

Principal's Academic Supervision, School Culture, and Work Motivation to Improve Teacher Teaching Quality

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ABSTRACT: This study aims to analyze the influence of the principal's academic supervision, school culture, and work motivation on optimizing the quality of teachers' teaching. A sample of 87 people was taken using stratified random sampling. The data analysis technique was descriptive and used multiple linear regression with the SPSS application program. Efforts to improve the quality of teachers' teaching can be done by improving the principal's academic supervision, school culture, and work motivation. Teacher work motivation should be prioritized to improve the quality of teaching of public elementary school teachers in Johar sub-district, Karo Regency.

KEYWORDS: Principal's Academic Supervision, Teacher Teaching Quality, School Culture, Work Motivation

INTRODUCTION

The educational process in schools is constantly evolving, influenced by global learning advancements. The education implemented will adapt to the prevailing educational system throughout Indonesia. Prioritizing education is crucial in supporting the development of human resources that will support the advancement of science. Learning designs are constantly evolving in line with advances in information technology, which are being implemented to accelerate educational transformation. Curriculum changes follow scientific developments, and the environment is also changing, necessitating adjustments.

In order to achieve the goal of human resource development in each school, academic supervision is then carried out to ensure that the management and delegation of authority from the leadership to each section run according to plan. Leadership will provide clear policy directions to be implemented in all work areas to reduce any potential errors or risks. Simply explained, academic supervision is the delegation of authority from leaders to subordinates to avoid possible risks. Public elementary schools in Johar sub-district are making an effort to develop human resources. The principal conducts academic supervision of teachers, education staff, and students. The results of the researcher's observations show that in achieving the implementation of academic supervision, it is stated that it is related to the indicators of the problems faced.

These aspects include understanding the problem, organizing data and writing relevant information, presenting problems in various forms, choosing the right problem-solving approach, developing problem-solving strategies, and resolving problems. School culture variables with problem indicators include: independence, partnership, participation, openness, and accountability. Work motivation variables with problem indicators are independence, partnership, participation, openness, and accountability. Indicators of teacher teaching quality are ensuring quality, success rate, and quality management.

This study aims to determine and analyze the influence of academic supervision, school culture, and work motivation on the teaching quality of public elementary school teachers in Johar sub-district. This study is important to immediately provide input for improving the quality of learning by teachers. The research questions asked include: Is there an influence of academic supervision on the teaching quality of public elementary school teachers in Johar sub-district? Is there an influence of school culture on the teaching quality of public elementary school teachers in Johar sub-district? Is there an influence of work motivation on the teaching quality of public elementary school teachers in Johar sub-district? Is there an influence of academic supervision, school culture, and work motivation simultaneously on the teaching quality of public elementary school teachers in Johar sub-district?



LITERATURE REVIEW

A. Hypotheses Development

1. Principal Academic Supervision and Teacher Teaching Quality.

Principals have a central responsibility in providing support to teachers, thereby improving their performance and learning quality (Ikrima et al., 2023). Academic supervision is a supervisory approach that emphasizes actual classroom practice, individual teacher needs, and objective school conditions (Husni, 2022). Teaching quality is a measure of the effectiveness and efficiency of the interaction process between teachers and students, which can facilitate and improve students' understanding, skills, and attitudes in achieving learning objectives (Purwanto, 2021; Anggraeni et al., 2017). Research by Nursidah et al., (2021) shows the influence of principal academic supervision on teacher teaching quality at State Senior High School 6 Wajo. Hadi, (2023), states that improving teacher teaching quality can be achieved through principal academic supervision at State Senior High School 1, Tongas Probolinggo. Therefore, increased academic supervision impacts the quality of teachers' teaching and learning for students at school. Maryani et al., (2020) concluded from their research that the principal's academic supervision influences teaching quality at Prabumulih 1 State Junior High School. Based on the above description, the following hypothesis is proposed,

H1: The principal's academic supervision influences teacher teaching quality.

