Transformational Leadership, Work Motivation, and School Climate as Predictors of Teacher Performance: A Quantitative Study in Public Primary Schools of Tempel Subdistrict, Sleman Regency, Indonesia

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Abstract

This study investigates the influence of principal leadership, work motivation, and school climate on the performance of teachers in public elementary schools across Tempel Subdistrict, Sleman Regency, Special Region of Yogyakarta, Indonesia. Adopting a quantitative research approach with an explanatory design, the study involved 118 teachers selected through simple random sampling from a population of 168. Data were collected via structured questionnaires that had undergone validity and reliability testing, and analyzed using descriptive statistics and multiple linear regression, supported by classical assumption tests (normality, linearity, multicollinearity, and heteroscedasticity). The results reveal that (1) principal leadership and work motivation significantly influence teacher performance (F = 50.166, p < 0.05), (2) principal leadership and school climate also significantly affect teacher performance (F = 32.857, p < 0.05), (3) work motivation and school climate together contribute significantly to teacher performance (F = 49.393, p < 0.05), and (4) all three variables such as principal leadership, work motivation, and school climate – simultaneously have a significant effect on teacher performance (F = 35.413, p < 0.05). These findings underscore the importance of a holistic leadership strategy that fosters intrinsic motivation and cultivates a supportive school climate to enhance teacher productivity. This study provides empirical insights that can inform school leaders and education policymakers in developing sustainable, evidence-based strategies to improve instructional quality in Indonesian primary schools, particularly in rural and suburban educational contexts. However, it is important to note the study's limitations, including its focus on a single district, which may limit generalizability, and the reliance on self-reported data, which may introduce bias. Practical indicators such as teacher training, school leadership programs, and climate enhancement interventions could be explored in future research.

INTRODUCTION

Education plays a pivotal role in shaping the social, economic, and intellectual foundations of a nation. Research has consistently shown that teacher performance is one of the most critical determinants of student achievement and overall educational quality. According to Kyriakides et al., (2013), teacher effectiveness accounts for approximately 30% of the variance in student learning outcomes, making it an essential component of any educational system. Furthermore, studies by Ingersoll, (2020) highlight that effective teaching practices, which are largely driven by the teacher's professional skills and motivation, lead to improved student learning, making teacher performance a central factor in educational success (Abin, 2017).

Teacher performance is defined as the manifestation of professional competence in delivering instructional, evaluative, and developmental tasks (Uno & Nina Lamatenggo, 2022). A teacher's ability to manage classrooms, plan instruction, assess learning, and guide student growth determines the quality of education. According to Fitriana, (2013), teacher performance is influenced by pedagogical

skills, communication, and the level of institutional support. However, many Indonesian teachers still struggle to meet the national standards.

This issue becomes more pressing when viewed through the lens of certification data. The National Education Balance Sheet (Kemendikbudristek, 2023) reports that only 34.9% of elementary school teachers in Indonesia have acquired professional certification, the lowest rate among all education levels. The lack of certification and competency directly correlates with inadequate teacher performance, as certified teachers are more likely to engage in reflective practice and continuous professional development (Kartini et al., 2020)(Andriani et al., 2018).

In Tempel Subdistrict, Sleman Regency, the challenges of teacher performance are evidenced by the low scores in the 2023 Regional Standard Assessment (ASPD). Out of 817 students assessed, only 17.7% surpassed the minimum threshold in literacy, numeracy, and science (Dinas Pendidikan Sleman, 2023). This underachievement reflects not only systemic issues but also highlights deficiencies in classroom instruction, which falls under the direct purview of teacher duties (Pananrangi & SH, 2017).

Prior studies suggest that teacher performance is not solely an individual responsibility but is shaped by organizational and psychological factors. Transformational leadership, as articulated by Bass & Avolio, has emerged as a strong determinant in shaping teacher commitment, trust, and performance (Hall et al., 2002). Principals who provide vision, individual support, and intellectual stimulation create conditions conducive to high teacher output (Hallinger, 2018). Empirical findings from Sauri et al., (2018) and Setyaningsih, (2023) corroborate that strong school leadership significantly enhances instructional quality.

