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The Effect of Learning Model Project Based Learning on The Activities and Study Results of IPA Graders VI

1st Hermaliza
Basic Education Graduate Students FIP
Padang State University
Padang, Indonesia
Lizaherma583@gmail.com

2nd Jon Efendi
Mathematics and Natural Sciences
Graduate Program FIP Padang State
University
Padang, Indonesia

3rd Nurhizrah Gistituati
Basic Education Graduate Program FIP
Padang State University
Padang, Indonesia

***Abstract* —The purpose of this research to know the influence of learning modelproject based learning And learning conventional on the activities of science and study results graders vi.This research using methods Quasi Experimentation and use research design the static camparison: randomized control group only design. The population of the research is all students class VI SDN gugus 1 Kecamatan Payung Sekaki Determined by technique purposive sampling. Data collection is done by observation, test, and documentation. Hypothesis test using t-test. The result showed that the percentage of students' experimental learning activity from the first meeting until the third meeting was 74.58%, with good criteria, while the control class was 58.36%, with good criteria. Student learning result data show the average of posttest grade experiment class 80,5, while control class equal to 70,56. Based on research findings and discussion concluded that (1) learners who teach using PjBL model more active than learners who are taught using conventional learning. Based on the calculation obtained t count value of 3.85 with a significant level of 5% is 1.70, the price t arithmetic greater than t table so that H_1 accepted. (2) Learners who teach using the PjBL model get better learning outcomes than learners who are taught using conventional learning. Based on calculations obtained t arithmetic of 2.20 with a significant level of 5% is 1.70, the price t arithmetic greater than t table so that H_1 accepted.**

Keywords*—*Project Based Learning, Activities, Study Results, IPA

I. INTRODUCTION

Learning natural science (science) crucial improving the quality of education, especially produces generation of quality, the man who can think critically, creative, and logical. Learning that can grow scientific attitude students indicated to formulate problems, draw conclusions, so students able to think critically .Learning science capable of therein creative students with knowledge possessed. This knowledge were really knowledge that are systematically and composed by combining phenomena nature [1]. Along with that of learning science are given with models teaching [2]. Practices or activities that should students learn through facts and their own experience on the environment and thus reach knowledge in nature about [3]. Therefore teachers must be able to improve the quality of learning science to increase the student learning activity.The activity of learning an the most important thing to support the student learning.At this stage, the logical develop thought, are still attached to fact perceptual: means, the able to reflect logical, but still limited to objects concrete jean peaget [4].

This indicates that they have characteristic own, in the process thinking, they had can be separated from the world concrete or things factual. Teaching and learning was a process is very important in education, not even rarely the end result of education determined by the success of this teaching and learning. Exploiting the environment about in take the kids to observe neighborhood is increase balance in learning activities, it means learn does not only occurred in the room class in this environment as a source of learning very impact on the physical, the social skills and culture, the development of the ability and forming the nature of the people and civilization a dignified in order mencerdaskan life the people, and aims to the potential school tuition. The act of national education [5].

Teachers should be able to apply learning model that is effective in learning science , so students be active and received a good study results .Learning should be designed by involving an active role students as the subject of learning to construct prescience own through these activities in learning. One learning model to be applied in learning science is learning mode Project Based Learning. Project Based Learning *i*s kind of classroom learning that require a comprehensive in which learning environment students (class) in design that students can do on the problem of investigation authentic including intensification of the material a matter of learning , and carrying out tasks other meaningful mone [6]. This model introduce students to think creative and work out in independent in constructing the product. Learning project is a model that facilitates students and teachers to learn [7]. Student can understand knowledge by the questions had been received by teachers as to the excavation of the initial concept of them .It is the duty investigation core learning. Students develop questions and always guided by teachers. The results can innovation illustrated by creating project to be distributed to the students elected. Based learning the project can upgrade students, and attitude good things in the life [8]. Based learning created cooperation project of a group of people; exchange opinion , not only good to develop professional knowledge , but can learn jugamenciptakan pattern conducive .Learning to use project-based learning to increase their potential, allow the independent study and groups on its learning and introducing them to the matter new highly motivated he experienced [9]. Some characteristic of based learning project (1) involving students directly in learning, (2) connect learning to the real

world, (3) been implemented research based, (4) involving various sources learning, (5) united with knowledge and skills, (6) done from time to time, and (7) ended with a certain products. The purpose of this research is to assess the impact of learning model based on the shape of science study results graders vi and described the activity of learning science graders for learning vi to use the model based learning project.Through a model pjbl applied by teachers, students can understand more matter in learning science.

