



The Impact of Project Based Learning Model on Creative Thinking Ability of Forth Grade Students

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ARTICLE INFO

Article history:

Received July 02, 2022

Accepted August 14, 2022

Available online August 25, 2022

Kata Kunci:

Pjbl, Kemampuan Berpikir Kreatif, Model Pembelajaran, Peserta Didik Sd

Keywords:

Pjbl, Creative Thinking Ability, Learning Model, Elementary School Students,



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ABSTRAK

Pembelajaran di sekolah masih menekankan pada kemampuan berpikir tingkat dasar. Pembelajaran masih belum meningkatkan pada kemampuan berpikir tingkat tinggi pada peserta didik, serta masih sering menggunakan pembelajaran yang berpusat pada guru. Hal ini menyebabkan rendahnya kemampuan berpikir kreatif peserta didik. Penelitian ini bertujuan untuk menganalisis pengaruh project-based learning model terhadap kemampuan berpikir kreatif peserta didik. Metode penelitian ini adalah quasi experimental group design dengan bentuk yang digunakan nonequivalent control group design. Populasi berjumlah 50 orang dan sampel yang digunakan yaitu peserta didik kelas IV A dan IV B, sampel ditentukan dengan teknik sampling non probability sampling. Data dikumpulkan dengan teknik pretest, posttest, dan observasi. Hasil penelitian ini adalah terdapat pengaruh yang signifikan pada project-based learning terhadap kemampuan berpikir kreatif peserta didik kelas IV sekolah dasar. Melalui model Project Based Learning siswa belajar dari pengalamannya dan kemudian menerapkannya dalam kehidupan sehari-hari. Model pembelajaran ini diharapkan mampu meningkatkan kemampuan berpikir kreatif siswa untuk mengkonstruksi pengetahuannya dengan terlibat aktif dalam proses pembelajaran yang kompleks.

ABSTRACT

Learning in schools still emphasizes basic level thinking skills. Learning still has not improved the higher-order thinking skills of students, and often uses teacher-centered learning. This causes the low creative thinking ability of students. This study aims to analyze the effect of project-based learning models on students' creative thinking skills. This research method is a quasi-experimental group design with a non-equivalent control group design used. The population is 50 people and the sample used is class IV A and IV B students, the sample is determined by non-probability sampling technique. Data were collected using pretest, posttest, and observation techniques. The results of this study are that there is a significant effect on project-based learning on the creative thinking skills of fourth grade elementary school students. Through the Project Based Learning model, students learn from their experiences and then apply them in everyday life. This learning model is expected to be able to improve students' creative thinking skills to construct their knowledge by being actively involved in complex learning processes.

1. INTRODUCTION

High-level thinking is a basic thing that every student must have in this 21st-century era. 21st-century skills consist of critical thinking skills (critical thinking & problem solving), collaboration (collaboration), communication (communication), and creativity (creativity & innovation) which is known as the 4C (Kathy et al., 2022; Rubach & Lazarides, 2021; Siregar, 2020). These skills are very likely to be empowered intentionally through the educational process. In the world of education, 21st-century skills development has been pursued (Hidayatullah et al., 2021; Norahmi, 2017; van Laar et al., 2019). Some of these efforts are implemented by changing the national curriculum into a 2013 curriculum based on 21st century learning, to create a generation that is superior and reliable in facing the era of globalization. This is in line with the Republic of Indonesia Law no. 20 of 2003 that education functions to shape and develop a dignified character and civilization in the intellectual life of the nation (Hanik, 2020; Mutohhari et al., 2021).

One of the problems faced by the world of education in Indonesia is the weakness of the learning process and the low level of thinking skills, especially the creative thinking skills of students (Ariani, 2020; Risqi & Rini Setianingsih, 2021; Siang et al., 2020). Children are less encouraged to develop creative thinking skills in the learning process. According to previous study understanding or planning problem

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solving, an adequate creative thinking ability of students is needed, because this ability is a high-level thinking ability after basic and critical thinking (Hidayatullah et al., 2021; Pursitasari et al., 2020; Suryaningtyas et al., 2020). Based on several survey results that have been carried out previously, it has been proven that the results of PISA in 2015 (Program For International Student Assessment) show that Indonesia is in the 63rd position out of 72 countries in the field of science and mathematics (Afriyanti et al., 2018; Megawati & Sutarto, 2021). Similarly, the results of a survey by The Global Creativity Index in 2015, showed that Indonesia's position was ranked 115th out of 139 countries. Furthermore, in the same year, the results of the TIMSS (Trend In International Mathematical and Science Study) research also showed that Indonesia's position was 69th out of 76 countries (Ambussaidi & Yang, 2019; Chamisah, 2017; Hadi & Novaliyosi, 2019). Some of the survey results are strong evidence that the creative and critical thinking skills of Indonesian students are still quite low.

