

The Effect Of The Project-Based Learning Model On Students' Creative Thinking Skills In The Economics Subject

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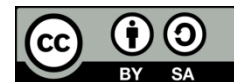
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ABSTRACT

This study aims to examine the effect of the Project-Based Learning (PjBL) model on students' creative thinking skills in economics subject. The research employed a quasi-experimental method with a non-equivalent control group design. The sample consisted of two classes: an experimental class taught using PjBL and a control class taught using conventional methods. Data were collected using a creative thinking skills test administered in both pre-test and post-test. The results showed a significant improvement in the experimental class compared to the control class. Independent sample t-test analysis confirmed that the difference was statistically significant. These findings indicate that PjBL can serve as an effective alternative learning model to improve students' creative thinking skills, particularly in economics learning.

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1. Introduction

Education plays a fundamental role in shaping human resources and national character. In the 21st century, students are required not only to master knowledge but also to develop critical, creative, collaborative, and communicative skills. Among these, creative thinking is crucial, especially in economics learning, where students need to analyze problems and propose innovative solutions.

However, field observations indicate that students' creative thinking skills remain low due to the dominance of conventional learning methods that emphasize rote memorization. Project-Based Learning (PjBL) offers an alternative solution by engaging students in real-life projects that foster collaboration, exploration, and product creation. Previous studies (Handayani, 2023; Nugraha et al., 2023) have shown that PjBL enhances students' critical and creative thinking.

Nevertheless, studies focusing on the application of PjBL in economics learning at the senior high school level remain limited. Therefore, this study was conducted to analyze the effect of PjBL on students' creative thinking skills in SMA Negeri 2 Bandar Dua.

2. Research Methodology

This study used a quantitative approach with a quasi-experimental method. The design employed was a Nonequivalent Control Group Design involving two purposively selected classes. The experimental group was taught using the PjBL model, while the control group received conventional instruction.

The study was conducted at SMA Negeri 2 Bandar Dua, Aceh Province, during the even semester of the 2024/2025 academic year. The total sample consisted of 37 students (22 in the experimental class and 15 in the control class). The independent variable was the PjBL model, while the dependent variable was students' creative thinking skills.

The instrument was a written test developed based on four indicators: fluency, flexibility, originality, and elaboration. The instrument was validated and tested for reliability before use. Data were collected through pre-test and post-test.

Data analysis involved prerequisite tests (normality using Shapiro-Wilk and homogeneity using Levene's Test). Hypothesis testing used paired sample t-test and independent sample t-test.

3. Result and Discussion

Results

This study was conducted at SMA Negeri 2 Bandar Dua, Pidie Jaya, Aceh. Data analysis began with prerequisite tests, namely normality and homogeneity tests.

The Shapiro-Wilk normality test showed that all data, both in the experimental and control classes, had a significance value greater than 0.05. This means that the data was normally distributed. The results of the normality test are shown in Table 1.

Table 1. Test of Normality Results

Class		Shapiro-Wilk ^a Sig.
Creative Thinking Ability	Experimental Pre-Test	.136
	Experimental Post-Test	.055
	Control Pre-Test	.473
	Control Post-Test	.060

Source: Data processed with SPSS

Furthermore, the results of the homogeneity test using Levene's Test also showed a significance value above 0.05. This indicates that the variance of the two groups is homogeneous. The complete results of the homogeneity test are shown in Table 2.

Table 2. Test of Homogeneity Results

Levene Statistic	Df1	Df2	Sig.
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Problem-Solving Skills	Based on Mean	1.148	1	62	.288
	Based on Median	.854	1	62	.359
	Based on Median and With Adjusted Df	.854	1	58.838	.359
	Based on Trimmed Mean	1.093	1	62	.300

Source: Data processed with SPSS

The results of the study show that the creative thinking skills of students in the experimental class taught using the Project Based Learning (PjBL) model increased more significantly than those in the control class. The average score of students in the experimental class rose from 34.77 to 79.77, while in the control class it only increased from 39.00 to 54.33. This proves that the application of the PjBL model is more effective than conventional methods in improving students' creative thinking skills.

