Effect of Project Based Learning Model Application Against Student Achievement

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Abstract: *The purpose of this study was to determine the effect of using the Project Based Learning model on learning achievement of Pancasila and Citizenship Education in Junior High Schools. This research method is a quantitative experimental research (quasi-experimental design) with a pretest-posttest control group design research design with a quasi-experimental approach which refers to classes that have previously been formed either as a control group or an experimental group. group, by examining 68 students. The research stage consists of planning, implementing, processing. The translation analysis uses a quasi-experimental design or a quasi-experimental approach. The results showed that the use of the Project Based Learning model in teaching Pancasila and Citizenship Education had an effect on the learning achievement of Pancasila and Citizenship Education in Junior High Schools. This is indicated by tcount> table (8,196> 1,997) or p-value less than 0.05 (p = 0,000 <0.05). The score in the experimental class with the Project Based Learning model is 20.29 in the medium effectiveness category. While the gain score for the control class using conventional learning models is 1.47 with low effectiveness category.*

1. Introduction

Learning is not implemented effectively because students feel bored and less interested in the learning process. Innovative learning strategies, so that better Pancasila and Citizenship Education learning outcomes are obtained. The learning strategy that can be applied is Project-Based Learning in Indonesia at this time, which is continuous education which is less meaningful for the formation of students' national insight which results in a decrease in the quality of personality and awareness of the meaning of life. Project-based learning (PjBL) is a dynamic process that has the capacity to facilitate students to learn and understand content or content at the highest level in student learning[1].

Actually, the decline in the concept of nationalism among students has been widely felt by society and the world of education itself. the transition to college may be very challenging for all students[2]. It takes a proper method and can be used for fun and orderly learning according to these things. Education already has an independent mentality, critical and creative thinking which is the key to success in achieving academic success. Project-based learning is learning designed to make use of Encourage students to create projects with an instructional approach[3].

Therefore the teacher must read the dynamic conditions of the times so that this can be achieved. PjBL learning begins with knowledge and conceptualization. then, having learned, students are given the opportunity to apply it collaboratively to build something new - a presentation (interpretation) or a

final product that displays what the student has learned [4]. Education is an important aspect that can improve the quality of human resources in life[5]. Every teacher needs to develop a lesson plan. In preparing a lesson plan, the teacher needs to learn about the considerations that make the source of thought in the learning model suitable for its purpose, as discussed in the syllabus so that better learning outcomes are obtained. in learning activities Training and understanding of concepts is needed[6].

Regarding the learning process in schools, automatic education is an important component of education that needs to be considered in the ongoing learning activities, whether it is in accordance with the learning objectives achieved. Learning activities need to pay attention to (1) student-centered; (2) develop student creativity; (3) creating pleasant and challenging conditions; (4) contains values, ethics, aesthetics, and kinaesthetics; (5) provide a diverse learning experience. Learning strategies that can be applied are project-based learning strategies. Project-Based Learning Model that offers teachers the opportunity to manage classroom learning. Meanwhile, according to Project Based Learning is part of it as a collaborative effort in the learning process that emphasizes problem solving. Project-based learning model is a learning model that has been around for a long time [7].

The aim of project-based learning (PjBL) is to present a learning transformation framework for analyzing how learning develops [8]. Project-Based Learning Tools are learning strategies implemented by teachers in class by involving project work so that students can work collaboratively in solving problems. Much of the literature on project-based teaching and learning is curriculum-focused, but some have tried to build frameworks that focus on teacher practice. This effort builds on the work of a number of educators, including researchers, who have tried to ensure teachers have the opportunity to develop ambitious teaching-related practices, particularly students who have historically been underserved by schools, so that all students have the opportunity to learn [9].

