

## **Advancing Theory On School Quality: The Moderating Role Of Accreditation In The Link Between Managerial Competence, School Culture, And Primary Education Outcomes**

**Iis Mesaroh**

The Elementary Education Program at Sultan Ageng Tirtayasa University (UNTIRTA)

**Jakaria**

The Elementary Education Program at Sultan Ageng Tirtayasa University (UNTIRTA)

**Erwin Salpa Riansi**

The Elementary Education Program at Sultan Ageng Tirtayasa University (UNTIRTA)

Corresponding Author: [isma.syafa@gmail.com](mailto:isma.syafa@gmail.com)

### **Abstract**

This study advances the theoretical understanding of school quality by proposing a configurational perspective that integrates internal school capabilities and external quality assurance mechanisms. Drawing on Total Quality Management (TQM) and institutional theory, the study conceptualizes managerial competence and school culture as two parallel internal capability paths through which educational quality is produced, while positioning school accreditation as an institutional amplifier rather than a direct determinant of quality. Using survey data from 200 primary school teachers and applying covariance-based structural equation modeling and moderated regression analysis (PROCESS), the findings reveal that both managerial competence and school culture exert consistently positive effects on educational quality across all levels of accreditation. JohnsonNeyman analyzes further demonstrate that these effects remain statistically significant throughout the observed range of accreditation, with effect magnitudes increasing linearly as accreditation status improves. This pattern indicates that internal school capabilities are robust drivers of quality, whose effectiveness is systematically strengthened but not conditioned by institutionalized quality assurance. By integrating two moderation models into a unified configurational framework, the study extends TQM theory in education from a linear to an interdependent and context-sensitive explanation of school quality formation. The findings offer a refined theoretical account of how leadership, organizational

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culture, and accreditation jointly shape primary education quality, particularly in contexts characterized by institutional heterogeneity.

**Keywords : Total Quality Management, managerial competence, school culture, accreditation, basic education, educational outcomes**

## **INTRODUCTION**

Quality education is an essential foundation for sustainable human resource development (Girmanov et al., 2022; Menteşoğullari, 2023; Prima et al., 2025). Education as a key factor in the formation of human capital, economic competitiveness, and social welfare (Taraza et al., 2024; Nasution et al., 2023).

In Indonesia, improving the quality of basic education is a national priority. This is reflected in various educational reform policies implemented over the past two decades. However, disparities in quality between schools remain a significant challenge, with substantial variations in student learning outcomes that cannot be explained solely by differences in material resources. Sukmayadi and Yayha (2020) and Rafsanjani and Rozaq (2024) reveal the complex problems faced that have led to the neglect of attention to the quality of education. This problem requires a solution based on an understanding of adequate and contextually appropriate theoretical foundations.

In this context, the Total Quality Management (TQM) paradigm adapted for the education sector offers a comprehensive framework for understanding and improving school quality (Sallis, 2002; Khasanah et al., 2023), including at the elementary school level (Noorkhalis & Suriansyah, 2023; Rahminawati & Supriyadi, 2023). Research suggests that TQM in education is not simply a mechanistic transplantation of industrial management principles, but rather a philosophical transformation that places student learning as the primary focus, with an emphasis on continuous improvement, customer focus, and total staff involvement (Sallis, 2002).

Although the literature on TQM in education has grown substantially, three critical gaps remain that require further exploration. First, the majority of TQM studies in education have been conducted in developed countries with relatively homogeneous education systems, while their application to the highly heterogeneous primary education context of developing countries remains limited. Second, the role of accreditation as an external quality assurance mechanism in influencing the effectiveness of internal TQM practices has not been systematically explored.



Third, the existing literature tends to treat TQM elements in isolation without exploring the complex interactions between internal (managerial competence, school culture) and external (accreditation) factors in shaping educational outcomes.

Most studies still adopt a linear causal approach that treats these factors as independent predictors. Consequently, theoretical understanding of how internal school capabilities interact with external quality assurance systems to shape educational quality remains limited. Furthermore, school accreditation tends to be positioned normatively as a prerequisite or indicator of quality, without empirical explanation of its conditional role in strengthening leadership effectiveness and organizational culture.

This study expands the TQM framework (Sallis, 2002), which integrates the theory of institutional quality and organizational learning. TQM as a complex mechanism that connects internal school management with external quality assurance systems to realize quality in education. TQM as a framework for building structured Quality Assurance Systems. The conceptualization of accreditation as a moderator fills a gap in the literature that has previously treated accreditation as an outcome or antecedent, rather than as a contingency factor that changes the dynamics of internal-external relationships in educational organizations.

