4966-Article Text-31471-1-2-20260627.docx

by Sheryar.baig64@gmail.com 1

Submission date: 01-Jun-2026 01:18AM (UTC-0400)
Submission ID: 2973896559
File name: 4966-Article_Text-31471-1-2-20260627.docx (108.48K)
Word count: 6770
Character count: 42903

ETDC Indonesian Journal of Research and Educational Review
Volume 5, No. 3, 2026, pp 1839 - 1856
e–ISSN 2809-3682
p–ISSN 2809-7505
https://doi.org/10.51574/ijrer.v5i3.4966

Competence, Tech Innovation, and Islamic Work Culture: Driving Performance and Its Implications for Quality in Islamic School

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Article Info

Article history:

Received March 23, 2026
Accepted May 23, 2026
Published June 01, 2026

Keywords:

Competence;
Educational Quality;
Islamic Work Culture;
Performance;
Technological Innovation.

ABSTRACT

This study examines the influence of competence, technological innovation, and Islamic work culture on educators' performance and its implications for educational quality in madrasahs. The research employs a quantitative explanatory approach with a survey method. The population consists of madrasah teachers in Makassar City, including Madrasah Ibtidaiyah, Tsanawiyah, and Aliyah, with a sample of 88 respondents selected using the Slovin formula. Data were collected through questionnaires and analyzed using multiple linear regression and path analysis with SPSS. The structural model analysis shows that competence, technological innovation, and Islamic work culture simultaneously contribute 76.4% to the performance of teaching and education staff, with technological innovation as the most dominant determinant, underscoring the importance of digital adaptation for work efficiency in the modern era. Furthermore, the integration of these three independent variables with performance provides a significant simultaneous contribution of 79.6% to the quality of education, where Islamic work culture emerges as the most dominant factor, confirming that the internalization of spiritual values is the main foundation in realizing quality education services. Through path analysis, performance is proven to play a significant role as a mediating (intervening) variable, indicating that the acceleration of achieving educational quality in madrasahs cannot stand alone but must be realized gradually through optimizing the actual performance of teachers and staff first.

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1. INTRODUCTION

The rapid development of digital technology in the era of the Industrial Revolution 4.0 and Society 5.0, including the use of artificial intelligence in education, has brought significant changes to the management of educational institutions (Darmaji et al., 2019; Syafaruddin, 2024). This digital transformation has not only influenced the learning

process but also had a significant impact on management systems, educator performance, and various efforts to improve the overall quality of education (Kraus et al., 2021; Timotheou et al., 2023). In the context of Islamic education, Islamic School are required to be responsive and adaptive to these technological developments and digitalization (Maskin et al., 2025). However, on the other hand, Islamic School also face the significant challenge of maintaining and maintaining the Islamic values that have long been their institutional identity and core character.

As Islamic educational institutions, Islamic School play a highly strategic role in developing human resources who are faithful, knowledgeable, and virtuous (Umami & Yasin, 2024). Nevertheless, the demands to improve the quality of education in the current digital era require Islamic School to be managed professionally and adaptively (Maulidin et al., 2024; Siswanto, 2024). In reality, various managerial issues are still frequently encountered in the field, such as limited teacher competency, suboptimal utilization of technological innovation, and a work culture that does not fully and consistently reflect Islamic values. These conditions ultimately have direct implications for teacher performance, ultimately impacting the quality of education achieved in Islamic School (Ikhwan et al., 2023).

Conceptually, teacher performance reflects the level of achievement in carrying out their professional duties, as measured by the quantity of work, the quality of output, and the efficiency of resource utilization (Asmarani et al., 2021; Kim et al., 2023). Teacher performance is a key factor in determining the success of education implementation in Islamic School, which relates not only to classroom teaching skills but also encompasses professional responsibility, discipline, commitment, and the ability to adapt to change (Abidin et al., 2024; Tambrin et al., 2021). From an Islamic educational management perspective, teacher performance is seen as a manifestation of a mandate and responsibility that must be fulfilled optimally and based on Islamic values to achieve holistic educational goals (Nurkamiden & Mokodompit, 2024).

