

The Role of Work Culture and Teamwork in Sustaining Educational Quality: Integrating Quality Management Framework and Organizational Culture at *Madrasah*

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ABSTRACT

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Received: 24 October 2025

Revised: 08 February 2026

Accepted: 17 March 2026

Published: 30 June 2026

This study aims to analyze the influence of educational quality management dimensions on the quality of *madrasah* education within the framework of total quality management theory. The study is motivated by the persistent quality gap in *madrasah* education in Indonesia, despite the implementation of various quality management approaches. This study employed a mixed-method approach with an explanatory sequential design, combining quantitative and qualitative data to obtain a comprehensive understanding of the issue. A total of 103 teachers were selected from a population of 148 teachers at MAN 1 and MAN 2 Deli Serdang, using the Krejcie and Morgan sampling table. Data were collected through questionnaires, observation, interviews, and documentation. Quantitative data were analyzed using parametric statistics and SMART-PLS, while qualitative data were analyzed through data reduction, data display, and conclusion drawing. The results revealed that all quality management variables — inspection, quality control, detection, quality assurance, prevention, and continuous improvement — had a positive and significant effect on educational quality. Among this, continuous improvement (41.1%) and prevention (35%) emerged as the most dominant factors. The qualitative findings further indicated that achieving educational quality is also influenced by collaborative leadership, teamwork, and a work culture internalized within the *madrasah* organization. The novelty of this study lies in the comprehensive application of Edward Sallis's total quality management framework in the *madrasah* context, while also highlighting that organizational cultural dimensions, particularly teamwork and work culture, are critical for sustaining educational quality. This study concludes that improving the quality of *madrasah* education requires both a structured quality management system and the strengthening of a quality-oriented organizational culture.



Keywords: Educational Quality Management; *Madrasah*; Sustaining Educational Quality; Teamwork; Quality Management; Work Culture.

doi: <https://doi.org/10.47766/idarrah.v10i1.7523>

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INTRODUCTION

Madrasah (an Islamic primary and secondary school) serve as institutions that continuously innovate in learning methods and educational management (Arbain Nurdin et al., 2024; Latief et al., 2021). In an effort to improve quality, many *madrasah* have adopted modern learning approaches, such as the integration of information technology, project-based learning, and student-centered learning approaches (Setyowati et al., 2024) (Al Yakin et al., 2023). In addition, *madrasah* have strengthened their management systems by implementing national and international educational quality standards (Pangastuti et al., 2025). With a well-established management system, *madrasah* are able to provide adequate educational facilities, enhance teacher quality through continuous professional development, and create a conducive learning environment (Umah et al., 2023). These efforts aim to position *madrasah* not merely as alternative educational institutions, but as excellent schools capable of competing with general schools (Nur, 2016).

Madrasah plays a central role in improving the quality of Islamic educational institutions, particularly in strengthening an integrative curriculum that combines religious sciences and general sciences (Wafi, 2018). By integrating these two domains, *madrasahs* produce graduates who possess both a deep understanding of religion and mastery of science and technology (Miskiah et al., 2019). This integration makes *madrasah* relevant to contemporary demands, where multidisciplinary competence is a key requirement for competing in the era of globalization. This quality improvement is reflected in *madrasah's* efforts to adopt competency-based curricula as well as national and international standards, enabling their graduates to compete at the global level (Zaini & Syafaruddin, 2020).

In addition, *madrasahs* play an important role in improving the quality of educators and educational staff. They also contribute to establishing transparent and accountable evaluation and accreditation system (Nasir, 2020). With clear quality standards, *madrasahs* can continuously conduct self-evaluation and implement continuous improvement. Good accreditation not only serves as evidence that a *madrasah* has met required standards, but also reflects its commitment to maintaining and improving educational quality (Magfiroh, 2018).

Efforts to improve *madrasah* quality certainly require continuous enhancement. To achieve this improvement, effective quality management implementation is necessary (Wahyuningsih et al., 2025). In Indonesia, educational quality is assessed through the National Education Standards (*Standar Nasional Pendidikan/SNP*), as regulated in Government Regulation Number 19 of 2005. The *SNP* consists of eight main standards that serve as references for educational implementation: (a) Graduate Competency Standards, (b) Content Standards, (c) Process Standards, (d) Assessment Standards, (e) Educator and Education Personnel Standards, (f) Facilities and

Infrastructure Standards, (g) Management Standards, and (h) Financing Standards (Amri, 2013) (Susetyo et al., 2022).

W. Edwards Deming introduced the concept of Total Quality Management (TQM), which views educational quality as a continuous process involving all school elements, with a focus on continuous improvement, data-based decision-making, and teamwork (Aminbeidokhti, 2016) (Asuncion Zarate-Garcia et al., 2020). Joseph Juran proposed the Quality Trilogy, consisting of *Quality Planning*, *Quality Control*, and *Quality Improvement*, as an effort to ensure that educational quality standards are met (Alkaabi et al., 2022). Philip B. Crosby emphasized the principle of “doing things right the first time” and defined quality as conformity to establish standards. Feigenbaum further emphasized that quality is a shared responsibility, not merely the duty of teachers or school principals, but one that involves all educational components, including parents, government, and the community (Aisyah & Fajri, 2023).

