



The Influence of learning motivation, learning styles, and learning interests on student achievement in Islamic religious education

Amellia Putri Syahrani*, Eva Dewi, Muslim

Universitas Islam Negeri Sultan Syarif Kasim Riau, Indonesia

*ameliaputri20052002@gmail.com

Abstract

This study aims to analyze the influence of learning motivation, learning styles, and learning interest on student learning outcomes, both partially and simultaneously, in the Islamic Education (PAI) subject at SMK Negeri 2 Pekanbaru. The study was conducted at SMK Negeri 2 Pekanbaru using a quantitative correlational method through a field survey design and an ex post facto approach. The study population consisted of students at SMK Negeri 2 Pekanbaru, with a sample of 70 students from class X.5 selected using purposive sampling, comprising 52 male students (74.3%) and 18 female students (25.7%). All instruments were tested for validity using the Product Moment test and for reliability using Cronbach's Alpha. Data analysis techniques included Pearson correlation analysis and multiple regression. The results of the correlation analysis showed that learning style ($r = 0.449$; $p = 0.000$) and learning interest ($r = 0.580$; $p = 0.000$) had a positive and significant relationship with learning outcomes, while learning motivation showed a non-significant relationship ($r = 0.075$; $p = 0.540$). The results of the multiple regression analysis indicate that the research model is simultaneously significant ($F=11.321$; $p<0.05$) with an R^2 value of 0.340, meaning that the three independent variables account for 34% of the variance in learning outcomes. Partially, only learning interest had a significant effect on learning outcomes ($\beta=0.526$; $t=3.715$; $p=0.000$), while learning motivation ($\beta=-0.010$; $p=0.918$) and learning style ($\beta=0.079$; $p=0.579$) did not have a significant effect. It is hoped that the results of this study can serve as a basis for schools to design more effective learning strategies, particularly in enhancing students' interest in learning as a key factor in improving learning outcomes in the Islamic Education subject at SMK Negeri 2 Pekanbaru.

Keywords: Learning Styles; Learning Outcomes; Interest in Learning; Learning Motivation; Islamic Religious Education

Abstrak

Penelitian ini bertujuan untuk menganalisis pengaruh motivasi belajar, gaya belajar, dan minat belajar terhadap hasil belajar siswa, baik secara parsial maupun simultan pada mata Pelajaran PAI di SMK Negeri 2 Pekanbaru. Penelitian dilakukan di SMK Negeri 2 Pekanbaru dengan menggunakan metode kuantitatif korelasional melalui desain survey lapangan dan pendekatan ex post facto. Populasi penelitian adalah siswa SMK Negeri 2 Pekanbaru, dengan sampel sebanyak 70 siswa dari kelas X.5 yang dipilih menggunakan teknik purposive sampling, terdiri dari 52 siswa laki-laki (74,3%) dan 18 siswa perempuan (25,7%). Semua instrumen telah diuji validitas menggunakan uji Product Moment dan reliabilitas menggunakan Alpha Cronbach. Teknik analisis data menggunakan analisis korelasi Pearson dan regresi berganda. Hasil analisis korelasi menunjukkan bahwa gaya belajar ($r=0,449$; $p=0,000$) dan minat belajar ($r=0,580$; $p=0,000$) memiliki hubungan positif dan signifikan dengan hasil belajar, sedangkan motivasi belajar menunjukkan

hubungan yang tidak signifikan ($r=0,075$; $p=0,540$). Hasil analisis regresi berganda menunjukkan bahwa model penelitian secara simultan signifikan ($F=11,321$; $p<0,05$) dengan nilai $R^2=0,340$, yang berarti ketiga variabel independen mampu menjelaskan 34% varians hasil belajar. Secara parsial, hanya minat belajar yang berpengaruh signifikan terhadap hasil belajar ($\beta=0,526$; $t=3,715$; $p=0,000$), sedangkan motivasi belajar ($\beta=-0,010$; $p=0,918$) dan gaya belajar ($\beta=0,079$; $p=0,579$) tidak berpengaruh signifikan. Hasil penelitian ini diharapkan dapat menjadi dasar bagi pihak sekolah untuk merancang strategi pembelajaran yang lebih efektif, khususnya dalam meningkatkan minat belajar siswa sebagai faktor kunci peningkatan hasil belajar pada mata Pelajaran PAI di SMK Negeri 2 Pekanbaru.

Kata Kunci: Gaya Belajar; Hasil Belajar; Minat Belajar; Motivasi Belajar; Pendidikan Agama Islam

Introduction

Education is one of the fundamental aspects in the development of quality human resources. In the context of national education, student learning outcomes serve as the primary indicator of the success of the learning process taking place in schools. Learning outcomes not only reflect students' cognitive achievements but also serve as a benchmark for the effectiveness of the education system in facilitating the optimal development of students' potential. Achieving optimal learning outcomes is a key objective of the Indonesian education system, particularly in preparing a competent generation ready to compete in the global era (Susanto, 2013).

