



Project Based Learning and Islamic Religious Education Learning Outcomes on the Topic of Zakat

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Abstract

*This study aimed to analyze the difference in learning outcomes between students who received Project Based Learning (PjBL) and those who received conventional instruction on the topic of zakat. The study employed a quantitative approach with a quasi-experimental non-equivalent control group design. The sample consisted of 33 eighth-grade students, including 16 students in the experimental group and 17 students in the control group. Data were collected using a multiple-choice learning achievement test administered before and after the learning intervention. The experimental group received PjBL through group activities and an audiovisual project, whereas the control group received conventional instruction through lectures, question-and-answer sessions, and exercises. Data were analyzed using normality and homogeneity tests, an independent samples *t*-test, and N-Gain analysis. The results showed no significant difference in the initial abilities of the two groups ($t = -1.334$, $p = .192$). After the intervention, a significant difference in learning outcomes was found based on the Welch test ($t = -7.705$, $df = 27.253$, $p < .001$). The experimental group obtained a mean N-Gain of 0.6416 or 64.16%, categorized as moderate, whereas the control group obtained 0.0938 or 9.38%, categorized as low. These findings indicate that students who received PjBL experienced greater improvement in cognitive learning outcomes than students in the control group on the topic of zakat.*

Keywords: Project Based Learning, learning outcomes, zakat, Islamic Religious Education

Introduction

Islamic Religious Education (IRE) plays an important role in the educational process because it provides students with knowledge of Islamic teachings while helping them understand their application in everyday life (Andrias et al., 2024). Therefore, IRE learning needs to be directed not only toward the acquisition of information but also toward learning processes that enable students to actively engage with, understand, and process learning materials (Ulfatur Rosyidah, 2023).

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In the context of IRE learning at SMPS Islam Al-Munawwaroh, this study was motivated by the relatively limited student involvement in learning activities, which tended to rely on conventional instructional methods. This condition provided the basis for examining an alternative learning approach that could facilitate more active and contextual student engagement. (Maria & Maulana, 2023)

One learning model that can be used to increase student engagement is Project Based Learning (PjBL). PjBL provides students with opportunities to learn through project activities, work collaboratively in groups, process information, produce learning products, and communicate their findings. These characteristics provide greater opportunities for students to participate actively in the learning process rather than merely receiving information from the teacher (Thomas, 2021) (Arya Hasan As'ari, 2022).

Previous studies have examined the implementation of PjBL in Islamic Religious Education and reported its association with improved student learning outcomes (Arya Hasan As'ari, 2022). (Saputra et al., 2024), for example, investigated the implementation of PjBL among eighth-grade students in Islamic Religious Education. Similarly, (Maria & Maulana, 2023) examined the effect of PjBL on students' cognitive learning outcomes in Islamic Religious Education. More recent research by (Syifaul Karima et al., 2025) also reported a significant difference in learning outcomes between students receiving PjBL and those receiving a comparison learning approach.

The topic of zakat is one of the IRE topics that allows the implementation of project-based learning activities. The topic includes the definition of zakat, types of zakat, conditions for zakat obligation, zakat calculation, and the wisdom of zakat. Previous research has also specifically examined PjBL in zakat learning. (Hasan & Khatimah, 2024) investigated the application of PjBL to improve students' learning outcomes on the topic of zakat, while (Maharani et al., 2025) examined project-based learning on zakat within Islamic Religious Education. These studies indicate the relevance of project-based activities to the learning of zakat.

In the experimental group of the present study, PjBL was implemented through group activities and the development of an audiovisual project. One of the project activities was directed toward helping students understand or memorize the eight categories of zakat recipients (*asnaf*). Through this activity, students were not only exposed to explanations of the material but were also required to process information and present their understanding in the form of a learning product.

The previous literature demonstrates that PjBL has been applied in Islamic Religious Education across various contexts. (Kurjum et al., 2023) Therefore, the novelty of this study is not based on the claim that PjBL is a new learning model in IRE. Rather, its contribution lies in the specific context of its implementation, namely the teaching of zakat to eighth-grade junior high school students through an audiovisual project and a non-equivalent control group design. This study also complements previous research by using N-Gain analysis to describe learning improvement relative to students' initial abilities.

Accordingly, this study does not only examine differences in learning outcomes after the learning intervention but also compares the relative improvement in learning

outcomes between the experimental and control groups. Based on this rationale, the study aimed to analyze the difference in learning outcomes between students who received PjBL and those who received conventional instruction on the topic of zakat, as well as to analyze the improvement in learning outcomes of both groups based on N-Gain.

METHOD

2.1. Research Design

This study employed a quantitative approach with a quasi-experimental non-equivalent control group design. The design was selected because the study involved two previously established groups, namely an experimental group and a control group, without individual-level randomization.

Conceptually, the research design can be represented as follows:

Table 1. Research Design

Group	Pretest	Treatment	Pottest
Experimental	O ₁	X	O ₂
Control	O ₃	-	O ₄

The experimental group received the PjBL treatment, whereas the control group received conventional instruction.