One of the main factors influencing this performance is competence, which encompasses the dimensions of knowledge, skills, and professional attitudes (Day et al., 2023). This competence is the fundamental foundation for the provision of quality education. Pedagogical competence relates to the ability to design and evaluate learning (Gosain & Rajendran, 2022), personal competence is reflected through integrity and moral example, social competence emphasizes the ability to build effective communication (Molina-Moreno et al., 2024), while professional competence refers to mastery of material aligned with developments in science and technology (Skantz-Åberg et al., 2022; Darling-Hammond, 2020). Recent studies have shown that educator competence has a significant impact on improving educational performance and quality, particularly in responding to curriculum changes and developments in educational technology (Osorio Vanegas et al., 2025). In the madrasah context, this competence also integrates a spiritual dimension aligned with Islamic values (Rahman et al., 2024; Supriandi et al., 2024).

Besides competence, technological innovation is another crucial factor in driving learning effectiveness, educator work efficiency, and service quality through the use of

information and communication technology (ICT) (Stumbrienė et al., 2024). The use of digital platforms and the development of technology-based materials can encourage more flexible, collaborative, and student-centered learning, while simultaneously fostering digital literacy and critical thinking skills (Sitthiworachart et al., 2022). Various national and international studies confirm that technological innovation positively contributes to improving educator performance and educational quality in the digital era (Aditya & Suranto, 2024; Timotheou et al., 2023; Wang et al., 2024). However, the implementation of technological innovation in Islamic School still faces significant challenges, particularly related to educator readiness and organizational cultural support. Therefore, ICT training for teachers is an absolute prerequisite for structured and sustainable technology adoption.

The third strategic factor that shapes educator behavior and performance in Islamic School is an Islamic work culture (Oktaviani et al., 2026). This work culture embodies ethical and spiritual values, such as punctuality, reflecting discipline, honesty, cooperation (ukhuwah), responsibility, and aspects of total work (itqan) and virtue (ihsan), which guide employees to perform optimally with the theological awareness that work is part of worship (Arifin et al., 2018). This work culture, grounded in religious values, has been proven to encourage educators to be professional while simultaneously oriented toward spiritual devotion (Succarie, 2024). Early studies also show that a positive, religion-based work culture has a significant impact on improving performance and organizational effectiveness in educational institutions (Prasetyo & Rahmatullah, 2024).

Although prior research has examined the influence of competence, technological innovation, and work culture on educational performance and quality, most of these studies have been partial and focused on general educational institutions. Research that simultaneously integrates competency, technological innovation, and Islamic work culture into a single empirical model—particularly by positioning educator performance as a mediating variable influencing the quality of education in Islamic School—is still very limited. This situation indicates a crucial research gap requiring further investigation. Moreover, previous studies generally position performance solely as the final dependent variable without examining its direct implications for educational quality, even though educator performance is a strategic bridge connecting managerial factors with institutional quality outcomes.

Addressing this gap, the novelty of this research lies in the development of an integrated empirical model that positions competency, technological innovation, and Islamic work culture as independent variables, educator performance as a mediating variable, and educational quality as the dependent variable under the umbrella of Islamic Educational Management. This research emphasizes the importance of adaptive madrasah management to the flow of digitalization without abandoning Islamic values as the foundation of the organization. Therefore, this study aims to analyze the influence of competency, technological innovation, and Islamic work culture on educator performance and their implications for educational quality in Islamic School. The results of this study are expected to provide theoretical contributions to the treasury of Islamic

Education Management as well as practical contributions for madrasah managers in formulating quality improvement strategies in the digital era.

2. METHOD

This research employs a quantitative approach with an associative causality design (explanatory research). This approach was chosen to test and explain the causal relationship and significance of the influence between the variables Competence (X1), Technological Innovation (X2), and Islamic Work Culture (X3) on Educator Performance (Y1) and its implications for the Quality of Education in Madrasahs (Y2). Through an explanatory design, researchers can empirically test hypotheses formulated based on existing theories to discover patterns of structural relationships between the variables studied.

