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THE EFFECT OF PROBLEM-BASED LEARNING ON STUDENTS' LEARNING INTEREST AND MOTIVATION IN ISLAMIC EDUCATION

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Abstract

This investigation examines the relationship between Problem-Based Learning (PBL) academic interest, and learning motivation among Islamic Religious Education students at Junior High School. Using a quantitative, causal-associative design, the study randomly selected 46 students from a population of 305. The researchers gathered data through structured questionnaires using a five-point Likert scale, then analyzed them using linear regression and determination analysis. The results revealed a positive, statistically significant association between PBL and learning interest ($B = 0.624$, $\beta = 0.709$, $t = 6.672$, $p < 0.001$), and the regression model explained 50.3% of the variance ($R^2 = 0.503$). PBL was also positively and significantly associated with learning motivation ($B = 0.889$, $\beta = 0.923$, $t = 15.947$, $p < 0.001$), with the model explaining 85.3% of the variance ($R^2 = 0.853$). The findings indicate that students' perceptions of PBL are strongly associated with both learning interest and motivation, particularly the latter. However, the cross-sectional design, relatively small sample, and reliance on self-reported questionnaire data limit causal interpretation and generalizability. PBL may therefore be a promising instructional approach to support students' affective engagement in Islamic Religious Education, warranting further investigation through experimental or longitudinal research.

Keywords: Interest in Learning; Islamic Education; Motivation to Learn; Problem-Based Learning.

INTRODUCTION

Student engagement and affective dimensions, particularly interest and motivation, are central to the quality of learning, including in Islamic Religious Education (IRE). Psychologically, interest plays a significant role in a student's ability to achieve what they want (Lius, 2022). When an interest is fulfilled, a person experiences joy and inner satisfaction, which can lead to motivation (Abidin & Ismawati, 2022). Motivation to learn is also necessary for achieving learning objectives (Wulandari, 2024). These dimensions are especially important in IRE, which is not merely theoretical but also addresses moral and ethical issues, religious practices, and real-life social interactions in students' daily lives. IRE should therefore be viewed not only as a normative subject but as a guide to life that is relevant to everyday challenges (Salisah et al., 2024). Junior high school students, who are in a highly dynamic phase of cognitive and social development, need

learning experiences that are not monotonous and do not focus solely on memorization.

Contemporary educational frameworks emphasize learners as active constructors of knowledge rather than passive recipients of information. Within this scope, Problem-Based Learning (PBL) has gained widespread endorsement by anchoring instructional activities around authentic, real-world dilemmas. Rather than absorbing facts passively, students are challenged to exercise critical reasoning, engage in team collaboration, and derive solutions from contextualized experiences (Primadoniati, 2020). By integrating core domain knowledge with real-life scenarios, PBL provides a highly contextualized learning environment (Rahimma et al., 2024). In the IRE curriculum, PBL is highly relevant (Saiful et al., (2025), as it provides opportunities to understand religious values through case studies, discussions of current issues, and reflection on students' own experiences. Students' involvement in identifying and solving problems fosters curiosity, which can influence their interest and motivation to learn (Sandi et al., 2024).

Existing evidence indicates that PBL is associated with positive learning outcomes. PBL has emerged as an effective approach to student engagement and participation (Marwa et al., 2025). A number of studies also report positive impacts on student engagement, conceptual understanding, and learning outcomes (Cahyani et al., 2024). Beyond these findings, evidence on the relationship between PBL and students' interest and motivation to learn remains limited (Sandi et al., 2024). However, this evidence is still fragmented; studies address different outcomes in different contexts and rarely examine them together.

The research gap lies in this fragmentation. Many previous studies have focused on cognitive achievement or critical thinking skills, and thus have not provided an in-depth understanding of how PBL fosters students' internal motivation and interest in learning IRE (Nofriyandi et al., 2024; Wijnia et al., 2024; Hidayati et al., 2025). Evidence is particularly limited on the joint examination of learning interest and learning motivation as two affective outcomes of PBL in IRE (Subhakti, 2025). It therefore remains unclear how PBL relates to each outcome, and whether its effect differs between them. This situation indicates room for more focused empirical study. This issue is also evident in the school context. Preliminary observations.

