

The Impact of Leadership, Reward Systems, and Teacher Commitment on the Effectiveness of Islamic Senior High Schools: A Path Analysis Approach

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Abstract:

This study examines the influence of school Leadership, reward systems, and teacher commitment on the effectiveness of private Islamic Senior High Schools (Madrasah Aliyah) in one province in Indonesia. This study aims to determine the individual and simultaneous contributions of these three variables in improving institutional effectiveness. Using a quantitative, survey-based approach, this study involved 91 teachers: 30 in the pilot study and 61 in the main sample. Data were collected through a structured questionnaire and analyzed using path analysis to assess the direct and indirect effects between variables. The findings revealed that school Leadership, reward systems, and teacher commitment each had a positive and significant impact on madrasah effectiveness. Among these variables, teacher commitment emerged as the most dominant factor. Together, the three variables accounted for 97.3 percent of the variance in madrasah effectiveness. These results highlight that the managerial and human dimensions play a crucial role in improving the performance of Islamic educational institutions, particularly in archipelagic regions characterized by diverse geographic and social conditions. This study provides practical implications for madrasah leaders and policymakers in designing Leadership strategies, reward mechanisms, and commitment-strengthening programs to improve the quality of education continuously.

Keywords: *School Leadership, Reward System, Teacher Commitment, Madrasah Effectiveness*

Abstrak:

Penelitian ini mengkaji pengaruh kepemimpinan sekolah, sistem penghargaan, dan komitmen guru terhadap efektivitas Madrasah Aliyah swasta di salah satu propinsi di Indonesia. Penelitian ini bertujuan untuk mengetahui kontribusi individu dan simultan dari ketiga variabel ini dalam meningkatkan efektivitas kelembagaan. Dengan menggunakan pendekatan kuantitatif dengan metode survei, penelitian ini melibatkan 91 guru, yang terdiri dari 30 responden dalam uji coba dan 61 sebagai sampel utama. Data dikumpulkan melalui kuesioner terstruktur dan dianalisis menggunakan analisis jalur untuk menilai efek langsung dan tidak langsung antar variabel. Temuan tersebut mengungkapkan bahwa kepemimpinan sekolah, sistem penghargaan, dan komitmen guru masing-masing memiliki efek positif dan signifikan terhadap efektivitas madrasah. Di antara variabel tersebut, komitmen guru muncul sebagai faktor yang paling dominan. Secara bersamaan, ketiga variabel tersebut menyumbang 97,3 persen dari varians efektivitas madrasah. Hasil ini menyoroti bahwa dimensi manajerial dan manusia

memainkan peran penting dalam meningkatkan kinerja lembaga pendidikan Islam, khususnya di wilayah kepulauan yang ditandai dengan kondisi geografis dan sosial yang beragam. Studi ini memberikan implikasi praktis bagi para pemimpin madrasah dan pembuat kebijakan dalam merancang strategi kepemimpinan, mekanisme penghargaan, dan program penguatan komitmen untuk meningkatkan kualitas pendidikan secara berkelanjutan.

Kata Kunci: *Kepemimpinan Sekolah, Sistem Penghargaan, Komitmen Guru, Efektivitas Madrasah*

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INTRODUCTION

The effectiveness of Islamic educational institutions increasingly depends on the quality of Leadership, the structure of motivation systems, and the commitment of teachers (Alzoraiki et al., 2023; Arar & Orucu, 2022; Bunyamin et al., 2024). In Private Madrasah Aliyah, these three components play a central role in shaping institutional performance and ensuring continuity in both academic and character-development functions. As stakeholder expectations continue to rise, madrasahs are required to strengthen managerial capacity and enhance human resources to maintain competitiveness and educational quality (Harinuridin et al., 2025; Qiu et al., 2024; Rosyadi et al., 2023). Within this context, Leadership emerges as a crucial factor, as school principals are responsible for directing organizational goals, designing professional development programs, and cultivating a culture that supports continuous improvement (Galdames-Calderón, 2023; Ghamrawi et al., 2024; He et al., 2024).

