

Determinants of Academic Achievement Among Islamic Boarding School Students: An Exploration of the Organizational Environment and External Stakeholder Support

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ABSTRACT

Purpose: This study aims to examine the effects of the Islamic boarding school environment and parental support on students' academic achievement, as well as the mediating roles of spiritual intelligence and learning motivation.

Research Method: This study adopted a quantitative explanatory design. A total of 165 students were selected from a population of 280 using the Slovin formula and purposive sampling. Data were collected through a 10-point Likert-scale questionnaire and academic records, then analyzed using PLS-SEM with SmartPLS 4, including mediation analysis based on the Variance Accounted For (VAF) approach.

Results and Discussion: The findings reveal that the Islamic boarding school environment has a positive and significant effect on academic achievement, spiritual intelligence, and learning motivation. Parental support has no significant direct effect on academic achievement but positively influences spiritual intelligence and learning motivation. Both spiritual intelligence and learning motivation significantly enhance academic achievement and mediate the relationship between external factors and academic achievement.

Implications: The findings emphasize the need to strengthen the boarding school environment and promote students' spiritual intelligence and learning motivation through collaboration between schools and parents.

Originality: This study develops an integrated mediation model combining environmental, family, and psychological factors to explain academic achievement in an Islamic boarding school context.

Keywords: islamic boarding school environment; parental support; spiritual intelligence; learning motivation; academic achievement.

1. Introduction

The increasingly dynamic environment shaped by globalization and digital transformation requires every organization to develop high-quality human resources (HR) as a key factor in achieving competitive advantage (Damayanti, 2024). From the perspective of Human Resource Management (HRM), human resources are regarded as strategic human capital that plays a critical role in determining organizational success (Wanto, 2025). Organizational competitiveness is no longer determined solely by the ownership of physical or financial assets but also by the organization's ability to develop

employees' competencies, motivation, character, and behaviors to achieve optimal performance (Anshori *et al.*, 2024). Consequently, HRM has become a strategic function aimed at developing productive, adaptive, and competitive individuals. Within Islamic boarding school organizations (pesantren), students (santri) represent valuable organizational assets that should be managed systematically to achieve academic excellence, which serves not only as an indicator of individual performance but also as evidence of the organization's effectiveness in developing the quality of its human resources (Nazarudin, 2025).

From the perspective of Organizational Behavior, individual performance is influenced by the interaction of organizational, social, and psychological factors. The Ability-Motivation-Opportunity (AMO) Theory explains that individual performance is determined by three essential components: ability, motivation, and opportunities provided by the organization (Wijoyo *et al.*, 2021). A supportive organizational environment creates opportunities for individuals to develop their potential, strengthen motivation, and ultimately improve performance (Prabawa, 2024). Within Islamic boarding schools, the boarding school environment can be conceptualized as an organizational environment encompassing organizational culture, kyai leadership (Islamic scholars), mentoring systems, disciplinary practices, social relationships, and an academic climate that facilitates students' competence development. An organizational environment characterized by religious values, discipline, collaboration, and achievement orientation is expected to enhance the effectiveness of human resource management and ultimately improve students' academic performance (Arpinal, 2023).

In addition to organizational factors, effective human resource management is also influenced by the support of organizational stakeholders (Cholik, 2024). Parents represent one of the most important external stakeholders, contributing to students' development through emotional, moral, financial, and social support. Such support provides psychological resources that strengthen students' self-confidence, commitment, and resilience in coping with academic demands (Damayanti, 2024). According to Stakeholder Theory, collaboration between educational institutions and parents constitutes an essential element in developing sustainable human resources. Parental support is therefore expected not only to influence academic achievement directly but also to enhance students' spiritual intelligence and learning motivation, which function as psychological resources that strengthen individual performance (Mustofa, 2025).

Spiritual intelligence and learning motivation are two important internal factors that contribute to improving individual performance. Spiritual intelligence refers to an individual's capacity to find meaning and purpose in activities, exercise self-control, maintain integrity, and respond positively to challenges and pressures (Mustofa, 2025). This form of intelligence is developed through the internalization of religious values, a spiritually oriented organizational culture, and exemplary leadership demonstrated by caregivers and educators (Sabrianti & Setiyawan, 2025). Meanwhile, learning motivation represents the internal drive that encourages individuals to pursue both organizational and personal goals (Cahyono, 2022). Students with strong learning motivation tend to demonstrate greater effort, discipline, commitment, and perseverance, enabling them to achieve higher academic performance (Cahyono, 2022). Accordingly, spiritual intelligence and learning motivation are expected not only to exert direct effects on academic achievement but also to mediate the relationship between the organizational environment, stakeholder support, and individual academic performance.

These issues are highly relevant to the educational system implemented at Hasyim Asy'ari Islamic Boarding School, Jepara, which integrates formal education and Islamic boarding school education within a unified organizational structure. This integrated management system combines

leadership, character development, spiritual cultivation, and academic competency enhancement to produce competitive and high-quality human resources. According to institutional records, students have achieved more than 260 accomplishments across various levels of competition. These achievements include approximately 187 awards at the district level, 48 at the provincial level, 17 at the national level, and 16 at the international level, comprising 10 Southeast Asian and 6 ASEAN competitions. Additional achievements have been obtained at sub-district, regional, and village levels, reflecting the institution's consistent success in producing academically and non-academically accomplished students. Notable achievements include Second Place in the Rebana Banjari Competition at the 2025 PORSENI and the XX PAC IPNU–IPPNU Bangsri Conference; Third Place in the Academic Quiz Competition; Second Place in the Student Ambassador Competition; and Second Place in the JPPPM Sholawat TikTok Competition in 2022.

Despite these organizational achievements, from a Human Resource Management perspective, the high number of awards does not necessarily indicate that all students have developed equally strong academic performance. Academic achievements remain concentrated among a limited number of individuals or groups, suggesting that individual performance has not been evenly distributed across the student population. This condition reflects a performance gap, referring to disparities in performance among students despite being exposed to the same organizational environment, leadership, mentoring system, and institutional culture. Such disparities represent a critical issue in HRM because an effective organization should establish a human resource management system capable of promoting more equitable individual performance. This gap indicates that the organizational environment and stakeholder support may not influence all students uniformly. Therefore, further investigation is needed to understand the mechanisms through which these external factors affect academic achievement by fostering students' spiritual intelligence and learning motivation.

Although numerous studies have examined the relationships among the Islamic boarding school environment, parental support, spiritual intelligence, learning motivation, and academic achievement, the empirical findings remain inconclusive. Several studies have reported that the Islamic boarding school environment has a positive and significant effect on academic achievement (Dzukhriyah & Adisti, 2025; Andika & Raharjo, 2024; Siroso *et al.*, 2021), whereas other studies have found no significant relationship (Ihsan & Maulidina, 2025). Similar inconsistencies have been identified regarding parental support. Some researchers have demonstrated that parental support directly and positively influences students' academic achievement (Ratumbuisang *et al.*, 2024; E. Mulyasa & Andung, 2025; Mauliddya & Rustam, 2019), while others have reported that its direct effect is statistically insignificant (Prianto, 2017; Quibra & Lantaka, 2024). Likewise, although several studies have confirmed the positive influence of spiritual intelligence and learning motivation on academic achievement (Erika *et al.*, 2019; Siregar *et al.*, 2025), other findings suggest that their effects are indirect and highly dependent on contextual conditions (Basuki, 2015; Mata *et al.*, 2023).

