

## IMPROVING LEARNING QUALITY THROUGH THE SYNERGY OF ACADEMIC SUPERVISION, SCHOOL CULTURE, AND TEACHER MOTIVATION

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### ARTICLE HISTORY

Received : 23-2-2022

Revised : 18-3-2022

Accepted : 17-4-2022

### KEYWORDS

Academic Supervision,  
School Culture,  
Teacher Work Motivation,  
Learning Quality,  
Instructional Leadership;  
Educational Management.

### ABSTRACT

This study examines the influence of principal academic supervision, school culture, and teacher work motivation on learning quality in public elementary schools in Sedan District, Rembang Regency. Using a quantitative ex post facto design, data were collected from 132 teachers selected through proportional random sampling. Multiple correlation, ANOVA, and multiple regression analyses were employed. The findings reveal that the three independent variables collectively have a very strong and significant effect on learning quality ( $R = 0.895$ ;  $R^2 = 0.800$ ;  $p < 0.001$ ). Principal academic supervision contributes the most substantially (69.8%), followed by teacher work motivation (68.1%) and school culture (53.1%). These results indicate that learning quality can be significantly improved through an integrated synergy that strengthens instructional supervision, fosters a collaborative school culture, and enhances teachers' intrinsic motivation. The study highlights the importance of comprehensive managerial interventions in optimizing learning quality and offers empirical evidence for the multidimensional model of supervision–culture–motivation in primary education.

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### INTRODUCTION

The quality of learning in schools is a key pillar of educational success. However, the reality on the ground often reveals a gap between the ideal curriculum and its practical implementation in the classroom. Three key issues contributing to this gap are challenges faced by teachers (the actors), the environment (schools), and supervision

(management). Challenges to learning quality that require intervention include stagnant/low learning outcomes, gaps in teacher competency, formalistic supervision, lack of constructive feedback, an environment that is less supportive of innovation, burnout and exhaustion, and efficacy.

Despite the implementation of various curriculum innovations, student achievement indicators in many schools remain suboptimal. This indicates problems with the core learning process in the classroom. First, the competency gap is evident in a lack of understanding of modern learning strategies, the use of technology, or effective formative assessment methods. This requires structured support and guidance. Second, academic supervision is often viewed merely as an administrative formality to assess teacher performance, rather than as a tool for ongoing professional development. Without effective supervision, teachers struggle to identify areas of weakness and lack specific feedback to improve their classroom teaching practices (Razak & Mohamad, 2023; Rusly & Kristiawan, 2024).

Continuous and constructive academic supervision plays a significant role in identifying and addressing teacher competency gaps (Susanti & Hartini, 2020; Yuliawati et al., 2021; Wibowo & Prawira, 2022). Third, a rigid, hierarchical, or siloed school culture inhibits teachers from trying new methods, collaborating, and sharing best practices. Without a supportive culture, improving the quality of learning becomes solely the responsibility of individual teachers, rather than the collective responsibility of the entire school community (Nursidah, Yunus, & Elpisah, 2021; Pangestu & Wijayanti, 2025).

When schools have a culture that supports improvement, teachers are more open to feedback from supervisors, ultimately improving the quality of teaching practices (Yuliawati et al., 2021; Susilo & Purwanto, 2023). Focused supervision helps teachers reflect on and refine their teaching strategies, encouraging them to be more innovative and independent (Rachmawati, Fitria & Rohana, 2024). This indirectly stimulates teachers' motivation to continue learning (Anggraeni, 2022). Fourth, individual challenges, evident in high administrative workloads and lack of recognition, can reduce teachers' intrinsic motivation, ultimately impacting their energy and creativity in teaching (Susilo & Purwanto, 2023).

Given the challenges mentioned above, improving the quality of learning cannot be achieved by addressing a single factor. Many factors influence this. Research by Marhawati (2020); Mulyono & Utami (2020), and Kurniawan & Sari (2022) indicates that academic supervision and school culture simultaneously have a significant and positive influence on teacher teaching quality. This teaching quality supports the research argument that efforts to improve learning quality must be synergistic. Research by Susilo & Purwanto (2023) demonstrates a significant influence between school culture and teacher work motivation on teacher performance, which impacts learning quality. Research by Sudargini (2021) indicates that academic supervision and teacher work motivation simultaneously play a significant role in improving teacher competency. This means that supervision will be more effective in improving quality if coupled with high teacher work motivation.