Previous research demonstrates that effective Leadership significantly contributes to teacher performance and overall school outcomes (Dutta & Sahney, 2022; L. Li & Liu, 2022; Pardosi & Utari, 2022). However, these studies predominantly focus on general education settings, paying little attention to Islamic education institutions operating in unique socio-cultural contexts. This gap becomes even more visible in archipelagic provinces such as the Riau Islands, where geographic fragmentation and varied infrastructure conditions shape distinct managerial challenges for madrasah leaders.

The reward system is another managerial factor that influences institutional effectiveness. Fair and transparent rewards improve teacher motivation, increase job satisfaction, and strengthen professional dedication (Aljumah, 2023; Elrayah & Semlali, 2023; Owan et al., 2022). Numerous studies indicate that both financial and non-financial incentives can shape teacher behavior and productivity. However, research integrating reward systems into a broader causal model of madrasah effectiveness remains limited. Teacher commitment also plays a decisive role, as high levels of commitment are associated with improved classroom engagement, stronger professional responsibility, and greater consistency in supporting student learning (X. Li et al., 2025; Pan, 2023; Shu, 2022). Although prior studies have acknowledged its importance, the interaction between it and Leadership and reward systems has not been sufficiently explored in the context of Islamic schools.

Despite the growing body of literature, a clear research gap still exists. Studies rarely examine school Leadership, reward systems, and teacher commitment in a single integrated model, particularly within the socio-geographical realities of Private Madrasah Aliyah in the Riau Islands Province. This indicates the need for context-based empirical analysis that captures how these managerial and human-resource factors simultaneously contribute to institutional effectiveness.

The present study aims to fill this gap by analyzing the direct and combined effects of school Leadership, reward systems, and teacher commitment on the effectiveness of Private Madrasah Aliyah in the region. This study evaluates how Leadership practices influence teacher performance and institutional outcomes, how reward systems shape teacher motivation, and how teacher commitment contributes to achieving educational goals. Moreover, the study examines the extent to which these three variables jointly determine madrasah effectiveness.

To guide this investigation, a conceptual framework was developed to illustrate the relationships among the key variables. This framework integrates school Leadership, reward systems, and teacher commitment as exogenous variables that influence madrasah effectiveness as the endogenous variable. The model is grounded in theoretical foundations and empirical findings from previous studies and serves as the analytical basis for the research. The framework is presented in Figure 1.

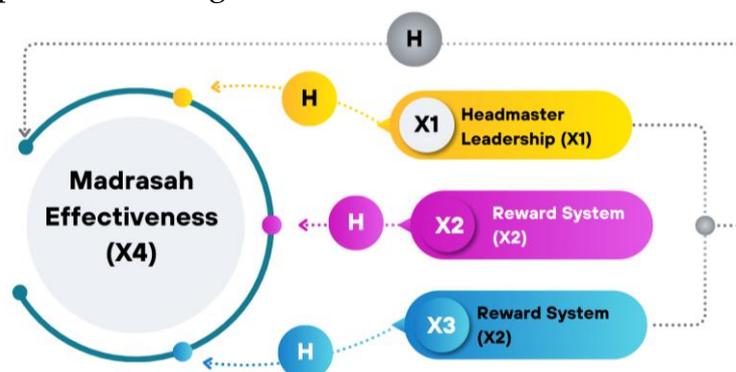


Figure 1. Research Conceptual Framework

RESEARCH METHODS

This study employed a quantitative survey design to examine the influence of headmaster Leadership (X1), reward systems (X2), and teacher commitment (X3) on the effectiveness of Private Madrasah Aliyah (X4) in the Riau Archipelago Province (Cash et al., 2022; Jamieson et al., 2023; Leavy, 2022). The design was correlational and used to determine the direct and indirect effects among variables within a structured model. The research was conducted in several Private Madrasah Aliyah located in Karimun, Batam, and Bintan. These locations were selected to represent diverse institutional and geographical characteristics across the archipelagic region. The population consisted of all teachers in these madrasahs. A total of 91 teachers participated, with 30 teachers used for instrument testing and 61 as the main research sample. This sample size

is adequate for parametric statistical analysis (Ma et al., 2021; Naing et al., 2022; Vrbin, 2022).

