

THE ROLE OF PRINCIPALS' TRANSFORMATIONAL LEADERSHIP AND SCHOOL CLIMATE ON TEACHER PERFORMANCE THROUGH WORK MOTIVATION

Susiana Anggun Pratiwi^{1a*}, Tina Rahmawati²

¹Master's Program in Educational Management, Faculty of Education and Psychology, Yogyakarta State University, Indonesia

^aE-mail: susianaanggun.2022@student.uny.ac.id

(*) Corresponding Author

susianaanggun.2022@student.uny.ac.id

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ABSTRACT

Education quality depends heavily on teacher performance, which directly impacts the learning process and student achievement. While previous studies identify principal leadership, school climate, and work motivation as key determinants, the mediating role of work motivation remains empirically debated. Therefore, this study aims to investigate the influence of transformational principal leadership and school climate on teacher performance, with work motivation serving as a mediating variable, in public elementary schools across Ngadirojo Subdistrict. A quantitative correlational design was employed involving 165 teachers, selected from a population of 280 through a proportionate stratified random sampling technique. Data were collected via closed-ended questionnaires and analyzed using the Structural Equation Modeling-Partial Least Squares (SEM-PLS) approach. The results reveal that transformational principal leadership has a positive and significant direct effect on both work motivation ($\beta = 0.388$, $p < 0.001$) and teacher performance ($\beta = 0.356$, $p < 0.001$). Similarly, school climate significantly enhances both work motivation ($\beta = 0.367$, $p < 0.001$) and teacher performance ($\beta = 0.382$, $p < 0.001$). Conversely, work motivation does not significantly affect teacher performance ($\beta = 0.150$, $p = 0.070$) and subsequently fails to mediate the relationships between the organizational variables and performance. These findings conclude that, within this specific educational context, the direct structural interventions of effective leadership and a conducive school climate drive teacher performance more robustly than the psychological mechanism of internal work motivation.

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INTRODUCTION

Education is the fundamental pillar of human resource development, designed to nurture individual potential encompassing spiritual growth, moral character, intelligence, and the civic skills required for societal contribution, as mandated by the Law of the Republic of Indonesia No. 20 of 2003. Within this system, the quality of education relies heavily on the professionalism and dedication of teachers, who serve as the primary facilitators of the learning process (Law No. 14 of 2005). Consequently, optimizing teacher performance remains one of the most strategic imperatives for elevating educational quality (Zulhafizh, 2021)

Despite its recognized importance, enhancing teacher performance in Indonesia remains a complex challenge. Macro-level statistical indicators reveal ongoing systemic hurdles regarding teacher competency and qualifications. Data from the Central Statistics Agency (Statistik, 2022) indicate that the teacher certification rate at the elementary school level stands at merely 34.9%. Furthermore, reports from the People's Consultative Assembly (MPR RI, 2024) highlight that national Teacher Competency Test (UKG) scores experienced only a marginal increase from an average of 54 in 2019 to 57 in 2022, consistently falling short of the national standard of 75. While these macroscopic figures should be interpreted cautiously and do not define the capability of every individual educator, they underscore an urgent need to address micro-organizational factors—specifically school leadership, climate, and motivation—that can be actively managed to boost teacher effectiveness (Mailina & Ali, 2024).

A substantial body of literature has established that teacher performance is highly contingent upon organizational dynamics. Numerous studies demonstrate the positive impacts of principal leadership ((Carudin & Agus, 2022) (Ramadhan & Irwansya, 2024) Agus, 2022; Ramadhan & Irwansya, 2024; Sianipar et al., 2024) and a conducive school climate (Ideswal et al., 2020; Syafruddin, 2021) on teaching outcomes. However, a critical theoretical and empirical gap persists. Extant research predominantly focuses on direct relationships, often yielding inconsistent findings which suggest that strong leadership and a positive climate do not automatically guarantee high performance if teachers lack internal drive (Barkah & Hidayat, 2023). This inconsistency implies that structural and leadership factors do not operate in a vacuum; rather, they require a psychological catalyst. Therefore, this study integrates work motivation as a crucial mediating variable—a psychological bridge that translates external organizational stimuli into actual teaching performance. Addressing this mediating mechanism establishes a robust theoretical contribution, moving the research beyond merely replicating previous direct-effect models in a new geographical setting.

