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ENHANCING CRITICAL THINKING THROUGH PROJECT-BASED LEARNING IN FAIRY TALE LESSONS AT MADRASAH IBTIDAIYAH ISLAMIYAH CIWARU

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Abstrak
Penelitian ini bertujuan untuk menguji pengaruh model pembelajaran berbasis proyek (PBL) terhadap keterampilan berpikir kritis siswa kelas 3 dalam pembelajaran dongeng di Madrasah Ibtidaiyah Islamiyah Ciwaru. Penelitian ini menggunakan pendekatan kuantitatif dengan desain kelompok nonequivalent. Sebanyak 50 siswa berpartisipasi dalam penelitian ini, dengan 25 ditugaskan ke kelompok eksperimen, yang menerima instruksi berdasarkan model PBL, dan 25 ke kelompok kontrol, yang menerima instruksi berdasarkan teknik tradisional. Keterampilan berpikir kritis siswa dinilai menggunakan instrumen ujian berbasis esai. Data dianalisis menggunakan uji-t sampel independen, yang menghasilkan nilai signifikansi (dua sisi) sebesar 0,025. Hasil ini menunjukkan perbedaan yang signifikan secara statistik antara kelompok eksperimen dan kontrol, yang mengarah pada penolakan hipotesis nol (H_0). Temuan ini menunjukkan bahwa model pembelajaran berbasis proyek secara signifikan meningkatkan keterampilan berpikir kritis siswa pada pembelajaran dongeng. Studi ini menyimpulkan bahwa penerapan PBL pada kelas 3 Madrasah Ibtidaiyah berkontribusi positif terhadap pengembangan keterampilan berpikir tingkat tinggi. Hasil ini mendukung integrasi strategi pembelajaran aktif dan berpusat pada siswa dalam mengembangkan kemampuan kognitif mereka.

Kata Kunci: Berpikir Kritis, Dongeng, *Project-Based Learning*, *Student-Centered Learning*

Abstract
This study aims to examine the effect of the project-based learning (PBL) model on the critical thinking skills of third-grade students in learning fairy tales at Madrasah Ibtidaiyah Islamiyah Ciwaru. This study used a quantitative approach with a nonequivalent group design. A total of 50 students participated in this study, with 25 assigned to the experimental group, which received instruction based on the PBL model, and 25 to the control group, which received instruction based on traditional techniques. Students' critical thinking skills were assessed using an essay-based examination instrument. Data were analysed using an independent sample t-test, which yielded a significance value (two-tailed) of 0.025. These results indicate a

statistically significant difference between the experimental and control groups, leading to the rejection of the null hypothesis (H_0). These findings suggest that the project-based learning model has a significant impact on improving students' critical thinking skills in learning fairy tales. This study concludes that the implementation of PBL in third-grade Madrasah Ibtidaiyah has a positive contribution to the development of higher-order thinking skills. These results support the integration of active and student-centred learning strategies in developing their cognitive abilities.

Keywords: Critical Thinking Project-Based Learning, Student-Centered Learning

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INTRODUCTION

In an era of rapid technological advancement, thinking skillsespecially critical thinking have become essential for students at all levels, including elementary Education (Alhamuddin et al., 2023; Radiansyah et al., 2023; Juhji et al., 2024; Putri et al., 2024). These skills enable students to understand, analyse, and manage information effectively in a complex and constantly changing world (Fitriani et al., 2019; O'Reilly et al., 2022; Radiansyah et al., 2023). However, initial observations conducted in third-grade students at Madrasah Ibtidaiyah Islamiyah Ciwaru, Serang City, revealed that many students still struggled to understand the meaning of fairy tales, indicating weaknesses in their critical thinking processes, particularly in interpretation and analysis.

Critical thinking is characterised by several core indicators: interpretation, analysis, evaluation, inference, explanation, and self-regulation (Lai, 2011). However, in practice, students at Madrasah Ibtidaiyah Islamiyah Ciwaru, Serang City, demonstrated difficulty explaining or analysing the content of fairy tales when prompted by their teachers. This aligns with Alkhatib (2019), who stated that analysis and evaluation are crucial components of rational and informed problem-solving and decision-making. Without careful analysis and appropriate evaluation, the decision-making process cannot be based on logical and evidence-based considerations. Unfortunately, these skills appeared underdeveloped in the students observed, as they were unable to formulate conclusions or articulate key points from the stories they had read.