These inconsistent findings reveal a significant research gap. Existing studies have generally failed to comprehensively examine the mediating mechanisms linking organizational and family factors to students' academic achievement within a single integrated conceptual framework. Furthermore, previous research has been conducted in fragmented educational settings and has primarily investigated these variables separately rather than simultaneously within a structural model. Consequently, the causal relationships among these variables and the mediating roles of students' psychological characteristics remain insufficiently understood. This study therefore proposes an integrated analytical model that positions the Islamic boarding school environment and parental

support as exogenous variables, while spiritual intelligence and learning motivation function as mediating variables in explaining students' academic achievement.

Moreover, previous studies have predominantly adopted educational perspectives, whereas limited attention has been given to these relationships from the perspective of Human Resource Management. This study extends the HRM literature by conceptualizing the Islamic boarding school environment as an organizational environment, parental support as external stakeholder support, spiritual intelligence and learning motivation as psychological mechanisms, and academic achievement as individual performance within a single structural model. Accordingly, this study aims to develop and empirically validate a comprehensive model explaining how the Islamic boarding school environment and parental support influence students' academic achievement through the mediating roles of spiritual intelligence and learning motivation. The findings are expected to contribute to the advancement of Human Resource Management literature, particularly regarding human capital development in Islamic boarding school organizations, while providing practical insights for Hasyim Asy'ari Islamic Boarding School, Jepara, in formulating more effective human resource development strategies to enhance both the quality and equity of students' academic performance.

The remainder of this paper is organized as follows. Section 2 provides a literature review and hypothesis development. Section 3 presents the research method and design. Section 4 provides the results and discussion. Section 5 presents Concluding Remarks and Recommendations.

2. Literature Review and Hypothesis Development

2.1 Theoretical Foundation

The Ability–Motivation–Opportunity (AMO) Theory, proposed by Appelbaum *et al.*, (2001) and further developed by Boxall & Purcell (2016), explains that individual performance is determined by the interaction of three essential components: ability, motivation, and opportunity provided by the organization. From the perspective of Human Resource Management (HRM), organizations are expected to establish supportive environments, develop individuals' capabilities, and strengthen their motivation in order to achieve optimal performance. In the present study, the Islamic boarding school environment is conceptualized as the opportunity component; spiritual intelligence represents ability; learning motivation reflects motivation; and academic achievement serves as individual performance. Accordingly, the AMO Theory provides the principal theoretical framework for explaining the relationships among the variables investigated in this study.

Human Capital Theory, introduced by Becker (1964), posits that human resources constitute strategic organizational assets that generate economic value and sustainable competitive advantage through investments in education, training, knowledge, skills, and competency development. The higher the quality of an individual's human capital, the greater the contribution to organizational performance. Within the context of this study, santri (Islamic boarding school students) are viewed as human capital whose potential is developed through a supportive Islamic boarding school environment and parental support as an external stakeholder. This developmental process is expected to enhance students' spiritual intelligence and learning motivation, ultimately leading to improved academic achievement as an indicator of successful human capital development.

Stakeholder Theory, developed by Freeman (1984), argues that organizational success depends on the active involvement and support of both internal and external stakeholders. In this study, parents

are positioned as external stakeholders who provide emotional, moral, social, and financial support to santri. Such support contributes to the development of students' spiritual intelligence and learning motivation, which subsequently enhance their academic achievement. Therefore, Stakeholder Theory provides a relevant theoretical foundation for explaining how parental involvement indirectly contributes to students' academic performance through the development of internal psychological resources.

Although AMO Theory, Human Capital Theory, and Stakeholder Theory originate from distinct disciplinary traditions, this study integrates them into a single input-mechanism-outcome sequence rather than treating them as three parallel, independently applied lenses. Stakeholder Theory and the opportunity component of AMO Theory jointly explain the exogenous inputs of the model: the boarding school environment and parental support represent, respectively, the organizational opportunity structure and the contribution of an external stakeholder. Human Capital Theory explains why these inputs matter to the organization, framing them as investments that build santri's psychological capital. AMO Theory then explains the internal mechanism through which these investments are converted into performance, with spiritual intelligence operationalized as the ability component and learning motivation as the motivation component; academic achievement, the AMO outcome, simultaneously serves as the indicator through which Human Capital Theory evaluates the return on these investments. The classification of spiritual intelligence as the ability component, rather than as a second opportunity or motivation factor, follows AMO Theory's original conceptualization of ability as any relatively stable individual capacity — cognitive, emotional, or dispositional — that determines how effectively a person converts motivation and opportunity into performance (Appelbaum *et al.*, 2001; Boxall & Purcell, 2016). Spiritual intelligence, defined as the capacity to find meaning, exercise self-regulation, and maintain integrity under pressure (Mustofa, 2025), functions analogously to other ability constructs in the AMO literature because it is a relatively stable individual characteristic rather than an external condition (opportunity) or an energizing drive (motivation, separately operationalized here through learning motivation).

2.2 Islamic Boarding School Environment

The Islamic boarding school environment refers to a residential educational system that integrates academic, spiritual, social, and cultural dimensions into students' daily lives (Yaman & Subando, 2026). Islamic boarding schools (Islamic boarding schools) function not only as institutions for knowledge transmission but also as environments for character development through the internalization of religious values, discipline, and the exemplary leadership of kyai (Hilda *et al.*, 2026). From an educational perspective, the learning environment encompasses the social, psychological, and physical conditions that shape students' learning experiences and outcomes (Darmawan & Khoiroh, 2025). Compared with conventional schools, the Islamic boarding school environment has distinctive characteristics, integrating religious values into students' daily routines and educational activities.

A well-structured boarding school environment characterized by clear disciplinary systems, a supportive academic climate, and strong social relationships is expected to satisfy students' psychological needs and foster learning motivation, thereby contributing to higher academic achievement. Empirical evidence supports this relationship, indicating that the Islamic boarding school environment has a positive and significant effect on students' academic achievement (Dzukhriyah & Adisti, 2025; Maulana & Raharjo, 2024; Siroso *et al.*, 2021). These findings suggest that disciplined

educational practices, a religious organizational culture, and supportive social interactions create a conducive learning environment that consistently promotes students' academic success. Furthermore, such an environment is expected to cultivate students' spiritual intelligence by facilitating the internalization of religious values and moral development while simultaneously strengthening their learning motivation through structured guidance and continuous academic support.