The population in this study includes all madrasah teachers in Makassar City, across the Madrasah Ibtidaiyah (MI), Madrasah Tsanawiyah (MTs), and Madrasah Aliyah (MA) levels, both in public and private institutions. This selection of subjects is based on the consideration that teachers play a central role in the learning process and contribute directly to the achievement of madrasah education quality. The sampling technique used the Slovin formula with a 10% margin of error, resulting in a sample size of 88 respondents. The inclusion criteria for the sample included active madrasa teachers, having worked for at least one year, and being directly involved in teaching and educational administration.

Data collection in this study was conducted through three main techniques: a questionnaire, literature review, and documentation. The questionnaire was measured using a Likert scale and distributed to respondents to gather primary data related to the indicators of each variable. Secondary data collection was conducted through literature review from reputable scientific journals and official documentation from the madrasah to support completeness of information and understanding of the research context.

Before the data was further analyzed to test the hypotheses, the research instrument underwent an empirical quality testing phase, which included validity and reliability tests. Validity testing used Pearson Product Moment correlation analysis, comparing the calculated r value to the table r value at a 5% significance level. Reliability testing was conducted by measuring Cronbach's Alpha coefficient to ensure the internal consistency of the research instrument. Only instruments deemed valid and reliable were used as data collection tools in subsequent analysis stages.

The data analysis and hypothesis testing techniques in this study employed Path Analysis, estimated through multiple linear regression analysis and the coefficient of determination (R^2) test. To ensure that the resulting regression model was efficient, consistent, and unbiased (Linear Unbiased Estimator), the data were first tested using a series of Classical Assumption Tests, including a normality test (One-Sample Kolmogorov-Smirnov), a multicollinearity test (Tolerance and VIF), and a heteroscedasticity test. The entire data computation and statistical testing process was performed using IBM SPSS Statistics version 23 software.

3. RESULTS AND DISCUSSION

Results

Instrument Testing Techniques

In the context of Islamic education management, efforts to improve quality are not solely determined by academic aspects, but are also influenced by human resource capacity, adaptability to technology, and the internalization of Islamic work values. To provide an empirical overview of the role of these three variables in improving the performance of teaching and administrative staff, which has implications for the quality of madrasah education, this study first tested the instrument through validity and reliability tests. This crucial step is considered crucial to ensure that the instrument used can measure each variable accurately, consistently, and can be scientifically justified. Through validity tests, the researcher ensured that each questionnaire item had an adequate correlation with the total score of the variable, so that the data obtained proved representative, reflected the actual empirical conditions, and aligned with the predetermined measurement objectives.

Table 1. Validity Test

Variables	Indicator	r count	r table	Description
Competence (X1)	X1.1	0.754	0.30	Valid
	X1.2	0.767	0.30	Valid
	X1.3	0.746	0.30	Valid
	X1.4	0.695	0.30	Valid
Technology Innovation (X2)	X2.1	0.816	0.30	Valid
	X2.2	0.807	0.30	Valid
	X2.3	0.779	0.30	Valid
	X2.4	0.745	0.30	Valid
	X2.5	0.722	0.30	Valid
Islami Work Ethicy (X3)	X3.1	0.787	0.30	Valid
	X3.2	0.695	0.30	Valid
	X3.3	0.776	0.30	Valid
	X3.4	0.639	0.30	Valid
	X3.5	0.795	0.30	Valid
Performance (Y1)	Y1.1	0.759	0.30	Valid
	Y1.2	0.738	0.30	Valid
	Y1.3	0.716	0.30	Valid
	Y1.4	0.768	0.30	Valid
	Y1.5	0.764	0.30	Valid
Educational Quality (Y2)	Y2.1	0.798	0.30	Valid
	Y2.2	0.732	0.30	Valid
	Y2.3	0.781	0.30	Valid

Validity test results, all indicators in the variables Competence (X1), Technological Innovation (X2), Islamic Work Culture (X3), Performance (Y1), and Quality of Education (Y2) have a calculated r value greater than r table (0.30), which indicates that each instrument item has accurately measured the research construct and is declared valid. Furthermore, to ensure the stability and consistency of the instrument when used at different times and conditions, a reliability test was conducted to ensure that the data

obtained reflects a consistent pattern and is not coincidental; the results of the reliability analysis are presented in detail in Table 2.