Work motivation is another crucial internal driver. Herzberg's Two-Factor Theory and Deci & Ryan's Self-Determination Theory, indicate that intrinsic motivation such as achievement, autonomy, and purpose has a direct impact on performance (Ryan & Deci, 2000). Teachers who are intrinsically motivated tend to exhibit higher levels of effort, creativity, and perseverance (Irnidayanti et al., 2020). Papilaya et al., (2019) found that motivation explained up to 76.74% of teacher performance variance in primary schools.

Moreover, the school climate defined as the quality of interpersonal relationships, norms, and physical environment serves as a key contextual variable (Cohen et al., 2009). A conducive school climate fosters collaboration, respect, and safety, all of which enhance teacher well-being and instructional effectiveness (Pananrangi & SH, 2017). Empirical data from Rizzotto & França, (2022) show that school climate contributed 43% to the variation in teacher performance. Similarly, Sutomo & Egar, (2025) found that positive school climate indicators such as trust and communication predict increased teaching quality.

Despite the existing body of literature, most studies focus on single or dual-variable relationships. Few integrate all three key predictors leadership, motivation, and school climate into a unified model. Furthermore, there is a scarcity of such studies in semi-urban contexts like Tempel, where unique socio-demographic dynamics might alter the interplay between these factors. This study fills this gap by examining the combined and individual effects of principal leadership, work motivation, and school climate on teacher performance in public elementary schools across Tempel Subdistrict. Grounded in educational management theory and supported by empirical analysis, this research aims to offer a more comprehensive understanding of the institutional and personal dynamics that shape teacher productivity.

Ultimately, the findings are expected to contribute to both academic discourse and practical intervention strategies. Theoretically, the study enhances current models of teacher performance by contextualizing them within Indonesian educational settings. Practically, it provides a knowledge base for school leaders and policymakers to implement targeted initiatives that foster professional growth, organizational harmony, and improved learning outcomes (Rizka, 2020).

METHODS

This study employed a quantitative approach with an explanatory survey design to analyze the causal relationship among principal leadership, work motivation, school climate, and teacher performance in public elementary schools. The explanatory design was chosen to determine the extent to which the independent variables simultaneously and individually influence the dependent variable, thereby providing empirical evidence grounded in statistical analysis.

The population consisted of 168 teachers from public elementary schools located in Tempel Subdistrict, Sleman Regency, Yogyakarta Special Region, Indonesia. Using a simple random sampling technique, a total of 118 teachers were selected to participate in the study. This method ensured that each member of the population had an equal chance of being included, thereby enhancing the generalizability of the findings.

Data were collected through a structured questionnaire developed based on established theoretical constructs. The instrument included four key variables: principal leadership, work motivation, school climate, and teacher performance. Each item was measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

For example, in the Principal Leadership section, one item might be: "The principal clearly communicates the school's vision and goals," with responses ranging from 1 (strongly disagree) to 5 (strongly agree). Similarly, in the Work Motivation section, an item might be: "I feel a strong sense of accomplishment when I see my students succeed," also using a five-point Likert scale. For School Climate, an example item could be: "Teachers in this school collaborate effectively to improve teaching," and for Teacher Performance, an example item might be: "I effectively assess and adjust my teaching methods based on student needs."

The development of the questionnaire referred to indicators from previous studies, including transformational leadership dimensions proposed by López-Zapata et al., (2024), motivation theory by Herzberg and (Sofyan et al., 2024), school climate factors as outlined by Cohen et al., (2009), and performance indicators based on Uno & Nina Lamatenggo, (2022).

To ensure validity and reliability, the instrument was reviewed by educational experts, resulting in a Content Validity Index (CVI) of 0.91. A pilot test was conducted on 30 teachers outside the main sample, and the reliability analysis using Cronbach's Alpha indicated strong internal consistency, with coefficients exceeding 0.80 across all variables. These procedures confirm that the instrument was both valid and reliable for use in the actual study.

Data collection was carried out over a one-month period in August 2023, facilitated by the distribution of questionnaires through school principals, following formal approval from the District Education Office. The teachers participated voluntarily and were assured of anonymity and confidentiality. Prior to participation, informed consent was obtained, and ethical clearance was secured from the Graduate Research Ethics Committee of Universitas Negeri Yogyakarta.