Based on the preceding discussion, the following hypotheses are proposed:

- H1:** *The Islamic boarding school environment has a positive and significant effect on students' academic achievement.*
- H2:** *The Islamic boarding school environment has a positive and significant effect on students' spiritual intelligence.*
- H3:** *The Islamic boarding school environment has a positive and significant effect on students' learning motivation.*

2.3 Parental Support

Parental support refers to parents' emotional, academic, and social involvement in their children's educational process. It includes providing attention, effective communication, academic expectations, encouragement, and supervision of learning activities (Zahara *et al.*, 2025). Although santri reside in boarding schools, parental support remains an essential factor in fostering emotional stability, responsibility, and commitment toward academic achievement. Within the Islamic boarding school context, parents also reinforce students' spiritual development by instilling religious values within the family, thereby creating consistency between home-based and school-based education.

Parental support is expected to influence academic achievement both directly and indirectly by strengthening internal psychological resources, particularly spiritual intelligence and learning motivation. Previous empirical studies have demonstrated that parental support positively affects students' academic achievement (Mauliddya & Rustam, 2019; Mulyasa, 2025; Ratumbuisang *et al.*, 2024). These findings indicate that family involvement remains a critical determinant of students' learning success even within a residential educational system, where daily academic and social activities are primarily conducted at school.

Accordingly, the following hypotheses are proposed:

- H4:** *Parental support has a positive and significant effect on students' academic achievement.*
- H5:** *Parental support has a positive and significant effect on students' spiritual intelligence.*
- H6:** *Parental support has a positive and significant effect on students' learning motivation.*

2.4 Spiritual Intelligence

Spiritual intelligence refers to an individual's capacity to understand the meaning and purpose of life, uphold moral values, and make decisions based on transcendent principles (Amaluddin *et al.*, 2025). Within educational settings, spiritual intelligence enables students to perceive learning as a moral and religious responsibility rather than merely an academic obligation. In value-based educational institutions such as Islamic boarding schools, spiritual intelligence functions as an internal psychological resource that strengthens self-regulation, learning engagement, resilience, and the ability to cope with academic challenges (Sabrianti & Setiawan, 2025).

Students with higher levels of spiritual intelligence are more likely to interpret learning activities as meaningful and purposeful, thereby fostering greater commitment, discipline, and perseverance in

completing academic tasks. Their ability to reflect on experiences, regulate emotions, and maintain resilience under pressure further supports consistent learning behavior and improved academic outcomes. Previous empirical studies have consistently reported that spiritual intelligence positively influences students' academic achievement (Ashshidiegy, 2018; Sriwaty S *et al.*, 2021; Suwardi *et al.*, 2021). These findings suggest that integrating spiritual values into the educational process provides a strong psychological foundation for sustained academic engagement and achievement.

Based on the above discussion, the following hypothesis is proposed:

H7: *Spiritual intelligence has a positive and significant effect on students' academic achievement.*

2.5 Learning Motivation

Learning motivation refers to the internal and external forces that initiate, direct, sustain, and intensify students' learning behavior (Julita *et al.*, 2025). It determines the extent to which students invest effort, persist when facing difficulties, and employ effective learning strategies to achieve academic goals. Students with high learning motivation typically demonstrate greater persistence, self-discipline, commitment, and responsibility, resulting in superior academic performance. Within Islamic boarding schools, structured guidance, continuous supervision, and disciplined daily routines are expected to strengthen students' learning motivation by fostering responsibility, consistency, and commitment to academic activities (Rahayu & Bahri, 2025). Empirical evidence has shown that learning motivation exerts a positive and significant influence on academic achievement (Mahbubah & Darmawan, 2024; Setiayadi *et al.*, 2025; Sidabutar *et al.*, 2020). Highly motivated students tend to participate more actively in academic activities, adopt effective learning strategies, and consistently achieve their educational goals. These findings underscore the importance of strengthening learning motivation as a means of improving students' academic performance.

Accordingly, the following hypothesis is proposed:

H8: *Learning motivation has a positive and significant effect on students' academic achievement.*

2.6 The Mediating Roles of Spiritual Intelligence and Learning Motivation

This study proposes that the Islamic boarding school environment and parental support function as external factors that provide students with social support, value systems, educational expectations, and developmental opportunities. However, their influence on academic achievement is not expected to occur solely through direct pathways. Instead, these external factors first shape students' internal psychological characteristics, including their spiritual beliefs, self-regulation, meaning-making processes, and motivation to achieve, which subsequently influence academic performance. Within this framework, spiritual intelligence represents a cognitive-affective psychological resource that enables students to interpret learning experiences meaningfully, regulate emotions effectively, and maintain academic resilience. Meanwhile, learning motivation reflects the self-regulatory mechanism that determines the intensity of effort, persistence, and commitment toward academic goals. Together, these variables serve as psychological mechanisms through which the Islamic boarding school environment and parental support contribute to students' academic achievement.

From this perspective, the effects of external environmental and family factors on academic performance are expected to be largely indirect and dependent on the development of students' internal psychological resources. Therefore, spiritual intelligence and learning motivation are theoretically positioned as mediating variables in the proposed research model.

Based on this theoretical framework, the following hypotheses are proposed:

- H9:** *Spiritual intelligence mediates the relationship between the Islamic boarding school environment and students' academic achievement.*
- H10:** *Spiritual intelligence mediates the relationship between parental support and students' academic achievement.*
- H11:** *Learning motivation mediates the relationship between the Islamic boarding school environment and students' academic achievement.*
- H12:** *Learning motivation mediates the relationship between parental support and students' academic achievement.*

3. Research Method

This study employed a quantitative approach using an explanatory research design to examine the causal relationships among the proposed variables through hypothesis testing (Sugiyono, 2016). Specifically, the study investigated the effects of the Islamic boarding school environment and parental support on students' academic achievement, with spiritual intelligence and learning motivation serving as mediating variables. A quantitative approach was selected because the study emphasizes objective measurement and empirical testing of the proposed structural model (Yanuardianto, 2019).

The research was conducted at Hasyim Asy'ari Islamic Boarding School, Jepara. The study population consisted of 280 santri (Islamic boarding school students) registered as residents of the institution, encompassing both santri enrolled in the boarding school's formal secondary education track (MTs and MA) and a smaller number of santri who were inactive or not enrolled in formal education at the time of data collection. The sample size was determined using Slovin's formula with a 5% margin of error, resulting in 165 respondents. Purposive sampling was employed based on the following criteria: (1) santri registered as residents of the institution, (2) having resided in the boarding school for at least one year, and (3) having both or at least one living parent. As shown in Table 1, 90.30% of the final sample were active santri enrolled in formal education. In comparison, the remaining 9.70% were inactive or not enrolled in formal education but still met the registration, residency, and parental-support criteria above.