Table 2. Reliability Test

Variables	Cronbach's Alpha Value	r hitung Value	Description
Competence (X1)	0.60	0.876	Reliable
Technology Innovation (X2)	0.60	0.797	Reliable
Islamic Work Culture (X3)	0.60	0.847	Reliable
Performance (Y1)	0.60	0.833	Reliable
Educational Quality (Y2)	0.60	0.824	Reliable

The reliability test confirms that all research variables—Competence (X1), Technological Innovation (X2), Islamic Work Culture (X3), Performance (Y1), and Quality of Education (Y2)—are reliable with Cronbach's Alpha values exceeding 0.60. Following validity and reliability approvals, the analysis proceeds with classical assumption testing to ensure the regression model achieves the Best Linear Unbiased Estimator (BLUE) standard. This testing is applied to two structural models within the path analysis framework: Model I evaluates the direct impacts on performance, while Model II examines the effects on educational quality with performance acting as an intervening variable. To guarantee unbiased and accurate regression estimates, a comprehensive series of classical assumption tests is conducted across both models, specifically encompassing normality tests for residual distribution, multicollinearity tests to prevent independent variable correlation, and heteroscedasticity tests to confirm residual variance consistency.

Normality Test Model I and Model II

The results of the normality test using the One-Sample Kolmogorov-Smirnov Test method, Model I produced an Asymp. Sig. (2-tailed) value of 0.300, while Model II produced a value of 0.092. Considering that both significance values are greater than the specified significance level of 0.05, it can be concluded that the residual data in Model I and Model II are normally distributed. By fulfilling the normality assumption in both structural models, the regression model in this study is declared to meet the requirements and is suitable for use in the next stage of data analysis.

Multicollinearity Test Model I

Table 3. Multicollinearity Test Model I

Model	Unstandardized Coefficients		Standardized Coefficient	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	3,357	1,934		2,279	,000		
Competence	,228	,068	,347	3.172	,015	,571	3,283
Technology Innovation	,569	,097	,543	5.869	,000	,838	2,482

Model	Unstandardized Coefficients		Standardized Coefficient	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
Islamic Work Culture	,259	,082	,355	3.226	,002	,561	3,332

The results of the multicollinearity test of Model I in the table above show that all independent variables, namely Competence, Technological Innovation, and Islamic Work Culture, have a Tolerance value greater than 0.10 and a Variance Inflation Factor (VIF) value less than 10. These results indicate that there are no symptoms of multicollinearity between independent variables in Model I. This means that each independent variable can explain its influence on the Performance variable independently and the regression model is suitable for use for further analysis.

Multicollinearity Test Model II

Table 4. Multicollinearity Test Model II

Model	Unstandardized Coefficients		Standardized Coefficient	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	3,718	3,693		2,323	0,000		
Competence	,383	,089	,352	3,298	0,012	,542	3,417
Technology Innovation	,563	,159	,411	4,177	0,000	,659	2,942
Islamic Work Culture	,561	,098	,548	4,869	0,000	,534	3,479
Performance	,324	,171	,261	2,687	0,034	,527	3,521

The results of the multicollinearity test for Model II in the table above, all independent variables, namely Competence, Technological Innovation, Islamic Work Culture, and Performance, have a Tolerance value greater than 0.10 and a Variance Inflation Factor (VIF) value less than 10. This indicates that there is no high linear relationship between the independent variables in Model II. This means that there are no symptoms of multicollinearity, so the regression model is suitable for further analysis in explaining the Quality of Education.

Heteroscedasticity Test Model I

Table 5. Heteroscedasticity Test Model I

Variables	Sig. Value	r count (Sig.)	Description
Competence	0.05	0.374	No Heteroscedasticity
Technology Innovation	0.05	0.368	No Heteroscedasticity
Islamic Work Culture	0.05	0.875	No Heteroscedasticity

The results of the heteroscedasticity test for Model I in the table above show that all independent variables Competence, Technological Innovation, and Islamic Work Culture, have a significance value greater than 0.05. These results indicate that there is

no heteroscedasticity symptom in Model I, so the residual variance is homogeneous. Thus, the regression model in Model I meets the heteroscedasticity assumption and is suitable for further analysis.