Following data collection, the responses were coded and analyzed using SPSS version 26.0. Descriptive statistics were used to describe respondent profiles and central tendencies. To test the research hypotheses, multiple linear regression analysis was applied. Before conducting the regression, classical assumption tests were performed, including normality testing using the Kolmogorov–Smirnov method, linearity testing, multicollinearity checks using Variance Inflation Factor (VIF), and heteroscedasticity testing using the Glejser test. All tests met the standard statistical criteria, ensuring the robustness of the regression analysis.

The regression model assessed the individual and collective contributions of principal leadership, motivation, and school climate to teacher performance. A significance level of $p < 0.05$ was used as the threshold for hypothesis testing, providing a rigorous basis for interpreting the empirical relationships among the variables under investigation. The steps of this study are depicted in Figure 1.
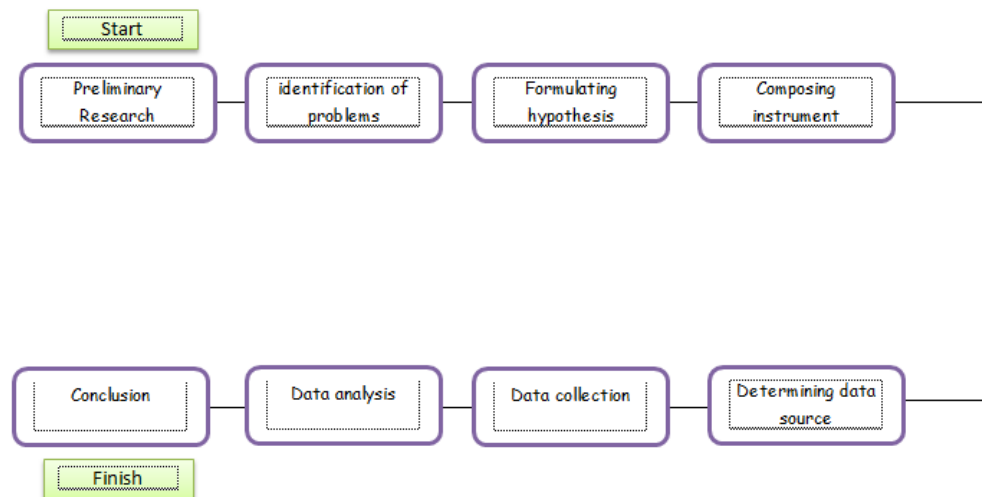
Figure 1. Research Steps

RESULTS AND DISCUSSION
Results

The results of the study were analyzed using descriptive statistics and multiple linear regression. Descriptive statistics provided an overview of the sample's characteristics and the distribution of responses across the key variables. Table 1 presents the means, standard deviations, and ranges for principal leadership, work motivation, school climate, and teacher performance. The data showed that the mean scores for all variables were above the midpoint of the scale, indicating positive perceptions of leadership, motivation, and school climate among the participants.

Table 1. Descriptive Statistics for Key Variables

Variable	Mean	Standard Deviation	Minimum	Maximum
Principal Leadership	4.12	0.56	2.70	5.00
Work Motivation	4.08	0.62	2.75	5.00
School Climate	4.20	0.53	3.00	5.00
Teacher Performance	4.15	0.57	3.10	5.00

Additionally, the correlation matrix shown in Table 2 provides insights into the relationships between the key variables. All variables showed significant positive correlations, with the strongest correlation between principal leadership and teacher performance ($r = 0.65$), indicating that better leadership is associated with higher teacher performance. Work motivation and school climate also exhibited moderate correlations with teacher performance ($r = 0.57$; $r = 0.54$), suggesting that both internal and external factors contribute to enhancing teacher performance.