Research by Gumus (2020) found that instructional leadership has a significant and positive influence on teacher self-efficacy, both directly and through the mediation of school culture. Strong leadership (systematic principal supervision) can shape a positive school culture. A culture shaped by instructional leadership enhances teacher self-efficacy (a crucial component of intrinsic motivation). This indirectly proves that the synergy between supervision and culture is key to enhancing teacher motivational aspects, which ultimately improves the quality of learning. Perceived support from the principal (supportive supervision and clear guidance) significantly increases teacher work motivation and reduces stress/burnout (Skaalvik & Skaalvik, 2020). Leadership and supervision shape school culture, and the synergy between the two is a key driver of improved teacher motivation and teaching practices (Gumus, 2020; Skaalvik & Skaalvik, 2020).

Based on these research findings, it can be concluded that effective academic supervision serves as a lever to guide teacher practice; school culture serves as an ecosystem that facilitates collaboration and innovation; and teacher motivation serves as an engine that drives teachers to maximum effort. Therefore, the synergy of these three components is an absolute prerequisite for creating a dynamic, innovative, and student-centered learning environment.

Sedan of District, Rembang of Regency, in the 2024/2025 and 2025/2026 academic years, has 26 elementary schools with approximately 205 teachers and approximately 3,000 students. Field observations and findings indicate that the school enrollment rate for children aged 7-12 is >95%, indicating excellent accessibility to basic education. Factors determining learning quality have been implemented/exist, although limitations remain. Academic supervision by school principals still focuses on teacher administrative requirements (Lesson Implementation Plans/RPPs) rather than guiding classroom teaching practices. Schools may face challenges in developing a strong culture of collaboration. Teachers tend to work in silos rather than share best practices, which hinders innovation. Teachers in public schools often face high administrative burdens and the demands of implementing new curricula, which can impact intrinsic motivation and lead to burnout, especially if not supported by a supportive work environment. The accurate data from these observations is reinforced by the analysis of the 2023-2025 Education Report as shown in **Table 1**.

**Table 1.** Sedan District Public Elementary School Education Report 2023-2025

No	Dimension	Sum of Schools According to Achievement Labels in the form of a Color Spectrum				
		Year	Blue Excellent	Green Good	Yellow Fair	Red Poor
1	D.1 Learning Quality	2023	0	6 (23,1%)	11 (42,3%)	9 (34,6%)
		2024		6 (23,1%)	11 (42,3%)	9 (34,6%)
		2025		8 (30,8%)	10 (38,4%)	8 (30,8%)
2	D.1.1 Classroom Management	2023	0	5 (19,2%)	12 (46,1%)	9 (34,6%)
		2024		6 (23,1%)	11 (42,3%)	9 (34,6%)
		2025		7 (26,9%)	13 (50,0%)	6 (23,1%)

**Table 1** shows the 2024 and 2023-2025 Education Report Cards for 26 state elementary schools in Sedan District, Rembang Regency, across dimensions D1 (Learning Quality) and D1.1 (Classroom Management). Learning quality averaged 25.7% in the good category, while classroom management averaged 23.1%. This illustrates the existing gap. Another supporting indicator is the average teacher safety climate and well-being scores within the education report, which remained below 50% in 2024-2025.

The analysis of the education report and the findings of several studies above indicate suboptimal teacher motivation and school climate (culture). This gap indicates that previous studies have failed to present an integrated intervention model that effectively addresses the psychological and cultural roots of teacher motivation in the Sedan, Rembang, context. The low level of collaboration as part of school culture indicates that academic supervision is top-down and has not yet succeeded in fostering a peer-teaching culture. The low quality of learning, reinforced by poor classroom management, indicates that supervision is ineffective as a professional development model implemented in Sedan District. Other findings indicate a lack of feedback and follow-up on supervision results. This indicates the failure of academic supervision to trigger positive change.