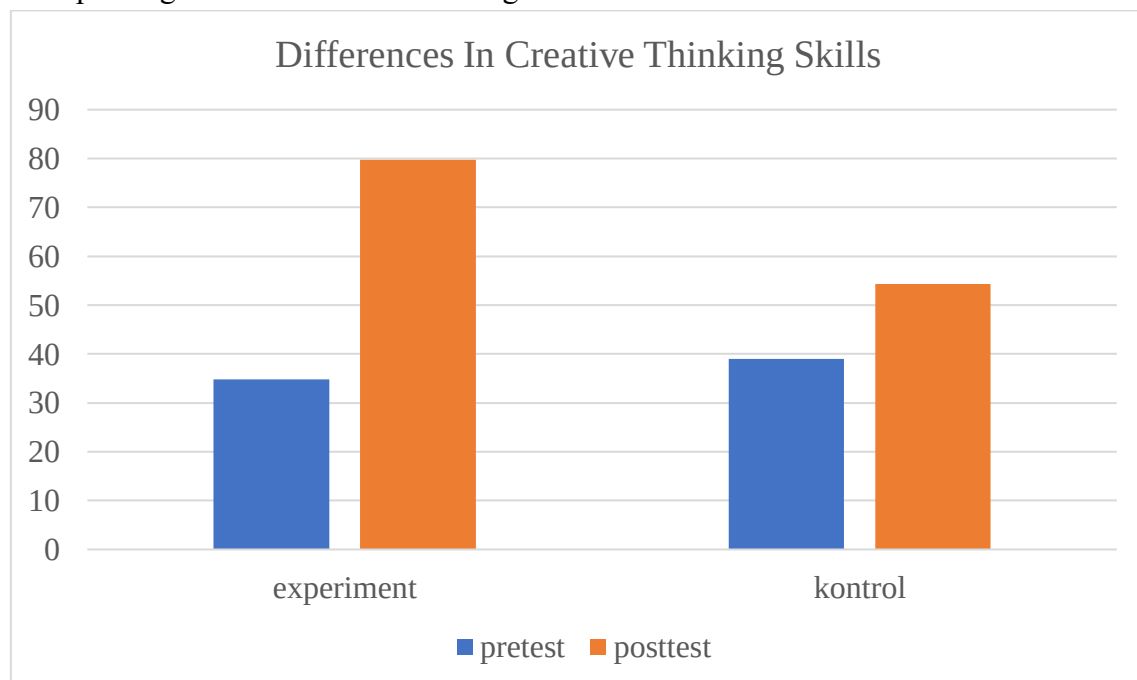


Figure 1. Comparison of Creative Thinking Skills between Experimental and Control Classes

Furthermore, the N-Gain value calculation shows that the experimental class had an average of 69.06 (high category), while the control class only reached 21.42 (low category). This shows that the PjBL model is more effective in improving students' creative thinking skills. Details of the N-Gain results can be seen in Table 3.

Table 3. N-Gain Results for the Control Class and Experimental Class

Class	Description	N	Mean	Standar Deviasi
Experimental	Pre-Test	22	34.77	12.675
	Post-Test	22	79.77	12.675
	N-Gain	22	69.06	20.395
Control	Pre-Test	15	39.00	11.982
	Post-Test	15	54.33	10.328

N-Gain	15	21.42	26.002
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Source: Data processed with SPSS

The hypothesis test using the paired sample t-test shows a significant difference between the pre-test and post-test scores. In the experimental class, a significance value of 0.000 (< 0.05) was obtained, while in the control class the value was 0.005 (< 0.05). These results are shown in Table 4.

Table 4. Paired Sample Test Results

Paired Samples Test		Paired Differences				t	df	Sig. (2-Tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval Of The Difference			
					Lower	Upper		
Pair 1	Pre_Exp Post_Exp	-45.000	15.119	3.223	-51.703	-38.297	-13.961	21 .000
Pair 2	Pre_Con Post_Con	-15.333	18.074	4.667	-25.342	-5.324	-3.286	14 .005

Source: Data processed with SPSS

In addition, the results of the independent sample t-test on the post-test scores of the two groups produced a t-value of 6.443 with a significance level of 0.000 (< 0.05). This proves that there is a significant difference between the experimental class and the control class Table 5.

Table 5. Independent Sample T-Test Results

Test	T	Sig (2-Tailed)	A	Description
Independent Sampel T-Test	6.443	.000	0,05	Significant

Source: Data processed with SPSS

Discussion

The implementation of PjBL encourages students to actively engage in the learning process, from project planning and collaboration to the presentation of results. This process trains students to think critically and creatively, as well as developing their communication and responsibility skills. This is in line with the theory that project-based learning provides contextual learning experiences so that students are able to connect concepts to real life.

The results of the Paired Sample t-test show that both the experimental and control classes experienced an increase in learning outcomes. However, the increase in the experimental class was much more significant. This finding is reinforced by the results of the Independent Sample t-test, which shows a significant difference between the two classes. Thus, it can be concluded that PjBL is more effective than conventional methods.

The findings of this study are consistent with the results of previous studies. Biazus & Mahtari (2022) stated that the implementation of PjBL can improve students' creative thinking skills in four main indicators, namely fluency, flexibility, originality, and elaboration. Research by Wulandari, Hermita, & Sari (2024) also shows that PjBL significantly improves students' creative thinking and collaboration skills. Other studies by Arifatin (2023) in English language learning and Ekayana et al. (2025) with STEAM integration also support the effectiveness of PjBL.

Thus, it can be emphasized that the implementation of Project-Based Learning (PjBL) not only significantly improves students' creative thinking skills but also fosters motivation, activity, and collaboration skills that are important in facing the challenges of 21st-century learning.

4. Conclusion

The study concludes that the Project-Based Learning model significantly improves students' creative thinking skills in economics learning. Students in the experimental class showed higher achievement compared to those in the control class, as evidenced by N-Gain scores and statistical tests. Therefore, PjBL can be considered an effective alternative learning strategy to foster creativity, motivation, and collaboration in senior high school economics.

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