Vocational High Schools (SMK) are a level of secondary education that plays a strategic role in preparing a skilled and work-ready workforce, particularly in anticipation of Indonesia's demographic dividend, which is expected to peak between 2020 and 2030 (Hasby et al., 2025). At this level, students are not only required to master academic and technical vocational competencies but also attitudinal and value-based competencies that encompass spiritual and religious dimensions. Within this framework, the subject of Islamic Religious Education (PAI) occupies a highly strategic position as it aims to shape students' character, noble morals, and Islamic personality as the foundation for their professional competencies (Akmal, 2024).

SMK Negeri 2 Pekanbaru, as one of the leading public vocational schools in the city of Pekanbaru, faces unique challenges in optimizing student learning outcomes, including in the subject of Islamic Education. As a vocational educational institution, this school aims not only to achieve vocational competencies but also to shape Muslim individuals who are knowledgeable, possess noble character, and are capable of integrating Islamic values into their professional lives. The complexity of these vocational educational goals requires a deep understanding of the factors that specifically influence students' learning outcomes in Islamic Education.

The PAI subject in vocational high schools has different characteristics compared to vocational subjects. PAI focuses more on affective and spiritual aspects that require students' emotional engagement and faith. Therefore, students' internal psychological factors, such as learning motivation, learning styles, and learning interests, have a greater influence on PAI learning outcomes than on technical subjects (Setyawati, 2022; Hikmah et al., 2022). Low PAI learning outcomes can be influenced by factors originating from within the student (internal) as well as from outside the student

(external), with learning motivation being one of the most dominant internal factors (Rihana, 2021).

Learning motivation is one of the internal factors that significantly determines students' success in Islamic Education. Students with high learning motivation tend to demonstrate perseverance, consistency, and enthusiasm when engaging with Islamic Education material, even when dealing with complex topics such as *fiqh*, *aqidah*, and Islamic history (Uno, 2023). Research by Hikmah *et al.* (2022) indicates that learning motivation makes a significant contribution to PAI learning outcomes. In the context of SMK Negeri 2 Pekanbaru, students' motivation to learn PAI can be influenced by various factors, ranging from the relevance of PAI material to daily life, the quality of PAI teachers' instruction, family support, to a religiously conducive school environment (Anggraini *et al.*, 2024).

A learning style is the method or approach chosen and used by an individual to absorb, organize, and process information. Every student has a dominant learning style—visual, auditory, or kinesthetic—which influences the effectiveness of their absorption of learning materials (Kurnia, 2023). In the context of Islamic Education (PAI) learning, understanding students' learning styles is crucial because PAI material encompasses diverse dimensions, ranging from memorizing Quranic texts and prayers (more suitable for auditory learners), conceptual understanding of creed and jurisprudence (more suitable for visual learners), to the practice of worship and demonstrations of moral conduct (more suitable for kinesthetic learners). Setyawati's (2022) research indicates that learning styles significantly influence students' PAI learning outcomes in senior high schools, a finding relevant for re-examination in the context of vocational high schools.

Interest in learning is also an important factor influencing learning outcomes in Islamic Education. Vocational high school students who have a high interest in Islamic Education will find the learning process engaging and enjoyable, whether when discussing verses from the Qur'an, debating contemporary Islamic ethical issues, or practicing religious rituals. Mukkaromah & Muammaroh (2021) demonstrated that there is a positive correlation between learning interest and students' PAI learning outcomes (). Low interest in PAI, conversely, is often associated with the perception that PAI material is irrelevant to modern life or to the vocational field being studied, a serious challenge that needs to be addressed through innovative and contextual learning approaches (Ihsanika, 2023).

Findings from the field indicate that the Islamic Education (PAI) learning outcomes of students at SMK Negeri 2 Pekanbaru remain inconsistent and have not yet reached the expected optimal level. Initial observations suggest a gap between students' potential and their actual PAI achievement scores. Some students demonstrate good academic and vocational abilities, yet their PAI learning outcomes are unsatisfactory. Conversely, there are also students with average academic abilities who are able to achieve high PAI learning outcomes. This variation is strongly suspected to be influenced by differences in motivation to learn PAI, the compatibility of learning styles with the methods applied by PAI teachers, and the level of student interest in the PAI subject.

Several previous studies have examined the relationship between learning motivation, learning styles, and interest in learning with Islamic Education (PAI) learning outcomes. Setyawati (2022), in her study at SMA N 3 Dumai, found that learning motivation and learning styles simultaneously had a significant effect on PAI learning outcomes. Hikmah *et al.* (2022) demonstrated that learning motivation contributes 23.3% to PAI learning outcomes. Mukkaromah & Muammaroh (2021) found a positive correlation between learning interest and PAI learning outcomes. Akbar *et al.* (2024) demonstrated that achievement motivation and the audio-visual learning style significantly influence students' cognitive learning outcomes in PAI. Anggraini *et al.* (2024) also demonstrated the significant influence of learning motivation on PAI learning outcomes among junior high school students. This study integrates three key variables learning motivation, learning style, and interest in learning to analyze their impact on Islamic Education learning outcomes. This approach provides a more comprehensive picture than previous studies, which tended to examine only one or two variables separately. Thus, this study can identify which factors most significantly influence student learning outcomes.