Therefore, research is needed to demonstrate that effective supervision can only be achieved if supported by a supportive school culture and teacher motivation to accept such feedback. Another novelty that will emerge from this research is the comprehensive testing of the three-pillar synergy model (supervision, culture, and motivation). Empirical findings are expected to demonstrate that improved learning quality results from balanced and integrated interventions across managerial (supervision), environmental (school culture), and psychological/individual (teacher motivation) aspects.

Based on the above background, the focus and research problem is the extent to which the principal's academic

supervision, school culture, and teacher work motivation influence the quality of learning in public elementary schools in Sedan District, Rembang Regency. This study aims to determine the extent of the influence of the Principal's Academic Supervision, School Culture and Teacher Work Motivation on the Quality of Learning at State Elementary Schools in Sedan District, Rembang Regency.

## METHOD

This research approach is an ex post facto quantitative study. Therefore, this study does not use treatment on the research variables but rather examines facts that have occurred and been carried out by the research subjects (Sugiyono, 2023). This study aims to determine the effect of Principal Academic Supervision (X1), School Culture (X2), and Teacher Work Motivation (X3) on Learning Quality (Y). The study was conducted from April to June 2025 at a public elementary school in Sedan District, Rembang Regency. This study employed a quantitative causal-correlational design to examine the effects of principal academic supervision (X1), school culture (X2), and teacher work motivation (X3) on learning quality (Y). The research was conducted in public elementary schools in Sedan District from April to June 2025. The population consisted of 196 teachers, and a sample of 132 was selected using proportional random sampling based on the Slovin formula. Data were collected using a structured Likert-scale questionnaire. Instrument validity was tested using Pearson's product-moment correlation, and reliability was ensured through Cronbach's Alpha ( $\alpha > 0.70$ ). Data analysis involved descriptive statistics, prerequisite tests (normality, linearity, multicollinearity, and heteroscedasticity), and hypothesis testing using multiple regression analysis. Ethical approval and institutional permission were obtained prior to data collection.

## RESULT AND DISCUSSION

Description of research variable data based on respondents' answers in the research instrument. Descriptions of the analyzed variables are shown in **Table 2**.

**Table 2.** Descriptive Statistics Statistics

	Academic Supervision	School Culture	Work Motivation	Learning Quality
N	Valid	132	132	132
	Missing	0	0	0
Mean	125,64	130,48	126,71	218,52
Std. Deviation	14,913	20,100	14,452	23,463
Range	70	77	66	100
Minimum	100	99	100	174
Maximum	170	176	166	274
Sum	16585	17223	16726	28844

**Table 2** shows that variable Y (Learning Quality) with 132 respondents had a minimum value of 174, a maximum value of 274, an average of 218.52, and a standard deviation of 23.46. Variable X1 (Principal Academic Supervision) with 132 respondents, a minimum value of 100, a maximum value of 170, an average of 125.64, and a standard deviation of 14.91. Variable X2 (School Culture) with 132 respondents, a minimum value of 99, a maximum value of 176, an average of 130.48, and a standard deviation of 20.10 and variable X3 (Work Motivation) with 132

respondents, a minimum value of 100, a maximum value of 166, an average of 126.71, and a standard deviation of 14.452.

Based on respondents' perceptions of the Learning Quality variable, 15 (11.4%) stated it was very good, 15 (11.4%) stated it was good, 40 (30.3%) stated it was quite good, 41 (31.1%) stated it was not very good, and 21 (15.9%) stated it was not very good. With an average score of 218.52, it can be concluded that the Learning Quality of Public Elementary Schools in Sedan District, Rembang Regency is categorized as quite good.

