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The Effect of The Project-Based Learning Model Using 3D Creative Board Media on The Learning Outcomes

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ABSTRACT

Islamic History is an important subject within Islamic Religious Education that aims to develop students' historical understanding and Islamic values. However, the learning process is often dominated by teacher-centered lecture methods, resulting in low student engagement and suboptimal learning outcomes. This study aims to examine: (1) the effect of the lecture method on Islamic History learning outcomes of Grade VII A students as the control class, (2) the effect of the Project Based Learning (PjBL) model using 3D creative board media on the learning outcomes of Grade VII B students as the experimental class, and (3) the differences in learning outcomes between the two classes. This research employed a quantitative, quasi-experimental design with a non-equivalent control group. Data were collected through pre-tests and post tests and analysed using validity, reliability, normality, homogeneity, and hypothesis testing with SPSS version 25. The results showed that the lecture method improved students' learning outcomes in the control class, with a mean pre-test score of 67.9 and a post-test score of 73.70, although the improvement was relatively low. In contrast, the experimental class taught using the PBL model supported by 3D creative board media demonstrated a more significant improvement, with a mean pre-test score of 50.85 and a post-test score of 83.75. Hypothesis testing revealed a significant difference between the two classes, as indicated by a p-value of 0.002 < 0.05. Therefore, the PBL model using 3D creative board media is more effective in improving students' learning outcomes in Islamic History.

A. INTRODUCTION

Education is a fundamental pillar in shaping an intelligent, competitive, and well-characterised generation(Triyanto, 2020). In the Islamic perspective, education is not merely a formal activity but an obligation for every individual, both male and female, that continues throughout life. Islamic education functions as a foundation of values and beliefs that guide the learning process, ensuring that it remains aligned with Islamic teachings and is not easily influenced by external values that contradict them (Hikmatul, 2023). Therefore, education is not only oriented toward academic achievement but also toward the holistic development of students' character, attitudes, and moral integrity.

The essence of learning lies in the transformation that occurs within individuals as a result of processing knowledge and experience. Learning is considered successful when students are able to understand, internalise, and apply knowledge in their daily lives, both cognitively and behaviourally (Anjasari, 2022). In formal education settings, teachers play a strategic role as facilitators who are responsible for creating meaningful and conducive learning environments. To fulfil this role effectively, teachers must possess pedagogical competence and be able to implement appropriate learning models that actively engage students in the learning process (Maha, 2023).

One of the important subjects in Islamic Religious Education is Islamic History, which aims to instil an understanding of historical events and Islamic values while introducing the development of Islamic civilisation from the time of the Prophet Muhammad SAW to subsequent periods. Through this subject, students are expected not only to recognise historical facts but also to develop critical awareness of the dynamics of Islamic civilisation and its contributions to the world (Selawati & Nani, 2025). However, in practice, Islamic History learning in many educational institutions is still dominated by teacher-centred lecture methods, which limit students' active participation and engagement.

The continued reliance on lecture-based methods has significant long-term implications. Passive learning environments tend to reduce students' opportunities to develop higher-order thinking skills, such as analysis, evaluation, and critical reflection (Islam et al., 2025). As a result, students often exhibit superficial understanding, low knowledge retention, and limited ability to relate historical events to contemporary contexts. This condition is not in line with the demands of 21st-century education, which emphasises the development of critical thinking, creativity, collaboration, and communication skills (Islam & Syaifudin, 2024). Modern educational paradigms encourage a shift from teacher-centred to student-centred learning approaches that actively involve students in constructing knowledge through meaningful experiences (Islam et al., 2024).

This problem is also evident at MTs Miftahul Jannah Mantingan, where Islamic History learning remains predominantly teacher-centred, with minimal student interaction and participation. Consequently, students' interest in learning decreases, their understanding of historical material remains limited, and their learning outcomes do not meet expectations (Ali, 2021). This situation highlights the urgent need for innovative learning models that can enhance student engagement, foster creativity, and improve learning outcomes.

One learning model that is considered relevant to addressing these challenges is Project-Based Learning (PjBL). This model emphasises active student involvement through collaborative projects, problem-solving activities, and the creation of meaningful products (Adelia et al., 2024). In addition, the use of visual and creative media, such as 3D creative boards, can support learning by presenting historical content in a concrete, engaging, and easily understandable form (Salim & Aryuni, 2022). Previous studies have shown that the implementation of PjBL can improve student motivation, participation, and learning outcomes across various subjects (Umam, 2023). Similarly, the use of visual and three-dimensional media has been proven to enhance students' comprehension and retention of learning material.