Research Sample

The study was conducted at SMPS Islam Al-Munawwaroh, Cikarang Barat, Bekasi. The analyzed sample consisted of 33 eighth-grade students, comprising 16 students in the experimental group and 17 students in the control group.

The experimental group was class VIII ICT, whereas the control group was class VIII Tahsin. The groups were selected using purposive sampling. Administrative school data indicated the existence of the VIII Tahsin and VIII ICT classes as part of the student population in the 2024/2025 academic year.

Learning Treatment

The experimental group received instruction using Project Based Learning. The learning activities consisted of concept presentation, group formation, project development, audiovisual product creation, presentation, and discussion.

The learning project focused on the topic of zakat, including activities designed to help students understand the eight categories of zakat recipients. Students were encouraged to process the learning material and present their understanding through an audiovisual learning product. The control group received conventional instruction consisting of material explanations, question-and-answer activities, and exercises.

Instrument and Data Collection

The research instrument was a multiple-choice learning achievement test administered before and after the learning intervention. The test was used to measure students' cognitive learning outcomes.

Data collection was conducted in three stages: administration of the pretest before the treatment, implementation of the respective learning treatments for each group, and administration of the posttest after the treatment. The research instrument consisted of 20 multiple-choice items.

Data Analysis

The data were analyzed using SPSS. The Shapiro-Wilk test was used to examine data normality, while Levene's test was used to assess the homogeneity of variances.

Differences in learning outcomes between the groups were analyzed using an independent samples *t*-test. When the variances of the two groups were not homogeneous, the *Equal variances not assumed* row, corresponding to the Welch approach, was interpreted. Learning improvement was analyzed using N-Gain. The N-Gain formula was calculated as:

$$g = \frac{X_{\text{posttest}} - X_{\text{pretest}}}{X_{\text{maximum}} - X_{\text{pretest}}}$$

where X_{posttest} represents the posttest score, X_{pretest} represents the pretest score, and X_{maximum} represents the maximum possible score. The N-Gain categories used in the study were high, moderate, and low.

RESULTS AND DISCUSSION

Students' Initial Abilities

The pretest results showed that the experimental group obtained a mean score of 63.44, whereas the control group obtained a mean score of 56.00. The independent samples *t*-test produced the results presented in Table 2.

Table 2. Results of the Pretest Difference Test

Group	n	Mean	<i>t</i>	<i>df</i>	<i>p</i>
Experimental	16	63.44	-1.334	31	.192
Control	17	56.00			

Because $p = .192 > .05$, there was no statistically significant difference between the initial abilities of the experimental and control groups.

These findings indicate that the two groups did not differ significantly in their initial learning abilities before the instructional treatments were implemented.

Assumption Tests

The Shapiro-Wilk normality test produced significance values of .031 for the control group's pretest, .052 for the control group's posttest, .267 for the experimental group's

pretest, and .315 for the experimental group's posttest. Using the criterion of $p < .05$ to indicate a departure from normality, the control group's pretest data did not meet the normality assumption. The other three datasets met the normality criterion.

The pretest homogeneity test produced a significance value of .609, indicating homogeneous variances between the two groups. For the posttest, Levene's test produced an F value of 4.798 with $p = .036$. Because $p = .036 < .05$, the posttest variances were not homogeneous. Therefore, the posttest difference was interpreted using the *Equal variances not assumed* row, corresponding to the Welch test.

Differences in Learning Outcomes After the Intervention

The results of the independent samples t -test for the posttest are presented in Table 3.

Table 3. Results of the Welch Test for the Posttest

Parameter	Value
Levene's F	4.798
Levene's Sig.	.036
t	-7.705
df	27.253
Sig. (2-tailed)	< 0.001
Mean Difference	-20.555
95% CI	-26.026 to -15.084

The results indicate a statistically significant difference in learning outcomes between the experimental and control groups after the learning intervention. The Welch test produced $t = -7.705$, $df = 27.253$, and $p < .001$.

Because the Levene's test indicated unequal variances, the *Equal variances not assumed* result was used to interpret the posttest difference.

Learning Improvement Based on N-Gain

The N-Gain analysis showed differences in learning improvement between the two groups.

Table 4. N-Gain Results for the Experimental and Control Groups

Group	n	Mean	Percentage	Category
Experimental	16	0.6416	64.16%	Moderate
Control	17	0.0938	9.38%	Low

The experimental group obtained a mean N-Gain of 0.6416, whereas the control group obtained a mean N-Gain of 0.0938.

Based on the N-Gain criteria used in the study, the experimental group's N-Gain was categorized as moderate, whereas the control group's N-Gain was categorized as low. Thus, the experimental group demonstrated greater improvement in learning outcomes than the control group. The results indicate that the initial abilities of the two groups did

not differ significantly. The experimental group obtained a mean pretest score of 63.44, while the control group obtained a mean of 56.00, with $t = -1.334$ and $p = .192$. This finding indicates that there was no statistically significant difference in the initial abilities of the two groups before the learning intervention.