The results of the 132 respondents' perceptions of the Principal's Academic Supervision variable indicate that 3 (2.3%) stated it was very good, 18 (13.6%) stated it was good, 38 (28.8%) stated it was not very good, and 30 (22.7%) stated it was not very good. With an average score of 125.64, it can be concluded that the Academic Supervision of Public Elementary School Principals in Sedan District, Rembang Regency is categorized as not very good. The results of 132 respondents' perceptions of the School Culture variable indicate that 18 (13.6%) stated it was very good, 13 (9.8%) stated it was good, 32 (24.2%) stated it was quite good, 39 (29.5%) stated it was not good, and 30 (22.7%) stated it was not good. With an average score of 130.48, it can be concluded that School Culture is in the fairly good category. The results of the 132 respondents' perceptions of the Work Motivation variable indicate that 2 (1.2%) stated it was very good, 24 (13.9%) stated it was good, 61 (35.3%) stated it was not good, and 17 (3.6%) stated it was not good. With an average score of 126.71, it can be concluded that Work Motivation in Public Elementary Schools in Sedan District, Rembang Regency is in the fairly good category.

Before conducting the regression analysis, a prerequisite test was first conducted. A good regression model is one that meets the requirements. The tests carried out in the prerequisite tests in this study include normality tests, linearity tests, multicollinearity tests and heteroscedasticity tests with the help of SPSS 25. The results of the normality test of the Y variable data (Learning Quality) show the Exact Sig. (2-tailed) significance value of 0.406 which means it is greater than 0.05 or  $0.406 > 0.05$  so it can be concluded that the Y data is normally distributed and meets the requirements for the regression test.

The normality test of the X1 variable data (Principal Academic Supervision) is shown from the Exact Sig. (2-tailed) significance value of 0.590 which means it is greater than 0.05 or  $0.590 > 0.05$  so it can be concluded that the X1 data (Principal Academic Supervision) is normally distributed and meets the requirements for the regression test. The results of the X2 variable normality test (School Culture) are shown in the Exact Sig. (2-tailed) significance value of 0.162 which means it is greater than 0.05 or  $0.162 > 0.05$  so it can be concluded that the X2 data (School Culture) is normally distributed and meets the requirements for the regression test. The results of the normality test for variable X3 (Work Motivation) showed a significance value of 0.195 (Exact Sig.) (2-tailed), which is greater than 0.05, or  $0.195 > 0.05$ . Therefore, it can be concluded that the data for X3 (Work Motivation) is normally distributed and meets the requirements for regression testing.

The multicollinearity test aims to determine whether there is a strong correlation between the independent variables. This study used the Variance Inflation Factor (VIF) value for the multicollinearity analysis. If the VIF value is less than 10 ( $VIF < 10$ ), the independent variables tested do not exhibit multicollinearity. The results of the multicollinearity test showed a tolerance value of 0.391 for variable X1, 0.463 for variable X2 (School Culture), and 0.292 for variable X3 (Work Motivation). The VIF value for variable X1 (Principal Academic Supervision) is 2.683, variable X2 (School Culture) is 1.647, and variable X3 (Work Motivation) is 1.329. Since the tolerance value for all three variables is  $>0.10$  and the VIF value is  $<10.00$ , it can be concluded that there is no multicollinearity between X1 (Principal Academic Supervision), X2 (School Culture), or X3 (Work Motivation), meaning this data can be used for a simple linear regression test. The linearity test for variable X1 (Principal Academic Supervision) with variable Y (Learning Quality) used the deviation from linearity test (F test).

The analysis results showed that variable X1 (Principal Academic Supervision) on variable Y (Learning Quality) obtained an F count of 1.252 with a significance value of 0.183 from a total of 132 respondents, resulting in an F table ( $df 128$ ) of 2.68. So, because  $F_{count} < F_{table}$ , namely  $1.342 < 2.68$  and the significance value is  $> 10.05$ , namely  $0.102 > 0.05$ , the relationship between variable X1 (Principal Academic Supervision) and variable Y (Learning

Quality) is linear, meaning it can be used as a prerequisite in correlation analysis or linear regression. The results of the Y linearity test against X2 indicate that the variable X2 (School Culture) against the variable Y (Learning Quality) obtained an F count of 1.287 with a significant value of 0.154 from the number of respondents 132, then the f table is 2.68. So, because  $F_{count} < F_{table}$ , namely  $1.287 < 2.68$  and the significance value is  $> 10.05$ , namely  $0.154 > 0.05$ , the relationship between variable X2 (School Culture) and variable Y (Learning Quality) is linear, meaning it can be used as a prerequisite in correlation analysis or linear regression. The linearity test of variable Y (Learning Quality) against X3 (Work Motivation) is shown from the Fcount of 1.339 with a significant value of 0.121 from the number of respondents 132, then the Ftable is 2.68. So, because  $F_{count} < F_{table}$ , namely  $1.339 < 2.68$  and the significance value  $> 10.05$ , namely  $0.121 > 0.05$ , the relationship between variable X3 (Work Motivation) and variable Y (Learning Quality) is linear, meaning it can be used as a prerequisite in correlation analysis or linear regression.