Heteroscedasticity Test Model II

Table 6. Heteroscedasticity Test Model II

Variables	Sig. Value	r count (Sig.)	Description
Competence	0.05	0.837	No Heteroscedasticity
Technology Innovation	0.05	0.745	No Heteroscedasticity
Islamic Work Culture	0.05	0.492	No Heteroscedasticity
Performance	0.05	0.836	No Heteroscedasticity

The results of the heteroscedasticity test for Model II in the table above show that all independent variables Competence, Technological Innovation, Islamic Work Culture, and Performance, have a significance value greater than 0.05. This indicates that there are no symptoms of heteroscedasticity in Model II, so the residual variance is homogeneous. Therefore, the regression model in Model II has met the heteroscedasticity assumption and is suitable for use in subsequent regression and path analysis.

Result of Multiple Regression Analysis Model I

Table 7. Result of Multiple Regression Analysis Model I

Model		Unstandardized Coefficients		Standardized Coefficient	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,357	1,934		2,279	,000
	Competence	,228	,068	,347	3.172	,015
	Technology Innovation	,569	,097	,543	5.869	,000
	Islamic Work Culture	,259	,082	,355	3.226	,002

The results of the Model I regression analysis in the table above indicate that the variables Competence, Technological Innovation, and Islamic Work Culture have a positive and significant influence on Performance. This is indicated by the significance value of each variable being less than 0.05, namely Competence (0.015), Technological Innovation (0.000), and Islamic Work Culture (0.002). The standardized beta coefficient value indicates that Technological Innovation has the most dominant influence on Performance, followed by Islamic Work Culture and Competence. This means that increasing competence, implementing technological innovation, and strengthening Islamic work culture can collectively improve performance.

Result of Multiple Regression Analysis Model II

Table 8. Result of Multiple Regression Analysis Model II

Model		Unstandardized Coefficients		Standardized Coefficient	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,718	3,693		2,323	0,000
	Competence	,383	,089	,352	3,298	0,012
	Technology Innovation	,563	,159	,411	4,177	0,000
	Islamic Work Culture	,561	,098	,548	4,869	0,000
	Performance	,324	,171	,261	2,687	0,034

The results of the Model II regression analysis in the table above indicate that the variables Competence, Technological Innovation, Islamic Work Culture, and Performance have a positive and significant effect on the Quality of Education. This is indicated by the significance value of each variable being less than 0.05, namely Competence (0.012), Technological Innovation (0.000), Islamic Work Culture (0.000), and Performance (0.034). The standardized beta coefficient value indicates that Islamic Work Culture has the most dominant influence on the Quality of Education, followed by Technological Innovation, Competence, and Performance. Thus, improving the quality of education in Islamic School is directly influenced by the three independent variables and indirectly through improved performance.

Coefficient Determinatn Test (R^2) Model I

Table 9. Coefficient Determinant (R^2) Model I

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,874[a]	,764	,741	1,822

The analysis results of Model Summary Model I obtained an R Square value of 0.764. This indicates that the variables Competence, Technological Innovation, and Islamic Work Culture together can explain 76.4% of the variation in Performance, while the remaining 23.6% is explained by other variables outside the research model. This value indicates that the model's ability to explain performance is included in the strong category, so that Model I is suitable for use as a basis for further path analysis.

Coefficient Determinant Test (R^2) Model II

Table 10. Coefficient Determinatn Test (R^2) Model II

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,892[a]	,796	,762	1,875

The analysis results of the Summary Model II obtained an R Square value of 0.796. This indicates that the variables Competence, Technological Innovation, Islamic Work Culture, and Performance together can explain 79.6% of the variation in Education Quality, while the remaining 20.4% is influenced by other variables outside the research

model. This value indicates that the model's ability to explain education quality is relatively strong, so Model II is suitable for use in path analysis to see the direct and indirect influences between variables.