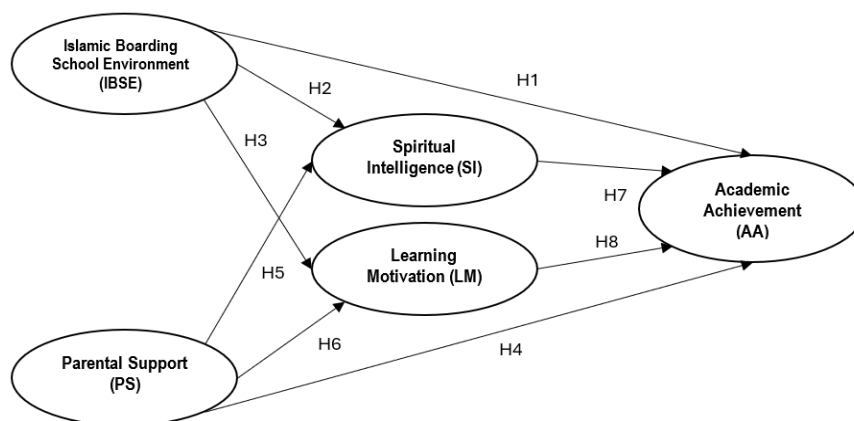
The study utilized both primary and secondary data (Sugiyono, 2016). Primary data were collected through a structured questionnaire using a 10-point Likert scale ranging from 1 (strongly disagree) to 10 (strongly agree), allowing greater measurement sensitivity (Sugiyono, 2016). Items for the Islamic boarding school environment, parental support, spiritual intelligence, and learning motivation constructs were adapted from previously validated instruments used in prior pesantren- and education-based research, translated into Indonesian, and reviewed for semantic equivalence prior to administration. The adapted instrument was pilot-tested with santri outside the final sample to check item clarity and comprehension of the 10-point response scale before full administration [author to report pilot-test sample size, procedure, and any items revised as a result]. The academic achievement construct was operationalized differently from the other four constructs: rather than a self-report attitudinal scale, it was measured using seven reflective indicators (AA1-AA7) drawn from students' report-card grades and academic records across subjects and semesters, so that each indicator represents a distinct grade or academic-record component rather than a perception item. Secondary

data, obtained from students' academic records and institutional administrative documents, supplied the raw values underlying these seven indicators.

Given that a substantial proportion of the participants were minors, with 79.4% of respondents being under 18 years of age, the study obtained ethical approval from the relevant institutional ethics committee prior to data collection. Informed consent was obtained from parents or legal guardians. In contrast, assent was obtained from the santri themselves, ensuring that their participation was voluntary and based on an appropriate understanding of the study. Following the ethical principles of school-based research involving minors (Gallagher *et al.*, 2010), participants were informed of their right to participate or withdraw from the study without consequences. All questionnaire responses and academic records were anonymized and securely stored. The collected data were used solely for research purposes to maintain participant confidentiality and protect respondents' privacy.

Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4 software (Setiabudhi, 2024). The analysis involved two stages. First, the measurement model (outer model) was evaluated by assessing convergent validity, discriminant validity, and construct reliability. Second, the structural model (inner model) was assessed using the coefficient of determination (R^2), predictive relevance (Q^2), and hypothesis testing through the bootstrapping procedure. The mediating effects of spiritual intelligence and learning motivation were examined using the Variance Accounted For (VAF) approach to determine whether the mediation was partial or full (Setiabudhi, 2024). This analytical procedure enabled a comprehensive examination of the mechanisms through which the Islamic boarding school environment and parental support influence students' academic achievement.

Figure 1. Conceptual Framework



Source: Researcher Data (2026)

Based on the proposed conceptual framework, this study assumes that the Islamic boarding school environment, conceptualized as the organizational environment, and parental support, conceptualized as external stakeholder support, influence students' academic achievement (individual performance) both directly and indirectly through spiritual intelligence and learning motivation. A supportive boarding school environment combined with strong parental support is expected to enhance students' spiritual intelligence and learning motivation, thereby improving their academic achievement. This conceptual model is grounded in the Human Resource Management perspective, particularly the

Ability–Motivation–Opportunity (AMO) Theory, which posits that individual performance results from the interaction between organizational opportunities, individual abilities, and motivation.

4. Results and Discussion

4.1 Analysis Results

4.1 Characteristics of Research Respondents

The object of this study was santri (Islamic boarding school students), with a total of 165 respondents. Respondent characteristics were collected to provide a comprehensive overview of the respondents' profiles, including age, length of time as santri, and their active status and involvement in formal education. The presentation of these characteristics aims to understand the respondents' backgrounds based on their developmental stage, experience living in the Islamic boarding school environment, and educational status. A summary of the respondents' characteristics is presented in Table 1.

Table 1. Respondent Characteristics

Characteristic	Category	Frequency	Percentage (%)
Age	< 13 years old	18	10.91
	13 – 15 years old	61	36.97
	16 – 18 years old	52	31.52
	> 18 years old	34	20.61
Length of Being a Santri	1 year	22	13.33
	2 years	30	18.18
	3 years	46	27.88
	> 4 years	67	40.61
Santri Status & Formal Education	Active & enrolled in formal education	149	90.30
	Active & not enrolled in formal education	3	1.82
	Inactive & not enrolled in formal education	13	7.88

Source: Primary Data Processed, 2026

Based on Table 1, the majority of respondents were in the age range of 13–15 years old (36.97%), followed by respondents aged 16–18 years old (31.52%), over 18 years old (20.61%), and the smallest proportion was respondents aged under 13 years old (10.91%). This indicates that the respondents were predominantly adolescents. Regarding the length of time as santri, the majority of respondents had lived in the Islamic boarding school for more than 4 years (40.61%), followed by 3 years (27.88%), 2 years (18.18%), and 1 year (13.33%). This finding indicates that most respondents had relatively extensive experience within the Islamic boarding school environment.