School Culture and Teacher Teaching Quality

School culture is a set of values that shape behavior, traditions, daily habits, and symbols that are collectively practiced by the entire school community (Husni, 2022; Widodo, 2017; Norida al., 2017). Research conducted by Nursidah et al., (2021) shows the influence of school culture on teacher teaching quality at Wajo State Senior High School 6. Other researchers also stated that school culture influences teacher quality at a public junior high school in Sekayam District, Sanggau Regency (Budhiarti et al., 2017). Based on the above description, the following hypothesis can be proposed,

H2: School culture influences teacher teaching quality.

Work Motivation and Teacher Teaching Quality

Fernando et al., (2024); Ii et al., (2016), work motivation is an internal drive that drives someone to be willing to devote their abilities, energy, and time to the learning process to achieve learning goals. Research by Naser et al., (2023) in a private Islamic junior high school in Tahunan District, Jepara Regency, concluded that teacher work motivation influences the quality of learning. Another study in a public junior high school in Magetan Regency found that teacher work motivation influences the quality of learning (Santi et al., 2024). Referring to the above description, the following hypothesis can be proposed,

H3: Work motivation influences teacher teaching quality.

Principal academic supervision, school culture, work motivation, and teacher teaching quality.

These four concepts exist within a community. Therefore, there is a relationship between the variables. If academic supervision, school culture, and work motivation have a partial positive effect on learning quality, then the following tentative answer can be proposed,

H4: Principal academic supervision, school culture, work motivation, and teacher teaching quality simultaneously influence teacher teaching quality.

B. Conceptual Framework.

Napitupulu, (2025) states that conceptual frameworks and propositions are two closely related aspects. Furthermore, a conceptual framework is built from several propositions. Related concepts constitute a proposition. Based on the above hypotheses, the researcher developed a conceptual framework as presented in Figure 1.

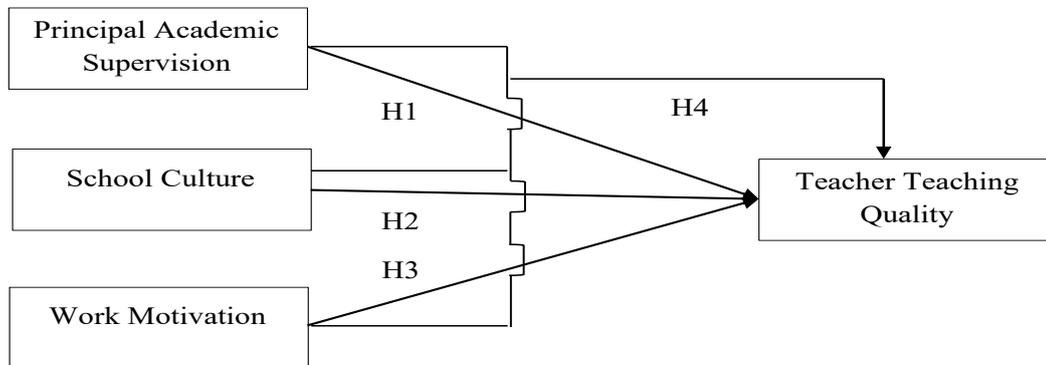


Figure 1. Research Conceptual Framework

Source: Developed by researchers from secondary sources, 2025

This study has four variables. The three independent variables are academic supervision, school culture, and work motivation. Teacher teaching quality is the dependent variable. These three independent variables (H1, H2, and H3) have a recursive relationship with the dependent variable (H4), both partially and simultaneously. Changes to these three independent concepts, either separately or simultaneously, will result in changes in the dependent concept in the same direction.

METHODS

A. Population, Sample, and Sampling Technique

A population is all observed units where measurements will be taken (Lohr, 2022). In this study, the population was 111 public elementary school teachers in Juhar District, Karo Regency. A portion of the population studied was considered a sample (Arikunto, 2011). The sample was determined using the Slovin formula. The number of respondents was 87. Sugiyono, (2016) used a stratified probability sampling technique. After stratification, respondents were selected randomly. Each teacher had an equal chance of being a respondent.