Daniel Stufflebeam developed the CIPP model, which consists of *Context*, *Input*, *Process*, and *Product*, to evaluate educational quality by assessing needs, resources, implementation processes, and educational outcomes (Maghfiroh, 2018). Edward Sallis’s concept of quality includes six dimensions: Inspection, quality Control, detection, quality Assurance, prevention, and continuous improvement (Sallis, 2012) (Zulhijjah & Prasetyo, 2025).

However, from the perspective of educational quality, education in Indonesia remains inadequate, as reflected in several survey results covering the quality of human resources, teachers, and students. UNESCO data in 2023 showed that Indonesia’s Human Development Index (HDI) ranked 114th globally, reflecting the relatively low quality of its human resources (HR) (Unesco, 2025).

In addition, the World Population Review (2022) reported that the average Intelligence Quotient (IQ) of children in Indonesia was only 78.49, placing the country in 130th position out of 199 countries (World Population Review, 2026). The quality of educators has also become a major concern. The 2016 UNESCO Global Education Monitoring (GEM) Report placed Indonesian teacher quality in the lowest position among 14 developing countries. This finding is reinforced by the 2015 Teacher Competency Test (*Uji Kompetensi Guru/UKG*) results, which recorded a national average score of only 50.64 for professional and pedagogical competence, below the minimum competency standard of 55 (Kemendikbud, 2018). Overall, these data indicate that the low educational quality in Indonesia results not only from weak student competence but also from insufficient educator competence. Therefore, efforts to improve educational quality should focus on strengthening teacher capacity, renewing the curriculum, and developing innovative learning strategies relevant to contemporary demands.

Based on accreditation data for all *madrasahs* in Indonesia from the Ministry of Primary and Secondary Education (*Kemendikdasmen*) for the 2024/2025 academic year, of 9,740 *madrasahs*, only 2,163 *madrasahs* (22.21%) received “A” accreditation, 4,981 *madrasahs* (51.14%) received “B” accreditation, 2,271 *madrasahs* (23.32%) received “C” accreditation, and 325 *madrasahs* (3.34%) remained unaccredited. In Deli Serdang Regency, of 76 *madrasahs*, only 17 *madrasahs* (22.37%) received “A” accreditation, 42 *madrasahs* (55.26%) received “B” accreditation, 3 *madrasahs* (3.95%) received “C” accreditation, and 14 *madrasahs* (18.42%) remained unaccredited ([Pusdatin Kemendikdasmen, 2025](#)).

The data indicate that *madrasah* quality in Indonesia is generally fairly good, although many aspects require improvement. In Deli Serdang Regency, the percentage of *madrasahs* accredited “A” and “B” is slightly higher than the national average. However, the proportion of unaccredited *madrasahs* in Deli Serdang is considerably higher than the national figure, which is a serious concern, as nearly one in five *madrasahs* in the region has not yet met accreditation standards.

Although several studies have discussed Total Quality Management (TQM) and other quality management models, several aspects remain important concerns in this study. First, no previous study has specifically adopted Edward Sallis’s theory comprehensively. Second, previous studies have mostly discussed general TQM concepts and quality management models, but have not specifically examined how Sallis’s theory can be practically implemented in *madrasahs*. Third, previous studies tend to be general in nature and give limited attention to the local context of *madrasahs*, such as culture, resources, and specific challenges they face.

Based on the preceding explanation, and considering continuing disparities in Indonesian educational quality, a study on *madrasah* quality is expected to make a meaningful contribution to improving Islamic educational institution quality.

METHOD

This study employed a mixed-methods approach. Specifically, the research design was an explanatory sequential design, which began with a quantitative phase followed by a qualitative phase to obtain a deeper explanation of the research findings ([Creswell & Creswell, 2018](#)) ([Ghozali, 2017](#)). This study was conducted at two *madrasahs* located in Deli Serdang Regency: MAN 1 Deli Serdang and MAN 2 Deli Serdang. The population comprised 148 teachers, and the sample consisted of 103 teachers. The sampling technique was determined using the table developed by Krejcie and Morgan at a 5% margin of error ([Ananda & Fadhli, 2018](#)) ([Krejcie & Morgan, 1970](#)).

Data were collected using two methods: quantitative data collection through questionnaires and qualitative data collection through observation, interviews, and document analysis. Data analysis employed two corresponding methods: quantitative analysis, consisting of descriptive data analysis, prerequisite analysis tests, and

hypothesis testing; and qualitative data analysis, consisting of data reduction, data display, and conclusion drawing. The theoretical model developed in this study is illustrated in the following figure:

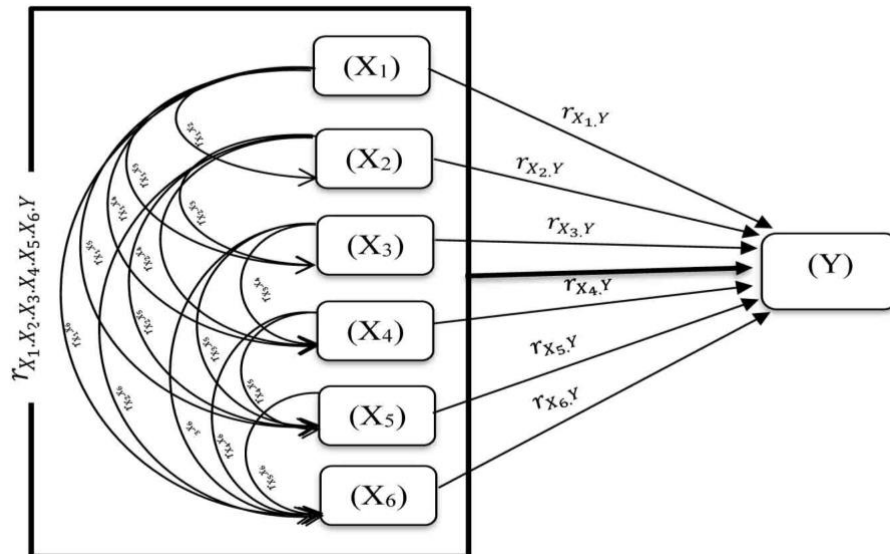


Figure 1. Research Variable

Note:

X_1 = Inspection

X_2 = Quality Control

X_3 = Detection

X_4 = Quality Assurance

X_5 = Prevention

X_6 = Continuous Improvement

Y = Educational Quality

r = Correlation

RESULTS AND DISCUSSION

Quantitative Research Findings

In the descriptive data analysis, this study included seven variables, namely Inspection (X_1), Quality Control (X_2), Detection (X_3), Quality Assurance (X_4), Prevention (X_5), Continuous Improvement (X_6), and Educational Quality (Y). Based on the data examination, information was obtained regarding the total score, highest score, lowest score, mean, range, and standard deviation. The calculation results are presented in the following table.

Table 1. Basic Descriptive Statistics

		Statistics						
		Educational Quality (Y)	Inspection (X_1)	Quality Control (X_2)	Detection (X_3)	Quality Assurance (X_4)	Prevention (X_5)	Continuous Improvement (X_6)
N	Valid	103	103	103	103	103	103	103
	Missing	0	0	0	0	0	0	0
	Mean	76.02	70.35	93.37	68.72	69.64	70.66	69.98
	Median	77.00	70.00	95.00	68.00	70.00	75.00	70.00
	Mode	80	70	100	75	75	75	75
	Std. Deviation	4.976	3.723	6.334	4.876	5.546	5.036	4.982
	Variance	24.764	13.857	40.117	23.773	30.762	25.364	24.823
	Range	20	15	20	15	19	15	15

Minimum	60	60	80	60	56	60	60
Maximum	80	75	100	75	75	75	75
Sum	7830	7246	9617	7078	7173	7278	7208

For Educational Quality variable (Y), the lowest score was 60 and the highest was 80, with a mean of 76.02 ($SD= 4.976$), a median of 77, and a mode of 80. The proximity of the mean, median, and mode scores suggests a normal distribution, consistent with the results of preliminary statistical calculations. For the Inspection variable (X_1), the lowest score was 60 and the highest score was 75, with a mean of 70.35 ($SD= 3.723$), a median of 70, and a mode of 70. The similarity of these central tendency measures indicates a normal distribution.

For Quality Control variable (X_2), the lowest score was 80 and the highest was 100, with a mean of 93.37 ($SD= 6.334$), a median of 95, and a mode of 100. This data distribution suggests a normality, as confirmed by preliminary statistical calculations. For the Detection variable (X_3), the lowest score was 60 and the highest was 75, with a mean of 68.72 ($SD= 4.876$), a median of 68, and a mode of 75. The minimal variation among central tendency measures indicates a normal distribution.

For the Quality Assurance variable (X_4), the lowest score was 56 and the highest was 75, with a mean of 69.64 ($SD= 5.546$), a median of 70, and a mode of 75. The distribution indicates a normal distribution of the data. For the Prevention variable (X_5), the lowest score was 60 and the highest was 75, with a mean of 70.66 ($SD= 5.036$), a median of 75, and a mode of 75. This distribution indicates a normal distribution, consistent with preliminary statistical results.

For the Continuous Improvement variable (X_6), the lowest score was 60 and the highest score was 75, with a mean of 69.98 ($SD= 4.982$), a median of 70, and a mode of 75. This data distribution suggests normally, as evidenced by the similarity of central tendency measures.

The prerequisite analysis tests were conducted to satisfy the requirement for parametric statistical analysis. The required tests included (1) normality test, (2) homogeneity test, (3) linearity test, and (4) independence test. The normality test was conducted using the Kolmogorov-Smirnov test, comparing the test significance level with the predetermined significance level.