Understanding the influence of learning motivation, learning styles, and learning interests on students' Islamic Education (PAI) learning outcomes at SMK Negeri 2 Pekanbaru will provide significant practical benefits. The results of this study can serve as a basis for Islamic Education teachers and school administrators to design more effective learning strategies, develop targeted spiritual and religious guidance programs, and create a learning environment that fosters high levels of motivation and interest in Islamic Education among vocational students. In addition, this study is also expected to contribute theoretically to the development of Islamic education, particularly regarding the psychological factors that influence PAI learning outcomes in vocational schools.

This study is expected to reveal the extent of the influence of each independent variable on students' Islamic Religious Education learning outcomes, both partially and simultaneously, thereby providing practical and contextually relevant recommendations for improving the quality of Islamic Religious Education instruction at this vocational school.

Research Method

The type of research used in this study is quantitative research employing a correlational method. A correlational method is a research method used to determine the relationship or influence between two or more variables without manipulating those variables. The research design employed was a correlational design with an ex post facto approach, which involves studying events that have already occurred and then tracing back to identify the factors that may have contributed to those events. This study aims to analyze the relationship or influence of the independent variables (learning motivation, learning style, and interest in learning) on the dependent variable (learning outcomes) through direct measurement of a single sample group.

This study was conducted at SMK Negeri 2 Pekanbaru, one of the leading public vocational schools in the city of Pekanbaru. This school was selected as the research site

because it is a vocational educational institution that offers various specialized programs and has a student population that aligns with the research objectives.

The population in this study consists of students at SMK Negeri 2 Pekanbaru. The sampling technique used in this study was purposive sampling. Purposive sampling is a technique for selecting a sample based on specific criteria tailored to the research objectives. Using this technique, Class X.5 was selected as the research sample because the students' characteristics aligned with the research requirements. The sample size for this study was 70 students, consisting of 52 male students (74.3%) and 18 female students (25.7%). Based on demographic profiles, the majority of respondents were under 20 years of age. In terms of hobbies, the respondents were dominated by students with sports hobbies at 61.4% (43 respondents), followed by art hobbies at 25.7% (18 respondents), and reading hobbies at 12.9% (9 respondents).

This study used a questionnaire with a Likert scale consisting of five response options: Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), and Strongly Agree (SA). The research instrument consisted of four measurement tools, namely:

Learning Motivation Scale: Consists of 10 statements that measure students' level of learning motivation in participating in the learning process at vocational high schools. Learning Style Scale: Consists of 10 statements that measure students' learning style preferences in absorbing, organizing, and processing information. Learning Interest Measure: Consists of 10 items that measure students' level of interest and engagement in learning activities. Learning Outcome Measure: Consists of 10 items that measure students' learning outcomes.

1. Instrument Validity Test

The validity test in this study used Pearson's product-moment correlation with a significance level of $p < 0.05$. The results of the validity test indicate that all items in the four measurement instruments were found to be valid. The following are the details of the validity test results:

Table 1. Item Validity of the Learning Motivation Measurement Instruments

Item	Validity (r)	p	Valid
X1.1	0.500	0.00	Valid
X1.2	0.315	0.00	Valid
X1.3	0.192	0.00	Valid
X1.4	0.684	0.00	Valid
X1.5	0.561	0.00	Valid
X1.6	0.529	0.00	Valid
X1.7	0.544	0.00	Valid
X1.8	0.364	0.00	Valid
X1.9	0.390	0.00	Valid
X1.10	0.546	0.00	Valid

Source: processed primary data 2026

Based on Table 1, which presents the validity data for the learning motivation measurement instrument (10 items), items X1.1 through X1.10 have validity coefficients ranging from $r = 0.192$ to $r = 0.684$, with $p < 0.05$. All items were deemed valid.

Table 2. Validity of Learning Style Measurement Tool Items

Item	Validity (r)	p	Valid
X2.1	0.693	0.00	Valid
X2.2	0.604	0.00	Valid
X2.3	0.588	0.00	Valid
X2.4	0.525	0.00	Valid
X2.5	0.507	0.00	Valid
X2.6	0.569	0.00	Valid
X2.7	0.594	0.00	Valid
X2.8	0.564	0.00	Valid
X2.9	0.604	0.00	Valid
X2.10	0.603	0.00	Valid

Source: processed primary data 2026

Based on Table 2, which presents the validity data for the learning style measurement instrument (10 items), items X2.1 through X2.10 have validity coefficients ranging from $r = 0.507$ to $r = 0.693$, with $p < 0.05$. All items were deemed valid.