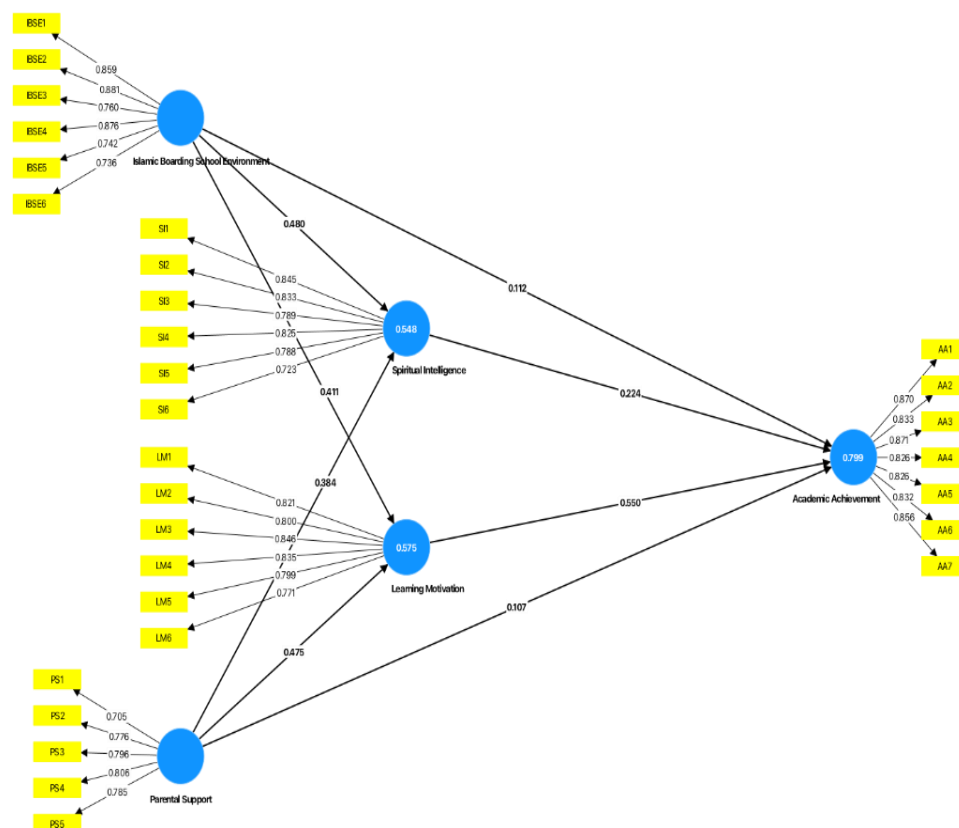
Meanwhile, based on santri status and formal education, the majority of respondents were active santri who were currently enrolled in formal education (90.30%). Meanwhile, 1.82% were active santri but not enrolled in formal education, and 7.88% were inactive santri and not participating in formal education. These findings demonstrate that the study was dominated by active santri who were still involved in formal education systems and had relatively long-term experience living in the Islamic boarding school environment. As noted in Section 3, the 9.70% of respondents who were inactive or not enrolled in formal education still met the study's registration, residency, and parental-support criteria, even though they fall outside the formal-education population initially targeted. We

recommend that a sensitivity analysis excluding this subgroup be reported when this study is revised, so readers can evaluate whether its inclusion affects the reported pattern of results.

4.2 Measurement Model Testing (Outer Model)

The outer model evaluation using SmartPLS 4.0 indicates that all constructs met the criteria for reliability, convergent validity, and discriminant validity. Therefore, the measurement model was considered adequate and suitable for further structural model analysis (Setiabudhi, 2024).

Figure 1. PLS Algorithm Model



Source: Primary Data Processed, 2026

The measurement model (outer model) evaluation in this study was conducted using three main criteria in data analysis, namely convergent validity, discriminant validity, and reliability. Each criterion is explained in detail in the following sections.

4.3 Convergent Validity Test

The results of the convergent validity test in this study can be seen through the outer loading values of each indicator and the Average Variance Extracted (AVE) value of each construct. The purpose of the convergent validity test is to ensure that each indicator within a construct is truly capable of measuring the intended latent variable consistently and robustly (Setiabudhi, 2024). Based on Table 2, all outer loading values were greater than 0.70, and all AVE values exceeded 0.50. These results indicate that all indicators of Islamic boarding school environment, Parental Support, Spiritual Intelligence, Learning Support, Spiritual Intelligence, Learning Motivation, and Academic Achievement used in this study were valid and met the requirements of convergent validity.

Table 2. Outer Loading

Variable	Indicator	Outer Loading	AVE	Description
Islamic Boarding School Environment	IBSE1	0.859	0.658	Valid
	IBSE2	0.881		
	IBSE3	0.760		
	IBSE4	0.876		
	IBSE5	0.742		
Parental Support	IBSE6	0.736	0.600	
	PS1	0.705		
	PS2	0.776		
	PS3	0.796		
	PS4	0.806		
Spiritual Intelligence	PS5	0.785	0.642	
	SI1	0.845		
	SI2	0.833		
	SI3	0.789		
	SI4	0.825		
Learning Motivation	SI5	0.788	0.660	
	SI6	0.723		
	LM1	0.821		
	LM2	0.800		
	LM3	0.846		
Academic Achievement	LM4	0.835	0.714	
	LM5	0.799		
	LM6	0.771		
	AA1	0.870		
	AA2	0.833		
	AA3	0.871		
	AA4	0.826		
	AA5	0.826		
	AA6	0.832		
	AA7	0.856		

Source: Primary Data Processed, 2026

4.4 Discriminant Validity Test

The discriminant validity test was conducted using the Fornell–Larcker Criterion and Heterotrait–Monotrait Ratio (HTMT) approaches. In the Fornell–Larcker Criterion, the square root of AVE for each construct should be greater than 0.70. The purpose of discriminant validity testing is to ensure that each variable in the study represents a distinct construct and does not overlap with other constructs in measurement (Setiabudhi, 2024).

Table 3. Fornell–Larcker Criterion

Variable	SI	LM	IBSE	PS	AA
SI	0.801				
LM	0.780	0.812			
IBSE	0.657	0.630	0.811		
PS	0.605	0.665	0.461	0.775	
AA	0.792	0.867	0.655	0.660	0.845

Source: Primary Data Processed, 2026

Based on Table 3, the square roots of AVE (diagonal values) for the Islamic Boarding School Environment (0.811), Parental Support (0.775), and Spiritual Intelligence (0.801) each exceed that construct's correlations with every other construct, satisfying the Fornell–Larcker criterion. Learning Motivation (0.812) and Academic Achievement (0.845) do not: the correlation between Learning Motivation and Academic Achievement (0.867) exceeds both constructs' own square-root-of-AVE values. By the Fornell–Larcker criterion, discriminant validity between learning motivation and academic achievement is therefore not established, indicating that these two constructs share more variance with each other than either shares with its own indicators. Table 4 reports the corresponding HTMT ratios as a further check on this overlap.

Table 4. Heterotrait–Monotrait Ratio (HTMT)

	M1.	M2.	X1.	X2.	Y.
M1.					
M2.	0.870				
X1.	0.733	0.694			
X2.	0.700	0.762	0.529		
Y.	0.868	0.936	0.714	0.745	

Source: Primary Data Processed, 2026

The results of the Heterotrait–Monotrait Ratio (HTMT) test show that most HTMT values are below the 0.90 limit, so that in general the constructs in the study have adequate discriminant validity. However, the HTMT value between M2 and Y of 0.936 exceeds the 0.90 limit, which indicates a fairly high overlap between the two constructs. Meanwhile, the HTMT values of other construct pairs are in the range of 0.529–0.870 and are still below the 0.90 limit. Thus, discriminant validity has not been fully met, especially in the relationship between M2 and Y, so both constructs need to be reviewed in terms of indicators and conceptual definitions.

4.5 Reliability Test

The reliability test in this study was conducted using two approaches, namely Composite Reliability and Cronbach's Alpha. The purpose of reliability testing is to ensure that the research instruments are consistent and reliable in measuring the investigated constructs (Setiabudhi, 2024). The results are presented in Table 5.