The heteroscedasticity prerequisite test is used to test whether there is a difference in the variance of the residuals against other observations in the regression model. The heteroscedasticity test uses the Glejser Test method. The calculation results using SPSS 25 show that the significance value of variables X1 and X3 against Y (Learning Quality) is greater than 0.05, namely 0.231 (X1) and 0.089 (X3). Based on this, it can be concluded that there is no heteroscedasticity between variable X1 (Principal Academic Supervision) against Y (Learning Quality), and variable X3 (Work Motivation) against Y (Learning Quality). The test of variable X2 (School Culture) against Y (Learning Quality) experiences heteroscedasticity because the result is smaller than 0.05, namely 0.016. Actions taken when experiencing heteroscedasticity are carried out by determining a robust estimation coefficient, namely using an estimation coefficient that is immune or robust to violations of the heteroscedasticity assumption. Therefore, heteroscedasticity is allowed to persist, but the estimated coefficients will not be affected or the model will be unbiased, because the estimated coefficients generated using this robust method are immune.

The initial step in hypothesis testing is a correlation test. The results of the correlation tests conducted on variable X1 against Y, variable X2 against Y, and variable X3 against Y yielded consecutive calculated r values for variables X1, X2, and X3 against Y of 0.836, 0.729, and 0.825, respectively, with an r value for the N (Number of Samples) of 132 of 0.1702. Based on the comparison of calculated r values with the table value, the calculated r value is greater than the table value, indicating a significant correlation between Principal Academic Supervision, School Culture, and Work Motivation, each with Learning Quality, in the moderately strong category.

The determination test for X1 against Y yielded an R-Square of 0.698. Thus, the coefficient of determination was 0.698, indicating that variable (X1) partially influences variable (Y) by 69.8%. The determination test for X2 on Y yielded an R-squared value of 0.531. Therefore, the coefficient of determination was 0.531, indicating that variable (X2) influences variable (Y) by 53.1%. Similarly, the determination test for X3 on Y yielded an R-squared value of 0.681. Therefore, the coefficient of determination was 0.681, indicating that variable (X3) influences variable (Y) by 68.1%.

Partially, the Principal's Academic Supervision variable (X1) had a positive effect on the Learning Quality variable (Y) with a linear regression equation of  $\hat{Y} = 53.329 + 1.315 X_1$ . An increase in the Principal's Academic Supervision would also improve the Learning Quality. Conversely, if the Principal's Academic Supervision decreases, the Quality of Learning will also decrease. Partially, the Teacher School Culture variable (X2) also has a significant effect on the Quality of Learning variable (Y) with a multiple linear regression equation of  $\hat{Y} = 107.561 + 0.850 X_2$ . If School Culture increases, then the Quality of Learning will directly increase. Conversely, if School Culture decreases, then the Quality of Learning will directly decrease. Similarly, partially, the Teacher Work Motivation variable (X3) has a significant effect on the Quality of Learning variable (Y) with a multiple linear regression equation of  $\hat{Y} = 48.696 + 1.340 X_3$ . If Teacher Work Motivation increases, then the Quality of Learning will indirectly increase. Conversely, if Teacher Work Motivation decreases, then the Quality of Learning will indirectly decrease.

The initial step in testing the research hypothesis was to conduct a simultaneous correlation test for the three variables. The results of the correlation test can be seen in **Table 3**.