One contributing factor to this problem is the limited use of learning models that actively engage students in the learning process. Research shows that learning styles Influence students' critical thinking skills (Myers & Dyer, 2006; Fuad, 2020). However, learning in third-grade classes at Madrasah Ibtidaiyah Islamiyah Ciwaru, Serang City, is still

dominated by conventional teaching methods, resulting in low student engagement and limited opportunities for higher-order thinking practice.

In response to these challenges, various studies have explored the application of innovative learning strategies to enhance critical thinking. For example, Hikmah et al. (2023), Ramadiyanti et al. (2016), and Ranggi et al. (2021) reported that Project-Based Learning (PBL) models significantly improved students' critical thinking in science learning. These studies consistently highlight the potential of PBL to foster active learning, collaboration, and deeper cognitive engagement (Lou & Kim MacGregor, 2004; Ranggi et al., 2021; Tambunan et al., 2024). However, existing research has primarily focused on science subjects and higher grade levels, leaving a gap in understanding how PBL influences critical thinking in narrative or storytelling learning contexts among younger elementary school students. To address this gap, this study aims to investigate the effect of the PBL model on critical thinking skills in storytelling learning among third-grade students at Madrasah Ibtidaiyah Islamiyah Ciwaru, Serang City.

METHOD

This study adopted a quantitative approach with a quasi-experimental, non-equivalent control group design to investigate the effect of the Project-Based Learning (PBL) model on students' critical thinking skills. The design involved an experimental group and a control group without random assignment, allowing for the examination of treatment effects under controlled conditions.

The population comprised 63 third-grade students at Madrasah Ibtidaiyah Islamiyah Ciwaru during the 2024/2025 academic year. A purposive sampling technique was employed to select 50 students—25 from the experimental group (Class 3A) and 25 from the control group (Class 3B)—based on their lowest average pretest scores to ensure baseline equivalence. The experimental group received instruction using the PBL model, while the control group followed conventional teaching methods.

Critical thinking was defined and measured using Kahlke and White (2013) framework, which includes six core skills: interpretation, analysis, evaluation, inference, explanation, and self-regulation. These indicators were operationalised into essay-based items that required students to analyse a fairy tale text. The test instrument was constructed based on Facione's indicators and adapted for the elementary context. Development included: (1) blueprint design aligned with critical thinking indicators; (2) expert validation by two educational experts; (3) pilot testing with 15 out-of-sample students; (4) item validity analysis using Pearson's correlation ($r_{calculated} > r_{table}$ at $\alpha = 0.05$); and (5) reliability testing using Cronbach's Alpha ($\alpha \geq 0.70$).

Data collection involved classroom observation, essay-based tests, and documentation. Observations assessed the fidelity of model implementation, while test scores served as the primary measure of critical thinking. Data analysis included: (1) Shapiro-Wilk test for normality, (2) Levene's test for homogeneity of variance, and (3) independent samples t-test to assess posttest differences between groups. All analyses were conducted using SPSS software with a significance threshold of $\alpha = 0.05$.

RESULTS AND DISCUSSION

Normality Test

Prior to hypothesis testing, a preliminary analysis was conducted to verify the assumption of a normal distribution of the posttest data using the Shapiro-Wilk test. This test was chosen because it is more sensitive to small to medium sample sizes, such as in this study, which involved 25 students each in the experimental and control groups. The test results are presented in Table 1 below.

Table 1. Normality Test Results (Shapiro-Wilk Test)

Group	Shapiro-Wilk Statistic	df	Sig. (p-value)	Interpretation
Experimental	0.957	25	0.515	Normally distributed
Control	0.942	25	0.101	Normally distributed

Based on Table 1, the significance value for the experimental group was 0.515 and for the control group, 0.101. Both values are greater than the significance limit of 0.05, indicating that the posttest data in both groups were normally distributed. Therefore, it can be concluded that the assumption of normality is met, allowing parametric analysis, such as the independent t-test, to test the following hypothesis.

Homogeneity Test

After the normality test is met, the next step is to test the homogeneity of variance between groups, as a prerequisite for parametric analysis. The homogeneity test was conducted using Levene's Test, which is used to determine whether the variances of the two groups (experimental and control) are equal. The results of the homogeneity test on the posttest scores for critical thinking skills are presented in Table 2 below.