Addressing this gap, this study empirically analyses the effect of PBL on two key affective aspects, students' interest and motivation, in IRE, with attention to the psychological processes that develop during learning rather than solely to final outcomes. This study aims to examine the effect of the Problem-Based Learning model on students' interest and motivation in Islamic Religious Education at Al-Mahrusiyah Junior High School, so the results can contribute to developing more effective, creative, and adaptable IRE learning strategies.



METHOD

To empirically quantify the relationships between variables, a quantitative paradigm was selected. Specifically, a causal-associative design was adopted to clarify the directional influence exerted by the independent factor on the outcome variables (Ridha, 2017). The type of research used is causal associative research, which is designed to explain the cause-and-effect relationship between variables (Ningsih et al., 2019). Problem-Based Learning serves as the predictor variable, whereas student learning interest and motivation represent the target criterion variables within the context of Islamic Religious Education.

The study population comprised 305 pupils enrolled at Al-Mahrusiyah Junior High School, Kediri City. Because early adolescents benefit significantly from interactive instructional strategies, this group was well suited to examining affective shifts in IRE coursework. A simple random sampling procedure was employed to grant equal selection probability (Suriani et al., 2023). The sampling technique used in this study was random sampling, so that every student had an equal chance of being selected as a respondent (Candra et al., 2024). 46 students representing roughly 15% of the total population were drawn as the analytical sample.

The researchers gathered primary data using structured, self-administered questionnaires crafted from operational indicators derived for each research variable. The complete instrument consisted of 34 statements distributed across three constructs: 12 items evaluating the Problem-Based Learning model (X), 10 items assessing learning interest (Y_1), and 12 items measuring learning motivation (Y_2). Responses were captured on a 5-point Likert scale, spanning from 1 (Strongly Disagree) to 5 (Strongly Agree). Cumulative scores were then grouped into low, moderate, and high benchmark categories based on the empirical range.

All statistical analyses were processed using IBM SPSS Statistics 26. We verified instrument validity through content and construct validation methods. Content validity relied on panel expert review. Validity was tested using Pearson's product-moment correlation between each item score and the total score ($\alpha = 0.05$; $r\text{-table} = 0.290$). Reliability was assessed using Cronbach's alpha; the instrument was deemed reliable if it obtained an alpha value of ≥ 0.70 . Reliability was tested using Cronbach's Alpha, with $\alpha > 0.70$ considered reliable. To ensure the regression model met the criteria, the data were first tested through a series of classical assumption tests before hypothesis testing. These tests included: (1) a normality test using the Kolmogorov-Smirnov method with a significance level (Sig.) > 0.05 ; (2) a linearity test to ensure a linear relationship between the independent and dependent variables.

Before testing hypotheses via linear regression, prerequisite classical assumption tests were satisfied: (1) Normality Test: Conducted using the Kolmogorov-Smirnov test, requiring a two-tailed significance level (Sig.) > 0.05 to establish normality. (2) Linearity Test: Assessed by inspecting the Deviation from

Linearity metric ($p > 0.05$) to verify linear relationships between predictor and outcome variables. Following assumption checks, simple linear regression analysis was applied to evaluate both the direction and magnitude of PBL's influence on learning interest (Y_1) and motivation (Y_2). The coefficient of determination (R^2) quantified the model's explanatory power, with values approaching 1 indicating a stronger predictive fit. Partial significance was evaluated using individual t-tests ($\alpha = 0.05$), with p-values below 0.05 confirming statistically significant impacts.