Table 2. Correlation Matrix

Variable	Principal Leadership	Work Motivation	School Climate	Teacher Performance
Principal Leadership	1.00	0.60	0.58	0.65
Work Motivation	0.60	1.00	0.63	0.57
School Climate	0.58	0.63	1.00	0.54
Teacher Performance	0.65	0.57	0.54	1.00

All classical assumption tests for multiple regression were conducted to ensure the validity of the statistical analysis. Normality was tested using the Kolmogorov-Smirnov method, which showed that the data was normally distributed ($p > 0.05$). Linearity was assessed through scatterplot analysis, which showed linear relationships between the variables. Multicollinearity was checked using Variance

Inflation Factors (VIF), with values all below 5, indicating no significant multicollinearity. Heteroscedasticity was tested using the Glejser test, which revealed no signs of heteroscedasticity ($p > 0.05$). These results confirm that the assumptions for multiple regression analysis were met.

The results of Hypothesis test analysis between principal leadership (X1), work motivation (X2), school climate (X3), and teacher performance (Y) are summarized in the following Table 3:

Table 3. Hypothesis Test of Principal Leadership, Work Motivation, and School Climate on Teacher Performance

Independent Variables	Constant	Regression Coefficient (β)	T	F	Sig.	R²
Principal Leadership (X1)	40.153	0.292	2.314	35.413	0.023	0.483
Work Motivation (X2)		0.356	3.181		0.002	
School Climate (X3)		0.310	2.706		0.008	

Based on Table 3, the regression equation of the relationship between the three independent variables and teacher performance is formulated as follows: $Y = 40.153 + 0.292X1 + 0.356X2 + 0.310X3$. The constant value of 40.153 indicates that if the variables of principal leadership, work motivation, and school climate are considered absent or fixed at zero, the baseline value of teacher performance is 40.153.

The regression coefficient for principal leadership is 0.292, indicating that for every one-unit increase in the principal leadership variable, teacher performance increases by 0.292 units, assuming other variables remain constant. The t-value of 2.314 and significance level of 0.023 show that the influence is statistically significant at the 5% level. Similarly, the work motivation variable has a regression coefficient of 0.356, which means that for each additional unit in work motivation, teacher performance increases by 0.356. The t-value of 3.181 with a significance level of 0.002 indicates a highly significant influence.

Furthermore, the school climate variable shows a regression coefficient of 0.310. This implies that a one-unit improvement in school climate will increase teacher performance by 0.310 units. The t-value of 2.706 and significance level of 0.008 affirm that this relationship is also statistically significant.

The F-value obtained is 35.413, which is greater than the F-table value, and the significance value is 0.000, indicating that the model is statistically valid overall. The coefficient of determination (R^2) is 0.483, meaning that 48.3% of the variation in teacher performance is explained by the combined influence of principal leadership, work motivation, and school climate. The remaining 51.7% is likely influenced by other factors outside the scope of this study.

Discussion

The Influence of Principal Leadership on Teacher Performance

The findings of this study show that principal leadership has a positive and significant influence on teacher performance. The regression coefficient for the principal leadership variable is 0.292 with a significance level of 0.023, which indicates that principal leadership contributes to teacher performance improvement. These findings are consistent with Bass & Avolio's transformational leadership theory, which asserts that leaders who articulate a clear vision and support their staff emotionally can influence employee performance in educational contexts (López-Zapata et al., 2024).

Transformational leadership includes four main dimensions: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. Principals who demonstrate these traits are more likely to foster enthusiasm, commitment, and innovation among teachers (Northouse, 2025). In this study, the implementation of such leadership is shown to be positively correlated with enhanced teacher work outcomes in planning, executing, and evaluating learning.

This result is reinforced by Setyaningsih, (2023), who reported that principal leadership has a direct influence on teacher performance by 7.07% in their study of public elementary schools in Indonesia. Their findings show that good leadership improves teacher discipline and commitment, essential components of effective teaching. This aligns with the performance categories measured in this study, which include lesson preparation, instructional delivery, and professional development.

Additionally, Taryana et al., (2023) found that principal leadership accounted for 76.7% of the variance in teacher performance among civil servant teachers in West Java. The study highlights the strategic role of the school principal in creating a professional and supportive work culture, which directly affects the productivity and accountability of teachers. Other researchers, including (Ulya et al., 2021), have confirmed the significant influence of school leadership on instructional quality. Ulya's study in Kupang found that principal leadership contributed 42.7% to teacher instructional performance, underlining the importance of managerial clarity and interpersonal trust in schools.