Practically, the research findings can be used as a framework for developing policies on accreditation system design. Accreditation serves as both an accountability mechanism and a catalyst for continuous improvement in the quality of education. For education practitioners, this research offers insights on how to maximize the impact of investments in leadership development and school culture by utilizing accreditation momentum as a leverage point for organizational transformation. The objectives of this research are based on the following research questions: (1) Do principal managerial competencies and school culture have a positive association with the quality of primary education outcomes, partially and simultaneously? and (2) Does school accreditation moderate the relationship between principal managerial competencies and school culture on the quality of primary education outcomes? Thus, this research aims to analyze the partial and simultaneous influence of principal managerial competencies and school culture on the quality of primary education outcomes, and to test whether school accreditation acts as a moderating variable in this relationship.



## **LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT**

### **Total Quality Management in Education**

Total Quality Management represents the adaptation of quality management philosophy and methodology from the industrial sector into the learning ecosystem in education (Sallis, 2002; Girmanov et al., 2022). In contrast to traditional approaches to quality that are developed based on *ex post facto* inspection and remediation, TQM focuses more on continuous improvement and building quality into the process (Wani & Mehraj, 2014). TQM in education is centered on "delighting customers", students are primary customers and other stakeholders are secondary customers (Taraza et al., 2024; Sallis, 2002; Khasanah et al., 2023; Nasution et al., 2023). The same opinion was expressed that the implementation of integrated quality management is carried out through the principle of focusing on customer satisfaction, both internal and external customers (Sallis, 2002; Noorkhalis & Suriansyah, 2023).

To realize quality in integrated education, Sallis (2002) identified several critical dimensions, namely Leadership, which is supported by studies by Noorkhalis and Suriansyah (2023). TQM is a management philosophy that encourages continuous improvement and highlights leadership and customer orientation as its basic principles (Menteşoğullari, 2023), as well as school quality culture (Rahminawati & Supriyadi, 2023).

### **Principal Managerial Competence and Educational Outcomes**

The principal's managerial competency reflects a complex combination of knowledge, skills, and dispositions to manage organizational resources, processes, and relationships in achieving educational goals effectively. Within the TQM framework (Sallis, 2002), the principal's managerial competencies include firstly Strategic Planning, namely developing a clear vision, conducting environmental analysis (SWOT), and formulating long-term strategies that suit customers (Ansori & Sulisworo, 2021; Bairašauskienė, 2017; et al., 2025; Priyambodo et al., 2019). Second, Resource Management is related to the efficient and effective allocation of material and human resources, including budgeting and staffing decisions that support instructional improvement (Lisnerova et al., 2020). Third, Process Management: Designing and managing instructional processes, assessment systems, and support services that ensure consistency and continuous improvement (Bairašauskienė, 2017; Bayarystanova et al., 2014; Jevšček, 2016; Elahi & Ilyas, 2025). The fourth stakeholder engagement is building relationships with parents, the community, and external partners to create a supportive ecosystem for student learning (Sallis,



2002; Bairašauskienė, 2017). Fifth, Performance Monitoring and Evaluation as an important competency for school principals (Agasisti et al., 2025; Lisnerova et al., 2020; Liza et al., 2024).

Empirical studies show a positive relationship between the principal's managerial competence and educational outcomes (Filho et al., 2025; Sison & Fuentes, 2025; Karimi et al., 2020). The leadership dimensions that are most strongly correlated with student achievement are "promoting and participating in teacher learning and development" and "planning, coordinating, and evaluating teaching and the curriculum", including the development of educational programs (Hoang et al., 2025; Lucero, 2024; Vasquez et al., 2022).

Several studies also show a relationship between leadership competency and the quality of education, such as Agustina et al. (2023) and Agussalim et al. (2025). Finding that the principal's managerial competence has a significant influence on school performance is supported by studies by Elfira et al. (2024), Arum (2017), and Muff et al. (2022). The principal's managerial competence has a positive influence on performance achievement as measured by effectiveness and quality (Agustina et al., 2023; Bitterová et al., 2014; Prias, 2025). Based on the theoretical framework and empirical evidence, the hypothesis proposed is:

**H1: The principal's managerial competence has a positive influence on the quality of basic education outcomes.**

### **School Culture and Educational Outcomes**

Culture is "the deeper level of basic assumptions and beliefs that are shared by members of an organization, that operate unconsciously, and that define in a basic 'taken-for-granted' fashion an organization's view of itself and its environment" (Schein, 1992). In an educational context, school culture encompasses shared values about learning, norms about professional conduct, and collective assumptions about student capabilities and the role of teachers (Deal & Peterson, 2009). Sallis (2002) identifies culture as a central element in TQM education, stating that "TQM requires a change of culture" and that "culture change is notoriously difficult to bring about and takes time to implement." Characterizes quality culture as one that emphasizes customer focus. "The primary mission of a TQM institution is to meet the needs and wants of its customers," which in the educational context means prioritizing student learning (Bartley et al., 2025; Wang et al., 2024). Continuous Improvement as a mindset that "there is always room for improvement" and a commitment to *kaizen*, incremental improvements through systematic



problem-solving. A culture of teamwork and collaboration strongly supports efforts to achieve quality in education. In line with Wang et al. (2024) and Wang et al. (2009), this culture emphasizes quality as a collective responsibility and requires synergistic collaboration across hierarchical boundaries. Professional Learning is a subculture that emphasizes continuous professional development as a means of staying abreast of best practices (Sallis, 2002). Data-Driven Decision Making as an important subculture in decision making. The use of evidence and systematic inquiry in informing instructional decisions, not just intuition or tradition (Rogers, 2020; Schelling & Rubenstein, 2021; Dogan et al., 2021; Donhost et al., 2016; Hora et al., 2017). Emphasizing that DDM should become an institutional sub-culture as a correction to less reliable decision-making or less reliable information. DDM as a tool for extracting insights and knowledge to monitor performance.

However, the causal mechanisms and boundary conditions of this relationship remain underexplored, especially at the elementary school level. Quality itself can be seen from the degree of excellence and the essential characteristics that make something unique and the best (Wani & Mehraj, 2014). More specifically, the school quality is functional quality and academic quality (Elahi & Ilyas, 2025), improving student learning outcomes (Nasution et al., 2023; Rahminawati & Supriyadi, 2023). Student satisfaction is an important indicator of the success of implementing education based on the principle of quality (Alhamad et al., 2024).

Studies document a strong relationship between school culture and educational outcomes. Research has found that positive school climate, the affective dimension of school culture, correlated with higher academic achievement, increased motivation to learn, and positive youth development. Research has also found that school culture explained up to 20% of the variation in student achievement after controlling for SES and prior achievement. Research finds that schools with "academic optimism", collective belief in the ability to make a positive difference for students, have significantly higher student achievement than schools with lower academic optimism. School culture has a positive effect on school effectiveness (Rahminawati & Supriyadi, 2023). Research has identified that high-achieving schools in Indonesia are characterized by a strong collaborative culture and a shared commitment to student success. Based on the theoretical framework and empirical support, we propose:

**H2: A quality-oriented school culture has a positive influence on basic education outcomes.**  
**The Moderating Role of School Accreditation**



School accreditation is a systematic review process by an external body to assess whether an institution meets certain quality standards. In Indonesia, accreditation is implemented by the National Accreditation Board for Schools/Madrasahs (BAN-S/M) based on eight national education standards. Accreditation results in a school categorization (A, B, C, or not accredited), which has regulatory and reputational implications. However, these studies have not explored contingency factors that may strengthen or weaken the influence of managerial and cultural competencies on achieving quality in education.

In the TQM framework, accreditation is a manifestation of the quality assurance principle (Sallis, 2002). Sallis (2002) discusses various quality standards and awards (ISO9000, Investors in People, Malcolm Baldrige Award, etc.) as "kitemarks" that can "stimulate and assist organizations in their development of total quality" (p. 51). However, Sallis (2002) criticizes the overemphasis on external inspection, noting Deming's third principle: "cease dependence on mass inspection to achieve quality." Accreditation functions as a moderator in the relationship between internal school factors (managerial competence and culture) and educational outcomes through several mechanisms, namely as a signaling and legitimacy mechanism based on the institutional theory perspective. High accreditation functions as a signal of legitimacy that increases external support, student enrollment, and teacher quality, resources that amplify the impact of strong managerial competence and a positive school culture. Accreditation as a feedback and learning mechanism. Accreditation provides structured external feedback on organizational performance relative to standards. For schools with strong managerial competence, this feedback can be translated into actionable improvement strategies. Conversely, schools with weak managerial capacity may be unable to effectively leverage accreditation feedback.

Accreditation also serves as a mechanism for standardization and constraints. If accreditation standards are overly rigid or misaligned with educational goals, high-performing schools may experience constraints on innovation and adaptation. Conversely, schools with weaker internal capacities may benefit from structured guidance. Research finds that accreditation moderates the relationship between resource availability and institutional performance in higher education. Studies have found that schools that recently underwent accreditation reviews showed greater improvement trajectories than schools without recent reviews, suggesting motivational effects.