RESULTS AND DISCUSSION

RESULTS

This study examines the effect of the Problem-Based Learning (X) model on students' interest in learning (Y_1) and motivation to learn (Y_2) in the Islamic Religious Education course at Al-Mahrusiyah Junior High School in Kediri City. The research analysis was conducted in several stages. Before analyzing the effect of the Problem-Based Learning model on students' interest and motivation in Islamic Religious Education at Al-Mahrusiyah Junior High School, the researcher conducted normality and linearity tests.

Based on descriptive statistical analysis of 46 respondents, the results provide an overview of the research variables, Problem-Based Learning (PBL) model, student interest, and student motivation, as presented in Table 1. The Problem-Based Learning model variable had a mean score of 37.22 ($SD = 7.720$). Meanwhile, student interest had a mean score of 32.15 ($SD = 6.789$), and student motivation had a mean score of 36.30 ($SD = 7.429$), as detailed in Table 1. Subsequently, normality tests were carried out to determine whether the data for all variables followed a normal distribution.

Table 1. Results of the Normality Test

		PBL	INTEREST	MOTIVATION
N		46	46	46
Normal Parameters ^{a,b}	Mean	37,22	32,15	36,30
	Std. Deviation	7,720	6,789	7,429
Most Extreme Differences	Absolute	0,080	0,104	0,090
	Positive	0,055	0,102	0,063
	Negative	-0,080	-0,104	-0,090
Test Statistic		0,080	0,104	0,090
Asymp. Sig. (2-tailed)		.200 ^{c,d}	.200 ^{c,d}	.200 ^{c,d}



PBL	INTEREST	MOTIVATION
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		
d. This is a lower bound of the true significance.		

To verify whether the relationship between Problem-Based Learning (PBL) and students' learning interest and motivation satisfied the linearity prerequisite, a linearity test was carried out. This evaluation examined the significance score of the Deviation from Linearity; values above 0.05 indicate a linear relationship between the variables. The results showed significance values of 0.399 for the association between PBL and learning interest and 0.639 for the link between PBL and learning motivation. Given that both figures exceeded the 0.05 critical threshold, it can be concluded that the relationships involving PBL and both dependent variables successfully fulfilled the linearity assumption. Comprehensive outputs of this test are displayed in Table 2.

Table 2. Linearity Test Results

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
INTEREST * PBL	Between Groups	(Combined)	1562,851	22	71,039	3,197	0,004
		Linearity	1043,015	1	1043,015	46,938	0,000
		Deviation from Linearity	519,837	21	24,754	1,114	0,399
	Within Groups		511,083	23	22,221		
	Total		2073,935	45			
MOTIVATION * PBL	Between Groups	(Combined)	2277,989	22	103,545	11,575	0,000
		Linearity	2117,394	1	2117,394	236,695	0,000

ANOVA Table						
	Deviation from Linearity	160,595	21	7,647	0,855	0,639
Within Groups		205,750	23	8,946		
Total		2483,739	45			

Simple linear regression analysis was conducted to examine the relationship between Problem-Based Learning (PBL) and students' learning interest and motivation. In this analysis, PBL was treated as the independent variable (X), while learning interest and learning motivation were treated as separate dependent variables (Y). Each dependent variable was analyzed using an individual regression model based on the equation $Y = a + bX$, where (a) represents the constant and (b) represents the unstandardized regression coefficient. This analysis aimed to determine the direction, magnitude, and statistical significance of the association between students' PBL scores and their learning outcomes.

The regression results indicated that PBL was positively and significantly associated with students' learning interest, with an unstandardized coefficient of ($B = 0.624$) and a standardized coefficient of ($\beta = 0.709$) ($p < 0.001$). This indicates that a one-point increase in the PBL score was associated with a 0.624-point increase in the learning interest score. The positive coefficient suggests that higher PBL scores tended to correspond to higher levels of learning interest among students. However, because the study used a cross-sectional design, this finding reflects an association rather than definitive evidence of a causal effect. The detailed regression results for the relationship between PBL and learning interest are presented in Table 3.