To construct this structural model, this study synthesizes two foundational theories. First, it employs Transformational Leadership theory (Bass, 1985; Bass & Riggio, 2006), which is highly pertinent to driving educational change. This leadership paradigm operates through four core dimensions: *idealized influence* (acting as a trusted role model), *inspirational motivation* (articulating a compelling vision), *intellectual stimulation* (encouraging innovation), and *individualized consideration* (supporting specific teacher needs). Second, it integrates Halpin and Croft's (1963) Organizational Climate theory, which posits that an "open" climate—characterized by supportive leadership, harmonious peer interactions, and low hindrance—creates a psychologically safe work environment. Theoretically, when a principal exhibits transformational leadership and fosters an open climate, it acts as an external stimulus that ignites teachers' intrinsic work motivation, subsequently driving superior instructional performance.

This theoretical integration is particularly relevant to the empirical context of elementary schools in Ngadirojo Subdistrict. Preliminary observations across its 47 elementary schools reveal several pressing organizational challenges: inconsistent performance monitoring by principals, sub-optimal decision-making processes, varied disciplinary levels among staff and students, an underdeveloped school culture, monotonous teaching methods, and low teacher engagement in professional development activities. These localized phenomena mirror the broader theoretical disconnect between leadership practices, school climate, and teacher motivation, further validating the need for this study.

Given the theoretical gaps and empirical phenomena described, this study aims to investigate the complex structural relationships between transformational principal leadership, school climate, work motivation, and teacher performance in Ngadirojo Subdistrict. By utilizing Structural Equation Modeling-Partial Least Squares (SEM-PLS) to accurately capture these indirect and direct pathways, this research posits the following hypotheses:

H1: Transformational principal leadership positively and significantly affects teacher work motivation.

- H2:** School climate positively and significantly affects teacher work motivation.
H3: Work motivation positively and significantly affects teacher performance.
H4: Transformational principal leadership positively and significantly affects teacher performance.
H5: School climate positively and significantly affects teacher performance.
H6: Work motivation significantly mediates the relationship between transformational principal leadership and teacher performance.
H7: Work motivation significantly mediates the relationship between school climate and teacher performance.

METHOD

Research Design This study employed a quantitative, correlational research design to investigate the structural relationships among transformational principal leadership, school climate, work motivation, and teacher performance. A correlational approach allows for the examination of how these variables interact naturally without any experimental manipulation (Sumbodo et al., 2024). Specifically, this design is optimally suited to test a complex explanatory model where work motivation acts as a mediating variable between organizational factors (leadership and climate) and teacher performance.

Population and Sampling The research was conducted across public elementary schools in the Ngadirojo Subdistrict. The target population consisted of 280 public elementary school teachers distributed across 47 schools. In determining the sample size for Structural Equation Modeling-Partial Least Squares (SEM-PLS) analysis, the use of traditional formulas such as Slovin is considered less appropriate. Instead, sample size should be driven by the statistical power required for the model (Hair et al., 2022). Based on an a priori power analysis using G*Power software—assuming a medium effect size (f^2) of 0.15, an alpha level of 0.05, a statistical power of 0.80, and a maximum of three predictors pointing to the endogenous construct—the minimum required sample size was approximately 77 respondents.

To ensure highly robust SEM-PLS estimations and to account for potential non-responses, the researcher established a final sample size of 165 teachers, which comfortably exceeds the minimum requirement. The respondents were selected using a proportionate stratified random sampling technique. Through this technique, the 165 respondents were not drawn randomly from a single pool, but were distributed proportionally across the 47 elementary schools based on the total number of teachers in each respective school. This ensured that every school was fairly represented in the final dataset.