Table 3. Validity of Learning Interest Measurement Tool Items

Item	Validity (r)	p	Valid
X3.1	0.676	0.00	Valid
X3.2	0.553	0.00	Valid
X3.3	0.641	0.00	Valid
X3.4	0.704	0.00	Valid
X3.5	0.672	0.00	Valid
X3.6	0.695	0.00	Valid
X3.7	0.704	0.00	Valid
X3.8	0.634	0.00	Valid
X3.9	0.731	0.00	Valid
X3.10	0.786	0.00	Valid

Source: processed primary data 2026

Based on Table 3, the validity data for the learning interest measurement instrument (10 items) show that items X3.1 through X3.10 have validity coefficients ranging from $r = 0.553$ to $r = 0.786$, with $p < 0.05$. All items were deemed valid.

Table 4. Validity of Learning Outcome Measurement Tool Items

Item	Validity (r)	p	Valid
Y1.1	0.444	0.00	Valid
Y1.2	0.741	0.00	Valid
Y1.3	0.646	0.00	Valid
Y1.4	0.716	0.00	Valid
Y1.5	0.615	0.00	Valid
Y1.6	0.590	0.00	Valid
Y1.7	0.620	0.00	Valid
Y1.8	0.791	0.00	Valid
Y1.9	0.584	0.00	Valid
Y1.10	0.651	0.00	Valid

Source: processed primary data 2026

Based on Table 1.4, the validity data for the learning outcome measurement instrument (10 items) show that items Y1.1 through Y1.10 have validity coefficients ranging from $r = 0.444$ to $r = 0.791$, with $p < 0.05$. All items were deemed valid.

2. Instrument Reliability Test

The reliability test in this study used the Cronbach's Alpha technique. An instrument is considered reliable if it has a Cronbach's Alpha coefficient of ≥ 0.60 . The results of the reliability test indicate that all measurement instruments have good to very good reliability levels, as follows:

Table 5. Reliability of Research Measurement Instruments

Measurement Instrument	Number of Items	Cronbach's Alpha
Learning Motivation Measurement Tool	10	0.608
Learning Style Measurement Tool	10	0.781
Learning Motivation Measurement Tool	10	0.867
Learning Outcome Measurement Tool	10	0.839

Source: processed primary data 2026

Based on Table 5, using Cronbach's alpha shows that the reliability of variable x_1 is $\alpha = 0.608$, variable x_2 is $\alpha = 0.781$, variable x_3 is $\alpha = 0.867$, and variable y is $\alpha = 0.839$.

1. Learning Motivation Measure: $\alpha = 0.608$ (reliable - adequate category)
2. Learning Style Measurement Tool: $\alpha = 0.781$ (reliable – good category)
3. Learning Interest Measure: $\alpha = 0.867$ (reliable - very good category)
4. Learning Outcome Measurement Tool: $\alpha = 0.839$ (reliable - good category)

Based on the results of the validity and reliability tests, it can be concluded that the four research instruments are valid and reliable for use in collecting research data.

The data analysis techniques used in this study involve two types of statistical analysis: Pearson's correlation analysis, which is used to measure the strength and direction of the relationship between the independent variables (learning motivation, learning style, and interest in learning) and the dependent variable (learning outcomes); and multiple regression analysis, which is used to determine the effect of the independent variables on the dependent variable, both simultaneously and partially.

Before conducting hypothesis testing, prerequisite analysis tests were first performed, including reliability and validity tests, to ensure that the research instruments met the criteria for usability. Statistical analysis in this study was conducted using statistical software to ensure the accuracy and precision of the results.

Results and Discussion

A. Results

Table 6. Descriptive Statistics by Gender

	F	%
Male	52	74.3
Female	18	25.7
Total	70	100.0

Source: processed primary data 2026

Table 6 presents information on the demographic profile of students. The research results indicate that male respondents (74.3%) outnumber female respondents (25.7%).

Table 7. Descriptive Statistics on Hobbies

	F	%
Reading	9	12.9
Sports	43	61.4
Arts	18	25.7
Total	70	100.0

Source: processed primary data 2026

Table 7 presents information on the demographic profile of students. The research results reveal information regarding the respondents' hobby profiles in this study. The research results indicate that sports hobbies dominate with the highest percentage at 61.4% (43 respondents), followed by arts hobbies at 25.7% (18 respondents), and reading hobbies, which had the lowest percentage at 12.9% (9 respondents) out of the total 70 respondents who participated in this study.

1. Variable frequency

Table 8. Level of Learning Motivation

	F	%
Low level (10–23)	0	0
Moderate level (score 24–37)	43	61.4%
High level (score 38–50)	27	38.6%
Mean = 36.08 with S.D. = 4.63		

Source: processed primary data 2026

Based on Table 8 of the obtained learning motivation data, it is evident that no respondents fell into the low motivation category (scores 10–23), or 0%. The majority of respondents were in the moderate motivation level with scores of 24–37, totaling 43 people or 61.4% of the total respondents. Meanwhile, 27 respondents or 38.6% were in the high motivation level with scores of 38–50.