Table 3. Results of the PBL Regression Test on Learning Motivation

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	
		B	Std. Error	Beta	t
1	(Constant)	8.942	3.551		2.518
	PBL	.624	.093	.709	6.672
Sig.					
.016					
.000					

a. Dependent Variable: INTEREST

The regression analysis also revealed a positive and statistically significant association between Problem-Based Learning (PBL) and students' learning motivation, with an unstandardized regression coefficient of ($B = 0.889$) and a standardized coefficient of ($\beta = 0.923$) ($p < 0.001$). This indicates that each one-point increase in the PBL score was associated with a 0.889-point increase in the learning motivation score. The strong positive standardized coefficient suggests that students with higher PBL scores tended to report higher levels of learning motivation. Nevertheless, given the study's cross-sectional design, this finding should be interpreted as an association rather than definitive evidence of causation.



The detailed regression results for the relationship between PBL and learning motivation are presented in Table 4.

Table 4. Results of the PBL Regression Test on Learning Motivation

Coefficients ^a					
		Unstandardized Coefficients		Standardized Coefficients	
Model		B	Std. Error	Beta	t Sig.
1	(Constant)	3.235	2.117		1.528 .134
	PBL	.889	.056	.923	15.947 .000

a. Dependent Variable: MOTIVATION

An F-test was conducted to assess whether the regression models could reliably explain the relationship between Problem-Based Learning (PBL) and students' learning interest and motivation. The results showed that both models were statistically significant ($p < 0.001$). This implies that PBL scores are substantially associated with variations in both learning interest and motivation. Consequently, hypotheses H_1 and H_2 are supported, confirming significant associations between PBL and the two outcome variables. Nevertheless, because of the cross-sectional design, these findings should be interpreted as statistical associations rather than direct causal effects. Comprehensive F-test outputs are detailed in Table 5 for learning interest, followed by Table 6 for learning motivation.

Table 5. Results of the F-Test for Learning Interest

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1043,015	1	1043,015	44,516	.000 ^b
	Residual	1030,920	44	23,430		
	Total	2073,935	45			

a. Dependent Variable: INTEREST
b. Predictors: (Constant), PBL

Table 6. Results of the F-Test for Learning Motivation

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2117,394	1	2117,394	254,310	.000 ^b
	Residual	366,345	44	8,326		
	Total	2483,739	45			
a. Dependent Variable: MOTIVATION						
b. Predictors: (Constant), PBL						

The coefficient of determination (R^2) was examined to assess the proportion of variance in learning interest explained by Problem-Based Learning (PBL). As shown in Table 7, the model yielded a correlation coefficient (R) of 0.709 and an R^2 of 0.503, indicating that PBL explained 50.3% of the variance in learning interest. The adjusted R^2 of 0.492 suggests that this explanatory power remained stable after accounting for the number of predictors and the sample size. The remaining 49.7% of the variance was attributable to factors not included in the model. The standard error of the estimate was 4.840. The corresponding results for learning motivation are presented in Table 8.

Table 7. Coefficient of Determination for Learning Motivation

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.709 ^a	0,503	0,492	4,840
a. Predictors: (Constant), PBL				



Table 8. Coefficient of Determination for Learning Motivation

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.923 ^a	0,853	0,849	2,885
a. Predictors: (Constant), PBL				

DISCUSSION

Simple linear regression showed that PBL had a positive and significant effect on students' interest in learning Islamic Religious Education ($B = 0.624$, $\beta = 0.709$, $p < 0.001$), so the first hypothesis was supported. The model explained 50.3% of the variance in learning interest ($R^2 = 0.503$), which is a substantial proportion for a single predictor. This is consistent with previous research reporting that PBL is associated with higher student interest (Laamena et al., 2021). One plausible explanation is that PBL emphasizes students' active involvement in solving real-world problems, which can make them more interested and enthusiastic about learning (Hamdani et al., 2021). Interest is an individual's tendency to enjoy a learning activity (Faizah & Wardani, 2024). Learning models that actively engage students, such as PBL, can foster curiosity, attention, and engagement (Fadholi et al., 2024). This pattern is in line with constructivist learning theory, which holds that knowledge is actively constructed by students (Gulo, 2022). The remaining 49.7% of the variance came from factors outside the scope of this study, such as parental support, teachers' teaching methods, the school environment, peers, learning facilities and media, and students' readiness to learn. PBL is therefore best understood as one of several factors associated with students' interest in learning (Wijnia et al., 2024).