The low creative thinking competence of students is also caused by the teacher's lack of training in the creative thinking competence of students, this is confirmed by the responses of students who tend to memorize not understand concepts because the language given tends to be the same as in books (Supadi, 2022; Yazari Soyadi, 2015). One of the efforts that teachers can make to optimize students' creative thinking skills is to apply appropriate learning models. Previous study state that creative thinking can be improved with a project based learning model (Abidin et al., 2020). The discovery learning model can also improve creative thinking skills. The Project Based Learning model was chosen because this learning provides opportunities for students to work more autonomously, develop their learning, and be more realistic (Kumar & Refaei, 2017; Nuswowati et al., 2017; Ulger, 2018). Project Based Learning model is a learning model that can be applied to thematic learning of science content.

It is in line with previous study that state project based learning is the right model to foster self-confidence in students and can develop their creative abilities (Ersoy & Başer, 2014). It is supported by other research that state project-based learning is better able to show students' critical thinking skills than problem based learning models (Dwyer et al., 2014). Research also conducted by other previous study proves that project-based learning can grow student learning activities and improve learning outcomes (Auliandari et al., 2019; Khoiriyah & Husamah, 2018). PBL was also able to prove that the project-based learning model could increase the effectiveness of learning during the learning period in the covid-19 pandemic (Khikmiyah, 2021; Putri et al., 2020). Indirectly, it proves that project based learning is a learning model that is very much needed and needs to be used by students in today's learning efforts to improve learning outcomes, creativity, and students' critical thinking skills. Through the Project Based Learning model, students learn from their experiences and then apply them in everyday life. The aims of this study is analyze the effect of project-based learning models on students' creative thinking skills.

2. METHOD

The method used is the experimental method. This method is a research method used to find the effect of specific treatments on other influences under controlled conditions. This method is part of the quantitative method which is characterized by the presence of a non-experimental class. This research was conducted by the primary school teacher education study program at the University of Lampung. The subjects of this study were fourth-grade students of SD Negeri 2 Pesawahan.

The type of experiment used is a quasi-experimental design, which is a form of design that has a nonexperimental group but cannot function fully to control external variables that affect the implementation of the experiment. The quasi-experimental design carried out in this study was in the form of a Nonequivalent Control Group Design. In this design, there are two groups, each of which is chosen not randomly. Then given a pretest to determine the initial state is the difference between the experimental group and the nonexperimental group. Data collection techniques in this study were tests and observations. The test used as many as 8 questions containing indicators of 4 aspects of creative thinking, namely fluent thinking, flexible thinking, flexible thinking, and detailed thinking. After testing the questions, an analysis of the validity of the items was carried out using the product moment correlation formula. Based on the number of valid questions as many as 8 questions, calculations were carried out using the Cronbach's Alpha formula. Based on the interpretation table of the reliability correlation coefficient, it can be concluded that the test questions have very strong reliability criteria so that the test questions can be used in this research.

3. RESULT AND DISCUSSION

Result

The results of the analysis of the non-experimental class and the experimental class showed there were differences in the results of students' creative thinking abilities. Before being given treatment, known that the mean value of the pretest in the experimental class is lower than the non-experimental class, but the comparison of the values of the two classes is not too far apart. The average value of the pretest in the experimental class was 54.44 while the average posttest in the experimental class was 76.64. The average value of the pretest for the non-experimental class is 57.24, while the average value for the posttest in the non-experimental class is 64.92. The results of the data analysis show that the average post-test value of the experimental class has increased, which means that there is an influence from the use of the project based learning model.

The post-test scores for 4 aspects of creative thinking, namely fluent thinking, flexible thinking, original thinking, and detailed thinking in each experimental class were 80.4; 78; 81.2; 66.8, while the non-experimental class post-test results were 64.4; 64.6; 72.4; 58. This value is seen from the test questions with creative thinking indicators that the non-experimental class is not able to answer test questions with indicators of creative thinking well, while in the experimental class students can answer creative thinking ability test questions well and with correct answers including indicators of fluent thinking, flexible thinking, original thinking, and flexible thinking so that the experimental class scores better than the non-experimental class. The result of linear regression analysis is show in [Table 1](#).

