



Principal Leadership and Teacher Performance: Motivation and Coaching-Based Academic Supervision

Muhammad Zamzani^{1✉}, Agus Wahyudin²

^{1,2}Universitas Negeri Semarang

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Abstract

This study examines the effect of principal leadership on teacher performance, with teacher work motivation as a mediating variable and coaching-based academic supervision as a moderating variable. A quantitative research design was employed involving 220 public elementary school teachers in Sirampog District, Brebes Regency, Indonesia. Data were collected using structured questionnaires and analyzed using multiple regression, path analysis, Sobel test, and moderated regression analysis. The results indicate that principal leadership has a significant positive effect on teacher performance. Teacher work motivation also significantly influences teacher performance and partially mediates the relationship between principal leadership and teacher performance. Coaching-based academic supervision has a direct positive effect on teacher performance; however, it does not moderate the relationship between principal leadership and teacher performance. The model explains 57.2% of the variance in teacher performance. These findings highlight the importance of effective school leadership and teacher motivation in improving teacher performance, while positioning coaching-based academic supervision as a supportive professional development mechanism rather than a moderating factor. The study contributes to leadership and supervision literature in primary education and provides practical implications for school management.

✉Correspondence Address :

Kampus Pascasarjana UNNES Jl. Lamongan Tengah No.2, Bendan

Ngisor, Kec. Gajahmungkur, Kota Semarang

E-mail : muhammadzamzami93@gmail.com

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INTRODUCTION

Teacher performance is a pivotal factor in educational quality, particularly at the primary school level, where teachers are responsible for both academic outcomes and character development. Improving teacher performance has become a strategic priority in educational management, as effective teaching directly affects student achievement. Among the factors

influencing teacher performance, principal leadership is widely recognized as essential. Principals act not only as administrators but also as instructional leaders who guide, supervise, motivate, and provide professional support to teachers. Research shows that effective leadership enhances teacher commitment, instructional practices, and overall performance.

However, leadership does not operate in isolation. Teacher work motivation, as a

psychological driver of dedication, engagement, and innovation, has been shown to mediate the impact of leadership on performance. Motivated teachers demonstrate higher levels of responsibility and productivity in instructional tasks. In addition to motivation, coaching-based academic supervision has emerged as a developmental approach emphasizing reflective practice, feedback, and collaborative dialogue to empower teachers rather than merely evaluating them. While supervision can improve teacher competence and performance, its moderating role remains inconsistent in prior research.

Despite extensive studies on leadership, motivation, and supervision, few studies have simultaneously investigated teacher work motivation as a mediator and coaching-based academic supervision as a moderator in the relationship between principal leadership and teacher performance in Indonesian public elementary schools. Addressing this gap, the present study aims to analyze: (1) the direct effect of principal leadership on teacher performance, (2) the mediating role of teacher work motivation, and (3) the moderating role of coaching-based academic supervision. By integrating theoretical and applied perspectives, this research contributes to educational leadership literature and offers practical implications for school principals and policymakers to enhance teacher performance, motivation, and professional development.

METHOD

Research Design

This study employed a quantitative research design using a causal approach to examine the relationships among principal leadership, teacher work motivation, coaching-based academic supervision, and teacher performance.

Population and Sample

The population consisted of all public elementary school teachers in Sirampog District, Brebes Regency. A total of 220 teachers were selected as respondents using proportional sampling. This sample size was considered

adequate for regression, mediation, and moderation analyses.

Research Variables

In this study, the independent variable is principal leadership, which is expected to influence teacher performance, the dependent variable. Teacher work motivation functions as a mediating variable, explaining the mechanism through which principal leadership affects teacher performance, while coaching-based academic supervision serves as a moderating variable, potentially affecting the strength of the relationship between principal leadership and teacher performance.

Data Collection Instrument

Data were collected using a structured questionnaire measured on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Each variable was assessed using 16 indicators adapted from established frameworks of leadership, motivation, supervision, and performance. Instrument validity was confirmed using Pearson correlation, and reliability was tested with Cronbach's Alpha ($\alpha \geq 0.70$), indicating that all instruments were valid and reliable.

Data Analysis Techniques

Data analysis was performed using SPSS version 24 and encompassed descriptive statistics, classical assumption testing including assessments of normality, multicollinearity, and heteroscedasticity, multiple regression analysis, path analysis, mediation testing using the Sobel test, and moderated regression analysis (MRA), with all statistical tests conducted at a significance level of 0.05.

RESULTS AND DISCUSSIONS

RESULTS

Respondent Characteristics

The study involved 220 public elementary school teachers from Sirampog District, Brebes Regency. Table 1 presents the distribution of respondents by gender, age, education, teaching experience, and employment status. The respondents were predominantly female (60.5%), while males accounted for 39.5%. Most respondents were aged 30–39 years (44.1%),

followed by 40–49 years (25.9%), under 30 years (19.1%), and 50 years or older (10.9%).

