

EFFECT OF PJBL MODEL AND PRELIMINARY KNOWLEDGE ON CRITICAL THINKING SKILLS OF GRADE IV STUDENTS OF KARTIKA ELEMENTARY SCHOOL 1-11 KOTA PADANG

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ABSTRACT

This quasi-experimental study was to find out: (1) the influence of critical thinking skills of students given the Project Based Learning (PjBL) model with students who were given conventional learning; (2) the influence of critical knowledge with high initial knowledge using the Project Based Learning(PjBL) model compared to those using conventional learning; (3) the influence of critical thinking skills with low initial knowledge using the Project Based Learning (PjBL) model compared to those using conventional learning; (4) interaction between learning strategies with students' initial knowledge of critical thinking skills. This research is a quasi-experimental type with a research design using factorial 2x2. The population is all SD Kartika 1-11 students and the sample is 50 IVA and IVB students. The sampling technique is simple random sampling. Research data was obtained from tests of initial knowledge and critical thinking skills. The results of the study indicate that:(1) students' critical thinking skills given the Project Based Learning (PjBL) model higher $t_{count} = 1.910 > t_{table} = 1.708$; (2) Critical thinking skills with high initial knowledge using the Project Based Learning (PjBL) and conventional models have no significant differences $t_{hitung} = 1.87 < t_{table} = 2.56$; (3) Critical thinking skills with low initial knowledge use the Project Based Learning (PjBL) model higher $t_{count} = 3.71 > t_{table} = 2.56$; (4) there is no interaction between learning models with students' initial knowledge of critical thinking skills.

Keywords: PJBL, Preliminary Knowledge, Critical Thinking Skills.

INTRODUCTION

Preliminary knowledge is a learning outcome obtained before getting a higher ability. A person's knowledge gained from training during his life and what was brought to face a new experience. Initial knowledge is defined as a person's overall actual

knowledge, because: (1) already exists before learning, (2) structured in the schema, (3) as declarative and procedural knowledge, (4) partially explicit, (5) contains content knowledge and metacognitive knowledge, (6) dynamic in nature and stored in initial knowledge base (Prastiti, 2007).

Furthermore, Liliyasi and Rahmatan (2012) state prior knowledge is a collection of individual knowledge and experience gained throughout the course of their lives and which he will bring to a new learning experience. Prior knowledge as a combination of knowledge and skills. Furthermore, he explained the influence of initial knowledge in the learning process, namely: (1) initial knowledge functions as a label category that influences new information to be added to existing structure knowledge, (2) initial knowledge serves as an assimilation context in which new material will mutually related, so that it will be easier to construct knowledge through elaboration processes, and (3) activation of initial knowledge can increase knowledge access during the learning process (Hailikari, 2009). So, it can be stated that initial knowledge is knowledge that is built by students before the learning process.

METHOD

Based on the problems and objectives to be achieved, this study uses a quantitative approach in the form of Quasi Expansion Design. In accordance with the research design, the study used two classes namely the experimental class and the control class. The experimental class is a class that is deliberately treated by Project Based Learning (PjBL) while the control class uses conventional learning methods of discussion. This research was conducted at SD Kartika 1-11 Kota Padang. This research was conducted in odd semester 2018/2019 on November 13-November 16 2018.

RESULTS AND DISCUSSION

In this section data will be presented to reveal the results of critical thinking skills and students' initial knowledge in the experimental and control classes. Data obtained from thematic critical thinking skills are classified into three groups, namely the overall initial knowledge data, critical thinking skills data before and after treatment,

and critical thinking skills that have high initial knowledge, data on critical thinking skills of students who have low initial knowledge, and N-Gain. The initial knowledge data in this study was obtained through the assessment of the initial tests carried out before the learning process took place at the beginning of the first meeting or before the treatment. This initial knowledge test provides a written test of 20 questions in the form of multiple choice questions given to the experimental and control classes. An objective test is based on a question grid about the sub-themes of how the body processes clean air. Details of research data on average, maximum value, and minimum value of students' initial knowledge are seen in the table and graph that the initial knowledge of the experimental class is higher than the initial knowledge of the control class.

Data on critical thinking skills in this study were obtained through the initial test (pretest). Data on the students' critical thinking skills as a whole in the experimental class and the control obtained was described according to the total score, highest score, lowest score, and average of each class. This happened because the initial knowledge of the experimental class was higher than the control class when given the test. Calculation of variance values and standard deviation aims to determine the diversity of a data group. The calculation of the standard deviation from the cane above also reveals that the variance or diversity of the experimental group is almost the same as the control class at the pretest.