Table 1. Simple Linear Regression Analysis

Multiple R= 0,7981	a	b
Adjusted R Square = 0,6371	11,02	5.03

Based on the [Table 1](#), the regression equation is $Y = 11.02 + 5.03X$ to estimate the value of creative thinking ability which is influenced by the project based learning model. The equation shows that the value of constant (a) is 11.02; it means that if the project based learning model has a value of 0 (zero), then the ability to think creatively has a positive value, which is 11.02. Meanwhile the regression coefficient value of the project based learning model variable (b) is positive, namely 5.03; it can be interpreted that if the value of the project based learning model (X) increases by 1 point, the creative thinking ability (Y) will increase by 5.03

Discussion

Based on the results of the study, it showed that there was an effect of the project based learning model on the creative thinking ability of fourth grade students at SDN 2 Pesawahan. As the results obtained from the first meeting in this study, where both groups received the same treatment amely using the lecture method to get results in the form of pretest data creative thinking skills contained in the test question sheet instrument creative thinking skills. Project based learning can help enrich the learning experience of students, where students will show a better ability to find experiences, seek relevant information to produce the best results ([Ahdhianto et al., 2020](#); [Pawar et al., 2020](#); [Yew & Goh, 2016](#)). From this opinion, it is proven by the high posttest value of creative thinking skills in using the project based learning model in the experimental class which is 76.64 (good category) while the average value of the non-experimental group is 64.92 (enough category), where the group is using the 5M learning model dominated by the lecture method.

The high value obtained by the experimental group in using the project-based learning model is based on the creative theory, creativity is the result of individual interaction with the environment, the ability to make new combinations, based on data, information, or elements that have been previously known both in the school environment, family, and from the community ([Mawardino & Fauzan, 2019](#); [Mitra & Purnawarman, 2019](#)). There are 4 indicators of creative thinking skills developed in this study, namely: fluent thinking, flexible thinking, original thinking, and detailed thinking ([Hussin et al., 2018](#); [Nilsook et al., 2021](#); [Putri et al., 2020](#)). The improvement of students' creative thinking skills was explored based on posttest answers after participating in learning by using creative thinking ability test instruments. The indicator of creative thinking ability that experienced the highest increase in the high category was thinking fluently. This is related to project-based learning which requires students to ask more questions to build their own knowledge.

In line with previous study that stated project-based learning provides opportunities for students to build their own knowledge independently ([Tesi Muskania & Wilujeng, 2017](#)). The indicator of the lowest increase is in the ability to think in detail and in elaboration. This happens because students are rarely trained to do it, although in project-based learning students are motivated to do this, but it still

looks slow. The ability to detail requires students to develop ideas, or detail the details of an object. This ability is rarely applied by teachers to students because in general students learn in a conventional way. At the end of the lesson, both the pretest and posttest in the experimental class produced a product. The work shows that students have creative abilities, by choosing materials, making designs and various shapes. In addition, what is most visible from the application of the project based learning model is that learning activities become more lively, more active and students look eager to complete projects. Previous study state project based learning is the right model to foster self-confidence in students and can develop their creative abilities (Hendriana et al., 2018). Other research proves that project based learning is able to grow student learning activities and improve learning outcomes (Pawar et al., 2020). The other study was also able to prove that the project based learning model can increase the effectiveness of learning during the learning period in the covid pandemic, indirectly proving that project based learning is a learning model that is very much needed and necessary used by students in learning today is an effort to improve learning outcomes, creativity, and students' critical thinking skills (Ikhsan et al., 2017).

The implication of this study is expected to be able to apply by teacher in order to improving students' creative thinking skills because through this model they will be trained to construct their knowledge by being actively involved in complex learning processes. By using this Project Based Learning model, students are expected to be more active and enthusiastic in participating in the learning process and able to construct the new knowledge that will be obtained through the learning process. Thus, learning will be more meaningful so that it can improve students' creative thinking skills. The limitation of this study lies in the subject of the study which only involved one school institution, namely SD Negeri 2 Pesawahan. It is hoped that future research will be able to further expand the scope of research by involving a wider range of subjects and considering other factors related to the impact of project based learning models on creative thinking abilities.

4. CONCLUSION

Project-based learning is a learning model that is very much needed and needs to be used by students in today's learning efforts to improve learning outcomes, creativity, and students' critical thinking skills. Through the Project Based Learning model students learn from their experiences and then apply them in everyday life. This learning model is expected to be able to improve students' creative thinking skills because through this model they will be trained to construct their knowledge by being actively involved in complex learning processes.

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