Regarding educational background, the majority of teachers held a bachelor's degree (97.7%), while only 2.3% had a master's degree. Most respondents had teaching experience of 11–20 years (37.7%), followed by 5–10 years (26.4%), less than 5 years (25%), and more than 20 years (10.9%). In terms of employment status, 81.8% were non-civil servants (P3K and Wiyata Bakti), and 18.2% were civil servants (PNS).

Table 1 Respondent Characteristics

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	87	39,5
	Female	133	60,5
Age (years)	< 30	42	19,1
	30 – 39	97	44,1
	40 – 49	57	25,9
	≥ 50	24	10,9
Education	S1	215	97,7
	S2	5	2,3
Years of Service	< 5	55	25
	5 – 10	58	26,4
	11 – 20	83	37,7
	>20	24	10,9
Employment Status	PNS	40	18,2
	Non-PNS	18	81,8

Note. Non PNS= P3K and Wiyata Bakti

This demographic distribution reflects a predominantly mid-career and female teaching workforce, which is typical for the public elementary school system in this region.

Descriptive Statistics

Descriptive statistics for the study variables are presented in Table 2.

Table 2 Descriptive Statistics of Study Variables

Variable	N	Mean	Median	Minimum	Maximum	Std. Deviation
Teacher Performance (Y)	220	4.04	4.00	2.00	5.00	0.84
Principal Leadership (X)	220	3.83	4.00	1.00	5.00	0.95
Teacher Work Motivation (M)	220	3.75	4.00	1.00	5.00	0.96
Coaching-Based Academic Supervision (R)	220	3.58	3.75	1.00	5.00	1.05

The descriptive analysis indicates that the average teacher performance score was 4.04 (SD = 0.84), suggesting that, on average, teachers

performed at a relatively high level. Principal leadership had a mean score of 3.83 (SD = 0.95), while teacher work motivation averaged 3.75 (SD = 0.96), indicating generally positive perceptions of leadership and motivation. Coaching-based academic supervision had a slightly lower mean of 3.58 (SD = 1.05), suggesting moderate levels of supervisory support. The medians for all variables are close to the means, and the ranges indicate that responses spanned the full scale of 1 to 5, reflecting variability in participants' perceptions and experiences.

Assumption Testing

Prior to hypothesis testing, classical assumption tests were conducted to ensure the regression model's validity. The Kolmogorov–Smirnov test indicated that residuals were normally distributed (Asymp. Sig. = 0.080 > 0.05). Multicollinearity testing showed that all independent variables had tolerance values above 0.10 and VIF values below 10, indicating no multicollinearity issues. The Glejser test confirmed the absence of heteroscedasticity, as all independent variables had significance values greater than 0.05.

These results demonstrate that the regression model met the necessary assumptions, allowing for reliable multiple regression, mediation, and moderation analyses.

Direct Effects Analysis

Tables 3 and 4 present the results of the multiple regression analysis examining the direct effects of principal leadership, teacher work motivation, and coaching-based academic supervision on teacher performance.

Table 3 Regression Model Significance (ANOVA)

ANOVA ^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	10564,813	3	3521,604	96,346	.000 ^b
Residual	7895,164	216	36,552		
Total	18459,977	219			

Note. Dependent variable: Teacher Performance

Predictors: Principal Leadership (X), Teacher Work Motivation (M), Coaching-Based Academic Supervision (R).

The ANOVA results indicate that the regression model was statistically significant ($F = 96.346$; $p < 0.001$). This finding demonstrates that principal leadership, teacher work motivation, and coaching-based academic supervision jointly explain a substantial proportion of the variance in teacher performance.

Table 4 Regression Coefficients

Model	Coefficients ^a				
	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	t	
(Constant)	19,210	2,772		6,930	0,000
Principal Leadership (X)	0,274	0,046	0,317	5,955	0,000
Teacher Work Motivation (M)	0,379	0,044	0,467	8,705	0,000
Coaching-Based Academic Supervision (R)	0,102	0,037	0,136	2,741	0,007

Note. Dependent variable: Teacher Performance (Y)

As shown in Table 4, principal leadership (X) had a significant positive effect on teacher performance ($B = 0.274$; $\beta = 0.317$; $p < 0.001$), indicating that stronger leadership practices contribute to improved teacher performance. Teacher work motivation (M) exhibited the strongest effect among the predictors ($B = 0.379$; $\beta = 0.467$; $p < 0.001$), suggesting that motivated teachers demonstrate higher levels of instructional and professional performance. Coaching-based academic supervision (R) also had a positive and significant effect on teacher performance ($B = 0.102$; $\beta = 0.136$; $p = 0.007$), although its contribution was comparatively smaller.

The coefficient of determination for this model is $R^2 = 0.573$, indicating that 57.3% of the variance in teacher performance is explained by principal leadership, teacher work motivation, and coaching-based academic supervision together.

Mediation Analysis

The mediation analysis was conducted to examine whether teacher work motivation mediates the relationship between principal leadership and teacher performance. A regression-based approach was employed to

assess the direct and indirect effects among the variables.