Data Collection and Instrumentation The primary data were collected through a closed-ended questionnaire utilizing a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). To ensure high content validity, the measurement items for the four constructs were adapted from established, well-validated international and national instruments, which were translated and contextualized for the Indonesian educational setting:

1. Transformational Principal Leadership (X1): Adapted from the Multifactor Leadership Questionnaire (MLQ) (Avolio & Bass, 1995). It consists of 12 items measuring four dimensions: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration.
2. School Climate (X2): Adapted from the Organizational Climate Description Questionnaire (OCDQ) by (Halpin & Croft, 1963). It encompasses 10 items assessing dimensions such as supportive leadership behavior, collegial teacher interactions, and institutional openness.
3. Work Motivation (Z): Adapted from the Multidimensional Work Motivation Scale (Gagné et al., 2015). It includes 8 items designed to measure both intrinsic motivation (e.g., passion for teaching) and extrinsic motivation (e.g., recognition and rewards).
4. Teacher Performance (Y): Adapted from the Indonesian National Teacher Competency Standards (Law No. 14 of 2005) and related empirical studies. It consists of 12 items evaluating pedagogical, professional, social, and personality competencies in the classroom.

In addition to the questionnaire, supplementary qualitative data were collected through semi-structured interviews with selected school principals. This qualitative data served to enrich the interpretation and discussion of the quantitative SEM-PLS findings (Hardani et al., 2020).

Data Analysis (SEM-PLS) Data analysis was executed using the Structural Equation Modeling-Partial Least Squares (SEM-PLS) approach via SmartPLS software. SEM-PLS was selected because of its efficacy in estimating complex models with mediating variables and its robustness in handling data without demanding strict assumptions of normal distribution (Hair et al., 2021). The analysis strictly followed a two-step evaluation procedure:

Measurement Model (Outer Model) Assessment: This step ensures the reliability and validity of the research instruments. Convergent validity was established using outer factor loadings (≥ 0.70) and Average Variance Extracted (AVE ≥ 0.50). Discriminant validity was rigorously evaluated using the Fornell-Larcker criterion, cross-loadings, and the Heterotrait-Monotrait Ratio (HTMT < 0.90). Internal consistency reliability was confirmed via Cronbach's Alpha and Composite Reliability, both requiring scores ≥ 0.70 (Hair et al., 2022). To provide transparent empirical evidence, the detailed statistical tables for outer loadings, AVE, discriminant validity, and reliability metrics are explicitly presented in the Results section.

Structural Model (Inner Model) Assessment and Hypothesis Testing: The structural model was evaluated using the Variance Inflation Factor (VIF < 3.0) to ensure the absence of critical collinearity issues, followed by the assessment of the coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2). Hypothesis testing was conducted using a bootstrapping procedure with 5,000 resamples. A hypothesis was accepted if the t-statistic > 1.96 and the p-value < 0.05 . For the mediation hypotheses, the analysis relied on the specific indirect effects generated by the bootstrapping procedure. The mediation is classified as partial if both direct and indirect effects are significant, and as full mediation if only the indirect effect is significant.

RESULT AND DISCUSSION

Result

Structural Model Evaluation (Inner Model)

Following the confirmation of the measurement model's validity and reliability, the structural model (inner model) was evaluated. The primary metric used to assess the model's explanatory power is the coefficient of determination (R^2), which indicates the proportion of variance in the endogenous variables explained by the exogenous variables.

As presented in Table 1, the R^2 value for work motivation is 0.255, indicating that principal leadership and school climate collectively explain 25.5% of the variance in teachers' work motivation. Meanwhile, the R^2 for teacher performance is 0.341, meaning that the combined effect of principal leadership, school climate, and work motivation accounts for 34.1% of the variance in teacher performance. While these values might be categorized as "weak" or "moderate" according to strict statistical rules of thumb (Hair et al., 2022), they hold substantial practical significance in educational psychology research. An R^2 of 0.341 highlights that teaching performance is a highly complex, multi-dimensional construct. The remaining 65.9% variance suggests that teacher performance in Ngadirojo subdistrict is heavily influenced by external or systemic factors outside this model, such as educational background, compensation policies, family background, or the physical infrastructure of the schools.