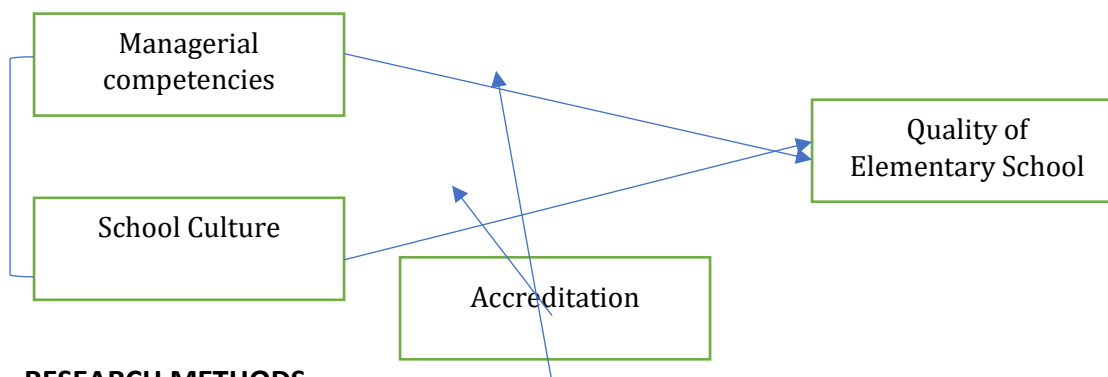
Based on theoretical reasoning and preliminary empirical evidence, we propose:



**H3: School accreditation moderates the relationship between principal managerial competence and educational outcomes, where the influence of managerial competence on outcomes is stronger in schools with higher accreditation.**

**H4: School accreditation moderates the relationship between school culture and educational outcomes, where the influence of school culture on outcomes is stronger in schools with higher accreditation.**

Based on the theoretical framework and hypotheses developed, we propose a conceptual model illustrated in Figure 1. This model integrates three levels of analysis: individual (principal managerial competencies), organizational (school culture), and institutional (accreditation) in explaining variations in basic education outcomes.



## RESEARCH METHODS

### Research Design

This research uses an explanatory quantitative research design with a cross-sectional survey approach (Creswell & Creswell, 2022). Considerations for selecting the design were (1) the nature of the research questions, which sought to explain relationships and test theoretical models, (2) the need for generalizability of findings to a broader elementary school population, and (3) feasibility constraints associated with large-scale longitudinal data collection. Although cross-sectional designs have limitations in establishing temporal precedence and causal inference, we mitigated this by: (1) grounding the model in a strong theoretical foundation that establishes logical causal ordering, (2) controlling for potential confounding variables in statistical analysis, and (3) triangulating with secondary longitudinal data from the national education database where available.

### **Population and Sample**

**Population:** The target population of this research is all public and private elementary schools (SD) in Pandeglang that have undergone the accreditation process.

**Sampling Frame:** Given the geographical dispersion and heterogeneity of the population, we used stratified multi-stage cluster sampling. Stratification was performed based on: (1) regional location (urban vs. rural), (2) accreditation status (A, B, C), and (3) school type (public vs. private). This ensures representativeness across key dimensions that potentially moderate relationships of interest.

**Sample Size:** Based on power analysis using G\*Power 3.1 (Faul et al., 2009), to detect a moderate effect size ( $f^2 = 0.15$ ) in moderated multiple regression with 6 predictors (2 main effects, 1 moderator, 2 interactions, 1 control variable), with  $\alpha = 0.05$  and power = 0.95, the minimum required sample size is 146. Anticipating a non-response rate of around 30% and potential data quality issues, we targeted a sample size of 200 schools, which provides adequate power for the main analyses and permits exploratory subgroup analyses. Respondents in this study were teachers and principals.

### **Sampling Procedure:**

#### **Measurement of Variables and Measurement Instruments**

Managerial competencies are measured based on the framework (Sallis, 2002). Supported by several constructs that place structural functions as an important aspect in a quality system, such as in the context of quality in education, the main dimension is leadership competencies. The dimensions measured include Strategic Planning (5 items): The ability to develop a vision, conduct a SWOT analysis, and formulate strategies. Resource Management (6 items): Effectiveness in allocating human, financial, and material resources. Curriculum and Instruction Management (7 items): Curriculum supervision, learning monitoring, and evaluation. Stakeholder Relations (4 items): Engagement with teachers, students, parents, and the community. Performance Monitoring and Evaluation (5 items): Performance monitoring system and use of data for improvement. A total of 27 items were measured using a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Respondents were teachers who were asked to assess the competency of their principal. For each school, responses from at least 10 teachers (if available) were aggregated to reduce single-source bias.