Four variables were examined: headmaster Leadership (X1), reward system (X2), teacher commitment (X3), and madrasah effectiveness (X4). Leadership was defined as the headmaster's ability to motivate and guide teachers. The reward system refers to the financial and non-financial incentives provided to teachers. Teacher commitment reflected teachers' willingness to work responsibly. Madrasah effectiveness was described in terms of managerial, instructional, and academic outcomes. Data were collected through three techniques: questionnaires, observation, and documentation. The questionnaire was the primary instrument and used a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The instrument was tested on 30 teachers to evaluate validity and reliability. All items passed the validity test, and Cronbach's Alpha exceeded 0.70, indicating internal consistency (Alfuqaha, 2023; Wang et al., 2021; Xiao et al., 2023).

Path analysis was applied to examine direct and indirect effects among variables (Harris & Gleason, 2022). Pearson's Product-Moment correlation was used for normally distributed data, and Spearman's Rank correlation was used for non-normally distributed data. These tests provided initial evidence of linear relationships among variables before conducting path analysis. Before the primary analysis, prerequisite testing was performed to ensure compliance with parametric assumptions. These included normality, homogeneity, and linearity (Knief & Forstmeier, 2021; Zhou et al., 2023; Zygmunt, 2023). Normality was tested using the chi-square goodness-of-fit test. Homogeneity was tested using Bartlett's test. Linearity was tested using simple regression and ANOVA.

The results of normality testing are presented in Table 1. All χ^2 values were lower than the χ^2 Table value (9.488), indicating that the data were normally distributed.

Table 1. Summary of Data Normality Testing

No	Variable	N	χ^2 values	χ^2 Table	Decision
1	Leadership (X1)	61	4.102	< 9.488	Normal
2	Reward System (X2)	61	6.455	< 9.488	Normal
3	Teacher Commitment (X3)	61	4.949	< 9.488	Normal
4	Madrasah Effectiveness (X4)	61	5.861	< 9.488	Normal

Homogeneity testing using Bartlett's test showed that all variables had p-values greater than 0.05, indicating homogeneous variance across groups. The results are shown in Table 2.

Table 2. Summary of Data Homogeneity Testing

No	Variable Pair	df	χ^2 values	χ^2 Table	Sig.	α	Decision
1	X1 → X4	120	1.452	146.567	0.230	0.05	Homogeneous
2	X2 → X4	120	7.322	146.567	0.066	0.05	Homogeneous
3	X3 → X4	120	6.734	146.567	0.067	0.05	Homogeneous
4	X1 → X3	120	1.983	146.567	0.161	0.05	Homogeneous
5	X2 → X3	120	0.013	146.567	0.910	0.05	Homogeneous

Linearity testing was conducted using simple regression and ANOVA. A relationship is linear if the non-fit F-value is smaller than the F-table value at $\alpha = 0.05$. All variable relationships met the linearity requirement, as shown in Table 3.

Table 3. Summary of Data Linearity Testing

No	Variable	df	F value	F Table	Conclusion
1	X1 → X4	120	0.128	< 0.05	Significant
2	X1 → X4	58	1.351	< 1.547	Linear
3	X2 → X4	120	0.115	< 0.05	Significant
4	X2 → X4	58	1.374	< 1.547	Linear
5	X3 → X4	120	0.080	< 0.05	Significant
6	X3 → X4	58	1.452	< 1.547	Linear
7	X1 → X3	120	0.076	< 0.05	Significant
8	X1 → X3	58	1.480	< 1.580	Linear
9	X2 → X3	120	0.634	< 0.05	Significant

All prerequisite test results indicate that the data met the assumptions required for parametric and multivariate analysis. Therefore, path analysis and multiple regression could be applied reliably to examine causal relationships among variables. All statistical tests were performed using SPSS software.

RESULTS AND DISCUSSION

Results

Hypothesis testing in this study uses path analysis. The numerical value of the path coefficient reflects the magnitude of the direct effect of exogenous variables on endogenous variables. The relationship between the Principal Leadership variable (X1) and the Reward System (X2) is represented by the path coefficient (ρ), which is estimated by the correlation coefficient (r_{12}). The relationship between the Principal Leadership variable (X1) and the Organizational Communication variable (X2) is a causal relationship represented by the path coefficient ρ_{21} .