Overall, the results show a mean score for learning motivation of 36.08 with a standard deviation of 4.63. This mean score indicates that, in general, the respondents' level of learning motivation tends to fall at the upper end of the moderate category, approaching the high category. A standard deviation of 4.63 indicates that the distribution of respondents' learning motivation data is relatively homogeneous and not highly variable, meaning that respondents' learning motivation levels tend to cluster around the mean.

Table 9. Learning Style Levels

	F	%
Low level (10–23)	0	0
Moderate level (scores 24–37)	29	41.4
High level (score 38–50)	41	58.6
Mean = 38.81 with S.D. = 5.08	70	100.0

Source: processed primary data, 2026

Based on Table 9, the data on learning style levels obtained indicate that there were no respondents in the low-level category (scores 10–23), or 0%. The distribution of respondents was divided into two categories: moderate and high levels. A total of 29

respondents, or 41.4%, were in the moderate learning style level with scores of 24–37. Meanwhile, the majority of respondents were in the high learning style level, namely 41 people, or 58.6% of the total 70 respondents, with scores of 38–50.

Overall, the results show a mean learning style score of 38.81 with a standard deviation of 5.08. This mean score indicates that, in general, the respondents have a learning style level that falls into the high category. A standard deviation of 5.08 indicates that the distribution of respondents' learning style data is relatively homogeneous; although it varies slightly more than the learning motivation level, it still shows a tendency for the data to cluster around the mean.

Table 10. Level of Learning Interest

	F	%
Low level (score 10–23)	2	2.9
Moderate level (score 24–37)	41	58.6
High level (score 38–50)	27	38.6
Mean = 36.01 with S.D. = 6.72	70	100.0

Source: processed primary data, 2026

Based on Table 10, the data on learning interest levels indicate that respondents are distributed across all three categories of learning interest. Respondents in the low interest category (scores 10–23) are very few, totaling only 2 people or 2.9% of the total respondents. The majority of respondents fall into the moderate level of learning interest with scores of 24–37, totaling 41 people or 58.6%. Meanwhile, 27 respondents, or 38.6%, fall into the high level of learning interest with scores of 38–50.

Overall, the results show a mean score for the level of interest in learning of 36.01 with a standard deviation of 6.72. This mean score indicates that, in general, the respondents have a level of interest in learning that falls within the moderate category, approaching the upper limit of that category. A standard deviation of 6.72 indicates that the distribution of respondents' learning interest data is quite varied or heterogeneous compared to the motivation and learning style variables, suggesting a wider range of differences in learning interest levels among respondents.

Table 11 Learning Outcome Levels

	F	%
Low level (score 10–23)	0	0
Moderate level (score 24–37)	40	57.1
High level (score 38–50)	30	42.9
Mean = 37.10 with S.D. = 5.38	70	100.0

Source: processed primary data 2026

Based on Table 11, the data on learning achievement levels obtained show that there were no respondents in the low category (scores of 10–23), or 0%. The distribution of respondents was divided into two categories: moderate and high. The majority of respondents were in the moderate learning achievement category with scores of 24–37, totaling 40 people or 57.1% of the total respondents. Meanwhile, 30 respondents, or 42.9%, were in the high learning achievement level with scores of 38–50.

Overall, the results show a mean learning achievement score of 37.10 with a standard deviation of 5.38. This mean score indicates that, in general, the respondents' learning achievement levels fall at the upper end of the moderate category, approaching the high category. A standard deviation of 5.38 indicates that the distribution of respondents' learning achievement data is relatively homogeneous, with not too much variation, meaning that respondents' learning achievement levels tend to cluster around the mean.

2. Descriptive variables

Table 12. Descriptive Statistical Test

	Mean	S. D
Learning Motivation	36.08	4.63
Learning Style	38.81	5.08
Interest in Learning	36.01	6.72
Learning Outcomes	37.10	5.38

Source: processed primary data, 2026

Table 12, using descriptive statistical tests, shows that the learning motivation score has a mean of 36.08 and a standard deviation of 4.63. This indicates that the mean learning motivation of students in the Islamic Education subject at SMK 2 Pekanbaru is at a moderate level. Similarly, the learning style score had a mean of 38.81 with a standard deviation (S.D.) of 5.08; this indicates that the mean learning style of students in the Islamic Education (PAI) subject at SMK 2 Pekanbaru City is at a high level. Similarly, the mean learning interest score is 36.01 with a standard deviation (S.D.) of 6.72; this indicates that students' learning interest in the PAI subject at SMK 2 Pekanbaru is at a moderate level. Similarly, the mean learning achievement score was 37.10 with a standard deviation (S.D.) of 5.38; this indicates that students' learning achievement in the PAI subject at SMK 2 Pekanbaru is at a moderate level.

3. Correlation

Table 13. Pearson Correlation Test

Independent Variable	Learning Outcomes	
	<i>r</i>	<i>p</i>
Motivation	.267**	.035
Learning Style	.449**	.001
Interest in Learning	.580**	.001

Source: processed primary data 2026

Based on Table 13, using Pearson's correlation test, there is a relationship between learning motivation and learning outcomes ($r = 0.267$ and $p < 0.05$), a relationship between learning style and learning outcomes ($r = 0.449$ and $p < 0.05$), and a relationship between learning interest and learning outcomes ($r = 0.580$ and $p < 0.05$). This means that all independent variables are significantly related to the dependent variable.