School culture is operationalized based on the framework (Sallis, 2002) about quality culture and enriched with the developed School Culture Survey. The instrument measures the following dimensions: Customer Focus/Student-Centeredness (6 items): The extent to which the school prioritizes student learning needs. Second, Continuous Improvement Orientation (5 items): Mindset towards learning and improvement. The Collaborative Culture dimension is the norms and practices of teamwork and knowledge sharing. The Professional Learning dimension (5 items): Values and support for professional development. The Data-Driven Decision Making dimension (4 items): The use of evidence in instructional decisions. Finally, Trust and Psychological Safety (5 items): The extent to which teachers feel safe to take risks and voice concerns. A total of 32 items using a 5-point Likert scale. Respondents are teachers.

Basic Education Outcomes are measured based on the Education Report Information Center (2024), which states that student satisfaction is an important indicator in school choice. Individual test results show that the indicators have adequate AVE and CR. Achievement of Literacy and Numeracy Learning Outcomes (5 statement items), Student Character and Satisfied Student Conditions (5 statement items), and Effectiveness of the Learning Process and School Climate as many as 5 statement items.

This study explicitly applied methodological and statistical procedures to minimize the potential for common method bias (CMB). The authors maintained respondent confidentiality by anonymously filling out questionnaires to suppress social desirability bias and evaluation apprehension. Data collection was conducted in stages over four weeks so that causal relationships between variables were not explicitly apparent to respondents. The use of multiple respondents in one school and aggregation of answers at the school level were also implemented to reduce single-source bias. CMB testing was conducted statistically using Harman's single-factor test, used as an initial diagnostic test to evaluate whether a single factor dominates the variance and covariance between items. The analysis results showed that no single factor explained the majority of the variance, thus serious indications of CMB can be ruled out.

Data analysis using SEM co Variant according to the stages proposed by Hair et al. (2019) and the Hayes Macro Program to test more specific moderation using SPSS 26 tools.

## **RESULTS AND DISCUSSION**

The first stage of testing results is the evaluation of the measurement model through Confirmatory Factor Analysis (CFA). The test results are as follows:



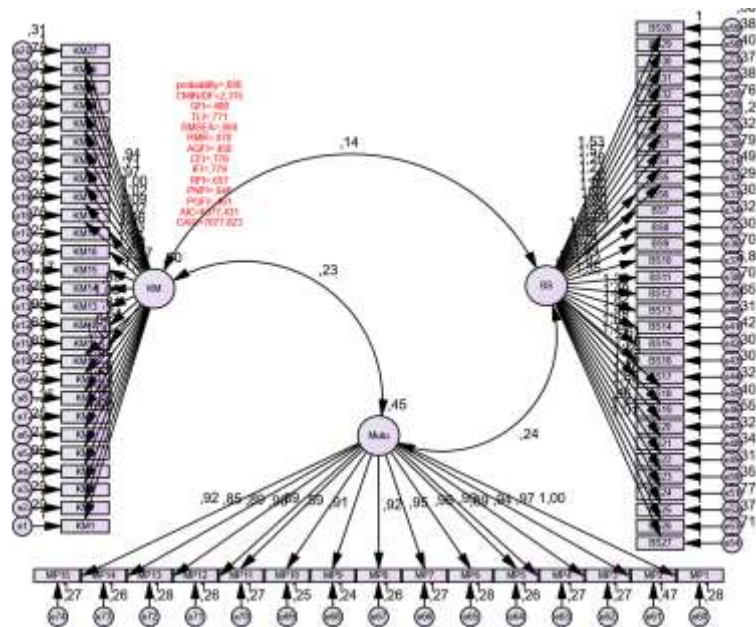


Figure 1.

Convergent validity was evaluated through the standardized factor loading ( $\geq 0.50$ ), Average Variance Extracted ( $AVE \geq 0.50$ ), and Composite Reliability ( $CR \geq 0.70$ ) values. The results of discriminant validity by comparing the square root of AVE with the correlation between constructs and confirmed using the HTMT ratio showed that the instrument could explain its respective latent variables. The test results are as follows:

Table 1: Results of AVE, CR and discriminant validity tests

| Variables/ Sub          | AVE   | Composite Reliability | Discriminant Validity |       |       |
|-------------------------|-------|-----------------------|-----------------------|-------|-------|
|                         |       |                       | 1                     | 2     | 3     |
| Managerial competencies | 0.436 | 0.960                 | 0.661                 |       |       |
| School culture          | 0.460 | 0.961                 | 0.136                 | 0.678 |       |
| Quality of education    | 0.579 | 0.969                 | 0.231                 | 0.235 | 0.761 |