Table 2. Homogeneity of Variance Test (Levene's Test)

Variable	Levene Statistic	df1	df2	Sig. (p-value)	Interpretation
Post-test critical thinking scores	1.303	1	48	0.260	Homogeneous variance

Based on Table 2, the significance value for the experimental group is 0.515 and for the control group is 0.101. Both values are greater than the significance limit of 0.05, indicating that the posttest data in both groups are normally distributed. Therefore, it can be concluded that the assumption of normality is met, and the parametric analysis of the independent t-test can be used to test this research hypothesis.

Hypothesis Testing

After the data was declared normally distributed and had a homogeneous variance, the analysis continued with the Independent Samples t-Test to determine whether there was a significant difference between the posttest scores of critical thinking skills of students who learned using the Project-Based Learning model (experimental class) and students who used the conventional learning model (control class).

Table 3. Results of Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig, (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Skor Posttest Kontrol/Eksperimen	Equal variances assumed	1.299	.0260	2.308	48	.025	5.160	2.236	.664	9.656
	Equal variances not assumed			2.308	45.819	.026	5.160	2.236	.659	9.661

Based on the t-test results in Table 3 above, the Sig value is obtained. (2-tailed) = 0.025 assuming equal variance and 0.026 assuming unequal variance, both of which are smaller than 0.05. This indicates a statistically significant difference between the posttest scores of the two groups of students. The Mean Difference value of 5.160 indicates that students who participated in learning with the Project-Based Learning model had higher critical thinking scores compared to students in the control group. The difference is also supported by the 95% confidence interval range, which does not include zero (0.664-9.656 and 0.659-9.661), reinforcing that the difference is not due to chance.

The results of this study indicate a significant difference in posttest scores for critical thinking skills between experimental class students who used the Project-Based Learning (PBL) model and control class students who used the conventional learning model. The significance value (2-tailed) of 0.025 <0.05, which indicates that the application of the PBL model has a positive impact on improving students' critical thinking skills in learning fairy tales. The average posttest score of students in the experimental class is higher than that of the control class, indicating that PBL is effective in creating a more active and collaborative learning atmosphere, as well as stimulating higher-level thinking skills.

This finding reinforces the view of Kahlke and White (2013), which states that critical thinking includes the ability to analyse, evaluate, explain, conclude, and self-regulate systematically. The PBL model naturally stimulates all these aspects through project-based tasks that require students to investigate problems, evaluate information, and present solutions in a logical and structured way. In learning fairy tales, PBL encourages students not only to understand the content of the story but also to explore moral values and reflect on real-life applications.

This result aligns with the findings of Adnyani and Suniasih (2023), Aktafianto et al. (2023), and Sitanggang and Haryanto (2023), who reported that the use of PBL models can significantly enhance critical thinking skills in science subjects. However, this study expands the scope of PBL application into the realm of literacy learning, particularly in learning fairy tales in Madrasah Ibtidaiyah. This demonstrates that the effectiveness of PBL is not limited to specific subjects but can also be effectively applied to text-based and value-based learning.

Practically, the application of PBL can serve as an alternative learning model that supports the competency-based curriculum and the Pancasila learner profile, which emphasises critical, creative, collaborative, and communicative thinking skills. PBL allows

students to learn in a contextually meaningful way and to be more actively involved in the learning process, compared to conventional models that tend to be one-way and teacher-centred. In the long run, the application of this model in Madrasah Ibtidaiyah can form the foundation of 21st-century skills early on.

Although the results of this study show a significant effect of the PBL model, limitations remain, including the small sample size and the limited scope of the material on fairy tale learning, therefore, further research needs to be conducted with a broader scope and at different levels of Education, to test the consistency of the effectiveness of this model. Nevertheless, the findings make an important contribution to basic Education practice and support the integration of active learning approaches in the madrasah ibtidaiyah curriculum.

CONCLUSION

The Project-Based Learning (PBL) model has a significant effect on improving the critical thinking skills of grade 3 students of Madrasah Ibtidaiyah Islamiyah Ciwaru in learning fairy tales. This is evidenced by the independent samples t-test, which shows a significance value of $0.025 < 0.05$, indicating a significant difference in posttest scores between the experimental and control groups. This finding reinforces the Theory that project-based learning can foster higher-order thinking skills, such as analysis, evaluation, and self-regulation, at the elementary Education level. Practically, the results of this study recommend integrating the PBL model into the curriculum of Madrasah Ibtidaiyah as a strategy to improve the quality of students' thinking processes. However, the limitations of this study lie in its limited material coverage and small sample size. Therefore, further research with a broader coverage and longitudinal design is recommended to test the sustainability of the effects of this learning model.

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