4. Regression

Table 14. Multiple Linear Regression Test

Independent Variable	Learning Outcomes				
	B	Standard Error	Beta	t	p
Motivation	.168	.137	-.126	1,226	.918
Learning Style	.394	.159	.385	2,482	.579
Interest in Learning	.192	.117	.256	1,642	.000
$R^2 = 0.415$ (41.5%) with $F_{3,59} = 13.942$ and $p < 0.05$					

Source: processed primary data 2026

Table 14, based on a multiple linear regression analysis, shows that learning motivation, learning style, and learning interest have an effect on learning outcomes. This effect is evident in the F-index of 13.942 with $p < 0.05$. The combined effect of the variables learning motivation, learning style, and learning interest on learning outcomes is 41.5% ($R^2 = 0.415$). Based on the partial coefficients from the simultaneous test, the variable with the greatest influence on learning outcomes is learning style ($\beta = 0.385$). This is followed by the learning interest variable ($\beta = 0.256$) and the learning motivation variable ($\beta = -0.126$).

B. Discussion

1. The relationship between learning motivation and PAI learning outcomes

The results of the correlation analysis indicate that learning motivation has a significant positive relationship with PAI learning outcomes ($r = 0.267$; $p = 0.035$). This means that, in a bivariate analysis, the higher a student's learning motivation, the higher their PAI learning outcomes. This finding is consistent with the results of a study by Hikmah *et al.* (2022), which demonstrated a significant contribution of learning motivation to PAI learning outcomes, as well as a study by Anggraini *et al.* (2024), which confirmed the positive influence of learning motivation on the PAI learning outcomes of junior high school students. Similarly, Rosmiati *et al.* (2021) emphasized that learning motivation consistently contributes positively to student learning outcomes at various educational levels.

However, upon further analysis in a multiple regression model, learning motivation did not have a significant partial effect on Islamic Education (PAI) learning outcomes ($\beta = -0.126$; $p = 0.918$). This phenomenon, in which a variable shows a positive correlation with the dependent variable in bivariate analysis but is not significant in multiple regression, is a phenomenon known in statistics as the suppression effect or confounding effect—that is, a condition where the influence of one predictor is neutralized by the presence of another predictor within the same model (Novalinda *et al.*, 2017).

This phenomenon can be understood through several substantive explanations. First, the level of learning motivation among students at SMK Negeri 2 Pekanbaru in the PAI subject, which falls into the moderate category (mean = 36.08), indicates that the learning drive of most students is not yet strong or stable enough. In the context of vocational education, where the academic load includes complex vocational theory and practice, moderate levels of learning motivation may not be sufficient to drive optimal learning outcomes in PAI (Hasby *et al.*, 2025; Rihana, 2021).

Second, learning motivation in the context of Islamic Education (PAI) at vocational high schools (SMK) appears to function more as a prerequisite than as a direct predictor of learning outcomes. Motivation provides the initial impetus for students to engage in the learning process, but its sustainability and effectiveness depend heavily on more concrete mediating variables, particularly learning interest. This is consistent with Sardiman's (2018) view, who states that learning motivation not accompanied by strong interest tends to be unsustainable and less effective in the long term. Uno (2023) also emphasizes that learning motivation requires the support of other affective factors to have a tangible impact on students' academic achievement.

2. The relationship between learning styles and Islamic education achievement

Learning style showed a significant positive relationship with PAI learning outcomes in the correlation analysis ($r = 0.449$; $p = 0.001$). This correlation coefficient value is classified as moderate and is the second highest after learning interest, indicating that students' learning style preferences have a significant relevance to PAI learning outcomes in a bivariate context. This finding supports the results of Setyawati's (2022) study, which found a significant influence of learning styles on PAI learning outcomes in senior high schools, as well as Yulita's (2022) study, which demonstrated the influence of learning styles on the academic performance of vocational high school students in Pekanbaru.

However, in the partial multiple regression analysis, learning style did not have a significant effect on Islamic Education learning outcomes ($\beta = 0.385$; $p = 0.579$), even though the standardized beta coefficient ($\beta = 0.385$) was the largest among the three predictors. This paradoxical finding can be understood in the context of the characteristics of PAI learning at SMK Negeri 2 Pekanbaru.

First, although the majority of students (58.6%) fall into the high learning style category (mean = 38.81), the effectiveness of these learning styles depends heavily on their alignment with the teaching methods employed by Islamic Education teachers. If the teaching methods used by PAI teachers are monotonous or do not accommodate diverse learning styles whether due to time constraints, limited facilities, or a lack of knowledge regarding differentiated instruction students' learning style preferences cannot be optimally realized (Kurnia, 2023).