B. Data Collection

Primary data were collected using a questionnaire. The measurement used a Likert scale ranging from 1 to 5 (Zikmund et al., 2013). The teachers completed the questionnaire based on their opinions on the statements or questions posed by the researcher. Before use, the instrument was tested for validity and reliability.

C. Analysis Techniques

Descriptive Analysis Techniques

Descriptive analysis is a statistical method that describes collected data (Sugiyono, 2017). Siyoto & Sodik, (2015) state that descriptive research is concerned with the detailed study of phenomena to clearly differentiate them from other phenomena. This technique is necessary and used to examine differences in respondent characteristics to determine their impact on their perceptions of the questions posed by the researcher.

Causal Analysis Techniques with Multiple Linear Regression

Fitting a mathematical model that relates a dependent variable to one or more independent variables through a statistical procedure. Sarma & Vardhan, (2019); Zikmund et al., (2013). Multiple linear regression is used when researchers want to test the relationship between one dependent variable (impact) and a set of independent variables (Afifi et al., 2020; Hair et al., 2019). Sarma & Vardhan, (2019); Johnson & Wichern, (2014); Rencher & Christensen, (2012) use the following functional formula $y_i = \alpha + \beta_1x_1 + \beta_2x_2 + \dots + \beta_kx_k + \epsilon_i$ is the intercept. y_i is the observed value of the response variable and ion slope parameter for predictor x_1 , β_2 is the partial regression slope parameter for predictor x_2 and β_k is the partial regression slope parameter for predictor x_k . The above model can be used or discussed after fulfilling the requirements, including classical assumption tests, partial tests (t-tests), simultaneous tests (F-tests), and the coefficient of determination.



RESULTS AND DISCUSSION

A. Descriptive Analysis

Descriptive statistics provide a general overview of the characteristics of each research variable, as seen from the maximum, average (mean), and minimum values. The descriptive analysis in this study relates to gender and rank or class. See Table 1.

Table 1. Respondent Characteristics Based on Gender

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	39	44,8	44,8	44,8
Female	48	55,2	55,2	100,0
Total	87	100,0	100,0	

Source: Processed from primary data, 2025

From the calculation results stated in Table 1, it can be explained that the characteristics of the respondents are seen from the male gender, as many as 39 people, and the female gender, as many as 48 people. From the data above, it can be seen that the dominance of Public Elementary School Teachers in Juhar District, Karo Regency is female, as many as 48 people out of 87 teachers in total. The number of teachers is 87, consisting of 17 people from class IIIC, 19 teachers from class IIID, 19 teachers from class IVA, 7 teachers from class IVB, 13 teachers from class IVC, and 12 teachers from class IVD. From the data presented in Table 2, it can be seen that the dominant group of teachers in public elementary schools in Juhar District, Karo Regency, is class IIID and IVA, each with 19 people or 21.8%. It turns out that the number of Class IVB is the smallest among the public elementary school teachers in Juhar sub-district, Karo Regency, namely 7 people or 8%.

Table 2. Respondent Characteristics Based on Class

Class	Frequency	Percent	Valid Percent	Cumulative Percent
Valid IIIC	17	19,5	19,5	19,5
IIID	19	21,8	21,8	41,4
IVA	19	21,8	21,8	63,2
IVB	7	8,0	8,0	71,3
IVC	13	14,9	14,9	86,2
IVD	12	13,8	13,8	100,0
Total	87	100,0	100,0	

Source: Processed from primary data, 2025

B. Multiple Linear Regression Analysis

Research Results

The multiple linear regression model obtained through data processing with SPSS is: $Y = 0.374 X_1 + 0.211 X_2 + 0.886 X_3$, where: X1: Principal's Academic Supervision; X2: School Culture; X3: Work Motivation; Y: Teacher Teaching Quality.

Multiple Regression Model Feasibility Testing

Classical Assumption Test, including: Normality Test. In this study, data normality testing was performed using the Kolmogorov-Smirnov (KS) test with a significance value above 0.05. The results of the residual data normality test are presented in Table 3.