The steps of the Project Based Learning strategy include planning, implementing, processing. Project-Based Learning model steps. The steps in Project Based Learning can be divided into six, namely: 1) Determination of basic questions (starting with essential questions). Essential questions begin with learning, namely questions that in carrying out activities can assign assignments to students. Begin with an in-depth investigation and select a real-world reality that fits the topic. The teacher makes topics relevant to students; 2) project planning (project plan to design). Teachers and students do collaborative planning. So, students are expected to "own" the project. From the Project, planning contains rules by integrating various specific subjects, as well as knowing the tools and materials that can be accessed to help answer important questions and can support the completion of the selection of activities, 3) compiling a schedule (making a schedule). Teachers and students organize activities to complete the project together. Setting a time limit for completing the Project, inviting students to plan new ways, guiding students when students make ways that are students who are not related to the Project are asked to make an explanation of the selection of methods, and make a timeline including activities to complete the Project, 4) monitoring students and Project progress. Facilitating student monitoring in each process. Instructors are responsible for monitoring student activity while completing projects. The teacher acts as a guide for student activities. All important activities can be recorded through a rubric which is designed to simplify the monitoring process; 5) test results (yield value). The teacher measures the achievement of standards, and provides feedback for each student to evaluate the progress of his role, helping the teacher in developing learning strategies the next student has reached the existing level of understanding. Furthermore, Activities reflect the activities and results of the Project that have been implemented by teachers and students at the end of the learning process. Individual or group reflection process is carried out. Based on the research that has been done, the researchers concluded several related things The advantages of project-based learning, the learning process between students and other students provides more opportunities for students to be directly involved in solving problems[10].

To answer the problems that arise in the early stages of learning, the teacher and students develop a discussion. The learning process improves performance over the course of the day, so new findings are found. The purpose of this study was to determine the effect of using the Project Based Learning model on learning achievement of Pancasila and Citizenship Education in Junior High Schools.

2. Method

This research is a quantitative experimental research (quasi experimental design) with a pretest-posttest control group research design with a quasi-experimental quasi-experimental approach, which is an approach that refers to classes that have been previously formed either as a control group or an experimental. The class used in this study consisted of two classes, namely 1 experimental class and 1 control class. The experimental class was designed using the Project Based Learning model, while the control class used the conventional model. This research was carried out at the State Junior High School 2 Yogyakarta for 4 meetings for each class in the Basic Competency of Respecting the nobility of Pancasila values as a way of life of the nation. The population in this study were all students of class VIII 1st semester at Second Middle School 2 Yogyakarta. The research sample used cluster random sampling technique by randomly determining the class. This is done to avoid subjective assessments of the study sample.

The research data collection technique used tests and observation sheets. The instruments used to collect data were test question sheets and observation sheets. The test question sheet is used. To measure the learning achievement of Pancasila and civic education, a multiple choice test is used. Observation sheets are used for checklists accompanied by rubrics. Observations were made by observing the learning process that was taking place in the classroom. These observations reveal various interesting things in learning using the Project Based Learning model. The data is processed by calculating the score on the research instrument. After that, test the validity, reliability of the instrument, test item analysis, test for normality, test homogeneity and test the hypothesis.

The validity of the test instrument used content validity by asking for expert judgment, which was then tested on students outside the research subject. Item items are declared valid if r count is greater than r table. Furthermore, the reliability of the instrument used the Spearman-Brown formula. The variable normality test was performed using the Kolmogorov-Smirnov test. The criterion for acceptance of normality is that if the significance value of the calculation results is greater than $\alpha = 0.05$, the distribution is said to be normal, conversely if it is smaller than $\alpha = 0.05$ then the distribution is said to be abnormal. After the data distribution normality test was carried out, the homogeneity test was then carried out. With the help of the SPSS program, a score that shows a homogeneous variance is generated. The requirement is that the variance is said to be homogeneous if it is significant greater than 0.05 or Fcount <Ftable. So, the data has met the requirements for analysis.

