Mean	Std. Deviation	Std. Error Mean
Gain	1.00	27	21.9630	7.85680	1.51204
	2.00	29	19.6207	6.41101	1.19049

Based on the gain (N- gain) test above the comparison of mean values after learning in the control class and experimental class where the experimental class gets more high results is 21.9630 compared to the control class results is 19.6207.

IV. CONCLUSION

Based on the hypothesis below by using Mann- test Whitney obtained a U value of 19,000 and a Wilcoxon value of 397,000. When the converted value of Z then the amount is -6.048. So the Mann-Whitney test obtained values significance (2- tailed) that is $0.000 < 0.05$ there is a significant difference between the two groups. Therefore, H_1 is received, and H_0 is rejected.

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