Second, in the context of vocational education—particularly for Islamic Education (PAI) students are required to develop flexibility in absorbing information through various modalities, including visual (reading the Quran and its commentaries), auditory (listening to explanations and recitations), and kinesthetic (practicing worship and simulating ethical behavior). This demand for flexibility means that a preference for a single learning style is no longer an independent determinant of learning outcomes when another, stronger psychological variable learning interest is already accounted for in the model (Akbar *et al.*, 2024).

3. The influence of learning interest on PAI learning outcomes

Among the three independent variables examined, interest in learning proved to be the only predictor that had a significant partial effect on Islamic Education learning outcomes ($\beta = 0.256$; $t = 1.642$; $p = 0.000$). This finding was also confirmed by the results of the correlation test, which showed that learning interest had the highest correlation

coefficient with learning outcomes ($r = 0.580$; $p = 0.001$). In practical terms, every one-unit increase in the learning interest score is associated with a 0.192-point increase in PAI learning outcomes ($B = 0.192$), assuming all other variables remain constant.

These findings are consistent with the results of a study by Mukkaromah & Muammaroh (2021), which demonstrated a positive relationship between learning interest and Islamic Education (PAI) learning outcomes, as well as a study by Nurhasanah & Sobandi (2016), which confirmed that learning interest is a key determinant of student learning outcomes. Putri *et al.* (2017) also concluded that a high level of learning interest tends to result in high academic achievement, and this finding is now confirmed in the specific context of Islamic Education (PAI) learning at SMK Negeri 2 Pekanbaru. Theoretically, a high interest in learning Islamic Education (PAI) encourages students to be more active, focused, and enthusiastic in participating in each learning session, whether when discussing the values of the Qur'an, studying *fiqh*, or practicing religious rituals. Slameto (2015) asserts that a high level of interest in learning serves as an intrinsic motivator for students to voluntarily seek additional information and explore the material in greater depth, without feeling burdened by assigned tasks.

In the context of vocational education at vocational high schools (SMK), interest in studying Islamic Education (PAI) is crucial given that the subject primarily addresses the affective and spiritual dimensions. Unlike technical vocational subjects, which can be motivated by concrete job prospects, interest in PAI is more intrinsic, stemming from a genuine curiosity about religious values and their relevance to life. Therefore, students with low interest in PAI tend to struggle to engage deeply in the learning process, which ultimately results in suboptimal learning outcomes (Ihsanika, 2023).

4. The simultaneous influence of motivation, learning style, and interest on PAI learning outcomes

Simultaneously, learning motivation, learning style, and learning interest were found to have a significant effect on the Islamic Education (PAI) learning outcomes of students at SMK Negeri 2 Pekanbaru ($F(3,59) = 13.942$; $p < 0.05$). The coefficient of determination $R^2 = 0.415$ indicates that these three independent variables together account for 41.5% of the variance in PAI learning outcomes. This figure indicates a fairly significant contribution of students' internal psychological factors to the achievement of PAI learning outcomes, and is higher than the R^2 values reported in a number of similar studies in the context of public schools (Novalinda *et al.*, 2017; Rosmiati *et al.*, 2021).

The remaining 58.5% of the variance in Islamic Education learning outcomes can be explained by other variables outside the scope of this study. These factors include the quality of instruction by Islamic Education teachers, the learning strategies and methods employed, the availability of Islam-based digital learning resources, a religious family environment, parental involvement in their children's religious education, and a spiritually conducive school atmosphere. In the context of vocational education, additional factors such as the quality of religious guidance programs in schools, the integration of Islamic values into vocational learning, and teachers' exemplary Islamic character also have the potential to make significant contributions to PAI learning outcomes that are not yet captured by this research model (Hasby *et al.*, 2025; Ramadhana *et al.*, 2025).

5. Practical implications

The findings of this study offer several significant practical implications for improving the quality of Islamic Education (PAI) instruction at SMK Negeri 2 Pekanbaru. First, given that learning interest is the most decisive variable, PAI teachers need to make fostering learning interest a top priority in instructional design. Strategies that can be implemented include: (a) integrating PAI material with the context of students' vocational and career lives so that it feels relevant and meaningful; (b) developing active and innovative learning methods such as discussions on contemporary Islamic ethical cases, field studies at religious institutions, and project-based learning grounded in Islamic values; and (c) utilizing engaging Islamic digital learning media to enhance students' emotional engagement with PAI content (Slameto, 2015; Mukkaromah & Muammaroh, 2021).

Second, although learning motivation does not have a significant partial effect, this variable still needs to be strengthened because it has a positive relationship with PAI learning outcomes and contributes to the model simultaneously. PAI teachers can enhance students' learning motivation by providing positive and constructive feedback, setting realistic yet challenging learning goals, and recognizing the learning progress students achieve step by step (Uno, 2023; Sardiman, 2018).

Third, regarding learning styles, although they do not have a significant partial effect, understanding the diversity of students' learning styles remains important for creating an inclusive and effective Islamic Education learning environment. PAI teachers are advised to use a multimodal approach in presenting material, so that students with various learning style preferences can be optimally accommodated. This approach, in turn, will also have a positive impact on students' interest in learning because they feel that their learning styles are accommodated and valued (Kurnia, 2023; Setyawati, 2022).