3. Hypothesis Test and Discussion

The hypothesis contained in this study "there is a significant effect of the Project Based Learning model on student achievement in Pancasila and Citizenship Education". In testing the hypothesis the researcher used 2 classes in this study. The 2 classes are: 1) experimental class, this class uses the Project Based Learning model in the learning process of Pancasila and Citizenship Education and 2) the control class, this class uses a conventional model without any treatment (Project Based Learning model). The hypothesis that the researcher proposes in this study is that the Project Based Learning model has an effect on student achievement in Pancasila and Citizenship Education, with the average value of learning achievement in the experimental class being greater than the control class.

4. Results and Discussion

The results in this study indicate that the average value of student achievement in the experimental class is greater than the control class. Below is presented the results of the t test of student achievement Pancasila and Citizenship Education in the experimental class with the control class.

Table 1.

The summary of the t test results of the Learning Achievement of Pancasila and Citizenship Education

Experiments with the Control Class

Data	Mean	Sig	Thitung	Information
eksperimen	80,29	0,000	8,196	Significant (p<0,05)
Control	60,59			

Table 1 can be seen that the tcount is 8.196 and the ttable value with db = 66 at the 5% significance level of 1.997. The value of tcount> ttable or the p value is less than 0.05 (p = 0.000 <0.05). This value indicates that there are differences in the learning achievement of Pancasila and Citizenship Education students who use the Project Based Learning model (experimental class) with the conventional model (control class). The average acquisition of learning achievement in the experimental class using the Project Based Learning model is 80.29 in the very good category. While the average acquisition of learning achievement in the control class using the conventional model is 60.59 in the sufficient category. The difference between the mean difference between the experimental class and the control class is 19.7, which indicates that there is a significant difference in the application of the Project Based Learning model in Pancasila and Citizenship Education learning. The acquisition of the Project Based Learning model and conventional learning models can be seen in Figure 1.

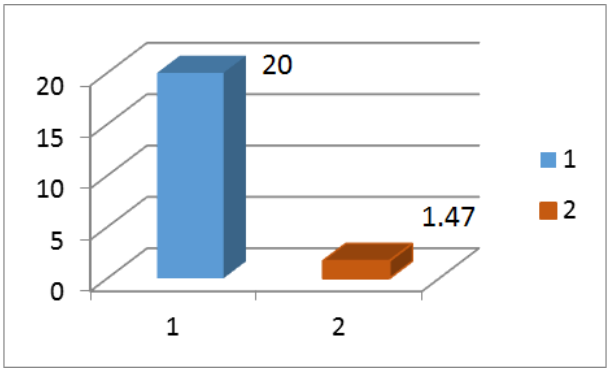

Figure 1. Comparison of N-Gain Experiment Class Score and Control Class

Figure 1 shows that students who use the Project Based Learning model get a gain value of 20 (experimental class). Whereas in the control class using conventional learning models get a gain value of 1.47. These results indicate that the implementation of Project Based Learning is more influential on student achievement in Pancasila and Citizenship Education in Junior High Schools. The comparison of the mean (average score) also shows that the experimental class students do better than the control class. Students in the experimental class at the time of the pretest obtained an average score of 60, after using the Project Based Learning model to 80.29. Whereas in the control class, the pretest average score was 59.12. After using conventional learning media and models to 60.59. The results of the comparison of the average score can be seen in Figure 2.