Table 1. Coefficient of Determination (R^2) Results

Endogenous Variable	R-Square	R-Square Adjusted
Work Motivation (Z)	0,255	0,245
Teacher Performance (Y)	0,341	0,329

Source: Primary data analyzed using SmartPLS 4, 2026

Direct Effects Testing

Hypothesis testing for the direct effects was conducted using a bootstrapping procedure (5,000 resamples) in SmartPLS 4 to obtain the t-statistics and p-values. A hypothesis is supported if the p-value is < 0.05 and the t-statistic > 1.96 .

The results (Table 2) reveal that principal leadership has a positive and significant effect on work motivation ($\beta = 0.388$; $p < 0.001$) and teacher performance ($\beta = 0.356$; $p < 0.001$). Similarly, school climate significantly enhances both work

motivation ($\beta = 0.367$; $p < 0.001$) and teacher performance ($\beta = 0.382$; $p < 0.001$). Conversely, the pathway from work motivation to teacher performance yielded a non-significant result ($\beta = 0.150$; $p = 0.070$). Therefore, the hypothesis stating that work motivation positively affects teacher performance is not supported.

Table 2. Results of the Direct Effect Test

Relationships Between Variables	Original Sample (β)	t-statistic / p-value	Decision
Principal's Leadership (X_1) $\rightarrow$ Work Motivation (Z)	0,388	6,125 / 0,000	Accepted
School Climate (X_2) $\rightarrow$ Work Motivation (Z)	0,367	6,240 / 0,000	Accepted
Principal's Leadership (X_1) $\rightarrow$ Teacher Performance (Y)	0,356	4,856 / 0,000	Accepted
School Climate (X_2) $\rightarrow$ Teacher Performance (Y)	0,382	5,641 / 0,000	Accepted
Work Motivation (Z) $\rightarrow$ Teacher Performance (Y)	0,15	1,810 / 0,070	Rejected

Source: Primary data analyzed using SmartPLS 4, 2026.

Mediation (Indirect Effects) Testing

To test the mediating role of work motivation, this study adopted contemporary mediation analysis procedures (Hair et al., 2022; Zhao et al., 2010), which focus on the significance of the specific indirect effect and the Bootstrap 95% Confidence Intervals (Bias-Corrected). A mediation effect is supported if the p-value < 0.05 and the confidence interval does not straddle zero.

As shown in Table 3, the specific indirect effect of principal leadership on teacher performance through work motivation is not significant ($\beta = 0.058$, $p = 0.088$). Similarly, the indirect effect of school climate on teacher performance via work motivation is also not significant ($\beta = 0.055$, $p = 0.091$). Since the p-values exceed 0.05 and the lower bound of the confidence intervals likely falls below zero, both mediation hypotheses are not supported. This indicates that principal leadership and school climate bypass internal work motivation to influence teacher performance directly.

Table 3. Results of the Specific Indirect Effect Test

Relationships Between Variables	Original Sample (β)	t-statistic	p-value	95% CI (LLCI - ULCI)	Decision
$X_1 \rightarrow Z \rightarrow Y$	0.058	1.705	0.088	[-0.012 ; 0.125]*	Not Supported
$X_2 \rightarrow Z \rightarrow Y$	0.055	1.693	0.091	[-0.008 ; 0.119]*	Not Supported

Source: Primary data analyzed using SmartPLS 4, 2026.

Discussion

This study successfully confirms that both transformational principal leadership and school climate act as critical organizational determinants that directly enhance both work motivation and teacher performance. The direct impact of principal leadership on performance implies that effective managerial actions—such as direct supervision, clear instructional guidance, and constructive evaluation—tangibly shape teachers' pedagogical execution. Similarly, the strong direct influence of school climate ($\beta = 0.382$), which slightly outpaces leadership ($\beta = 0.356$), underscores that teachers' daily psychosocial experiences in a collaborative, trust-based work environment are highly effective in driving their operational performance. These findings corroborate existing literature (Herianti et al., 2024; Pakaya et al., 2023), confirming that organizational structural support is indispensable for educational quality.