**Table 3.** Multiple Correlation Coefficients

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,895 <sup>a</sup>	0,800	0,795	10,611

a. Predictors: (Constant), Work Motivation, School Culture, Principal's Academic Supervision

The multiple correlation coefficient of 0.895 (**Table 3**) indicates the strong relationship between all independent variables (Work Motivation, School Culture, and Principal Academic Supervision) simultaneously and the dependent variable (Learning Quality). The R-square value of 0.800 indicates that 80% of the variation in the dependent variable is influenced by these three independent variables. The remaining 20% is influenced by factors outside the model studied. The Adjusted R-square coefficient is 0.795. This means that 79.5% of the actual contribution of the independent variables, after adjusting for the number of variables and sample size, influences the dependent variable.

The next step in hypothesis testing is ANOVA to determine whether variables X1, X2, and X3 have a joint effect on variable Y, as shown in **Table 4**.

**Table 4.** ANOVA Test Results

ANOVA<sup>a</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	57703,804	3	19234,601	170,842	0,000 <sup>b</sup>
Residual	14411,165	128	112,587		
Total	72114,970	131			

a. Dependent Variable: Learning Quality

b. Predictors: (Constant), Work Motivation, School Culture, Principal's Academic Supervision

From the data in **Table 4**, the calculated F-value is 170.842 with a significance level of 0.000. With an  $\alpha$  of 0.05, degrees of freedom (df)  $v_1 = 132$  ( $n(k-3)$ ), and an F-table of 2.68. Because the calculated F-value is greater than the F-table ( $170.842 > 2.68$ ) and the significance value is  $<0.05$  ( $0.000 < 0.05$ ),  $H_a$  is accepted, meaning that the variables of Principal Academic Supervision, School Culture, and Teacher Work Motivation simultaneously have a significant effect on Learning Quality.

The results of the multiple regression analysis are shown in **Table 5**. The multiple regression analysis aims to explain and predict the dependent variable (the dependent variable of Learning Quality) based on the simultaneous and partial effects of Principal Work Motivation, School Culture, and Academic Supervision.

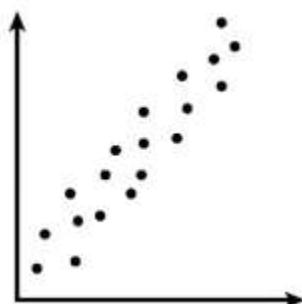
**Table 5.** Multiple Regression Analysis Results

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
	B	Std. Error			
1 (Constant)	30,661	8,518		3,600	0,000
Unstandardized Coefficients		Standardized Coefficients Beta		t	
Model	B	Std. Error	Beta		Sig.
Principal's Academic Supervision	0,732	0,099	0,465	7,364	0,000
School Culture	0,265	0,068	0,227	3,907	0,000

Work Motivation	0,484	0,119	0,298	4,076	0,000
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Based on **Table 5**, the regression equation is  $\hat{Y} = 30.661 + 0.732 X_1 + 0.265 X_2 + 0.484 X_3$ . Simultaneously, the variables of Principal Academic Supervision ( $X_1$ ), School Culture ( $X_2$ ), and Work Motivation ( $X_3$ ) have a positive effect on the variable of Learning Quality ( $Y$ ). If Principal Academic Supervision, School Culture, and Work Motivation increase, then the Quality of Learning will directly increase. Conversely, if Principal Academic Supervision, School Culture, and Work Motivation decrease, then the Quality of Learning will also directly decrease.

Further discussion is based on the results of the Multiple Correlation Test, ANOVA Test (F Test), and Multiple Regression Analysis which show a simultaneous and partial relationship between the independent variables (Principal Academic Supervision, School Culture, and Work Motivation) on the dependent variable (Learning Quality). Positive findings that support the research hypothesis and its underlying theory are seen from the strong and significant simultaneous relationship and influence obtained from the correlation coefficient  $r$  of 0.895 and  $r^2$  0.800. This indicates a very strong relationship between the three independent variables together on Learning Quality. This finding is in line with the results of research by Tarigan, Sinaga, & Manalu (2021) and Tarigan, et al. (2025) that good learning performance will result in learning quality which is strongly influenced by supervision, a conducive culture and environment, and teacher work motivation. The form of the relationship is included in the Medium Positive Correlation category as shown in **Figure 1**.