Table 2. Normality Test of the Research Variable Data

		Educational quality (Y)	Inspection (X_1)	Quality Control (X_2)	Detection (X_3)	Quality Assurance (X_4)	Prevention (X_5)	Continuous Improvement (X_6)
N		103	103	103	103	103	103	103
Normal Parameters ^{a,b}	Mean	76.02	70.35	93.37	68.72	69.64	70.66	69.97
	Std. Deviation	4.976	3.723	6.334	4.876	5.546	5.036	4.991
	Absolute	.273	.168	.242	.192	.260	.320	.202
	Positive	.212	.168	.148	.112	.167	.194	.157

Most Extreme Differences	Negative	-.273	-.157	-.242	-.192	-.260	-.320	-.202
One-Sample Kolmogorov-Smirnov Test		.273	.168	.242	.192	.260	.320	.202

The normality test results indicated that all variables were normally distributed. The Educational Quality variable (Y) obtained a significance value of 0.273, the Inspection variable (X_1) obtained 0.168, the Quality Control variable (X_2) obtained 0.242, the Detection variable (X_3) obtained 0.192, the Quality Assurance variable (X_4) obtained 0.260, the Prevention variable (X_5) obtained 0.320, the Continuous Improvement variable (X_6) obtained 0.202. Since all significance values exceeded the predetermined alpha level ($\alpha = 0.05$), all seven variables met the normality requirement according to the Kolmogorov-Smirnov test.

The homogeneity test was conducted to determine whether the data exhibited equal variances across groups. The calculated F values for each independent variable were as follows:

Table 3. Homogeneity Test of the Research Variable Data

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Inspection (X_1)	Between Groups	393.331	7	56.190	5.233	.050
	Within Groups	1020.087	95	10.738		
	Total	1413.417	102			
Quality Control (X_2)	Between Groups	1204.131	7	172.019	5.659	.027
	Within Groups	2887.850	95	30.398		
	Total	4091.981	102			
Detection (X_3)	Between Groups	819.392	7	117.056	6.927	.480
	Within Groups	1605.443	95	16.899		
	Total	2424.835	102			
Quality Assurance(X_4)	Between Groups	443.799	7	63.400	4.236	.038
	Within Groups	2693.910	95	28.357		
	Total	3137.709	102			
Prevention (X_5)	Between Groups	429.475	7	61.354	7.701	.513
	Within Groups	2157.632	95	22.712		
	Total	2587.107	102			
Continuous Improvement (X_6)	Between Groups	573.040	7	81.863	5.952	.311
	Within Groups	1967.872	95	20.714		
	Total	2540.913	102			

The Inspection variable (X_1) = 5.233, Quality Control variable (X_2) = 5.659, Detection variable (X_3) = 6.927, Quality Assurance variable (X_4) = 4.236, Prevention variable (X_5) = 7.701, and Continuous Improvement variable (X_6) = 5.952. Using the criterion that the $F_{\text{table}} = 3.93$, all calculated F_{value} exceeded the critical value, indicating that the data were homogeneous across all independent variables. The linearity test

was conducted to determine whether linear relationships existed between the independent variables and the dependent variable. The results revealed that X_2 through X_6 demonstrated linear relationship with Y , as their significance values exceeded 0.05.

Table 4. Linearity Test of the Research Variable Data

No	Variable	Test Result		
		F ($F_h < F_t$)	significance	Conclusion
1	X_1 with Y	$2,203 < 3,930$	$0,029 > 0,05$	Linier
2	X_2 with Y	$1,292 < 3,930$	$0,247 > 0,05$	Linier
3	X_3 with Y	$1,866 < 3,930$	$0,178 > 0,05$	Linier
4	X_4 with Y	$2,119 < 3,930$	$0,058 > 0,05$	Linier
5	X_5 with Y	$0,982 < 3,930$	$0,430 > 0,05$	Linier
6	X_6 with Y	$0,859 < 3,930$	$0,554 > 0,05$	Linier

The results revealed that X_2 through X_6 demonstrated linear relationships with Y , as their significance values exceeded 0.05. Specifically, X_2 and Y yielded $F = 1.292$, $p = 0.247$; X_3 and Y yielded $F = 1.866$, $p = 0.178$; X_4 and Y yielded $F = 2.119$, $p = 0.058$; X_5 and Y yielded $F = 0.982$, $p = 0.430$; and X_6 and Y yielded $F = 0.859$, $p = 0.554$. However, the linearity test between X_1 and Y yielded $F = 2.203$ with $p = 0.029$, which fell below the 0.05 threshold. Consequently, the linear relationship between X_1 and Y requires further examination. Hypothesis testing was subsequently conducted using equation modelling (SMART-PLS) to examine the relationship among variables. The results of the analysis are presented in the following figure:

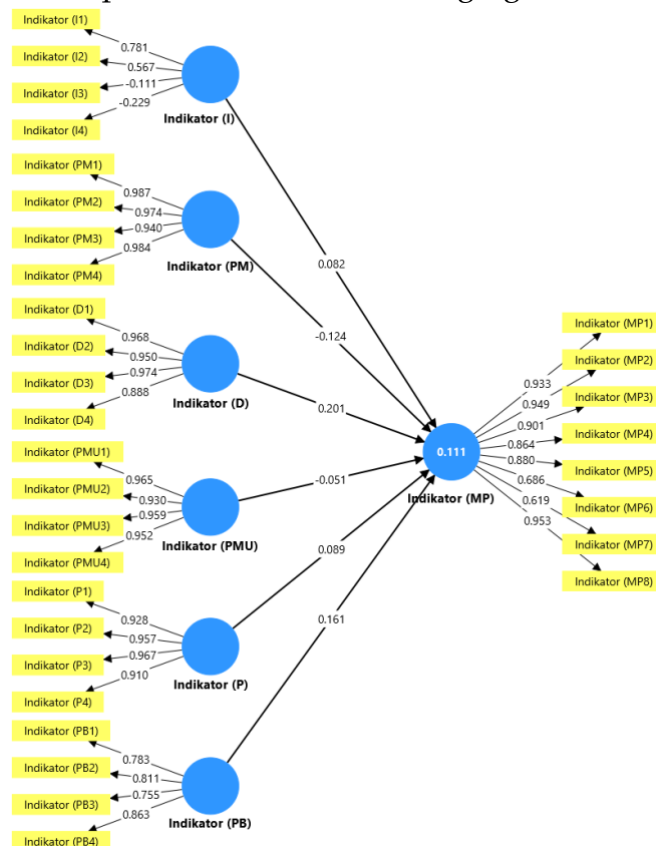


Figure 2. Variable Indicator Test

The test was conducted using SMART-PLS version 4.1.1.6. Convergent validity was assessed using the Average Variance Extracted (AVE), a metric introduced by Fornell and Larcker (1981), which indicates the degree to which the indicators of a construct share a high proportion of variance. The AVE is calculated as the average of the squared outer loading values of the indicators within a construct, with a threshold value of ≥ 0.50 .

The outer loading analysis results presented in Table 4.28 indicate that most indicators demonstrated outer loading values exceeding 0.70, suggesting adequate convergent validity. However, several indicators within the Inspection variable (X_1) exhibited low or negative outer loading values. Consequently, these indicators warrant consideration for elimination to enhance the measurement model's quality.

Qualitative Research Findings

The qualitative findings revealed that educational quality at MAN 2 Deli Serdang is supported by the collaborative leadership from the *madrasah* principal, a structured coaching system, non-academic excellence initiatives, and institutional support through facilities, infrastructure, and public relations. The main challenges include strengthening academic achievement in science and expanding external coaching support, which should inform future quality development initiatives at the *madrasah*. Although many *madrasahs* have not reached optimal quality levels, state *madrasahs* have generally demonstrated good educational quality. The presence of quality Islamic educational institutions is reflected in high public interest. Several state Islamic educational institutions, such as MAN IC, MAN, MTsN, and MIN, attract significant numbers of applicants in across various regions.

Based on preliminary observations, two State Islamic Senior High Schools, or *Madrasah Aliyah Negeri* (MAN), operate in Deli Serdang Regency: MAN 1 Deli Serdang and MAN 2 Deli Serdang. Both *madrasahs* demonstrate relatively good educational quality, as reflected in their "A" accreditation status. This quality is evident in several aspects. First, their academic and non-academic achievements reflect effective learning process and student competitiveness. Second, the educator quality at both MAN institutions is considered adequate, with teachers holding qualifications relevant to their fields and 100% holding undergraduate degrees. Third, educational facilities such as classrooms, laboratories, libraries, and religious practice rooms adequately support the teaching and learning process. Fourth, public enthusiasm for these two *madrasahs* is reflected in the high annual applicant numbers, indicating public trust in their education quality. Overall, MAN 1 and MAN 2 Deli Serdang have demonstrated good educational quality, although several aspects require further improvement to strengthen their quality.

When viewed through the lens of eight National Education Standards, MAN 1 and MAN 2 Deli Serdang show relatively good achievement, although several aspects require strengthening. Regarding Graduate Competency Standards, both *madrasahs* have produced competent graduates. MAN 1 excels in academic achievements at the provincial level, such as the *Madrasah* Science Competition (KSM) and language Olympiads, as well as in religious development through Qur'an memorization and Islamic character building. Meanwhile, MAN 2 is more prominent in non-academic achievements, such as scouting, sports, and arts, with a 100% *Madrasah* Examination graduation rate. Regarding Content Standards, both *madrasahs* have implemented a combination of the 2013 Curriculum and the Merdeka Curriculum. MAN 1 serves as a pilot *madrasah* for P5RA implementation, while MAN 2 strengthens its curriculum through distinctive Islamic subjects, such as Qur'an-Hadith, Fiqh, and Islamic Cultural History.

Regarding Process Standards, MAN 1 implements student-centered and project-based learning, while MAN 2 integrates morning religious habituation and applies various teaching methods supported by information and communication technology. Regarding Assessment Standards, MAN 1 primarily uses written examinations, practical assessments, and portfolios, supervised by *madrasah* supervisors. Meanwhile, MAN 2 has implemented formative, summative, and project-based assessments with digital-based learning outcome reports.

Regarding Educator and Education Personnel Standards, all MAN 1 hold at least undergraduate degrees, with some holding master's degrees, and the majority are certified educators. Meanwhile, MAN 2 employs educational staff whose qualifications align with their respective fields and who actively participate in training and Continuing Professional Development programs. Regarding Facilities and Infrastructure Standards, MAN 1 has science laboratories, computer laboratories, a digital library, and religious facilities, although some ICT equipment requires updating. Meanwhile, MAN 2 has classrooms, laboratories, sports fields, and internet access, although some laboratories require adjustment to meet national standards.