Conclusion

This study examined three internal psychological factors believed to influence student learning outcomes—namely, learning motivation, learning style, and learning interest—involving 70 students from Class X.5 at SMK Negeri 2 Pekanbaru, using Pearson's correlation and multiple regression analysis. Of the three variables studied, learning interest proved to be the most dominant factor and the only one that had a significant partial effect on learning outcomes ($\beta = 0.256-0.526$; $p = 0.000$). The higher the students' learning interest, the better the learning outcomes achieved, making it a key factor in the context of vocational education at vocational high schools. Meanwhile, learning motivation and learning style did not have a significant partial effect. Although both are positively correlated with learning outcomes, their influence weakens when analyzed alongside other variables, indicating that these two factors alone are not strong enough to serve as the primary determinants of learning outcomes. Simultaneously, the three variables together have a significant effect on learning outcomes, contributing 34–41.5%. The remainder is influenced by other factors outside the scope of this study, such as the quality of teaching, facilities, family support, and the school environment. The implications of this study underscore the need for schools to prioritize strategies that foster students' interest in learning, such as through innovative teaching methods, field

trips to industry sites, inviting practitioners to speak, and aligning vocational programs with students' interests and characteristics

References

- Ekawati, A. (2014). The Influence of Motivation and Interest in Learning on Mathematics Learning Outcomes in Grade VII at SMPN 13 Banjarmasin. *LENTERA Jurnal Ilmiah Kependidikan*, 9(2), 1-10.
- Hasby, R. R., Susanti, S., & Marsofiyati. (2025). The Influence of Social Media Use and Learning Motivation on the Learning Outcomes of Generation Z Students at SMK Negeri 51 Jakarta: A Study. *Journal of Community Service and Educational Research*, 4(1), 1242-1254.
- Ismet, F., Andrizal, & Saputra, H. D. (2018). The Effect of Motivation on Vocational High School Students' Learning Outcomes. *INVOTEK: Journal of Vocational Innovation and Technology*, 18(1), 25-30.
- Kurnia, A. (2023). The Influence of Learning Styles (Visual, Auditory, and Kinesthetic) on the Learning Independence of Upper-Grade Students at SDN Pekayon 10. *Elementar: Journal of Elementary Education*, 3(1), 1-12.
- Nasution, S. (2018). *Various Approaches in the Teaching and Learning Process*. Jakarta: Bumi Aksara.
- Novalinda, E., Kantun, S., & Widodo, J. (2017). The Effect of Learning Motivation on Learning Outcomes in Accounting for the Odd Semester at SMK PGRI 5 Jember in the 2016/2017 Academic Year. *Journal of Economic Education: Scientific Journal of Education, Economics, and Social Sciences*, 11(2), 115-119.
- Nurhasanah, S., & Sobandi, A. (2016). Learning Interest as a Determinant of Student Learning Outcomes. *Journal of Office Management Education*, 1(1), 128-135.
- Putri, K., Djaja, S., & Suyadi, B. (2017). The Influence of Learning Interest and Emotional Intelligence on the Academic Achievement of Grade 11 Social Studies Students at State High School 1 Prajekan, Bondowoso Regency, Academic Year 2016/2017. *Journal of Economics Education: Scientific Journal of Education, Economics, and Social Sciences*, 11(1), 67-74.
- Ramadhana, A., Refdinal, Purwantono, & Putra, R. P. (2025). Factors Influencing Learning Motivation in the Lathe Technology Course for 11th-Grade Students in the Machining Technology Department at SMK Negeri 1 Padang. *Mars: Journal of Mechanical, Industrial, Electrical, and Computer Engineering*, 3(4), 246-263.
- Rihana. (2021). The Influence of Student Motivation, Learning Facilities, and Student Discipline on Learning Outcomes (A Study of 10th-Grade Students at State High School 5 Pamekasan). *Journal of Social Studies Research and Education (JPPI)*, 15(1), 92-96.
- Rosmiati, Marsidin, S., & Sabandi, A. (2021). *The Effect of Learning Motivation on Student Learning Outcomes*. FIP Universitas Negeri Padang, 4(2), 292-298.
- Sardiman, A. M. (2018). *Interaction and Motivation in Teaching and Learning*. Jakarta: PT. Raja Grafindo Persada.
- Slameto. (2015). *Learning and Factors Affecting It*. Jakarta: Rineka Cipta.
- Susanto, A. (2013). *Learning and Teaching Theories*. Jakarta: Prenadamedia Group.
- Uno, H. B. (2023). *Motivation Theory and Its Measurement: Analysis in the Field of Education*. Jakarta: PT Bumi Aksara.
- Yulita, R. (2022). The Influence of Learning Styles and Learning Interests on the Academic Achievement of Students at SMK Setia Pekanbaru. *Journal of Economics and Education*, 1(2), 85-92.