Table 5. Composite Reliability and Cronbach's Alpha

Variable	Composite Reliability	Cronbach's Alpha	Result
IBSE	0.899	0.895	Reliable
PS	0.837	0.833	
SI	0.890	0.888	
LM	0.900	0.897	
AA	0.934	0.933	

Source: Primary Data Processed, 2026

Table 5 shows that all constructs in this study met the threshold values for Composite Reliability and Cronbach's Alpha, which were greater than 0.70. Therefore, all variables and instruments used in this study were declared reliable.

4.3 Structural Model Testing (Inner Model)

4.3.1 Goodness of Fit (GoF)

The Goodness of Fit (GoF) test was conducted to assess whether the proposed research model was appropriate and fit with the empirical data, making it suitable for further analysis (Setiabudhi, 2024). The structural model is considered fit when the SRMR value is below 0.10, while the NFI value indicates a good model fit when it approaches or exceeds 0.95 (Setiabudhi, 2024). The results are presented in Table 6.

Table 6. Goodness of Fit (GoF)

Construct	Saturated Model	Estimated Model
SRMR	0.072	0.085
NFI	0.624	0.619

Source: Primary Data Processed, 2026

Based on Table 6, the SRMR values of 0.072 for the saturated model and 0.085 for the estimated model indicate that the model met the goodness-of-fit criterion, as both values were below 0.10. The NFI values of 0.624 and 0.619, however, fall well short of the 0.95 threshold stated above and do not indicate acceptable incremental fit; NFI is also known to be sensitive to model complexity and sample size and rarely approaches 0.95 in PLS-SEM models with several constructs, which may partly explain the low values observed here. Taken together, the SRMR results support the model's fit while the NFI results do not, so overall model fit should be regarded as mixed rather than fully adequate. This inconsistency is treated as a limitation of the structural model in Section 5, and the R-Square, Q-Square, and path-coefficient results reported below should be interpreted with this caveat in mind.

4.3.2 Coefficient of Determination (R-Square)

Table 7. R-Square Value

Variable	R-Square	R-Square Adjusted
SI	0.548	0.542
LM	0.575	0.569
AA	0.799	0.794

Source: Primary Data Processed, 2026

Based on Table 7, the R-Square value for Academic Achievement (AA) was 0.799, with an adjusted R-Square value of 0.794. This indicates that the exogenous constructs, namely Islamic boarding school environment and Parental Support mediated by Spiritual Intelligence and Learning Motivation, simultaneously explained 79.9% of the variance in academic achievement. Meanwhile, the remaining 20.1% was explained by other variables not included in this study.

4.3.3 Q-Square Analysis

The predictive relevance of the structural model was evaluated using the Q-Square value. A Q-Square value greater than zero indicates that the model has predictive relevance, while a value below zero indicates that the model has limited predictive relevance. The results of the Q-Square analysis are presented in Table 8.

Table 8. Q-Square Value

Variable	SSO	SSE	$Q^2 (= 1 - SSE/SSO)$
SI	990.000	498.550	0.496
LM	990.000	475.554	0.520
IBSE	990.000	474.441	0.521
PS	825.000	496.769	0.398
AA	1155.000	445.086	0.615

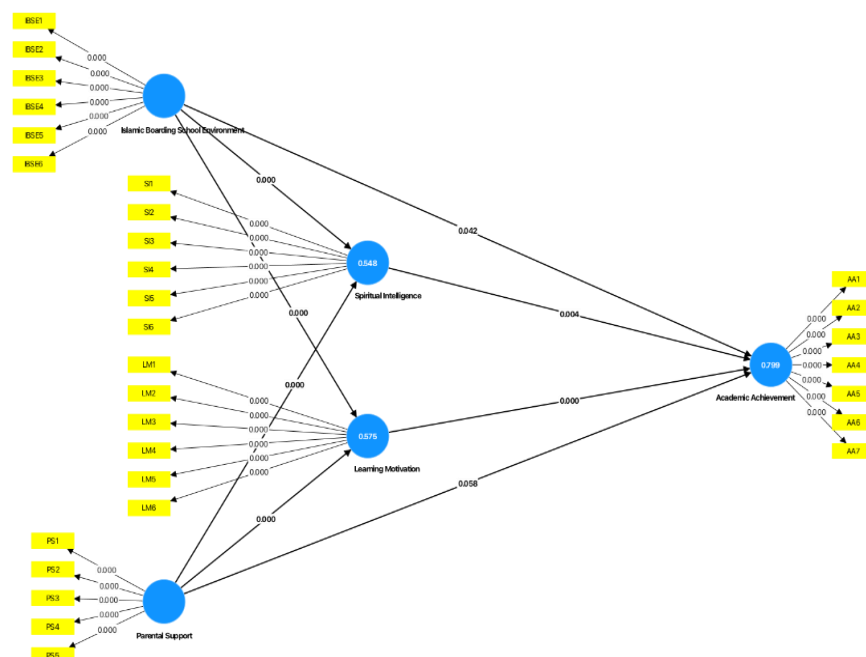
Source: Primary Data Processed, 2026

Based on Table 8, the Q-Square value for Academic Achievement (AA) was 0.615, which is greater than zero. This indicates that the model has predictive relevance, meaning that the structural model has good predictive capability in explaining the observed values. Therefore, the structural model in this study can be considered to have adequate predictive relevance.

4.4 Hypothesis Testing Results

Hypothesis testing in this study was conducted to examine both direct and indirect effects among constructs. Figure 3 presents the bootstrapping model used in this study, which includes the assessment of both direct effects and specific indirect effects, as described below.

Figure 3. PLS bootstrapping



Source: Primary Data Processed, 2026

4.4.1 Direct Effect Testing Results

The direct effect analysis was conducted using the original sample (path coefficients) and t-statistics. A relationship was considered statistically significant when the t-statistic exceeded 1.65 at the 5% significance level, and the p-value was less than 0.05. The results of the direct effect analysis are presented in Table 9.

Table 9. Path Coefficients (Direct Effect)

Variable	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Result
IBSE → AA	0.112	0.111	0.055	2.032	0.042	Accepted
IBSE → SI	0.480	0.476	0.073	6.608	0.000	Accepted
IBSE → LM	0.411	0.408	0.063	6.567	0.000	Accepted
PS → AA	0.107	0.111	0.057	1.899	0.058	Rejected
PS → SI	0.384	0.389	0.067	5.777	0.000	Accepted
PS → LM	0.475	0.480	0.059	8.007	0.000	Accepted
SI → AA	0.224	0.218	0.077	2.908	0.004	Accepted
LM → AA	0.550	0.553	0.062	8.870	0.000	Accepted

Source: Primary Data Processed, 2026

Based on the results presented in Table 9, the Islamic boarding school environment had a positive and significant effect on the academic achievement of santri, with an original sample coefficient of 0.112, a t-statistic of 2.032, and a p-value of 0.042. These findings support H1. Furthermore, the Islamic boarding school environment was found to have positive and significant effects on both spiritual intelligence and learning motivation, with original sample coefficients of 0.480 and 0.411, respectively. These relationships were supported by t-statistics greater than 1.65 and p-values below 0.05, indicating support for H2 and H3.