Table 3. One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		87
Normal Parameters ^{a,b}	Mean	0,0000000
	Std. Deviation	2,44781731
Most Extreme Differences	Absolute	0,075
	Positive	0,064



	Negative	-0,075
Test Statistic		0,075
Asymp. Sig. (2-tailed)		0,200 ^{c,d}

Source: Processed from primary data, 2025

Table 3 above shows that the significance value is above 0.05, namely 0.200. This means that the residual data is normally distributed.

Multicollinearity Test

The multicollinearity test is one of the crucial classical assumptions in multiple linear regression analysis. Its purpose is to examine whether there is a strong correlation or linear relationship between the independent variables in a regression model. A good regression model does not correlate with the independent variables. To detect symptoms of multicollinearity in a research model, the tolerance value or Variance Inflation Factor (VIF) value can be observed. A tolerance limit of > 0.10 and a VIF limit of < 10.00 indicate that there is no strong correlation between the independent variables. The results of the multicollinearity test in this study are shown in Table 4 below.

From the results of primary data processing, it was obtained that the VIF value for the academic supervision variable was a tolerance value of $0.932 \geq 0.10$ at $VIF\ 1.073 < 10$ and for the school culture variable the tolerance value was $0.868 \geq 0.10$ at $VIF\ 0.15 < 10$ while the motivation variable had a tolerance value of $0.886 > 0.10$ at $VIF\ 1.109 < 10$, thus fulfilling the requirements for no multicollinearity.

Table 4. Multicollinearity Test

Model	Unstandardized Coefficients		Standardized Coefficients	Collinearity Statistics	
	B	Std. Error	Beta	Tolerance	VIF
1 (Constant)	2,725	4,211			
Principal Academic Supervision	0,374	0,048	0,496	0,932	1,073
School Culture	0,211	0,101	0,137	0,868	1,152
Work Motivation	0,886	0,111	0,517	0,902	1,109

Source: Processed from primary data, 2025

Heteroscedasticity Test

This test is intended to determine whether two or more independent variables are linearly correlated. If this occurs, it will be difficult to distinguish the effect of each independent variable on the dependent variable. In this study, the heteroscedasticity test was performed using the Gletjer test (see Table 5).

Table 5. Heteroscedasticity Test

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1,287	2,593		0,497	0,621
Principal Academic Supervision	0,123	0,029	0,428	4,188	0,056
School Culture	0,088	0,062	0,150	1,416	0,161
Work Motivation	0,108	0,068	0,165	1,591	0,115

Source: Processed from primary data, 2025



By using the Gletjer test, the significance value for academic supervision X1: 0.056 and for school culture X2: 0.161, also for the work motivation variable X3: 0.115, shows a value > 0.05, so there is no similarity between one observation and another observation.

Hypothesis Testing

This study used multiple linear regression analysis to test the hypothesis. This analysis aimed to determine the effect of the independent variables on the dependent variable.

Partial Test (T-test)

The t-test is intended to determine the extent to which an individual independent variable explains the dependent variable. The results of the t-test can be seen in Table 6.

The results obtained a calculated t-value of 7.811, greater than the t-table value of 1.98761 at a significance level of 0.000, less than 0.05, meaning Ha is accepted and Ho is rejected, indicating that there is an influence of the principal's academic supervision on Teacher Teaching Quality. The results obtained a calculated t-value of 2.087, greater than the t-table value of 1.98761 at a significance level of 0.040, less than 0.05, meaning Ha is accepted and Ho is rejected, indicating that there is an influence of School Culture on Teacher Teaching Quality. The results obtained a calculated t-value of 8.016, greater than the t-table value of 1.98761 at a significance level of 0.000, less than 0.05, meaning Ha is accepted and Ho is rejected, indicating that there is an influence of Work Motivation on Teacher Teaching Quality.

Table 6. T-test

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
1 (Constant)	2,725	4,211			0,647	0,519
Principal Academic Supervision	0,374	0,048	0,496		7,811	0,000
School Culture	0,211	0,101	0,137		2,087	0,040
Work Motivation	0,886	0,111	0,517		8,016	0,000

Source: Processed from primary data, 2025

Simultaneous Test (F-test)

The F-test is used to examine the effect of independent variables on the dependent variable simultaneously (together). The F-test criteria relate to the proposed hypothesis: Ha: F count > F table indicates an effect; and Ho: F count < F table indicates no significant effect. The results of the simultaneous calculation of the regression model parameters are shown in Table 7.

