Proceedings Series on Social Sciences & Humanities, Volume 25
Proceedings of International Conference on Social Science (ICONESS)
ISSN: 2808-103X

The Influence of the Project Based Learning Model on the Ability to Think Critical and Creatively in Making a Dream House Class VI Science Subject SDN Gumilir 06

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ARTICLE INFO

Article history:

DOI:
10.30595/pssh.v25i.1742

Submited:
July 22, 2025

Accepted:
August 11, 2025

Published:
August 24, 2025

Keywords:

PjBL Learning Model; Critical Thinking Skills; Dream House Electrical Circuit

ABSTRACT

This research aims to 1) Analyze the stages of the PjBL learning model in making a dream house on students' critical and creative thinking skills; 2) Analyze the influence of the PjBL learning model in making dream houses on students' critical and creative thinking skills. Quantitative type of research with nonequivalent control group design and posttest only control group design. Data collection techniques use interviews, observation and tests. Meanwhile, the data analysis technique used is prerequisite testing and hypothesis testing using the t-test. The population in this study were all class VI students at SD Negeri Gumilir 06, and samples were taken randomly from two classes, namely the experimental class which used the PjBL learning model and the control class which used conventional methods. The results of the research are 1) the stages of critical and creative thinking skills using the PjBL learning model in making the dream house electrical circuit are start with the essential question, design a plan for the project, create a schedule, monitor the students and the progress of the project, assess the outcome, and evaluate the experience; 2) the PjBL learning model has a significant influence on critical and creative thinking skills when compared to the conventional model in making dream house electrical circuits compared to the conventional model. The research results showed that there was a significant increase in critical and creative thinking skills in the experimental class compared to the control class. Data analysis using the t test showed that the posttest average score for students' critical and creative thinking skills in the experimental class was significantly higher than the control class. This research recommends the application of the PjBL learning model as an alternative learning method to improve the quality of education in elementary schools.

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1. INTRODUCTION

According to Wagner, in the 21st century, individual success is not only determined by traditional intelligence, but also by a number of basic life skills. This includes the ability to think critically and solve problems, effective collaboration and solid leadership skills. In addition, it is also important to have the agility to adapt to change, as well as the initiative and entrepreneurial spirit to take advantage of emerging opportunities. Effective communication skills, both verbally and in writing, are key to influencing and interacting with others. In a world flooded with information, the ability to access and analyze information critically is also very important. No less important is having a high curiosity and the ability to imagine to solve complex problems. By mastering these skills, individuals can be better prepared to face the challenges of the future which are full of uncertainty and complexity (Wagner: 2010).

According to research, the importance of developing critical and creative thinking skills from an early age. Teachers have a crucial role in integrating meaningful learning in every subject, including in science learning. Through this subject, students are not only invited to observe natural phenomena, but also to connect them with the scientific concepts they learn. This process encourages them to face scientific problems with a critical and creative thinking approach, seeking solutions that are not only limited to textbooks, but also involve exploration and discovery. In this way, students not only learn about science passively, but are also actively involved in the process of seeking knowledge and solving problems that involve their logic and creativity. This will prepare them to face the complex world in the future, where critical and creative thinking skills are one of the main assets in facing ever-growing challenges. For the experimental material on the electrical circuit of making a dream house in elementary schools, where the characteristics of students show high curiosity, are active, and creative, the selection of learning models must consider these needs effectively. According to Goodman and Stivers (2010), the Project Based Learning (PjBL) approach is the right choice. PjBL is a learning approach that focuses on real activities and tasks that provide challenges to students, which are relevant to everyday life and are completed in groups. In this context, students will be actively involved in solving problems related to making a dream house, such as designing, building, or testing the stove models. By using PjBL, they learn by doing, investigating, and finding solutions to the challenges faced. This will build a strong connection between academic concepts and real-world applications, thus providing a deeper and more meaningful learning experience for students.