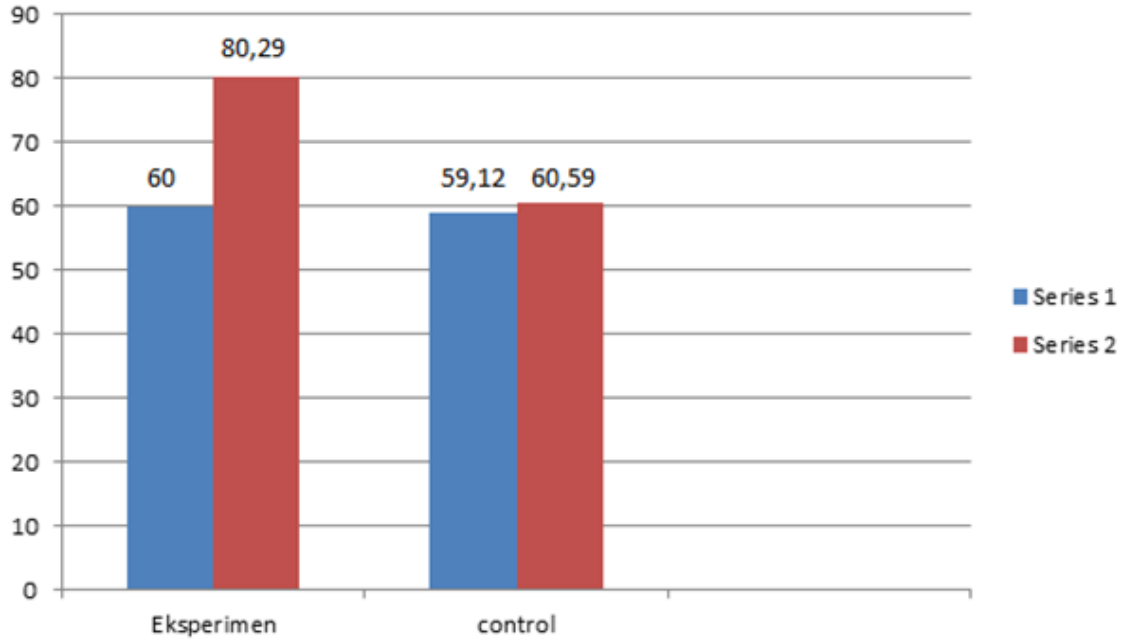

Figure 2. Comparison of Average Score of Experiment Class and Control Class

From Figure 2 it is explained that students from the experimental class at the pretest obtained an average score of 60, after using the 80.29 Project Based Learning model. Whereas in the control class, the pretest average score was 59.12. After using conventional learning media and models up to 60.59. The gain score in the experimental class using the Project Based Learning model is 20.29 in the medium effectiveness category. Meanwhile, the gain score in the control class using conventional learning models is 1.47 in the low category. Based on these results, the hypothesis in this study is accepted, namely the application of the Project Based Learning model has an effect on the learning achievement of students in learning Pancasila and Citizenship Education in Junior High Schools.

The successful application of the Project Based Learning model can be seen from the positive response of students in learning activities. This can be seen from the results of the experimental class using the Project Based Learning model which are quite satisfying with the acquisition of an average posttest score of 79, 25. While the control class using the conventional model is still unsatisfactory with the acquisition of an average posttest score of 72, 48. This is also true. reinforced by the statement[11]. Project Based Learning has also referred to by other names, such as project - Based teaching, experienced - Based education, authentic learning or anchored instruction. This means that Project Based Learning is learning that emphasizes more1stentical1problemotential1 solutions that occur daily that occur daily through direct practical experience in the community. to increase student interest in learning a learning environment that emphasizes fun so that learning is interesting[12]. So Project Based Learning is a way of learning that leads to a training process based on real problems that are carried out by themselves through certain activities (projects). many researchers point out that peer-to-peer interaction is an important part of learning[13]. The emphasis of real problems carried out in a project activity as a learning process is the most important thing. In this Project Based Learning, educators will play a more role as facilitators who guide students through the learning process. Project-based learning (PjBL) to find out the proper application of theoretical principles taken from books helps students[14].

5. Conclusions

Based on the results of research and discussion, it can be concluded: The application of the Project Based Learning model has an effect on the learning achievement of Pancasila and Citizenship Education in Junior High Schools. This is indicated by the value of tcount> ttable (8.196> 1.997) or the p value is less than 0.05 (p = 0.000 <0.05). These results indicate the application of the Project Based Learning model is more influential on learning achievement of Pancasila and Citizenship

Education in Junior High Schools. This can be seen from the results of the one way ANOVA test which shows that the value of F count> F table (36.848> 3.09) or the p value is less than 0.05 (p = 0.000 <0.05).