The Average Variance Extracted (AVE) value indicates that the quality of education has met the strong convergence criteria ( $AVE = 0.579$ ), while managerial competence (0.436) and school culture (0.460) are slightly below the ideal limit of 0.50. This condition is still acceptable because the very high CR value indicates that the construct reliability is maintained even though the AVE

is marginal. The Composite Reliability (CR) value for all constructs—managerial competence (0.960), school culture (0.961), and education quality (0.969)—is well above the threshold of 0.70, which confirms the internal consistency of the indicators in measuring their respective latent constructs. The discriminant validity test based on the Fornell–Larcker criterion shows that the square root of the AVE (diagonal values: 0.661; 0.678; 0.761) is greater than the correlation between constructs (off-diagonal values). This indicates that each construct has an adequate level of distinctiveness and measures different concepts empirically. The results of construct validity and reliability tests indicate that the measurement model is in an adequate condition and is acceptable for further analysis.

The results of the model suitability test indicate the need for improvements based on the theoretical basis of each latent variable and the relationship between errors. Improvements are also based on modification indices with the final results including  $\chi^2/df$  fit with a score of 1.977, a moderate Comparative Fit Index (CFI) with a score of 0.839, a moderate Tucker–Lewis Index (TLI) of 0.830, a Root Mean Square Error of Approximation (RMSEA) fit of 0.59, and a Standardized Root Mean Square Residual (SRMR) fit of 0.58. PNFI also fits because  $a > 0.60$ , namely 0.686. This means that the data is in accordance with the model construction and the model is declared adequate.

The results of the structural model testing are as follows.

**Table 2. Causal study relationship test results for direct and indirect variables**

| Path              |      |                                | Estimate | SE       | CR       | P     | Standardized regression weight | Conclusion      |
|-------------------|------|--------------------------------|----------|----------|----------|-------|--------------------------------|-----------------|
| Direct Effect     |      |                                |          |          |          |       |                                |                 |
| Quality           | <--- | KM                             | 0.184    | 0.053    | 3,462    | ***   | 0.152                          | Significant     |
| Quality           | <--- | BS                             | 1,291    | 0.193    | 6,700    | ***   | 0.78                           | Significant     |
| Quality           | <--- | Accreditation                  | 0.058    | 0.005    | 0.235    | 0.814 | 0.042                          | Not significant |
| Moderation Effect |      |                                |          |          |          |       |                                |                 |
| Variable          | Path | Variable                       | X        | Variable | Estimate |       | Conclusion                     |                 |
| Quality           | <--- | KM Interaction * Accreditation |          |          | 0.14     | 0.042 | Strengthen                     |                 |
| Quality           | <--- | BS Interaction * Accreditation |          |          | 0.09     | 0.037 | Strengthen                     |                 |

'Source: Data processing (2025)



The results of the analysis show that managerial competence (KM) has a positive and significant influence on the quality of education (Standardized  $\beta = 0.152$ ; CR = 3.462;  $p < 0.001$ ). School culture (BS) has a direct effect (standardized  $\beta = 0.780$ ; CR = 6.700;  $p < 0.001$ ), indicating that school norms, values, and collective practices are central determinants of educational quality. In contrast, school accreditation does not have a significant direct effect on educational quality (standardized  $\beta = 0.042$ ;  $p = 0.814$ ). Accreditation, as an external evaluation mechanism, does not automatically improve educational quality if it is not accompanied by internal school capabilities. Accreditation status is not a stand-alone source of quality. Accreditation is only a prerequisite in the implementation of basic education. The results of the moderation effect test indicate that accreditation plays a significant role in strengthening the influence of managerial competence and school culture on educational quality. The interaction of KM  $\times$  Accreditation (estimate = 0.14) and BS  $\times$  Accreditation (estimate = 0.09) is positive. The higher the accreditation level, the greater the impact of managerial competence and school culture on educational quality. This finding confirms the function of accreditation as an institutional amplifier that increases the effectiveness of a school's internal capabilities through legitimization, standardization, and institutionalization of quality practices, rather than as a direct determinant of educational quality itself.

The results of the test of the moderating effect of school accreditation using Hayes PROCESS Macro in SPSS are as follows:

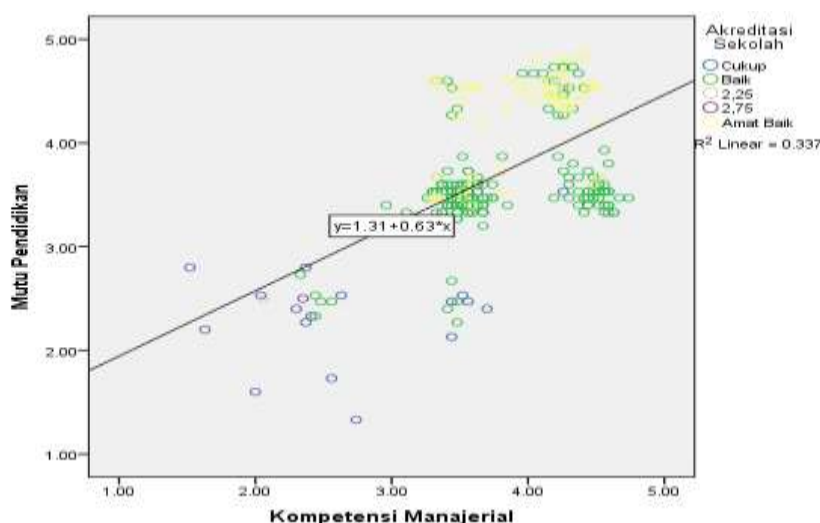
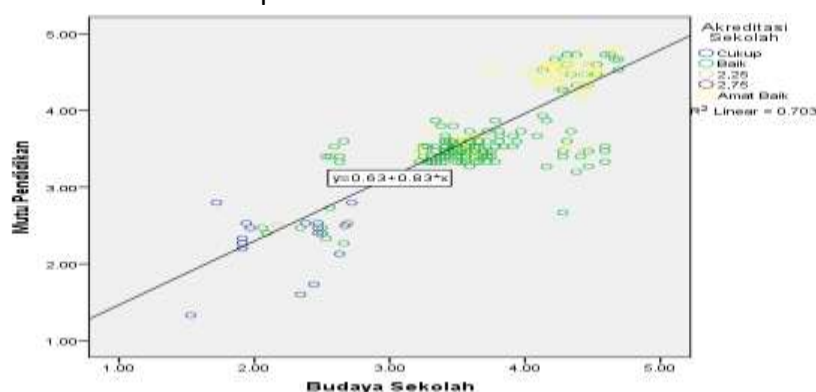


Figure 2. Results of the hypothesis test on the role of school accreditation in moderating the relationship between the principal's managerial competence and educational outcomes.

The results of the moderation test indicate that the principal's managerial competence does not have a significant direct influence on the quality of basic education when separated from its institutional context. This result confirms that the effectiveness of managerial leadership is contingent. The interaction between managerial competence and school accreditation status was shown to significantly influence education quality. The Johnson–Neyman test provided evidence of significance across the range of observed accreditation values, with no transition point of significance found. This indicates that managerial competence is a consistently relevant condition for improving education quality, even in schools with low accreditation. However, the strength of this influence increases linearly with increasing school accreditation status.

The results of the subsequent moderation tests are as follows:



**Figure 3. Results of hypothesis testing on the role of school accreditation in moderating the relationship between school culture and educational outcomes.**

Although school accreditation did not show a significant direct effect on educational quality, the interaction effect between school culture and accreditation proved significant. This pattern indicates that accreditation does not function as a stand-alone source of quality, but rather as an institutional context that strengthens the effectiveness of school culture. School culture is the primary driver of educational quality, while accreditation plays a role in increasing the leverage of that culture through the institutionalization of values, standardization of practices, and external evaluation mechanisms. The results of the Johnson–Neyman test provide a deeper understanding of the nature of this moderation. The effect of school culture on educational quality proved significant across the range of accreditation statuses observed, with no transition point of significance. This indicates that a strong school culture always has a positive impact on

educational quality, regardless of the level of accreditation. However, the magnitude of this effect increases linearly with increasing school accreditation status. Accreditation functions as an amplifier that increases the influence of school culture, not as an existential prerequisite for the effectiveness of organizational culture.

## **DISCUSSION**

Principals' managerial competence and school culture have been shown to be key determinants of educational quality. The effectiveness of managerial competence is reflected in the principal's ability to translate quality management principles into cross-functional operational practices, from strategic planning and human resource management to curriculum and learning process oversight. This finding is consistent with the Total Quality Management (TQM) framework in education proposed by Sallis (2002), and is in line with empirical evidence showing a positive relationship between principals' managerial competence and educational outcomes. At the same time, a conducive school culture also has a stable causal relationship with academic outcomes and the school's institutional quality.

Different from the linear causal approach dominant in previous literature, which treats managerial competencies as independent predictors of quality (Arum, 2017; Agustina et al., 2023; Elfira et al., 2024; Agussalim et al., 2025), this study adopts an interactional perspective, emphasizing the complexity of the relationship between a school's internal capabilities and the external institutional context. The results show that managerial competencies not only operate directly but also interact with school culture and the accreditation system in shaping the sustainable quality of basic education.