Following the instructional intervention, a statistically significant difference was found between the experimental and control groups. The Welch test produced $t = -7.705$, $df = 27.253$, and $p < .001$. This finding indicates that the learning outcomes after the intervention differed significantly between students who received PjBL and those who received conventional instruction. The finding was further supported by the N-Gain analysis. The experimental group obtained a mean N-Gain of 0.6416, equivalent to 64.16%, and was categorized as moderate. In contrast, the control group obtained a mean N-Gain of 0.0938, equivalent to 9.38%, and was categorized as low. Thus, within the context of this study, the experimental group demonstrated greater improvement in cognitive learning outcomes.

This difference can be understood in relation to the characteristics of the instructional treatments. In the PjBL learning process, students participated in group activities and developed an audiovisual project. The learning materials directed students to develop a project related to understanding the eight categories of zakat recipients. These activities provided students with opportunities to process the material they had learned and reconstruct their understanding in the form of a learning product. Consequently, the learning process did not stop at receiving explanations from the teacher but continued through activities involving information organization, product development, and communication of learning results. Such characteristics are consistent with the broader conceptualization of project-based learning, in which students engage in meaningful project activities to develop and communicate their understanding (Thomas, 2021).

The topic of zakat itself has characteristics that allow the integration of such activities. The material includes the concept of zakat, types of zakat, conditions for zakat obligation, zakat calculation, and the wisdom of zakat. Therefore, project activities can provide a learning context through which students connect conceptual understanding with more concrete learning activities. In contrast, the control group received conventional instruction through explanations, question-and-answer activities, and exercises. This approach still provided students with opportunities to receive and assess their understanding of the material. However, student involvement in producing a learning product was more limited than in the PjBL treatment.

The difference in learning patterns is consistent with the difference in N-Gain between the two groups. Although the control group also demonstrated some improvement, its improvement was categorized as low, whereas the experimental group's improvement was categorized as moderate.

The findings are consistent with previous research concerning the application of PjBL in Islamic Religious Education. (Saputra et al., 2024) examined PjBL among eighth-grade students in IRE and reported its relationship with student learning outcomes. (Maria & Maulana, 2023) also investigated the cognitive learning outcomes of students

receiving PjBL in Islamic Religious Education. (Syifaul Karima et al., 2025) reported a significant difference in learning outcomes between students receiving PjBL and students receiving a comparison instructional approach. Research has also examined PjBL specifically in relation to zakat. (Hasan & Khatimah, 2024) investigated the application of PjBL to improve learning outcomes on the topic of zakat, while (Maharani et al., 2025) examined project-based learning on zakat within Islamic Religious Education. These studies provide contextual support for the use of project-based activities when teaching zakat.

The position of the present study in relation to previous research lies primarily in its specific implementation context. This study employed the topic of zakat at the junior high school level and implemented an audiovisual project within a non-equivalent control group design. Therefore, the findings add empirical evidence concerning the application of PjBL in Islamic Religious Education, particularly for a topic that contains both conceptual and practical elements. The practical implication of this study is that IRE teachers may consider PjBL as one alternative instructional model for teaching zakat. An audiovisual project can be used as a learning product as long as the project activities remain aligned with the learning objectives and the mastery of the subject matter.

However, the findings should be interpreted proportionally. The study employed a quasi-experimental design and involved a relatively small sample. In addition, the normality test indicated that the control group's pretest data had a Shapiro-Wilk significance value of .031 and therefore did not meet the normality criterion at the 5% level. Consequently, generalization of the findings should be undertaken cautiously. The study also focused specifically on cognitive learning outcomes. Therefore, it does not provide empirical evidence concerning the effects of PjBL on students' motivation, creativity, religious attitudes, or collaboration skills because these variables were not analyzed as research outcomes.

This study demonstrates that there was a statistically significant difference in learning outcomes between students who received Project Based Learning and students who received conventional instruction on the topic of zakat in eighth grade at SMPS Islam Al-Munawwaroh. The initial abilities of the two groups did not differ significantly based on the pretest results ($t = -1.334$, $df = 31$, $p = .192$). After the instructional intervention, the Welch test indicated a statistically significant difference in learning outcomes, with $t = -7.705$, $df = 27.253$, and $p < .001$. The N-Gain analysis showed that the experimental group obtained a mean N-Gain of 0.6416, or 64.16%, which was categorized as moderate. Meanwhile, the control group obtained a mean N-Gain of 0.0938, or 9.38%, which was categorized as low.

Therefore, within the context of this study, students who received PjBL through group activities and an audiovisual project demonstrated greater improvement in cognitive learning outcomes than students in the control group. IRE teachers may consider implementing PjBL as an alternative instructional model for teaching zakat, particularly through audiovisual projects that allow students to process and communicate the material they have learned. The implementation of PjBL should be

supported by clear project planning, appropriate distribution of group responsibilities, effective time management, and assessment criteria that are aligned with the learning objectives. Future research is recommended to involve a larger sample and employ research designs with stronger controls over students' initial characteristics. Further studies may also examine affective and skill-based outcomes to provide a more comprehensive understanding of PjBL implementation in Islamic Religious Education.

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