References

[1] K. J. Chua and M. R. Islam, "The hybrid Project-Based Learning–Flipped Classroom: A design project module redesigned to foster learning and engagement," *Int. J. Mech. Eng. Educ.*, pp. 1–27, 2020, doi: 10.1177/0306419019838335.

[2] E. Pitt, M. Bearman, and R. Esterhazy, "The conundrum of low achievement and feedback for learning," *Assess. Eval. High. Educ.*, vol. 45, no. 2, pp. 239–250, 2020, doi: 10.1080/02602938.2019.1630363.

[3] N. K. Duke, A. L. Halvorsen, S. L. Strachan, J. Kim, and S. Konstantopoulos, "Putting PjBL to the Test: The Impact of Project-Based Learning on Second Graders' Social Studies and Literacy Learning and Motivation in Low-SES School Settings," *Am. Educ. Res. J.*, vol. XX, no. X, pp. 1–41, 2020, doi: 10.3102/0002831220929638.

[4] J. W. Lin, C. W. Tsai, C. C. Hsu, and L. C. Chang, "Peer assessment with group awareness tools and effects on project-based learning," *Interact. Learn. Environ.*, vol. 0, no. 0, pp. 1–17, 2019, doi: 10.1080/10494820.2019.1593198.

[5] C. Series, "The colloid labyrinth media to improve students motivation and learning achievement on chemistry lessons The colloid labyrinth media to improve students motivation and learning achievement on chemistry lessons," 2020, doi: 10.1088/1742-6596/1563/1/012051.

[6] T. Wulandari and B. Kartowagiran, "The effectiveness of conventional and inquiry learning methods in improving student learning achievement," *J. Phys. Conf. Ser.*, vol. 1511, p. 012118, 2020, doi: 10.1088/1742-6596/1511/1/012118.

[7] L. Putu Artini, N. Made Ratminingsih, and N. Nyoman Padmadewi, "Project based learning in EFL classes Material development and impact of implementation," *Dutch J. Appl. Linguist.*, vol. 7, pp. 26–44, 2018, doi: 10.1075/dujal.17014.art.

[8] G. Pan, P. S. Seow, and G. Koh, "Examining learning transformation in project-based learning process," *J. Int. Educ. Bus.*, vol. 12, no. 2, pp. 167–180, 2019, doi: 10.1108/JIEB-06-2018-0022.

[9] P. Grossman, C. G. P. Dean, S. S. Kavanagh, and Z. Herrmann, "Preparing teachers for project-based teaching," *Phi Delta Kappan*, vol. 100, no. 7, pp. 43–48, 2019, doi: 10.1177/0031721719841338.

[10] S. Ermanda, "The Effect Of Project-Based Learning Model Using Three Dimensional Media And Computation On Achievement Of Study Reviewed based of Student ' s Creativity The Effect Of Project-Based Learning Model Using Three Dimensional Media And Computation On Achieveme," 2020, doi: 10.1088/1742-6596/1539/1/012056.

[11] (John WC , Cooperative learning returns to college, p. 309) 2016 Change, 30(4): 26-35.

[12] F. Y. Velani and H. Retnawati, "Application of contextual teaching and learning approaches in improving mathematics interest and learning achievement of elementary school students," *J. Phys. Conf. Ser.*, vol. 1511, p. 012032, 2020, doi: 10.1088/1742-6596/1511/1/012032.

[13] C. H. Lai, H. W. Lin, R. M. Lin, and P. D. Tho, "Effect of peer interaction among online learning community on learning engagement and achievement," *Int. J. Distance Educ.*

Technol., vol. 17, no. 1, pp. 66–77, 2019, doi: 10.4018/IJDET.2019010105.

[14] S. Madeva, "ScienceDirect ScienceDirect Impact of Project Based Learning Methodology in Engineering Impact of Project Based Learning Methodology in Engineering," *Procedia*