Regarding Management Standards, MAN 1 has prepared the *Madrasah* Operational Curriculum, conducted regular coordination meetings, and established an internal supervision system through duty teachers and a quality assurance team. Meanwhile, MAN 2 applies transformational leadership by involving teachers in decision-making and encouraging learning innovation. Regarding Financing Standards, both *madrasahs* are supported by School Operational Assistance funds and government programs. MAN 1 tends to allocate its budget toward digital facilities development and academic activities, while MAN 2 emphasizes facility maintenance, teacher competency improvement, and extracurricular funding.

Regarding the implementation of educational quality at MAN Deli Serdang, quality management implementation has generally demonstrated fairly significant

level of commitment and progress. This is indicated by the preparation of quality planning documents, such as the *Madrasah* Strategic Plan and Annual Work Plan, which involve various stakeholders. In addition, the internal quality assurance team has regularly performed its monitoring and evaluating programs on a regular basis.

However, assessment results indicate that quality management implementation at MAN Deli Serdang has not yet been fully comprehensive and consistent. Several follow-up programs based on evaluation results have not been optimally implemented, particularly those related to teacher competency development and the integration of digital systems into quality management. Furthermore, the participation of *madrasah* community members, especially students and parents, in the quality assurance process remains limited. This indicates that although the foundation of quality management has been established, further strengthening is still needed in regarding implementation, involvement of all school elements, and adaptation to evolving educational quality demands.

Table 6. Qualitative findings based on Variables

No	Variable	Findings	Analysis
1	Inspection (X1)	Inspection activities are conducted through monitoring and supervision mechanisms by the Regional Office and the Regency Office of the Ministry of Religious Affairs, <i>madrasah</i> supervisors, and BAN-S/M (accreditation institute) assessors. Internal inspection is carried out through coordination among the <i>madrasah</i> management team, consisting of the <i>madrasah</i> principal and vice principal.	The inspection system combines internal and external supervision to ensure each division each implements programs according to established standards. This reflects a structural and administrative quality control mechanism.
2	Quality Control (X2)	Educational quality control is implemented through the documentation of student achievements in various competitions, particularly the <i>Madrasah</i> Science Competition (KSM) and the Indonesian <i>Madrasah</i> Olympiad (OMI). The quality control is also conducted to improving teacher competence via training and professional development facilitated by the Regional Office of Religious Affairs.	Quality control employs an evaluative approach based on student achievement data and educator competence improvement. It focuses on both learning outcomes and process quality, demonstrating a comprehensive approach.
3	Detection (X3)	Quality issues are detected through regular coordination meetings, monitoring of student achievements, and evaluation of learning and extracurricular activities, and direct observation of facilities and infrastructure.	Early detection of obstacles through regular meetings and monitoring, enable to quickly detect various obstacles. This serves as the foundation for determining improvement strategies and managerial decision-making.

4	Quality Assurance (X4)	Quality assurance is reflected in consistent “A” accreditation achievement and supported by the supervision and evaluation systems conducted by <i>madrasah</i> principal’s leadership in building synergy with teachers, staff, the <i>madrasah</i> committee. External supervision is conducted by the Regional Office and BAN-S/M.	The integration of external supervision systems and internal <i>madrasah</i> management, supported by principal leadership, ensures sustainable maintenance of educational quality standards in nature.
5	Prevention (X5)	Quality decline prevention is carried out through additional academic coaching, student quarantine systems prior to competitions, strengthening of extracurricular activities, improvement of facilities and infrastructure. Equally significant, a child-friendly curriculum known as the <i>Kurikulum Cinta</i> is implemented	Prevention strategies strengthen the learning process and continuously develop students’ potential through anticipatory efforts. Improved facilities and child-friendly curriculum enhance the learning environment and students’ educational experiences.
6	Continuous Improvement (X6)	Continuous improvement efforts include development of teacher competency improvement programs, strengthening of academic culture, integration of science, technology, and religious values in learning, and expansion of continuously improve the quality of extracurricular activities and expansion of cooperation with external coaching.	<i>Madrasahs</i> apply continuous improvement principles gradual enhancement of human resource competence, academic culture, and learning innovations. Improvement are both reactive and proactive, oriented toward sustained quality enhancement.

Table 6 indicates that the sustainability of educational quality at *MAN 1* and *MAN 2 Deli Serdang* is not determined solely by formal managerial systems or structural policies. Rather, it is simultaneously influenced by teamwork patterns that are collectively and consistently developed. Beside administrative coordination, professional collaboration among teachers, education staff, and *madrasah* leaders in planning, implementing, and evaluating learning activities. This collaborative pattern strengthens the integration between the institution’s vision and practices in the field, so that each individual feels a shared responsibility for achieving educational quality.

Furthermore, this study found that the work culture internalized in both *madrasahs* serves as the main foundation for maintaining quality stability in a sustainable manner. This work culture is reflected in discipline, commitment to academic standards, openness to evaluation, and a spirit of mutual support among organizational members. Such a culture is not built instantly, but through a process of value habituation, leadership role modeling, and the strengthening of effective internal communication. Thus, educational quality does not depend solely on flagship programs, but also on the consistency of structured organizational behavior that is oriented toward quality.