In this context, school accreditation does not function as a stand-alone source of quality. Consistent with the view that positions accreditation as a kitemark to stimulate and assist organizations, this study's findings confirm that internal capabilities, namely managerial competence and school culture, are the primary drivers of educational quality. These results also reinforce the criticism by Sallis (2002) against the tendency to overemphasize external inspection and normative compliance as proxies for educational quality.

Furthermore, accreditation acts as a contextual or institutional amplifier, strengthening the relationship between principals' managerial competencies and educational quality. Consistently, schools with higher levels of accreditation are able to translate managerial competencies into more consistent, standardized, and institutionalized quality practices.



Conversely, in schools with lower levels of accreditation, the influence of managerial competencies remains significant, but tends to be partial and less institutionalized. This pattern suggests that the accreditation system functions as an institutional mechanism that enhances the effectiveness of internal leadership capabilities, rather than as a substitute for them.

The main theoretical contribution of this study lies in the development of a TQM framework in primary education through a reconceptualization of the role of school accreditation. Unlike the literature that positions accreditation as a quality indicator or an antecedent of school performance, this finding emphasizes accreditation as a contingency factor that shapes the strength of the relationship between managerial competence, school culture, and educational quality. Thus, the TQM framework (Sallis, 2002) expanded from a structural approach to an interactional approach that emphasizes the synergy between internal capacity and external institutional pressures. Managerial competencies remain influential even at lower levels of accreditation, confirming that school leadership cannot be reduced to simply complying with external standards. However, higher levels of accreditation increase the returns from these competencies through legitimacy, process standardization, and stronger feedback mechanisms.

Findings related to school culture reinforce this argument. The combination of school culture, accreditation, and their interaction explain more than three-quarters of the variation in educational quality, confirming the centrality of organizational culture within the TQM framework. School culture functions not merely as a supporting variable for leadership but as a core quality mechanism that operates across institutional contexts. Even when external quality assurance systems are at a lower level, school culture still demonstrates a stable causal capacity for educational quality, thus being understood as a necessary and persistent condition for producing quality education.

The moderating role of accreditation in the relationship between school culture and educational quality also shifts theoretical understanding of the relationship between organizational culture and institutional systems. Accreditation does not replace the function of school culture, but rather strengthens it through the institutionalization of values and practices. This perspective expands TQM from a normative, compliance-based approach to a dynamic approach that explains how shared values gain greater power when supported by external legitimacy and formal evaluation systems. Educational quality, therefore, emerges from the alignment between internal values and institutionalized routines.

The Johnson–Neyman test, which failed to reach a significant threshold, reinforces these



findings. The absence of a transition point suggests that the influence of managerial competence and school culture on educational quality is neither discontinuous nor extremely conditional, but rather operates through a gradual reinforcement mechanism. This model challenges the policy dichotomy that often separates “quality” and “poor” schools and offers a more realistic understanding of quality improvement as a spectrum shaped by the ongoing interaction between internal capabilities and the institutional context.

This research provides a theoretical contribution through the development of the Configurational Theory of School Quality, which integrates agentic mechanisms (principal managerial competence) and collective mechanisms (school culture) within a framework that is interactional, contextual, and sensitive to institutional variations in primary education. Educational quality does not emerge suddenly when external standards are met, but rather develops progressively when a school's internal capabilities are strengthened by an institutionalized quality assurance system.

## **CONCLUSION**

This study concludes that principal managerial competence and school culture are the main determinants of the quality of primary education outcomes, both partially and simultaneously. The findings indicate that school culture has the most dominant influence on educational quality, while principal managerial competence contributes to strengthening the effectiveness of learning management, resources, and school evaluation processes. On the other hand, school accreditation does not directly affect educational quality, but functions as an institutional amplifier that strengthens the influence of managerial competence and school culture on educational quality. The results of the Johnson–Neyman test show that the influence of both internal variables remains significant at all levels of accreditation, with the strength of the influence increasing linearly as the school's accreditation status increases. These findings expand the Total Quality Management framework in education from a linear approach to a configurative and interactional approach that emphasizes the synergy between a school's internal capabilities and external quality assurance systems.

This study has limitations in the use of a cross-sectional design that is unable to explain causal relationships temporally, and the study area is still limited to one administrative region, so generalization of the results requires caution. Furthermore, the research data is still dominated by teacher perceptions despite procedures implemented to minimize common method bias.



Therefore, further research is recommended to use a longitudinal design, expand the research context across regions or countries, and combine perception data with objective data such as national assessment results and school performance indicators. Practically, the results of this study emphasize the importance of strengthening principals' managerial competencies and developing a quality-based school culture as a top priority for improving the quality of basic education. Accreditation policies also need to be directed not only as administrative evaluation instruments, but as institutional learning mechanisms capable of strengthening sustainable quality practices in schools.

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