Regarding parental support, the findings indicate that it did not have a significant direct effect on santri's academic achievement, despite having a positive path coefficient of 0.107. This is evidenced by a p-value of 0.058, which exceeds the significance threshold of 0.05. Therefore, H4 was not supported. Nevertheless, parental support had positive and significant effects on both spiritual intelligence and learning motivation, with original sample coefficients of 0.384 and 0.475, respectively. The high t-statistics and p-values of 0.000 indicate support for H5 and H6.

The results also demonstrate that spiritual intelligence had a positive and significant effect on santri's academic achievement, with an original sample coefficient of 0.224 and a p-value of 0.004. Likewise, learning motivation exerted a positive and significant influence on academic achievement, with an original sample coefficient of 0.550 and a p-value of 0.000. Accordingly, H7 and H8 were supported. These findings suggest that both spiritual intelligence and learning motivation play important roles in improving the academic achievement of santri.

4.4.2 Indirect Effect Testing (Specific Indirect Effect)

The indirect effects were examined using the original sample coefficients and t-statistics obtained from the specific indirect effect analysis through the bootstrapping procedure. A mediation effect was considered significant when the t-statistic exceeded 1.65, and the p-value was less than 0.05. Based on the results presented in Table 10, spiritual intelligence was found to significantly mediate the relationship between the Islamic boarding school environment and the academic achievement of santri. This is indicated by an original sample coefficient of 0.107, a t-statistic of 2.536, and a p-value of 0.011, thereby supporting H9. Furthermore, spiritual intelligence also significantly mediated the relationship between parental support and academic achievement, with an original sample coefficient of 0.086, a t-statistic of 2.678, and a p-value of 0.007. Therefore, H10 was supported.

Table 10. Specific Indirect Effect

Variable	Direct Effect	Indirect Effect	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	VAF
IBSE → SI → AA	0.112	0.107	0.105	0.042	2.536	0.011	48.9%
PS → SI → AA	0.107	0.086	0.084	0.032	2.678	0.007	44.6%
IBSE → LM → AA	0.112	0.226	0.225	0.037	6.031	0.000	66.9%
PS → LM → AA	0.107	0.262	0.266	0.046	5.635	0.000	71.0%

Source: Primary Data Processed, 2026

The findings further indicate that learning motivation significantly mediated the relationship between the Islamic boarding school environment and academic achievement, with an original sample coefficient of 0.226, a t-statistic of 6.031, and a p-value of 0.000, supporting H11. Likewise, learning motivation significantly mediated the relationship between parental support and academic achievement, as evidenced by an original sample coefficient of 0.262, a t-statistic of 5.635, and a p-value of 0.000. Thus, H12 was supported.

The mediation classification requires care because the underlying pattern differs across paths. For the Islamic boarding school environment, the direct effect on academic achievement remains statistically significant (Table 8: $\beta = 0.112$, $p = 0.042$) alongside significant indirect effects through spiritual intelligence (VAF = 48.9%) and learning motivation (VAF = 66.9%), which is the standard signature of partial mediation. For parental support, however, the direct effect on academic achievement is not statistically significant ($\beta = 0.107$, $p = 0.058$; H4 not supported), while both indirect effects — through spiritual intelligence (VAF = 44.6%) and through learning motivation (VAF = 71.0%) — are significant. A nonsignificant direct effect combined with significant indirect effects indicates full (indirect-only) mediation rather than partial mediation, because the relationship between parental support and academic achievement is established only through the two mediators. VAF percentages calculated against a nonsignificant direct effect should therefore be interpreted with caution, since the coefficient they are compared to is not itself statistically distinguishable from zero. Accordingly, spiritual intelligence and learning motivation partially mediate the effect of the Islamic boarding school environment on academic achievement, while they fully (indirect-only) mediate the effect of parental support on academic achievement.

4.2 Discussion

Because this study used a cross-sectional design conducted at a single institution, the relationships reported below are best interpreted as statistical associations consistent with the proposed model rather than as confirmed causal effects; the terms "effect" and "influence" are retained below only because they are the conventional terminology for PLS-SEM path coefficients, not as a claim of demonstrated causation. The findings indicate that the Islamic boarding school environment has a positive and significant effect on santri's academic achievement. In contrast, parental support does not have a significant direct effect on academic achievement. These findings can be explained by the Ability–Motivation–Opportunity (AMO) Theory, which posits that individual performance results from the interaction of ability, motivation, and opportunity provided by an organization (Appelbaum *et al.*, 2001). In this study, the Islamic boarding school environment represents the opportunity dimension because it provides a learning system, organizational culture, leadership, discipline, and an academic climate that enable santri to develop their potential optimally. Such a supportive organizational environment creates

opportunities for students to establish effective learning habits, strengthen discipline, and optimize the learning process, ultimately leading to improved academic achievement. These findings suggest that the opportunity dimension of AMO Theory plays a crucial role in shaping the individual performance of santri. This result is consistent with the studies of Yaman & Subando (2026), Darmawan & Khoiroh (2025), and Dzhukhriyah & Adisti (2025), which reported that the Islamic boarding school environment positively influences academic achievement.

In contrast, parental support did not demonstrate a significant direct effect on academic achievement. According to Stakeholder Theory, parents are external stakeholders who contribute to the achievement of educational organizational goals through emotional, moral, social, and financial support (Freeman, 1984). However, within a boarding school system, most academic activities, character development, and learning supervision are managed by the Islamic boarding school. Consequently, the educational institution plays a more dominant role than the family in shaping students' academic performance. Therefore, parental support is not directly reflected in academic achievement but instead contributes primarily to students' psychological development. This finding is consistent with Boonk *et al.*, (2020), who argued that parental involvement does not always directly affect academic achievement when the school environment dominates the learning process. Similar findings were also reported by Özyıldırım (2024) and Rodiyah *et al.*, (2025), who found that parental influence on academic achievement tends to occur indirectly through psychological factors, particularly learning motivation.

The study also revealed that the Islamic boarding school environment has positive and significant effects on both spiritual intelligence and learning motivation. These findings further reinforce the Opportunity dimension of AMO Theory. A supportive organizational environment provides students with opportunities to develop their internal capabilities and learning motivation through the internalization of religious values, the exemplary leadership of kiai (Islamic boarding school leaders), a culture of discipline, and a structured academic environment. Since life in an Islamic boarding school operates continuously over twenty-four hours, the internalization of values occurs consistently, enabling students to develop deeper meaning in learning, stronger self-control, and greater motivation to achieve academically. These findings indicate that the organizational environment not only influences academic outcomes but also shapes the internal factors that determine individual performance. This result supports the findings of Hilda *et al.*, (2026), who concluded that a high-quality educational environment promotes both students' spiritual development and learning motivation.