However, despite these findings, most existing studies tend to examine PjBL and visual media separately or focus on general subjects and science-based learning. Research that integrates the PjBL model with 3D creative board media in the context of Islamic History learning remains limited. Furthermore, studies conducted at the Madrasah Tsanawiyah

level are still scarce, particularly those that specifically investigate the impact of such approaches on students' learning outcomes and historical understanding within an Islamic educational framework.

Based on the above considerations, this study aims to examine the effect of implementing a Project-Based Learning model based on 3D creative board media on the learning outcomes of seventh-grade students in Islamic History at MTs Miftahul Jannah Mantingan. This research is expected to contribute to the development of innovative learning models and to enrich the body of knowledge in Islamic education, particularly in the teaching and learning of Islamic History.

B. METHODS

This study uses a quantitative, quasi-experimental, non-equivalent control-group design. The research was conducted at MTs Miftahul Jannah, Mantingan, Ngawi Regency, East Java, in the 2025–2026 academic year, precisely from September to December 2025. The selection of this design was based on school conditions that did not allow random sampling because the class divisions had been predetermined.

The population in this study consisted of all seventh-grade students of MTs Miftahul Jannah, totalling 81 students. The accessible population included students of class VII A and VII B. The sampling technique used was purposive sampling, a nonprobability sampling method based on specific criteria aligned with the research objectives (Agus et al., 2022). The research sample comprised 40 students: 20 from class VII A (control) and 20 from class VII B (experimental).

The research began with administering a pre-test to the control and experimental classes to determine the students' initial abilities. Furthermore, the experimental class received treatment through the implementation of the Project-Based Learning (PBL) model using 3D creative board media, while the control class used conventional learning. After the treatment was given, both classes were again given a post-test to determine changes in students' learning outcomes (Sugiyono, 2015).

The instrument validity test was conducted to determine the extent to which the instrument's accuracy or suitability aligns with the objectives to be achieved (Haq, 2022). An instrument is said to have good validity if it provides measurement results that align with the measurement objectives (Maulana, 2022). Furthermore, the reliability test is the level of consistency of an instrument. Reliability testing assesses whether a test is accurate and can be trusted in accordance with established standards (Sjamsuddin & Anshari, 2023).

C. RESULT AND DISCUSSION

This study aims to examine: 1) the effect of conventional learning on the learning outcomes of Islamic History material of seventh-grade students in class VII A as the control class at MTs Miftahul Jannah Mantingan, 2) the effect of the project based learning model assisted by 3D creative board media on the learning outcomes of Islamic History material of seventh-grade students in class VII B as the experimental class, 3) the comparison of students' learning outcomes between the control class and the experimental class. The results of the data analysis show that students' achievement of learning outcomes in the experimental class is significantly higher than in the control class that used conventional learning.

Table 1. The Average Pre-test and Posttest Scores of Class VII A and VII B

No	Class	Pre-test	Posttest

1	Control	67,9	73,7
2	Experiment	50,85	83,75

Based on the table above, the average pretest score of the experimental class increased from 50,85 to 83,75, while the control class increased from 67,9 to 73,7. The experimental class's learning outcomes are much higher than those of the control class. This indicates that implementing the project-based learning model with 3D creative board media is more effective at improving students' learning outcomes.

The research data were analysed using descriptive analysis and prerequisite tests of analysis, which are explained as follows:

Descriptive Analysis

The analysis of pretest and posttest data in both classes is as follows:

Table 2. Descriptive Analysis of Pretest and Posttest

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
pretest_kontrol	20	50	83	67.90	10.872
posttest_kontrol	20	58	92	73.70	9.454
pretest_eksperimen	20	33	67	50.85	10.111
posttest_eksperimen	20	67	100	83.75	9.569
Valid N (listwise)	20				

After the descriptive analysis, normality and homogeneity tests were conducted as prerequisites before the hypothesis test.

Prerequisite Test of Analysis

Normality Test

The Normality Test is used to evaluate whether the data are normally distributed (Permana & Ikasari, 2023). In this study, the sample size was less than 50, so the researcher used the Shapiro–Wilk test. If the significance value (Sig) < 0.05, then the data are not normally distributed. However, if the significance value (Sig) > 0.05, then the data are normally distributed (Isnaini et al., 2025). The results of the data from the normality test are as follows:

Table 2. Results of the Normality Test

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	kelas	Statistic	df	Sig.	Statistic	df	Sig.
hasil belajar siswa	pretest kontrol	.193	20	.049	.905	20	.051
	posttest kontrol	.205	20	.028	.919	20	.096
	pretest eksperimen	.183	20	.076	.926	20	.128
	posttest eksperimen	.181	20	.084	.928	20	.140

a. Lilliefors Significance Correction

The results of the normality test on the pretest and posttest data for the control and experimental classes indicate a p-value greater than 0.05, indicating that the data are normally distributed. Thus, both groups meet the assumption of normality.