In the local context of Tempel Subdistrict, Sleman Regency, many principals demonstrate operational leadership rather than instructional leadership. This study reveals the critical need to shift from administrative to transformational practices, as suggested by Kartini et al., (2020), who argue that the principal should act as an instructional leader who actively supervises and mentors teachers. The findings are also in line with those of Yusrizal, (2023), who found that principal leadership contributed 8.6% to teacher performance. Though relatively modest, this contribution becomes more impactful when aligned with a conducive school climate and effective motivation systems.

Research by Badrun et al., (2022) supports these results, showing that principal leadership significantly affects teacher performance with a Sig.F value < 0.05. Wulan emphasizes the role of leadership in establishing a performance-based culture in schools and setting clear instructional expectations. Moreover, Sauri et al., (2018) reported a positive and significant relationship between principal leadership and teacher performance, Song et al., (2021) suggesting that principals with strong leadership styles foster more responsive and adaptive teaching behaviors.

This is highly relevant in today's educational climate where adaptive teaching is critical for achieving learning outcomes. Truong et al., (2017) further emphasized that a school leader's role is not merely administrative but pedagogical. Principals should lead with vision and provide instructional support, including curriculum guidance, teacher training facilitation, and the promotion of collaborative teaching cultures.

Thus, the study's findings corroborate a substantial body of literature indicating that effective school leadership significantly enhances teacher performance. Strategic investments in leadership training for principals could yield direct benefits for classroom practices and student achievement outcomes.

The Influence of Work Motivation on Teacher Performance

The results of this study show that work motivation has a positive and significant influence on teacher performance, with a regression coefficient of 0.356 and a significance level of 0.002. This indicates that for every unit increase in work motivation, teacher performance increases by 0.356 units. This finding aligns with Herzberg's Two-Factor Theory, which emphasizes the distinction between hygiene factors and motivators as drivers of workplace performance.

Herzberg explains that motivators such as achievement, recognition, responsibility, and advancement are intrinsic factors that lead to higher levels of job satisfaction and performance. In the context of education, teachers who feel intrinsically motivated are more committed to their instructional responsibilities and demonstrate higher levels of engagement in teaching (Ryan & Deci, 2000).

This study's findings are supported by Taryana et al., (2023), who reported that work motivation significantly influenced teacher performance by 76.74% in her meta-analysis of public primary school teachers in Indonesia. Her findings demonstrate that motivated teachers are more

likely to prepare better lesson plans, manage classrooms effectively, and implement assessments appropriately.

Similarly, research by Irnidayanti et al., (2020) concluded that intrinsic motivation had a substantial impact on teacher behavior, particularly in their willingness to innovate and adapt in the face of curricular changes. Teachers with higher intrinsic motivation displayed greater persistence, creativity, and emotional investment in their profession.

The study conducted by Sofyan et al., (2024) also revealed that both intrinsic and extrinsic motivational factors influenced teacher job satisfaction and performance. Specifically, monetary incentives, professional recognition, and opportunities for career development were reported as key motivators that directly affected classroom effectiveness and student outcomes.

Further evidence comes from Syahril & Hadiyanto, (2018), who found that achievement motivation significantly influenced the performance of social science teachers. The study highlighted that teachers with a strong desire for professional accomplishment tend to set higher instructional standards and maintain discipline in the teaching-learning process.

In the context of this study, teachers in Tempel Subdistrict who reported high levels of motivation were more consistent in lesson planning, pedagogical innovation, and student engagement. This supports the findings of Uno & Nina Lamatenggo, (2022), who emphasized that teacher performance is often a reflection of their motivational state and internal drive to fulfill their professional calling.

Furthermore, the research by Kartini et al., (2020) supports the view that motivation significantly contributes to performance, especially when combined with positive leadership and school climate. Their study found that motivation acted as a mediating variable that strengthened the relationship between school leadership and teacher outcomes.

In practical terms, this study suggests that school leaders and education stakeholders should prioritize policies that foster both extrinsic and intrinsic motivation. These include transparent promotion systems, opportunities for professional development, recognition programs, and a supportive school culture that values teacher input and innovation.

Rizka, (2020) argue that teachers' professional standards are closely linked to their motivational levels. Therefore, ensuring that teachers are motivated not only improves performance but also enhances long-term retention and reduces burnout (Aljumah, 2023), which is particularly relevant in rural and suburban areas like Tempel.