Path Analysis Model I

Path analysis Model I in this study was used to test the direct influence of the variables Competence (X1), Technological Innovation (X2), and Islamic Work Culture (X3) on Performance (Y1). This model was designed to determine the extent to which each independent variable contributes to performance improvement, either partially or simultaneously. Through path analysis, the causal relationship between variables can be explained more comprehensively, both in terms of the direction of influence and the magnitude of influence indicated by the path coefficient. The results of data processing in Model I are then presented in the form of a path diagram depicting the relationships between the research variables.

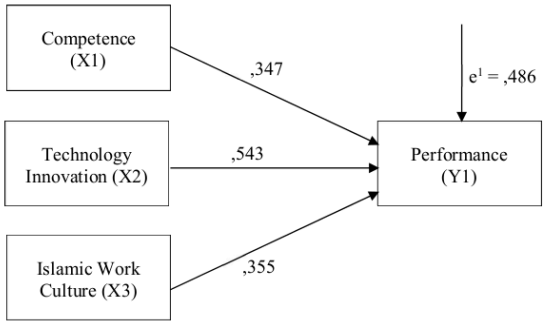

Figure 1: Path Analysis Model I

The path analysis diagram of Model I illustrates the causal relationships among Competence (X1), Technological Innovation (X2), and Islamic Work Culture (X3) on Performance (Y1). Based on the regression analysis results, all three independent variables have direct, positive, and significant effects on performance, as indicated by the standardized beta coefficients and significance values that meet statistical criteria. The coefficient of determination (R Square) of 0.764 indicates that 76.4% of the variance in performance can be explained by competence, technological innovation, and Islamic work culture, while the remaining variance is explained by other factors outside the model, as represented by the error term (e1). Thus, Model I demonstrates that performance improvement in madrasahs is strongly influenced by individual capabilities, the utilization of technological innovation, and the consistent implementation of Islamic work culture values.

Path Analysis Model II

Path analysis Model II is an extension of Model I that aims to examine more complex relationships among the research variables. In this model, Competence (X1), Technological Innovation (X2), and Islamic Work Culture (X3) are analyzed for their effects on Performance (Y1), as well as their subsequent implications for Educational Quality (Y2). By positioning Performance as an intervening variable, Model II is employed to assess the role of performance in mediating the influence of the independent variables on the improvement of educational quality. The presentation of the Model II path analysis results in the form of a path diagram is intended to provide a clear depiction of the direction and strength of the causal relationships among the variables examined in this study.

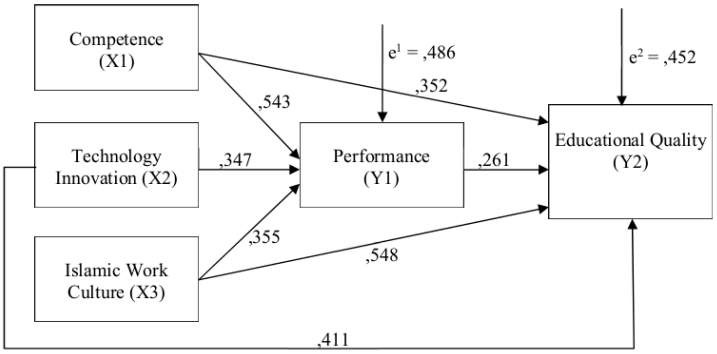

Figure 2: Path Analysis Model II

The results of the path analysis in Model II indicate that Competence (X1), Technological Innovation (X2), and Islamic Work Culture (X3) have direct effects on Performance (Y1). The path coefficients show that Competence has the strongest influence on Performance, with a coefficient of 0.543, followed by Islamic Work Culture (0.355) and Technological Innovation (0.347). These findings indicate that improving human resource competence is the dominant factor in enhancing performance, although technological innovation and Islamic work culture also contribute significantly.

The analysis further reveals that Competence, Technological Innovation, and Islamic Work Culture have direct effects on Educational Quality (Y2). Islamic Work Culture exhibits the strongest influence on Educational Quality, with a path coefficient of 0.548, followed by Technological Innovation (0.411) and Competence (0.352). This finding suggests that the internalization of Islamic work values, supported by adequate competence and effective utilization of technology, plays a crucial role in improving educational quality.