Furthermore, parental support was found to have positive and significant effects on both spiritual intelligence and learning motivation. Based on Stakeholder Theory, strong relationships between organizations and external stakeholders enhance the effectiveness of human resource development. In the context of this study, parental support does not directly improve academic achievement; instead, it strengthens students' psychological resources through parental attention, communication, religious value transmission, and emotional support. Such support enhances students' spiritual intelligence and learning motivation, which become important resources for successful learning. These findings are consistent with Zahara *et al.*, (2025), who demonstrated that families contribute significantly to the development of individual values and spirituality, as well as Madhakomala & Lemba (2026), who reported that family interactions foster norms and motivation that support academic success.

This study also demonstrates that spiritual intelligence and learning motivation have positive and significant effects on academic achievement. These findings further support the Ability–Motivation–Opportunity (AMO) Theory, which emphasizes that ability and motivation are key determinants of

individual performance. Spiritual intelligence, representing the ability dimension, enables santri to exercise self-control, perceive learning as an act of worship, and maintain academic commitment when facing various challenges. Meanwhile, learning motivation, representing the motivation dimension, increases students' effort, persistence, and consistency in pursuing academic goals. Therefore, internal capabilities and motivation function as essential mechanisms through which opportunities provided by the organizational environment are translated into academic achievement. These findings are consistent with the studies of Amaluddin *et al.*, (2025), Ashshidieqy (2018), Sriwaty *et al.*, (2021), Suwardi *et al.*, (2021), and Julita *et al.*, (2025).

From the perspective of Human Capital Theory, the findings indicate that both the Islamic boarding school environment and parental support represent investments in the development of human resource quality. Becker (1964) argued that investments in education, training, and competency development enhance human capital, ultimately leading to superior performance. In this study, the Islamic boarding school environment provides a comprehensive developmental system focusing on academic, spiritual, and character development, while parental support functions as an external resource that reinforces this developmental process. The resulting spiritual intelligence and learning motivation become components of students' human capital, which subsequently contribute to higher academic achievement as an indicator of successful human resource development within the Islamic boarding school.

The indirect effect analysis further revealed that spiritual intelligence and learning motivation significantly mediate the relationships between the Islamic boarding school environment, parental support, and academic achievement. These findings reinforce the Ability–Motivation–Opportunity (AMO) Theory, suggesting that opportunities provided by educational organizations and support from external stakeholders do not automatically translate into high performance unless they foster individuals' abilities and motivation. In other words, both the Islamic boarding school environment and parental support first strengthen students' spiritual intelligence and learning motivation before ultimately enhancing academic achievement. These findings also extend Stakeholder Theory by demonstrating that external stakeholders contribute more effectively by strengthening individuals' internal capacities rather than directly influencing performance. Moreover, the study enriches Human Capital Theory by showing that organizational and stakeholder investments in human resource development enhance not only knowledge and competencies but also spiritual and motivational capacities as psychological capital that determines individual performance. Therefore, this study proposes an empirical model suggesting that improvements in the academic achievement of santri are associated with the joint contribution of the organizational environment, external stakeholder support, ability, and motivation, thereby contributing to the advancement of Human Resource Management research in Islamic boarding school-based educational institutions.

5. Concluding Remarks and Recommendation

This study concludes that the Islamic boarding school environment, spiritual intelligence, and learning motivation are positively and significantly associated with the academic achievement of santri, consistent with the Ability–Motivation–Opportunity (AMO) framework, in which the boarding school environment represents organizational opportunity, spiritual intelligence represents ability, and learning motivation represents motivation. Parental support shows no significant direct association with

academic achievement. However, it is indirectly and fully associated with academic achievement through spiritual intelligence and learning motivation. In contrast, the boarding school environment shows both a direct association and a partially mediated indirect association through the same two mechanisms. Given the study's cross-sectional, single-institution design, these patterns should be read as associations consistent with the proposed model rather than as confirmed causal effects. Furthermore, the findings support Human Capital Theory, which views santri as strategic organizational assets whose quality can be enhanced through investments in the learning environment, character development, and competency enhancement. The finding that parental support is associated with academic achievement only indirectly, through spiritual intelligence and learning motivation, also reinforces Stakeholder Theory, suggesting that the contribution of external stakeholders is reflected less in direct performance improvement than in the strengthening of individuals' internal capacities as valuable organizational resources.

This study makes a theoretical contribution by developing an empirical model from a Human Resource Management (HRM) perspective that integrates Ability–Motivation–Opportunity (AMO) Theory, Human Capital Theory, and Stakeholder Theory within the context of Islamic boarding school-based educational organizations. Unlike previous studies, which generally examine academic achievement from an educational perspective, this research conceptualizes academic achievement as individual performance, the Islamic boarding school environment as the organizational environment, parental support as external stakeholder support, and spiritual intelligence and learning motivation as mechanisms of human capital development. This integrated model extends the application of AMO Theory to Islamic boarding school-based educational organizations and provides empirical evidence that effective management of the organizational environment and stakeholder support can enhance individual performance by strengthening students' abilities and motivation. From a practical perspective, the findings suggest that Pondok Islamic boarding school Hasyim Asy'ari Jepara should strengthen the organizational environment by fostering a supportive learning culture, implementing structured student development programs, reinforcing spiritual values, and providing initiatives that enhance students' learning motivation. At the same time, parental involvement should be optimized through continuous communication, emotional support, and stronger collaboration between families and the Islamic boarding school in order to enhance students' spiritual intelligence and learning motivation as key determinants of academic achievement.

This study has several limitations that should be addressed before the findings are treated as conclusive. First, the cross-sectional design restricts causal interpretation of the reported relationships and cannot capture change in the examined variables over time. Second, the research was conducted at a single Islamic boarding school, limiting the generalizability of the findings to other institutions. Third, a subgroup of respondents (9.70%) were inactive or not enrolled in formal education at the time of data collection; although they met the study's registration, residency, and parental-support criteria, a sensitivity analysis excluding this subgroup should be reported so readers can judge whether their inclusion affects the results. Fourth, discriminant validity between learning motivation and academic achievement was not established under the Fornell–Larcker criterion (Table 3), and the HTMT values needed to evaluate this overlap (Table 3a) have not been fully reported. Fifth, the NFI values fell well short of the conventional 0.95 threshold, so overall structural-model fit should be regarded as mixed rather than fully adequate. Sixth, because a large majority of participants were minors, the ethical-approval, parental-consent, assent, and data-protection procedures described in Section 3 should be reported in full, with supporting documentation, in the final manuscript. Seventh, the measurement

procedure would benefit from fuller reporting of item sources, translation, and pilot testing, as noted in Section 3. Future studies are therefore encouraged to adopt longitudinal research designs, include multiple boarding schools or other boarding-school-based educational institutions, report complete measurement-development and ethical procedures, and expand the proposed model by incorporating other organizational variables, such as leadership, organizational culture, organizational commitment, or learning climate, to further enrich the Human Resource Management literature within the context of educational organizations.

Statement of Use of Generative AI

During the preparation of this work, the author used generative artificial intelligence tools to support the scientific writing process. Grammarly was used to check grammar, refine writing style, and improve clarity in scientific writing. All interpretations, analyses, and conclusions presented in this study are the sole responsibility of the author.

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