The influence of the research variables, as per the proposed hypothesis, is estimated using path coefficients and shown in Figure 2.

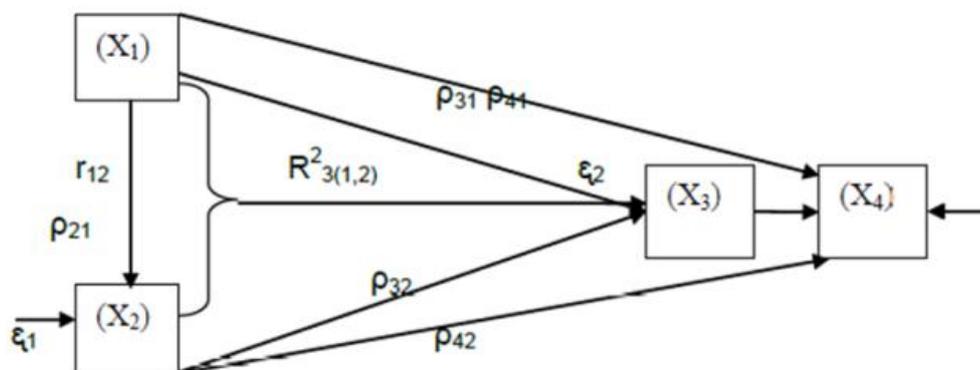


Figure 2. Path Diagram

Analysis of the Direct Contribution of Headmaster Leadership (X1) to Madrasah Effectiveness (X4)

The hypothesis was tested in two stages. First, the correlation coefficient (r_{xy}) was calculated to determine the strength of the relationship between the two variables. Second, the calculated t value ($t_{\text{calculated}}$) was compared with the critical t value (t_{critical}) to test the hypothesis. The null hypothesis (H_0) is rejected if the calculated t value is greater than the critical t value. H_0 is accepted if the calculated t value is less than or equal to the critical t value. The statistical output is presented in Table 4.

Table 4. Measurement of the Relationship Between Headmaster Leadership and Madrasah Effectiveness

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.976 ^a	.953	.952	2.481

a. Predictors: (Constant), X1 Leadership

From Table 4, the correlation between X1 and X4 is 0.976, indicating a strong relationship between Headmaster Leadership (X1) and Madrasah Effectiveness (X4). The manual analysis confirms that the correlation coefficient (r_{14}) is 0.976. With a significance level of $\alpha = 0.05$ and degrees of freedom $df = n - k - 1 = 61 - 1 - 1 = 59$, the critical t value (t_{critical}) is 2.001. For $\alpha = 0.01$, the critical t value is 2.662. The manual calculation produces a calculated t value ($t_{\text{calculated}}$) of 34.548. This result shows that $t_{\text{calculated}}$ is far greater than t_{critical} at both significance levels. This means the relationship between Headmaster Leadership and Madrasah Effectiveness is statistically significant. The strong positive correlation indicates that improvements in principal Leadership are consistently associated with higher levels of madrasah effectiveness. The regression output supporting this finding is presented in Table 5.

Table 5. Path Analysis Results of Leadership (X1) on Madrasah Effectiveness (X4)

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.134	3.883		2.353	.022
	X ₁ Leadership	.3835	.024	.976	34.548	<.001

a. Dependent Variable: X₄ Madrasah Effectiveness

From Table 5, the path analysis results show that the calculated t value ($t_{\text{calculated}}$) is 34.548. This value exceeds the critical t values at both $\alpha = 0.05$ (2.001) and $\alpha = 0.01$ (2.662). Therefore, H_0 is rejected and H_1 is accepted. This confirms that the headmaster's Leadership (X1) has a direct and significant influence on the effectiveness of Madrasah Aliyah (X4). The Table also shows a significance value of < 0.001 . Since this value is smaller than the 0.05 probability threshold, H_0 is again rejected and H_1 is accepted. This indicates that the path

coefficient is statistically significant. These findings demonstrate that the headmaster's Leadership makes a substantial contribution to improving the effectiveness of Madrasah Aliyah.