In addition to these direct effects, Performance (Y1) is also proven to influence Educational Quality (Y2), with a path coefficient of 0.261. This result confirms the role

of Performance as an intervening variable that mediates the influence of Competence, Technological Innovation, and Islamic Work Culture on Educational Quality. In other words, improvements in educational quality are influenced not only directly by the three independent variables but also indirectly through enhanced performance as a mediating factor. Based on the error term values, the influence of other factors outside the model on Performance (Y1) is represented by an e1 value of 0.486. Meanwhile, the e2 value of 0.452 indicates that Educational Quality (Y2) is also affected by factors beyond the variables examined in this model. Overall, the results of the path analysis in Model II demonstrate that the structural relationships among the variables in this study can explain a relatively strong influence on both performance and educational quality.

Discussion

This study aims to empirically analyze the role of Competence (X1), Technological Innovation (X2), and Islamic Work Culture (X3) in improving Performance (Y1), as well as their implications for Improving the Quality of Education (Y2) in madrasahs. Based on the results of instrument testing (validity and reliability) and classical assumption tests (normativity, multicollinearity, and heteroscedasticity), all analyzed data met statistical requirements, resulting in valid, reliable, and unbiased regression models and path analyses.

The Effect of Competence, Technological Innovation, and Islamic Work Culture on Performance (Model I)

The results of the regression analysis in Model I indicate that competency, technological innovation, and Islamic work culture simultaneously and partially have a positive and significant effect on the performance of teaching and administrative staff in madrasas. This finding is supported by the coefficient of determination (R^2) of 0.764, confirming the substantial contribution of these three independent variables in explaining 76.4% of the variation in performance. Theoretically, these results align with the Resource-Based View (RBV) proposed by Barney (Chatterjee et al., 2025; Helfat et al., 2023), where the combination of human capital (competence), organizational capital (work culture), and technological capital constitutes a crucial strategic asset for creating competitive advantage and optimizing organizational efficiency.

Partially, technological innovation was found to be the most dominant variable influencing performance, with a Standardized Beta value of 0.543. In today's modern era, the demand for adaptability to the digital ecosystem in Islamic education management has proven to be a key determinant in boosting productivity. Educators' ability to integrate digital platforms, innovative learning methods, and technology-based administrative systems can directly reduce bureaucracy and optimize work output. This phenomenon supports Han and Sa (2022) findings in the Technology Acceptance Model (TAM) and contemporary empirical research, which confirms that organizational efficiency in the education sector is highly dependent on the level of acceptance and utilization of technology by its staff.

On the other hand, Islamic work culture (β = 0.355) and competence (β = 0.347) have also been shown to contribute significantly to boosting employee performance. The integration of intellectual-pedagogical capacity (competence) with the internalization of Islamic work values—such as amanah (integrity), responsibility, and sincerity as a form of worship—can create a strong intrinsic drive in employees. This synergistic relationship validates Ryan and Deci's theory of intrinsic motivation (Grassinger et al., 2024) and aligns with previous studies on Islamic Work Ethics (IWE) by Al Smadi et al. (2023), which demonstrate that spiritual commitment embodied in a religious work ethic can trigger job satisfaction and motivate employees to perform beyond the minimum standards set by the organization.

The Influence of Competence, Technological Innovation, Islamic Work Culture, and Performance on Educational Quality (Model II)

The results of Model II testing indicate that competence, technological innovation, Islamic work culture, and performance simultaneously have a positive and significant impact on improving the quality of education in madrasas, contributing 79.6%, as indicated by the R^2 value. Unlike Model I, the results of this model position Islamic work culture as the most dominant factor influencing educational quality (Standardized Beta = 0.548). This finding provides a crucial theoretical contribution to Islamic educational management: that the quality of an institution is measured not merely by its physical or academic sophistication, but by the atmosphere of religiosity and the Islamic culture that underpins it. When Islamic values are internalized into madrasa operations, the educational services provided to students will automatically be oriented towards the highest quality (ihsan). This phenomenon reinforces the concept of Total Quality Management (TQM) in Islamic education (Wafa, 2022), which emphasizes that a commitment to spiritual values is the primary foundation for building a culture of quality, and aligns with Al-Ghazali's thinking on the importance of aligning knowledge and practice to achieve educational perfection.