Based on the average values of the pretest, the critical value in the experimental class is 77.2 from the ideal value of 95 and the control class is 74.2 from the ideal result of 90. The initial test value of the control class is lower than the experimental class. The average value of the final test (posttest) of the CBC in the experimental class was 80.60 and the control class was 78.80. This shows that the test posttest value is higher than the control class. Furthermore, to get the experimental class and control N-Gain rating can be seen in the table below.

First Hypothesis

The first hypothesis states that "critical thinking skills of students who use the reciprocal teaching strategy are higher than the critical thinking skills of students who use conventional learning". The calculation results in the t test found that in the initial test (pretest) t count = 0.86 at the level of $\alpha = 0.05$, obtained t table = 1.708 because t

count $< t$ table so that H_0 is accepted means there is no difference significant between the control class and the experimental class on the average value of the initial test of critical thinking skills. Then the posttest shows a significant difference between the control class and the experimental class t count = 1.91 at the level of $\alpha = 0.05$ obtained by t table = 1.708 because t count $> t$ table means H_0 is rejected and H_1 is accepted, namely critical thinking skills of students those taught with Project Based Learning (PjBL) are significantly higher.

Second Hypothesis

The second hypothesis states that "critical thinking skills of students who have high initial knowledge use the Project Based Learning (PjBL) strategy higher than the critical thinking skills of students who use conventional learning". The calculation results obtained at the final test t count = 1.87 at the level of $\alpha = 0.05$ obtained by t table = 2.56 because t count $< t$ table so that H_0 is accepted meaning there is no significant difference between students' critical thinking skills who have high initial knowledge using the Project Based Learning (PjBL) model and students' critical thinking skills with high initial knowledge in the control class.

Third Hypothesis

The second hypothesis states that "critical thinking skills of students who have low initial knowledge who use the Project Based Learning (PjBL) model are higher than the critical thinking skills of students who use conventional learning". The calculation results obtained in the final test t count = 3.71 at the level of $\alpha = 0.05$ obtained by t table = 2.56 because t count $> t$ table so that H_0 is rejected means that there is a significant difference between the control class and the experimental class, the average value of the experimental class has a high average than the control class, meaning that H_0 is rejected and H_1 is accepted, namely critical thinking skills of students who have low initial knowledge taught using the Project Based Learning (PjBL) model higher than critical thinking skills students with low initial knowledge in the control class.

Fourth Hypothesis

The fourth hypothesis states that "there is an interaction of the Project Based Learning (PjBL) model and initial knowledge of critical thinking skills". This hypothesis is carried out with a two-way ANOVA technique. The use of the two-way

ANOVA technique aims to determine the individual contribution of the independent variable on the experimental results (main effect) and to determine the interaction effect (interaction effect). The value of $F_{\text{count}} = -1.04 < F_{\text{table}} = 4.012$. This means that H_0 is accepted and H_1 is rejected, meaning that the effect of the initial knowledge factor does not affect the learning model of the students' thinking skills. Based on the hypothesis test, it was shown that students' critical thinking skills taught by the Project Based Learning (PjBL) model were not influenced by initial knowledge. This can be seen from F_{count} smaller than F_{table} ($-1.04 < 4.02$). In the above graph can be seen, if the two lines are forwarded to the upper left side then there will be a line break which illustrates the absence of interaction.

CONCLUSION

Students critical thinking skills that obtain higher learning than critical thinking skills students obtain conventional learning Project Based Learning (PjBL) models in 2013 curriculum learning in class IV, so that the Project Based Learning (PjBL) model can improve participants' critical thinking skills elementary school student. The critical thinking skills of students with high initial knowledge who have learned from the Project Based Learning (PjBL) model have no significant differences with the critical thinking skills of students who get conventional learning in 2013 curriculum learning in the fourth grade. This is because students who have high initial knowledge are able to connect the concept stages. The critical thinking skills of students with low initial knowledge who have learned from the Project Based Learning (PjBL) model are higher than the critical thinking skills of students who obtain conventional learning in 2013 curriculum learning in class IV. This is because the effect of initial knowledge has a major effect in building new knowledge with the help of previous diving. There is no interaction between learning models with students' initial knowledge of critical thinking skills in 2013 curriculum learning in class IV.

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