Table 5 Regression Coefficients for Mediation Analysis

Variables	Unstandardized		Standardized	t	Sig.
	B	Std. Error	Beta		
(Constant)	21.539	2.678	-	8.043	0.000
Principal Leadership (X)	0.302	0.045	0.350	6.637	0.000
Teacher Work Motivation (M)	0.409	0.043	0.503	9.541	0.000

Note. Dependent variable: Teacher Performance (Y)

As shown in Table 5, principal leadership has a significant positive effect on teacher performance when teacher work motivation is included in the regression model ($B = 0.302$; $\beta = 0.350$; $p < 0.001$). Teacher work motivation also exerts a strong and significant effect on teacher performance ($B = 0.409$; $\beta = 0.503$; $p < 0.001$), indicating that the mediator plays an important role in explaining variations in teacher performance.

Table 6 Sobel Test for the Mediating Effect of Teacher Work Motivation

Path	Indirect Effect (B)	SE	Z-value	Sig.
Principal Leadership → Motivation → Teacher Performance	0.259	0.040	6.78	0.000

Note. Z-value > 1.96 indicates significant mediation at $\alpha = 0.05$.

The Sobel test results presented in Table 6 indicate that the indirect effect of principal leadership on teacher performance through teacher work motivation is statistically significant ($Z = 6.78$; $p < 0.001$). This finding confirms that teacher work motivation significantly mediates the relationship between principal leadership and teacher performance. Moreover, because the direct effect of principal leadership on teacher performance remains significant after the mediator is included, the mediation can be classified as partial mediation.

The coefficient of determination for this mediation model is $R^2 = 0.652$, indicating that 65.2% of the variance in teacher performance is accounted for by principal leadership and teacher work motivation together, demonstrating that including the mediator improves the model's explanatory power.

Moderation Analysis

Moderated regression analysis (Table 7) was conducted to examine whether coaching-based academic supervision (R) moderates the relationship between principal leadership (X) and teacher performance (Y). Results indicated:

$X \rightarrow Y: B = 0.448; p < 0.001$

$R \rightarrow Y: B = 0.182; p < 0.001$

Interaction term ($X \times R$) $\rightarrow Y: B = 0.001; p = 0.847$ (not significant)

This indicates that coaching-based supervision does not moderate the X–Y relationship, although it independently contributes to performance. When principal leadership is already strong, supervision functions more as supportive guidance rather than a contextual modifier.

Table 7 Moderated Regression Coefficients

Coefficients ^a								
Model		Unstandardized Coefficients		Standard ized Coefficients	t	Sig.	95,0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	64.533	.508		127.090	.000	63.532	65.534
	Principal Leadership	.448	.048	.519	9.264	.000	.352	.543
	Supervision_c	.182	.042	.243	4.349	.000	.099	.264
	Principal Leadership_Supervision c	.001	.004	.010	.193	.847	-.007	.008

Note: Dependent variable: Teacher Performance (Y).

The interaction term tests the moderating effect of coaching-based academic supervision on the relationship between principal leadership and teacher performance.

DISCUSSION

The Effect of Principal Leadership on Teacher Performance

Principal leadership positively and significantly influenced teacher performance, confirming that effective leadership is critical in

enhancing professional performance. Principals who provide clear direction, foster communication, and create supportive work environments encourage teachers to perform more effectively. This aligns with Robbins and Coulter's leadership theory, which highlights the influence of leadership on employee behavior and performance.

The Effect of Teacher Work Motivation on Teacher Performance

Teacher work motivation significantly affected performance, indicating that motivated teachers demonstrate greater dedication, discipline, and initiative. Motivation drives teachers to improve lesson planning, instructional delivery, and assessment. This finding supports Robbins and Judge's motivational theory, which emphasizes motivation as a key determinant of individual performance.

The Effect of Principal Leadership on Teacher Work Motivation

Principal leadership significantly influenced teacher work motivation. Principals who adopt supportive, participative, and inspirational leadership styles enhance both intrinsic and extrinsic motivation, consistent with leadership motivation theory.

The Mediating Role of Teacher Work Motivation

Teacher work motivation partially mediated the relationship between principal leadership and teacher performance, suggesting that effective leadership enhances performance both directly and indirectly through motivation. Motivation serves as a key mechanism translating leadership support into improved professional performance.

The Moderating Role of Coaching-Based Academic Supervision

Coaching-based academic supervision did not moderate the relationship between principal leadership and teacher performance. Although it independently improves performance, it does not strengthen or weaken the leadership–performance relationship. This suggests that when leadership and motivation are strong, supervision functions as professional support rather than a contextual moderator.

CONCLUSION

This study demonstrates that principal leadership and teacher work motivation are key determinants of teacher performance, with motivation serving as a primary mechanism through which leadership exerts its influence. Coaching-based academic supervision enhances performance independently but does not modify the leadership–performance relationship. The findings underscore the importance of supportive leadership and fostering teacher motivation to improve professional effectiveness. By elucidating these relationships, the study contributes to educational science and offers practical guidance for school administrators aiming to enhance teacher performance through targeted leadership and motivational strategies.

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