Table 7. F-test

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1139,049	3	379,683	61,157	,000 ^b
	Residual	515,296	83	6,208		
	Total	1654,345	86			

Source: Processed from primary data, 2025

The test results show that the calculated f value = 61.157 is greater than the table f value = 2.70, and the significance value is 0.000, which is less than 0.05, so the alternative hypothesis is accepted and the null hypothesis is rejected. This means that work motivation, academic supervision, and school culture have a joint effect on teaching quality.

Coefficient of Determination (R²)

The R value measures the extent of the relationship between the independent and dependent variables. The R-squared (R²) value, or coefficient of determination, essentially measures the model's ability to explain variation in the dependent variable. The R² value is between zero and one. A value close to one indicates that the dependent variables provide almost all the information needed to predict variation in the dependent variable. The results of the data processing are presented in Table 8.

Table 8. Determinant Coefficient Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,830 ^a	0,689	0,677	2,492

Source: Processed from primary data, 2025

The calculation results using SPSS show that the determination coefficient (R-square) is 0.69. This means that 69% of teaching quality can be explained by work motivation, academic supervision, and school culture, while the remaining 31.1% is influenced by other variables not examined, such as facilities and location. Classical assumption tests, partial and simultaneous significance tests, and determination coefficient tests confirm that the multiple linear regression model, $Y = 0.374 X_1 + 0.211 X_2 + 0.886 X_3$, is suitable for further discussion.

The regression coefficient for the effect of principal academic supervision on teacher teaching quality is 0.374 with a 95% confidence interval. Changes in principal academic supervision are in line with changes in teacher teaching quality. A one-unit increase in principal academic supervision results in a 0.347 increase in teacher teaching quality. Conversely, a one-unit decrease in principal academic supervision results in a 0.347 decrease in teacher teaching quality. The results of this study align with those of Hadi, (2023); Nursidah et al., (2021); Maryani et al., (2020); Hadi (2023). The differences lie in the research location, respondents, and research time.

The regression coefficient for the influence of school culture on teacher teaching quality is 0.211 with a 95% confidence interval. Changes in school culture align with changes in teacher teaching quality. A one-unit increase in school culture will result in a 0.211 increase in teacher teaching quality. Conversely, a one-unit decrease in school culture will result in a 0.211 decrease in teacher teaching quality. The author's research findings support the conclusions of studies conducted by Nursidah et al., (2021) and Budhiarti et al., (2017). The differences lie in the research location, respondents, and research time.

The regression coefficient for the influence of work motivation on teacher teaching quality is 0.886 with a 95% confidence interval. Changes in work motivation align with changes in teacher teaching quality. A one-unit increase in work motivation will result in a 0.886 increase in teacher teaching quality. Conversely, a one-unit decrease in work motivation will result in a 0.886 decrease in teacher teaching quality.

The coefficient of determination is $0.689 > 0.50$, indicating that the three exogenous variables are dominant in determining teacher teaching quality when compared to factors outside the regression model. Simultaneous increases in all three independent variables will result in an increase in the dependent variable. Conversely, simultaneous decreases in principal academic supervision, school culture, and work motivation will result in a decrease in teacher teaching quality. The results of this study align with those of Naser et al., (2023) and Santi et al., (2024). The differences lie in the research location, respondents, and timeframe.

CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

Improving principals' academic supervision, school culture, and work motivation, both partially and simultaneously, will lead to improved teaching quality among public elementary school teachers in Juhar District, Karo Regency.

Work motivation has the highest influence on improving teaching quality among public elementary school teachers in Juhar District, Karo Regency.

B. Recommendations

The teaching quality of public elementary school teachers in Juhar District, Karo Regency can be improved by optimizing principals' academic supervision, school culture, and work motivation, both separately and simultaneously.

Policies related to work motivation should be prioritized in efforts to improve teacher teaching quality because they have the greatest impact.

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