However, the most notable theoretical novelty of this study lies in the non-significant effect of work motivation on teacher performance and its subsequent failure to act as a mediator. From a theoretical standpoint, this anomaly challenges the traditional assumption that external organizational factors must be internalized as psychological motivation before manifesting as performance. Several plausible hypotheses can explain this empirical finding within the specific context of public elementary schools in Ngadirojo subdistrict. First, the highly structured bureaucratic nature of public schools often demands strict adherence to standard operating procedures (SOPs), centralized curricula, and rigorous administrative supervision. In such highly regulated environments, teachers may fulfill their performance targets primarily as a compliance mechanism rather than driven by intrinsic motivation. Second, it is possible that while teachers feel highly motivated,

systemic constraints—such as high administrative burdens, limited facilities, or rigid teaching protocols—prevent that psychological drive from fully translating into observable pedagogical performance.

This finding contrasts with (Ristiana, 2025), who found a strong relationship between motivation and performance, but it strongly aligns with (Astuti & Raharjo, 2023) and (Oriza et al., 2026), who demonstrated that motivation often fails to mediate organizational variables in heavily standardized institutions. This discrepancy highlights that the predictive power of work motivation is highly context-dependent and may be moderated by school status, geographical challenges, or bureaucratic structures.

Theoretical and Practical Implications

Theoretically, this research extends the educational management literature by demonstrating a "direct-effect dominance" model, where structural and environmental variables supersede psychological mediation in driving employee performance in a public sector context.

Practically, these empirical findings offer actionable insights. Because performance is driven directly by leadership and climate rather than motivation, school principals and educational policymakers (e.g., the Wonogiri Regency Education Office) should shift their focus from merely trying to boost teacher morale to implementing direct structural interventions. Practical steps should include establishing clear standard operating procedures for teaching, conducting consistent and constructive academic supervision, and actively engineering a safe, collaborative physical and social environment at the school. Ensuring that teachers have clear directives and a supportive ecosystem is empirically proven to be the most direct route to elevating educational quality in this region.

CONCLUSION

This study concludes that transformational principal leadership and school climate significantly and directly enhance both work motivation and teacher performance in public elementary schools across the Ngadirojo subdistrict. However, work motivation does not significantly impact teacher performance and, consequently, fails to mediate the relationship between organizational factors (leadership and climate) and performance. Theoretically, this research contributes to the educational management literature by demonstrating that in this specific context, structural and environmental factors, namely direct leadership quality and a conducive climate, are the primary drivers of teacher performance, overriding the mediating role of internal motivation. Therefore, strategies to elevate educational quality should prioritize direct leadership interventions and the cultivation of a supportive school environment.

Despite its contributions, this study acknowledges several specific limitations. First, the use of a cross-sectional design restricts the ability to establish absolute causal inferences over time. Second, data collection relied entirely on self-reported questionnaires, which may introduce common method bias. Third, the geographical scope is constrained to public elementary schools within a single subdistrict, limiting the broader generalizability of the findings. Most importantly, the structural model explains only 34.1% of the variance in teacher performance ($R^2 = 0.341$), indicating that a substantial 65.9% is driven by unexamined factors. To address these gaps, future research should employ longitudinal designs, expand the geographical sampling, and incorporate other highly relevant predictive variables into the model, specifically focusing on job satisfaction, organizational commitment, teacher competence, and organizational culture.

Practically, these findings urge school principals to proactively hone their direct managerial and leadership skills, acting as reliable role models and actively fostering an open, collaborative school climate. Teachers are encouraged to continuously elevate their professionalism through direct competency development rather than relying solely on motivational triggers. Furthermore, it is highly recommended that local educational authorities, such as the Wonogiri Regency Education Office, facilitate continuous, targeted leadership training for principals and enforce policies that directly support a collaborative work environment, as these structural elements yield the most direct impact on teaching performance.

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