In conclusion, the results of this study reinforce the existing literature and provide local empirical evidence that work motivation is a key determinant of teacher performance. School management should continuously assess motivational levels and implement structured strategies to maintain and enhance teacher enthusiasm, which in turn leads to improved student learning outcomes.

The Influence of School Climate on Teacher Performance

The results of this study reveal that school climate significantly affects teacher performance. The regression coefficient of 0.310 and significance value of 0.008 indicate that school climate contributes positively to teacher performance in public elementary schools in Tempel Subdistrict. This finding confirms the theoretical framework proposed by Cohen, McCabe, Michelli, and Pickeral (2009), who stated that a positive school climate promotes a supportive environment for effective teaching and learning.

School climate refers to the quality and character of school life, including interpersonal relationships, teaching and learning practices, and organizational structure. According to Norman, (2024), a healthy school climate is characterized by open communication, mutual respect, trust, and shared norms that encourage professional collaboration. Such a climate directly influences teachers' motivation, well-being, and performance.

This study aligns with findings by Siswanto & Yuliana, (2022), who found that school climate had a significant influence on teacher performance in Magelang Regency. Her study revealed that teachers working in schools with supportive cultures were more disciplined, collaborative, and committed to their professional roles, which aligns with the positive correlation observed in the current research.

Likewise, research by Syahril & Hadiyanto, (2018) concluded that a supportive and collegial school climate explained 43% of the variance in teacher performance. Their study emphasized that environments fostering trust, fairness, and teamwork led to higher levels of teacher effectiveness and student achievement.

The findings also support Yusrizal, (2023), who argued that school climate acts as a catalyst for teacher engagement. In his study, schools with strong climates demonstrated higher teacher morale, more professional interactions, and improved organizational performance. These conditions were reflected in the school settings analyzed in Tempel, where high-performing schools also had better communication and collaboration patterns.

In addition, Cohen et al., (2009) highlighted that a positive climate enhances teacher resilience and reduces burnout factors that are critical in sustaining teacher performance over time. Given that teacher stress and emotional fatigue are among the leading causes of performance decline, fostering a supportive climate is a preventive as well as promotive strategy.

In the local context, the observed data indicates that schools with stronger collegial support, effective leadership, and clearer communication policies saw better teacher performance scores. This supports the view of Uno & Nina Lamatenggo, (2022), who asserted that school climate is one of the most direct organizational conditions that shape teacher output and job satisfaction.

Another supporting study by Nasar et al., (2025) demonstrated that school climate not only improves teacher performance directly but also acts as a moderator between leadership and motivation. In their model, teachers performed better in schools where leadership was accompanied by a collaborative and trusting climate. Moreover, Hu et al., (2019) found that school climate significantly mediated the relationship between principal behavior and teacher performance. Her study in Cirebon emphasized the importance of consistency in policies, teacher autonomy, and open dialogue in building a productive educational environment.

In practice, efforts to improve school climate can include professional learning communities, regular feedback forums, peer mentoring, and recognition systems. These mechanisms promote continuous improvement, reduce isolation among teachers, and reinforce a shared sense of missionall of which positively impact teacher performance (Toropova et al., 2021).

CONCLUSION

This study concludes that principal leadership, work motivation, and school climate have a significant positive impact on teacher performance in public elementary schools in Tempel Subdistrict, Sleman Regency. The results of the multiple linear regression analysis show that these three variables jointly contribute 48.3% to the variation in teacher performance, with work motivation being the most influential factor, followed by school climate and principal leadership.

However, this study has limitations. The cross-sectional design limits the ability to establish causal relationships between the variables, and the findings are based on a specific region, which may not be generalizable to other areas. Future research could use longitudinal or experimental designs to explore the causal direction of these relationships and include a broader sample from different regions for a more comprehensive understanding.

For future research, investigating the long-term impact of leadership and school climate on teacher performance using longitudinal data could be valuable. Additionally, examining the role of external factors, such as community involvement or government policies, and assessing the effectiveness of specific leadership training programs could further enhance our understanding of factors influencing teacher performance.

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