PBL also had a positive and significant effect on students' learning motivation ($B = 0.889$, $\beta = 0.923$, $p < 0.001$), so the second hypothesis was supported. The model explained 85.3% of the variance in learning motivation ($R^2 = 0.853$). This result agrees with previous studies showing that PBL is associated with higher motivation to learn (Angelia, 2024) and that it can foster active engagement and intrinsic motivation through meaningful problem-solving activities (Finawati dkk., 2025). Motivation to learn is an internal or external drive that encourages students to engage in learning activities (Budiyani et al., 2021). PBL gives students opportunities to learn independently, think critically, and collaborate in groups (Ali et al., 2022), and learning that presents challenges and engages students actively is theorized to strengthen intrinsic motivation (Sudrajat, 2022). By creating a more

meaningful learning environment, PBL may encourage active participation (Anjani et al., 2023). Its stages, including problem orientation, group discussion, solution exploration, and reflection, engage students cognitively, emotionally, and socially (Qonita et al., 2025).

This study also extends the focus of earlier work from cognitive to affective outcomes in Islamic Religious Education, where learning concerns not only mastery of content but also students' attitudes and awareness of learning (Khakim et al., 2022). However, the 85.3% figure should be interpreted with caution. First, the data came from a single cross-sectional questionnaire, so the results show an association and cannot establish causality. Self-reported responses to one instrument may also have inflated the relationship between the two variables. Second, the relatively small sample limits the precision of the estimates and the generalizability of the findings. The remaining 14.7% of the variance came from factors outside this study, such as parental support, the school environment, teachers' methods, learning facilities, peer influence, and students' psychological condition and readiness to learn. Future research should use experimental or longitudinal designs and larger samples to test these findings (Wijnia et al., 2024).

CONCLUSION AND SUGGESTION

This study concludes that Problem-Based Learning (PBL) is positively and significantly associated with students' learning interest and motivation in Islamic Religious Education at Al-Mahrusiyah Junior High School in Kediri City. The association appears stronger for motivation than for interest, suggesting that PBL may be particularly relevant for fostering students' drive to engage in learning. Because the study used a cross-sectional design, these findings reflect an association rather than a causal effect, and they should be interpreted with caution given the limited scope of the sample and data collection. Nevertheless, PBL appears to be a promising approach for supporting students' affective engagement in Islamic Religious Education.

For future researchers, experimental or longitudinal designs with larger samples are recommended to test the causal effect of PBL. Further studies may also examine other variables related to interest and motivation, such as family environment, learning styles, or psychological factors, and extend the research to other educational levels and contexts.

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AUTHOR CONTRIBUTIONS

All authors collaborated on this research and prepared this manuscript. Their contributions are as follows: MDAAS: conceptualized the research, developed the methodology, collected and analyzed data, and drafted the initial manuscript. RAZ: literature review, validation of research instruments, writing the discussion section, and revising the manuscript. AKM: supervised the research, performed additional data analysis, finalized the manuscript, and checked compliance with scientific writing guidelines.

CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest.

DECLARATION OF AI

The authors used Claude to assist with the writing, language editing, grammar checking, or paraphrasing of specific sections of the manuscript. The authors used AI only for the abstract and English language editing, not for data analysis or drawing research conclusions. The authors remain fully responsible for the entire content of the manuscript, including the accuracy and integrity of the resulting content.

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