**Figure 1.** Medium Positive Correlation ( $r= 0.895$  and  $r^2=0.800$ )

Based on the Multiple Regression Analysis (**Table 5**), the three independent variables showed a positive and partially significant influence on the Quality of Learning. The Principal's Academic Supervision (69.8%) had the highest contribution to the Quality of Learning, after Work Motivation (68.1%) and School Culture (53.1%). The equation and distribution of the multiple regression in **Figure 1** indicate that increasing one or all of the independent variables will improve the Quality of Learning.

Although the model is very robust, with a positive and significant effect of Principal Academic Supervision, School Culture, and Work Motivation on Learning Quality (80%), 20% of the variation in Learning Quality cannot be explained by Principal Academic Supervision, School Culture, and Work Motivation. This suggests that other factors outside the research model (such as Teacher Competence, Facilities and Infrastructure, or Parental Support) also contribute to Learning Quality.

These positive findings provide strong empirical support for theories in educational management and organizational psychology. The findings that the principal's academic supervision had the most dominant and positive influence align with educational management theory, which states that instructional leadership (such as supervision) is key to improving teacher performance and the quality of the school's core processes (learning). This is consistent with research by Asrowi (2021); Rosyidi & Wahyono (2022); and Khasanah & Nurhayati (2024). Effective

supervision ensures curriculum implementation, supports teacher professional development, and maintains quality standards (Waang & Ahmad, 2020; Utaminingtyas, Hanafi, & Suherman, 2023). The positive and significant influence of school culture supports the theory that a supportive, learning-oriented work climate (collaboration, mutual trust, and student-focused) is crucial for improving the quality of educational outcomes. A positive culture creates an environment in which teacher motivation and teaching practices can thrive (Pujiyanto, Arafat & Setiawan, 2020; Rosyidi & Wahyono, 2022).

The significant influence of Work Motivation confirms motivation theory that internal and external drives felt by teachers (e.g., job satisfaction, recognition, sense of accomplishment) directly influence the effort they put into teaching, ultimately improving the Quality of Learning (Siregar & Harahap, 2024). Motivated teachers tend to be more innovative and dedicated (Arofah, 2021; Sari & Kurniawan, 2023; Pratama & Nurhayati, 2024). However, there are findings that school culture contributes the least among the existing variables. This is consistent with research by Anggraeni, Haryati & Sudana (2022); Mariyam, Ngasbun, and Rasiman (2023).

In theory, academic supervision plays a central role in shaping and strengthening a positive school culture. Academic supervision acts as an agent of cultural change. The implementation of academic supervision by the principal or supervisor is one of the primary ways in which organizational values are communicated and enforced. Developmental supervision will foster a culture of collaborative learning and continuous improvement. Consistent and objective academic supervision will promote a culture of accountability and professionalism. Therefore, academic supervision and school culture jointly influence teacher work motivation.

School culture and work motivation on teacher performance, which is an important outcome prior to learning quality, support synergy between the two variables (Purwanto & Khairani, 2021; Tarigan, Sinaga & Manalu, 2021; Suhardi & Handayani, 2023). This finding requires further in-depth study. Overall, the results of this study provide strong empirical evidence that efforts to improve the quality of learning must be carried out comprehensively, focusing on three main pillars: leadership supervision (Academic Supervision), the work environment (School Culture), and teacher psychological conditions (Work Motivation). Priority can be given to strengthening the role of the Principal as an academic supervisor, as this variable shows the highest contribution in the model (Rahayu, 2023; Setyawan, 2024).

## CONCLUSION

This study concluded that principals' academic supervision, school culture, and teachers' work motivation have a very strong and significant collective influence on learning quality, explaining 80% of the variance. Academic supervision emerged as the most dominant predictor, followed by teacher motivation and school culture. These findings underscore the importance of a synergistic approach that strengthens instructional leadership, fosters a collaborative school environment, and enhances teachers' intrinsic motivation. Research implications include the need for principal training in developmental supervision, systematic reinforcement of positive school culture, and institutional mechanisms that support teacher motivation. Limitations of the study relate to the self-report nature of the instrument and the limited geographic context.

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