Direct Influence of the Reward System (X2) on Madrasah Effectiveness (X4)

The hypothesis test was conducted by first calculating the correlation coefficient (r_{xy}) to determine the strength of the relationship between the two variables, then computing the t value for hypothesis testing. The null hypothesis (H_0) is rejected if the calculated t value is greater than the critical t value, and accepted if the calculated t value is less than or equal to the critical t value. The results of this analysis are presented in Table 6.

Table 6. Calculation Results of the Influence of X2 on X4

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.626 ^a	.391	.381	8.918

a. Predictors: (Constant), X₂ Reward System

Table 6 shows that the correlation coefficient between X2 and X4 is 0.626, indicating a moderate positive relationship between the Reward System (X2) and Madrasah Effectiveness (X4). The manual calculation also produces a correlation coefficient of $r_{24} = 0.626$. With a significance level of $\alpha = 0.05$ and $df = 59$, the critical t value is 2.001, and at $\alpha = 0.01$, the critical t value is 2.662. The calculated t value obtained is 6.159. The regression output supporting this result is presented in Table 7.

Table 7. SPSS Test Results for the Correlation Coefficient of X2 with X4

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	78.844	10.450		7.545	<.001
	X ₂ Reward System	.384	.062	.626	6.159	<.001

a. Dependent Variable: X₄ Madrasah Effectiveness

Table 7 shows that the calculated t value (6.159) is greater than the critical t values at both $\alpha = 0.05$ (2.001) and $\alpha = 0.01$ (2.662). Therefore, H_0 is rejected and H_1 is accepted. This confirms that the Reward System (X2) has a significant direct effect on Madrasah Effectiveness (X4). The significance value of < 0.001 further strengthens this conclusion. This result indicates that improvements in the reward system are consistently associated with higher levels of madrasah effectiveness. In practical terms, a well-implemented reward mechanism can enhance teacher motivation, support better performance, and contribute to the overall effectiveness of Madrasah Aliyah.

Direct Influence of Teacher Commitment (X3) on Madrasah Effectiveness (X4)

The third hypothesis states that Teacher Commitment (X3) has a direct effect on Madrasah Effectiveness (X4). The correlation coefficient obtained is $r_{34} = 0.975$. The coefficient of determination (R^2) is $0.975^2 = 0.951$, indicating that 95.1 per cent of the variation in madrasah effectiveness can be explained by teacher commitment. This shows a powerful, positive relationship, meaning that higher levels of teacher commitment are consistently associated with greater effectiveness in the madrasah. The results of this analysis are presented in Table 8.

Table 8. R model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.975 ^a	.951	.950	2.540

a. Predictors: (Constant), X₂ Teacher Commitment

Table 8 shows that the correlation coefficient between X3 and X4 is 0.975, indicating a robust positive relationship between teacher commitment and madrasah effectiveness. The manual calculation also produces a correlation coefficient of $r_{43} = 0.975$. With a significance level of $\alpha = 0.05$ and $df = 59$, the critical t value is 2.001, and at $\alpha = 0.01$, the critical t value is 2.662. The calculated t value obtained is 33.707, which is far higher than both critical values. This result indicates that teacher commitment significantly influences the effectiveness of the madrasah. The robust correlation suggests that when teachers demonstrate greater dedication, responsibility, and consistency in fulfilling their duties, the madrasah's overall performance and effectiveness increase accordingly. In practice, strong teacher commitment contributes to better instructional quality, improved student outcomes, and more effective institutional management. The regression output supporting this finding is presented in Table 9.

Table 9. Coefficients

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	57.007	2.567		22.212	<.001
	X ₃ Teacher Commitment	.695	.021	.975	33.707	<.001

a. Dependent Variable: X₄ Madrasah Effectiveness

Table 9 shows that the calculated t value (33.707) is greater than both critical t values (2.001 at $\alpha = 0.05$ and 2.662 at $\alpha = 0.01$). Therefore, H₀ is rejected and H₁ is accepted. This confirms that Teacher Commitment (X3) has a significant direct effect on Madrasah Effectiveness (X4). The significance value of < 0.001 further strengthens this conclusion. This finding indicates that higher teacher commitment consistently contributes to greater madrasah effectiveness. Teachers who demonstrate strong dedication, responsibility, and consistency in performing their tasks play a crucial role in improving instructional quality,

supporting student achievement, and enhancing the overall performance of the institution.