Homogeneity Test

The homogeneity test assesses whether the variances of the experimental and control classes are equal (Agustian et al., 2025). In this study, the homogeneity test was conducted using SPSS version 25. The test provision is that if the significance value is> 0.05, the data are declared to have homogeneous variance; if the significance value is < 0.05, the data are considered not homogeneous. The results of the homogeneity test obtained through SPSS 25 are as follows:

Table 3. Results of the Homogeneity Test

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
hasil belajar siswa	Based on Mean	.250	3	76	.861
	Based on Median	.295	3	76	.829
	Based on Median and with adjusted df	.295	3	75.730	.829
	Based on trimmed mean	.249	3	76	.862

The results of the homogeneity test on the pretest and posttest data in the control and experimental classes show a p-value greater than 0.05, indicating that the variances of the students' learning outcomes are homogeneous and meet the requirements to proceed to the hypothesis-testing stage.

Hypothesis Test

The Hypothesis Test aims to provide the researcher with an answer on whether the model used can be accepted or rejected based on the proposed hypothesis (Waluyo et al., 2024). Based on the explanation of the prerequisite analysis test previously, after conducting the normality test and homogeneity test, which showed normal and homogeneous results, the next analysis used the Independent Sample Test:

Table 4. Results of the Hypothesis Test

No	Test Types	Sig. Value (2-tailed)	Information
1	Pre-test	0,000 < 0,05	there is a significant difference
2	Posttest	0,002 < 0,05	there is a significant difference

The test results show that the pretest significance value of 0,000 (< 0,05) indicates that the students' initial abilities in the control and experimental classes differed, with the learning outcomes of the control class higher than those of the experimental class. Then, the posttest results yielded a significance value of 0,000 (< 0,05), indicating a significant difference in learning outcomes and a greater increase after the treatment was administered. These findings confirm that implementing the project-based learning model with 3D creative board media significantly improves students' learning outcomes.

Based on the research results, conventional learning implemented in class VII A as the control class affected students' learning outcomes, as indicated by an increase in the average score from pretest to posttest. However, the increase was relatively small because learning remained teacher-centred, and students' active involvement was limited.

Furthermore, the implementation of the Project-Based Learning (PBL) model, supported by 3D creative board media, in class VII B, the experimental class, had a significant effect on students' learning outcomes. This can be seen in the large increase in the average score, as well as in the results of statistical tests, which showed a significance value of less than 0.05, indicating that PjBL learning is effective in improving students' understanding of Islamic History material.

The comparison of learning outcomes between the control and experimental classes shows that the experimental class achieved a much greater increase than the control class. Therefore, it can be concluded that the Project-Based Learning model, supported by 3D creative board media, is more effective than conventional learning in improving the Islamic History learning outcomes of seventh-grade students.

The findings of this study align with several previous studies, which indicate that implementing the Project-Based Learning model and using concrete media can improve students' learning outcomes. Research by Rofi'ul Umam shows that PjBL, when supported by 3D creative boards, can significantly improve students' learning mastery (Umam, 2023), while research by Igo Fernando Wijaya shows that PjBL has a positive effect on students' learning outcomes and creativity in history learning (Dinantika et al., 2019). In addition, research by Qori'atul Ulfa Mahmudah emphasises that 3D board media is highly attractive and effective in supporting material understanding (Musyarofah, 2018). The similarity of these results strengthens the argument that PjBL, assisted by 3D creative board media, is an effective and relevant learning model for improving Islamic History learning outcomes.

D. CONCLUSION

Based on the research results, the lecture method improved students' learning outcomes in the control class, with a mean pre-test score of 67.9 and a post-test score of 73.70, although the improvement was relatively low. In contrast, the experimental class taught using the PBL model supported by 3D creative board media demonstrated a more significant improvement, with a mean pre-test score of 50.85 and a post-test score of 83.75. Hypothesis testing revealed a significant difference between the two classes, as indicated by a p-value of $0.002 < 0.05$. Therefore, the PBL model using 3D creative board media is more effective in improving students' learning outcomes in Islamic History.

The learning outcomes of students in the experimental class show a higher increase, with an average pre-test score of 50,85 increasing to 83,75 on the post-test, compared to the control class that used conventional learning, which increased from 67,9 to 73,7. Thus, it can be concluded that the learning outcomes of students taught using the PBL model assisted by 3D creative board media are better than those of students taught using conventional learning methods.

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