From the explanation above, the researcher tried to conduct a study entitled The Influence of the PjBL Learning Model on Critical and Creative Thinking Skills in Making a Dream House for Science Subjects in Class VI SDN Gumilir 06.

2. RESEARCH METHOD

This study uses a quantitative research type with a quasi-experimental design. The quasi-experimental design was chosen because according to Sugiyono (2016) this design has a control group, but cannot fully function to control external variables that affect the implementation of the experiment. This research was conducted in class VI of SD Negeri Gumilir 06, the research time was in the even semester of the 2023/2024 academic year in May-June 2024.

The population in this study were all students of SD Negeri Gumilir 06 in the 2023/2024 academic year totaling 385 children. The sample of this study was students in class VI A and VI B of SD Negeri Gumilir 06 totaling 59 children. Class VI A as the control class consisted of 27 children, while class VI B as the experimental class consisted of 32 children.

This study was conducted in three stages, namely 1) the initial stage to determine the initial conditions 2) the treatment stage of the experimental group and the control group, 3) the final test implementation stage (posttest). The sample selection in this study used the cluster random sampling technique to determine the control class and the experimental class, while for the needs of data analysis, the researcher used simple random sampling from each control and experimental class. The research procedure used in this study consisted of three stages, namely the initial stage was an initial study of students' abilities in critical and creative thinking aspects through questionnaires and interviews with class teachers. At the implementation stage, treatment will be held on the experimental group. The treatment in question is learning with a PjBL model lesson plan on the dream house electrical circuit material. After the experimental class was given treatment, the next step was for the experimental group and the control group to carry out the posttest.

3. RESULTS AND DISCUSSION

The data obtained from the pretest and posttest results in both classes (experimental and control) were analyzed to determine the increase in students' critical and creative thinking skills. The following is a description of the pretest and posttest data:

1. Critical Thinking Skills

Average Value	Experimental Class	Control Class
Pretest	62	62
Posttest	87	72

2. Creative Thinking Skills

Average Value	Experimental Class	Control Class
Pretest	62	62
Posttest	87	72

Statistical analysis using t-test was conducted to determine the significant differences between the experimental class and the control class. The results of the t-test showed that there was a significant difference between the post-test scores of students' critical thinking skills in the experimental class and the control class ($t = 4.35$, $p < 0.05$). This shows that the PjBL learning model has a significant effect on students' critical thinking skills. The results of the t-test showed that there was a significant difference between the post-test scores of students' creative thinking skills in the experimental class and the control class ($t = 4.80$, $p < 0.05$). This shows that the PjBL learning model has a significant effect on students' creative thinking skills.

Based on learning with the PjBL learning model in the experimental class and the conventional model in the control class, it can be concluded that the PjBL learning model has a significant effect on the post-test results according to the results of the data analysis.

4. CONCLUSION

Based on the results of the study entitled The Influence of the PjBL Learning Model on Critical and Creative Thinking Skills in Making Dream Houses for Science Subjects for Class VI SDN Gumilir 06, it can be concluded as follows:

1. The stages of the PjBL learning model in making dream houses on students' critical and creative thinking skills are:
    a. Start with the essential question can provide critical thinking skills with indicators of formulating problems, formulating problem solving, and collecting information; as well as creative thinking skills in the aspect of originality.
    b. Design a plan for the project can provide creative thinking skills with the aspect of flexibility.
    c. Create a schedule can provide critical thinking skills with indicators of being able to argue logically.
    d. Monitor the students and the progress of the project can provide creative thinking skills in the aspect of fluency.
    e. Assess the outcome can provide critical thinking skills with indicators of evaluating observation results and drawing conclusions.
    f. Evaluate the experience can equip creative thinking skills in the elaboration aspect
2. The PjBL Learning Model has a significant influence on the provision of critical thinking skills of students in the material of making a dream house when compared to the conventional model.
3. The PjBL Learning Model has a significant influence on the provision of creative thinking skills of students in the material of making a dream house when compared to the conventional model.

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