Direct Influence of Headmaster Leadership (X1), Reward System (X2), and Teacher Commitment (X3) on Madrasah Effectiveness (X4)

The fourth hypothesis examines the simultaneous influence of Headmaster Leadership (X1), the Reward System (X2), and Teacher Commitment (X3) on Madrasah Effectiveness (X4). The coefficient of determination shows that $R^2 = 0.986^2 = 0.973$, indicating that X1, X2, and X3 jointly explain 97.3 percent of the variation in madrasah effectiveness. The remaining 2.7 percent is influenced by other variables not examined in this study.

This result demonstrates that the combined effect of Leadership, rewards, and teacher commitment is highly substantial in shaping madrasah effectiveness. Strong Leadership creates direction, a supportive reward system enhances motivation, and committed teachers ensure consistent performance. Together, these three factors form a comprehensive and powerful influence on institutional effectiveness, suggesting that improvements in these areas will directly contribute to stronger madrasah outcomes. The model summary results are presented in Table 10.

Table 10. Model Summary of the Simultaneous Influence of X1, X2, and X3 on X4

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.986 ^a	.973	.971	1.917

a. Predictors: (Constant), X₂ Reward System

To further test the simultaneous effect, the ANOVA results are shown in Table 11.

Table 11. SPSS Analysis Results: F-Statistic of X1, X2, X3 on X4

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Y	Regression	7499.111	3	2499.704	678.798	<.001 ^b
	Residual	209.905	57	3.683		
	Total	7709.016	60			

Table 11 shows that the calculated F value is 678.798, which is well above the critical F value of 2.766. Therefore, H₀ is rejected and H₁ is accepted. This confirms that Headmaster Leadership (X1), the Reward System (X2), and Teacher Commitment (X3) have a significant simultaneous effect on Madrasah Effectiveness (X4). The standardized coefficients are presented in Table 12.

Table 12. Standardized Coefficients for X1, X2, and X3 on X4

Coefficients ^a				
Model		Unstandardized Coefficients		Standardized Coefficients
		B	Std. Error	Beta
1	(Constant)	30.620	5.192	

X ₁ Leadership	.435	.066	.508
X ₂ Reward System	-.003	.014	-.005
X ₃ Teacher Commitment	.349	.056	

a. Dependent Variable: X₄ Madrasah Effectiveness

Table 12 indicates that Teacher Commitment (X₃) has the most substantial standardized effect on madrasah effectiveness, followed by Headmaster Leadership (X₁). The Reward System (X₂) shows a minimal, non-significant effect when analysed alongside the other variables. This suggests that teacher commitment plays the most decisive role in enhancing institutional performance, while Leadership remains an important supporting factor. The reward system, although relevant individually, does not contribute significantly when combined with Leadership and commitment.

These findings reinforce the earlier results and provide an empirical explanation of how Leadership, reward structures, and teacher commitment interact to influence the effectiveness of Madrasah Aliyah. They highlight the central importance of committed teachers and effective Leadership in achieving high levels of institutional effectiveness.

Discussion

The empirical results of this study show that school Leadership, reward systems, and teacher commitment exert a significant influence on the effectiveness of Madrasah Aliyah in the Riau Archipelago Province. The findings confirm that strong Leadership from the headmaster directly and positively contributes to improving institutional effectiveness. This result is consistent with earlier studies that highlight the central role of Leadership in shaping organizational direction and enhancing educational outcomes through supervision, culture building, and teacher performance improvement (Alzoraiki et al., 2023; Arar & Orucu, 2022; Bunyamin et al., 2024). The present study strengthens this evidence by showing that Leadership in geographically challenging archipelagic regions requires adaptive, participatory, and value-based approaches to sustain teacher motivation and ensure continuity in instructional processes.