II. METHOD

The research is experiment.While design of the study this experiment is quasi experimental design by using the form of The Static Group Comparison: Randomized Control Group Only Design. The shape of the design can be described as follows:

TABLE 1 DESIGN RESEARCH

Class	Treatment	Post test
Experiment	X	Y
Control	-	Y

Description :
X: Treatment given on class experiment, of the application of learning model Project Based Learning.
Y: Final test given to class experiment and control class based on the subject matter provided for research.

The population of the research is all students vi in sdn the 1 in an umbrella sekaki kabupaten solok listed in academic year 2017 / 2018 .The sample techniques used to research it is a technique purposive sampling. The purposive sampling technique is the technique of determining the sample with certain considerations. The reason the author uses purposive sampling is that because these two primary schools have the same average learning outcomes, has the number of students who are close to the same ie SDN 05 Sirukam amounted to 20 people, SD 06 Sirukam amounted to 18 people. It has the same characteristics that are both SD Negeri located in the middle of the community settlement that has been reached by electrical equipment and internet network compared with other schools that are still far from the reach of electricity. Researchers use several data collection techniques such as observation, test, and documentation. Instruments required in this study include RPP, lattice questions, test questions, observation sheets, and assessment guidelines. Hypothesis test was conducted to test the difference of activity and learning outcomes of the two classes after getting different treatment. If the data is normally distributed, hypothesis testing in this study is done with parametric statistics using t test. If the data is not normally distributed, then the hypothesis testing is done with nonparametric statistics using U Mann Whitney test.

III. FINDING AND DISCUSSION

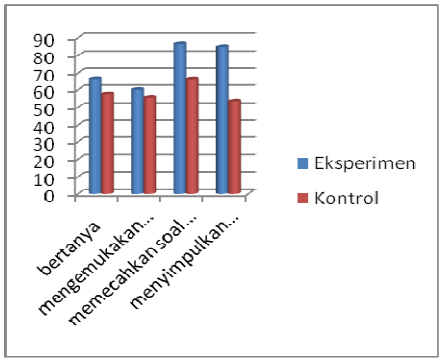
Data were obtained from observation of learning activities during the learning process. Based on observations of student learning activities through observation sheets, then obtained an average percentage of the overall activity of the sample grade students are shown in Table 2 below:

TABLE 2. RESULTS OF EXPERIMENT CLASSROOM ACTIVITIES AND CONTROL IN OVERALL

Activity	class Experiment		classroom Control	
	Value (%)	K	Value (%)	K
Ask questions to the teacher or a friend	66,66	B	57.51	CB
Express opinions in the learning process	60	C B	55.66	CB
Solve the problem of evaluation	86.66	BS	66.59	B
Summing up the learning material	85	BS	53.70	CB
Amount	298.32		233.46	
Average	74.58	B	58.36	CB

Information:
K = Criteria
B = Good
CB = Fairly good
BS = Splendidly

Based on the above table shows the average of learning activities of students in experimental class learning has a higher average of 74.58% with good category compared with the average control class 58.36% with good enough category. The highest indicator for the experimental class is to solve the evaluation problem that is 86,66% and the lowest indicator is to get opinion that is 60%. The high percentage of problem solving activity is caused by the students who are passionate about the evaluation because students are able to understand the subject matter through the experience of making the project. The indicator expresses the opinion of getting the lowest score in the experimental class because students are still embarrassed when expressing their opinions to friends and teachers. For the control class indicator of the highest learning activity of student is solve the problem of evaluation that is 66,59% and the lowest indicator is concluded learning material that is 53,70%. This is due to the conventional learning of students are still hesitant and difficulty in summing up learning materials. The score of student learning activities obtained can be seen in Figure 1 below:



Compared to the same four indicators, the highest indicators in the experimental and control class are indicators of solving the evaluation question. the lowest indicator in the experimental class is an indicator to express an opinion while the lowest indicator in the control class is to deduce the learning materials. In the experimental class has an average overall score of 74.58% while in the control class the average overall score is 58.36%. If it is consulted with the study activity criteria in Table 1. it is known that the average of learning activity of experimental class is included in good category and the average of the control class student's learning activity is in good enough category. So it can be said student learning activity in experiment class that use project-based learning model better than control class that use conventional learning. The result of data analysis of student work product scores obtained the highest score is the indicator of the preparation of tools and materials. The lowest score is an indicator of product results. This is because students can directly use the materials that have been available easily but pay less attention to the aspects of occupational safety, security, and cleanliness during the implementation of the project so that the impact on product results. The average data of the project assessment can be seen in Table 3 below:

TABLE 3. AVERAGE PRODUCT RATING

Meeting	∑ Project Value	Criteria
1	87,95	Very good
2	86,75	Very good
3	89,63	Very good
Amount	264,33	
Avarage	88,11	Very good

Based on Table 2 above the average result of project 1 to project 2 has decreased, this is because the project 1 tool made by students is simpler and easier than in project 2. At the third meeting the average value of the project increases again because at the meeting of the three students has become accustomed to issuing ideas and opinions in the making of the project, and materials for making the project was more easily found in the surrounding environment. Average student project outcome as a whole was obtained for 88.11 with very good category. This can reinforce that project-based learning models can train student activities, and indicators in project appraisal are also a representation of the process skills students perform during product manufacturing. Students 'work and process skills are one of the students' learning activities (activities). The posttest result data shows the average value in the experimental class of 80.5 while the average value in the control class is 70.55. Based on these results, it is known that the average posttest grade of the experimental class is higher than the average posttest grade of the control class. Furthermore, the data in the analysis by testing the hypothesis. Before performing the hypothesis test using the t-test formula first tested the normality and homogeneity test of variance. Normality test aims to see whether the data is normally distributed or not. To test this normality is used testing with liliefors test. Normality test is done by comparing L_o with L_{table} critical value for liliefors test contained in table of real level 0,05. If $L_o < L_{table}$ then the average score of learning outcomes is normally distributed. If $L_o > L_{table}$ then the average score is not normally distributed. (Sudjana, 2005: 466). Here is the result of calculation of learning result normality test:

TABLE 4 THE RESULTS OF CALCULATION OF NORMALITY LEARNING OUTCOMES

KLS samples	N	Lo	Lt	Ksmpulan	Ket
Experiment	20	0,156	.190	$L_0 < L_{tabe}$ ⊏	Normal
Control	18	0.091	.200		Normal

From Table 4 above it can be seen that for both classes of samples price **Error! Reference source not found.**, Thus it can be concluded that the data science achievement test both classes of normally distributed samples. Homogeneity of variance test aims to see the test data and the experimental class learning classes have a homogeneous variance control or not. Homogeneity test used in test F. After calculation, the data obtained from the second class of the sample as follows:

$$F = \frac{Varians\ terbesar}{Varians\ terkecil} = \frac{202,2084}{187,69} = 1,07$$

Calculation of F price with the real level of F distribution table, it is obtained the price is $F_{count} < F_{table}$ 1.07 < 2.25. It can be concluded that the final test result data of both classes of samples has a homogeneous variance. Based on the results of the normality test and homogeneity test it is known that the two sample classes have the data of the study of normal distribution and homogeneous variance, then to test the hypothesis used t-test formula. From the t distribution list with a real level of 0.05 and dk=36, obtained **Error! Reference source not found.**while **Error! Reference source not found.**. Based on the above calculation it turns out $t_{hitung} > t_{(\alpha,dk)}$, H_0 hypothesis is rejected. It can be concluded that there are differences in learning outcomes of learners who were taught using the PjBL model with the learning outcomes of learners who were taught using conventional learning on science learning in grade VI SD, where learners who were taught using the model PjBL get better learning outcomes than the learners are taught using conventional learning.

IV. CONCLUSIONS AND RECOMMENDATIONS

Based on the results of data analysis and discussion, the conclusions of this study are: 1) Learners who were taught using the PjBL model more active than the learners who were taught using conventional learning on science learning in grade VI SD. Thus the PjBL model can increase the

activities of the students, 2) Learners who are taught using the PjBL model get better learning outcomes than the learners who were taught using conventional learning on science subjects in grade VI elementary school. Thus the PjBL model can improve students' learning outcomes. Based on the research that has been done, the suggestions that can be given as follows: 1) Time management during the learning process using project-based learning model should be considered well, 2) For other researchers, should be done assessment of project-based learning model for aspects and materials other.

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