Besides cultural factors, technological innovation (β = 0.411) and competence (β = 0.352) rank next in terms of directly influencing educational quality. These data demonstrate that a madrasah ecosystem that is adaptive to current developments and supported by competent human resources will accelerate the achievement of competitive educational quality standards. Theoretically, the relationship between HR competence and technological innovation on service quality supports Barney's Resource-Based View (RBV), which states that unique and innovative internal capabilities are key to maintaining organizational quality (Lubis, 2022). Furthermore, these findings align with previous studies on school effectiveness, which empirically demonstrate that the integration of teacher professionalism (competence) and the use of modern learning media (technological innovation) is a strong predictor of improving academic achievement and institutional effectiveness in schools (Sabariah et al., 2025).

Path Analysis and the Role of Performance as an Intervening (Mediating) Variable

The path analysis results in Model II show that performance (beta = 0.261) significantly mediates the influence of competence, technological innovation, and Islamic work culture on the quality of education in madrasas. Although improving human resource competency is the dominant factor driving individual performance, this finding confirms a logical causal chain: educational quality will not improve instantly without tangible performance improvements from the actors involved (teachers and administrative staff). Theoretically, this mediation phenomenon supports Locke and Latham's Goal-Setting Theory and Campbell's Performance Theory, which emphasize that knowledge, technology, and organizational values remain only latent potential if not transformed into productive work behavior (Hendricks et al., 2023; Jeong et al., 2023). Therefore, competency improvement programs, the procurement of new technology, and the internalization of Islamic work culture will only have an optimal impact on educational quality if and only if these variables are successfully translated into improved daily performance, which is the primary driving force in realizing quality learning and accountable madrasah governance. On the other hand, the error term values found in this model (e1 = 0.486 and e2 = 0.452) indicate that there is approximately 20% to 23% of the variation in the madrasah performance and education quality variables influenced by other factors outside this research model. Academically, the magnitude of this residual value opens up space for future research to explore other external and internal contingency variables. This is in line with contingency theory in organizational management (Reams, 2026) and previous school effectiveness studies that show that the quality and performance of educational institutions are also often accelerated by macro and leadership variables, such as the leadership style of the madrasah principal (instructional leadership), budget availability, and the adequacy of physical infrastructure (Widiyan et al., 2026).

Overall, the results of this discussion provide strong managerial implications for madrasah administrators. To win the global quality competition, madrasah management must balance modernity (through technological innovation) and spirituality (through an Islamic work culture), carried out by human resources with high professional capacity (competence).

4. CONCLUSION

Structural model analysis shows that the improvement in the performance of teaching and education staff in madrasahs is driven simultaneously by 76.4% by the aspects of competence, technological innovation, and Islamic work culture, with technological innovation as the most dominant determinant, underscoring the importance of digital adaptation for work efficiency in the modern era. Furthermore, the integration of these three factors with the performance variable is able to provide a significant simultaneous contribution of 79.6% to the quality of education, where Islamic work culture is present as the most dominant factor, confirming that the internalization of spiritual values is the main foundation in realizing quality education services. Through path analysis, performance is proven to play a significant role as a mediating variable (intervening),

which indicates that the acceleration of achieving educational quality in madrasahs cannot stand alone, but must be realized gradually through optimizing the actual performance of teachers and staff first.

As a recommendation, it is recommended that madrasah managers and Islamic education policymakers implement an integrative managerial strategy that balances modernity and spirituality. This can be achieved through the provision of ongoing digital technology training to boost staff performance efficiency, accompanied by strengthening programs for internalizing Islamic values (such as amanah and ihsan) to form a solid foundation for a work culture that will achieve superior educational quality. Furthermore, improving the professional competence of teachers and education personnel must also continue to be prioritized, as investment in human resource capacity has proven to be a key driver in converting madrasah policies into tangible work performance that directly impacts the quality of the institution.

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