In addition, the study confirms that the reward system significantly affects the effectiveness of the madrasah. This aligns with research stating that fair, transparent, and well-structured reward mechanisms enhance teacher motivation and elevate job performance (Alkandi et al., 2023). The current findings extend these insights by demonstrating that reward management in private madrasahs extends beyond financial incentives to include non-material appreciation, professional development opportunities, and recognition for dedication. These forms of reward contribute to teachers' sense of value and strengthen their engagement in instructional responsibilities.

Furthermore, teacher commitment emerges as the variable with the most potent effect on madrasah effectiveness. The regression results indicate that teachers who show high levels of dedication, responsibility, and moral engagement significantly improve the overall effectiveness of learning processes and student development. This finding supports previous studies showing that

committed teachers contribute to a productive learning climate and better institutional performance (Alkandi et al., 2023; Belay et al., 2021; Muhammad et al., 2024). The present study adds nuance to this understanding by showing that teacher commitment in Islamic educational settings is formed not only by professional duties but also by spiritual motivation and a sense of responsibility grounded in Islamic values.

When analyzed simultaneously, school Leadership, reward systems, and teacher commitment collectively account for 97.3 percent of the variance in madrasah effectiveness. This indicates that the synergy of managerial competence, motivation systems, and teacher dedication forms the dominant determinant of institutional success. These findings align with research indicating that the effectiveness of Islamic educational institutions is shaped by the interaction among Leadership styles, organisational culture, and teacher professionalism (Said & Sharif, 2023). The present study enriches this conceptual framework by demonstrating how these variables operate within the unique geographical, cultural, and managerial context of the Riau Islands.

Theoretically, this research reinforces the argument that educational effectiveness in Islamic institutions is influenced not only by structural and infrastructural factors but also by non-material dimensions, such as Leadership ethics, value-based reward systems, and spiritually grounded teacher commitment. This supports the broader theoretical paradigm of Islamic education management grounded in values of amanah, ikhlas, and ihsan (Harinurdin et al., 2025). The integration of these values into Leadership and managerial practices provides a conceptual contribution to the development of contextually relevant models of madrasah effectiveness, particularly in archipelagic regions with distinctive socio-cultural dynamics.

From a practical perspective, the findings highlight the strategic importance of strengthening headmaster Leadership as a driver of institutional performance. Madrasah leaders need to adopt visionary and transformative Leadership practices, improve communication quality, and foster collaborative work cultures to enhance teacher performance and student outcomes. Furthermore, developing a fair and motivating reward system is essential to sustaining teacher enthusiasm and strengthening their loyalty to the institution. Designing reward structures that combine financial, professional, and moral appreciation can further improve work engagement and productivity. The study also emphasises the need to strengthen teacher commitment through continuous professional development, value-based training, and supportive working environments aligned with Islamic education principles.

Overall, the study contributes to a deeper understanding of the managerial and human factors that determine madrasah effectiveness in the Riau Archipelago. The findings offer empirical and practical insights to guide policymakers, madrasah leaders, and educational stakeholders in designing policies and interventions to improve the quality, sustainability, and competitiveness of Islamic educational institutions across diverse, geographically dispersed regions.

CONCLUSION

The findings of this study underscore the essential contribution of headmaster Leadership, reward systems, and teacher commitment to the effectiveness of private Madrasah Aliyah in the Riau Archipelago. The unique geographical and social characteristics of this region require managerial practices that strengthen not only organizational structures but also the human dimensions that sustain daily educational processes. Empirical results show that each variable positively and significantly influences madrasah effectiveness, with teacher commitment emerging as the most decisive factor.

These findings indicate that enhancing institutional quality depends on madrasah leaders' capacity to provide clear direction, foster a collaborative work climate, and ensure that teachers receive fair and meaningful rewards. A well-designed reward system supports teachers' professional engagement, while strong commitment reinforces consistency in achieving instructional and managerial goals. Strengthening these dimensions will improve institutional performance and support the broader mission of Islamic education across diverse island communities. Future research may explore additional factors, such as organisational culture, instructional supervision, and value-based Leadership, to expand understanding of the determinants of effective Islamic educational institutions.

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