DISCUSSION

Educational quality at MAN 1 and MAN 2 Deli Serdang is influenced by various dimensions of quality management, including Inspection, Quality Control, Detection, Quality Assurance, Prevention, and Continuous Improvement. Based on the results of the descriptive analysis, all research variables showed data distributions that tended to be normal, as indicated by the closeness of the mean, median, and mode values. This indicates that respondents' perceptions of the implementation of quality management in the *madrasahs* were relatively homogeneous and stable. Among all variables, Quality Control had the highest mean score, indicating that data-based evaluation and monitoring practices had been implemented more optimally compared to the other dimensions. Conversely, the Detection, Quality Assurance, and Continuous Improvement variables had relatively lower mean scores, indicating that strategic and preventive aspects of quality management still require further strengthening.

The results of the prerequisite analysis tests showed that all variables met the assumptions of parametric statistics, including normality, homogeneity, linearity, and independence. The fulfillment of these assumptions indicates that the research model has adequate validity to explain the relationships among variables inferentially. The linear relationship between the independent variables and educational quality indicates that each dimension of quality management contributes to the improvement of educational quality. Meanwhile, the results of the independence test showed that each variable had an influence that was not directly dependent on the others. Thus, each dimension can be understood as an independent factor that also complements the others in shaping educational quality.

Furthermore, the results of the analysis using SMART-PLS showed that most indicators had outer loading values above 0.70 and Average Variance Extracted (AVE) values above 0.50, thereby meeting the criteria for convergent validity. However, several indicators in the Inspection variable had low and even negative loading values. This finding indicates that Inspection practices in the field have not yet fully reflected substantive quality evaluation, but still tend to be administrative in nature. Therefore, the indicators need to be refined so that they can better represent the concept of Inspection as a comprehensive quality evaluation process, rather than merely the fulfillment of formal procedures.

These quantitative findings are supported by the qualitative findings, which provide an empirical overview of the implementation of quality management in the *madrasahs*. The Inspection and Quality Control processes have been implemented through formal mechanisms such as supervision, monitoring, and student achievement-based evaluation. This is consistent with the high score obtained by the

Quality Control variable. However, these practices still tend to be structural and top-down, and therefore have not fully encouraged innovation at the operational level. Meanwhile, the Detection and Prevention processes have been carried out through regular coordination meetings, activity monitoring, and additional academic coaching programs. This indicates an effort toward a preventive quality management approach, although it has not yet been fully structured systemically.

In the context of quality assurance, the consistent achievement of “A” accreditation by both *madrasahs* indicates that the quality assurance system has been institutionally implemented. However, this success is still strongly influenced by the leadership of the *madrasah* principals, creating a potential dependence on particular figures. This highlights the importance of strengthening a more institutionalized and sustainable quality assurance system. On the other hand, Continuous Improvement has been carried out through teacher competency development, the strengthening of academic culture, and learning innovation. Nevertheless, the relatively moderate mean score indicates that the culture of continuous improvement is still developing and has not yet fully become an embedded part of the organizational culture.

An important finding of this study is that the sustainability of educational quality is not only determined by formal management systems, but is also strongly influenced by teamwork and work culture internalized within the *madrasah* organization. The teamwork that has been established is not merely administrative in nature, but has developed into professional collaboration that includes the planning, implementation, and evaluation of learning. In addition, a work culture characterized by discipline, commitment to quality, openness to evaluation, and collective support among organizational members serves as the main foundation for maintaining the stability of educational quality. This finding indicates that the cultural dimension plays a highly significant role in supporting the effectiveness of the quality management system.

The improvement of educational quality can be achieved by systematically integrating academic achievement and character formation through the *Plan-Do-Check-Act* (PDCA) cycle within the framework of *Total Quality Management* (TQM) (Haningsih et al., 2026). Educational quality improvement in *madrasahs* is implemented through continuous evaluation, active participation of teachers, educational staff, school committees, and parents, as well as effective communication and teamwork (Muli Prima Aldi M et al., 2026; Mumtahanah et al., 2026).

Educational quality can be enhanced by focusing on preparation, implementation, and evaluation that have significant potential to enhance teacher quality (Dacholfany et al., 2024). Educational quality improvement is also achieved through effective implementation governance and training programs (Achmad Juhaeni et al., 2021). Improving the quality of *madrasahs* requires several strategic efforts, including the enhancement of facilities and infrastructure, the fulfillment of

technological equipment needs, continuous professional training, and more efficient time management to ensure the optimal and sustainable implementation of the independent curriculum (Hatija et al., 2025) (Hikmawati & Hosnan, 2022).

Theoretically, the findings of this study strengthen the perspective that educational quality management does not only consist of technical aspects such as inspection, control, and evaluation but also influenced by social and organizational factors such as leadership, work culture, and team collaboration. Thus, the quality management approach needs to be understood through both structural and cultural dimensions. Practically, the findings imply that efforts to improve educational quality should not only be directed toward strengthening systems and policies only, but also toward developing a work culture that supports collaboration and commitment to quality. Therefore, the long-term success of educational quality improvement is strongly determined by the synergy between a structured system and a strong organizational culture, enabling consistent long-term quality sustainability (Prasetyo et al., 2023). The following figure presents the conceptual framework of the research findings on educational quality management:

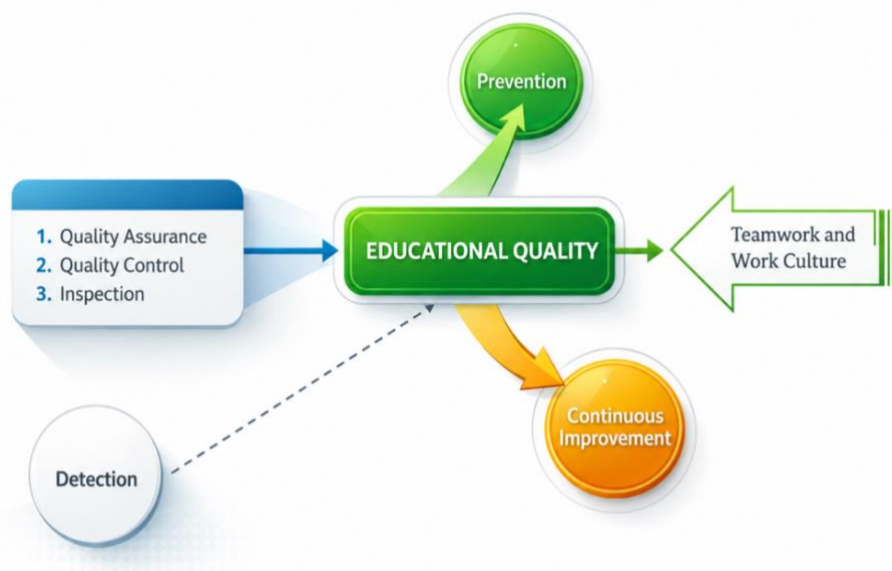


Figure 3. Integrated and Sustainable Educational Quality System

The novelty of this research lies in its integrative approach, which bridges educational management theories and local wisdom, offering a culturally responsive framework to enhance educational quality. Unlike conventional studies that often treat educational quality improvement as a purely technical or administrative task, this study foregrounds the symbiotic relationship between management practices and indigenous cultural values, thereby proposing a sustainable model that respects and leverages local traditions and communal knowledge. This approach not only enriches quality assurance, quality control, and inspection mechanisms but also fosters

community empowerment and culturally congruent teamwork within educational institutions. Such an innovation contributes to the discourse on localized educational development by highlighting prevention and continuous improvement through culturally informed teamwork and work culture.

The implications of this study urge policymakers and educational leaders to incorporate local wisdom systematically into quality management frameworks, ensuring that educational policies are culturally adaptive and socially relevant. The recommendation is to develop capacity-building programs to train educators and managers in culturally sensitive management practices, and to institutionalize mechanisms to integrate community participation into quality assurance processes. Additionally, further research should conduct empirical evaluations of this integrated model's impact on student outcomes and organizational culture across diverse sociocultural settings, promoting broader scalability and a deeper understanding of localized quality enhancement in education.

CONCLUSION

The research findings show that all quality management variables: *Inspection, Quality Control, Detection, Quality Assurance, Prevention, and Continuous Improvement*, have a positive and significant effect on educational quality. The contribution of each variable varies, *Continuous Improvement* (41.1%) and *Prevention* (35%) emerged as the most dominant factors, followed by *Quality Control* and *Quality Assurance* (32.2% each), *Inspection* (23%), and *Detection* (11%). Simultaneously, all variables contribute 20.9% to educational quality. This indicates the improvement of educational quality is not determined by a single dimension, but rather results from the interaction of various complementary aspects of quality management. The qualitative findings reinforce the quantitative results by showing that educational quality at MAN 1 and MAN 2 Deli Serdang is improved through the synergy of leadership, team collaboration, and institutional system support, as reflected in "A" accreditation, high public trust, and non-academic achievements up to the international level. However, challenges remain in science-related academic achievement, which is influenced by limited coaching and external support. Overall, this study emphasizes that the sustainability of educational quality is not merely determined by the effectiveness of formal management systems but also the strength of teamwork and internalized work culture, which serve as key factors in enhancing sustainable educational quality.

Author Contributions (CRediT): Mhd. Fuad Zaini Siregar: conceptualization, methodology, investigation, formal analysis, and writing – original draft; Candra Wijaya: supervision, validation, resources, and writing – review and editing; Rusydi Ananda: methodology, software, data curation, visualization, and writing – review and editing; all authors have read and approved the final version of the manuscript.

Funding Statement: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors, and was fully financed independently by the authors.

Acknowledgments: The authors sincerely thank the principals, teachers, and administrative staff of MAN 1 and MAN 2 Deli Serdang for their willingness to participate in this study, as well as Universitas Dharmawangsa and Universitas Islam Negeri Sumatera Utara Medan for the academic support provided throughout the research process.

Conflict of Interest Statement: The authors declare that they have no known competing financial interests, personal relationships, or institutional affiliations that could have appeared to influence the work reported in this paper.

Data Availability Statement: The quantitative questionnaire data and the anonymized qualitative data (interview transcripts, observation notes, and supporting documents) that support the findings of this study are available from the corresponding author upon reasonable request, subject to the privacy protection of the participating teachers and madrasah.

Informed Consent Statement: Written informed consent was obtained from all teachers and school leaders who participated in the questionnaire survey and interviews, after they had been informed of the purpose of the study, the voluntary nature of their participation, and the guarantee of confidentiality and anonymity in reporting the results.

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