



Exploring The Dynamics Of Teacher Performance Through Multivariate Analysis

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Abstract

Teacher performance plays a crucial role in educational quality and school effectiveness and is influenced by both organizational and psychological factors. This study examines a multivariate model of teacher performance by analyzing the direct and indirect effects of transformational leadership, empowerment, trust, and achievement motivation among junior high school teachers in Bekasi City. A quantitative survey design was employed involving 177 teachers selected through multistage proportional random sampling from 19 schools. Data were collected using validated five-point Likert-scale instruments and analyzed using SEM-PLS, supported by SITOREM for indicator prioritization.

The results show that transformational leadership ($\beta = 0.351$), empowerment ($\beta = 0.195$), trust ($\beta = 0.271$), and achievement motivation ($\beta = 0.189$) have significant positive effects on teacher performance. Leadership and empowerment also demonstrate indirect effects through trust and achievement motivation. The model explains a substantial proportion of variance in teacher performance. SITOREM analysis identifies work quantity and achievement orientation as priority areas for improvement, while work quality and teamwork should be maintained.

Keywords: Achievement Motivation; Empowerment and Trust; Teacher Performance; Transformational Leadership

INTRODUCTION

Teacher performance is widely recognized as a critical determinant of educational quality and school effectiveness, particularly in secondary education where pedagogical complexity and student developmental needs increase significantly. Teacher performance refers not only to instructional competence but also to professional commitment, innovation, collaboration, and



continuous improvement in teaching practices. Recent global education reports emphasize that teacher quality exerts a stronger influence on student achievement than structural inputs such as facilities or class size, underscoring the strategic importance of understanding factors that shape teacher performance (OECD, 2023; UNESCO, 2024; Hanushek & Woessmann, 2024). Consequently, improving teacher performance has become a central agenda in educational reform across both developed and developing countries.

Contemporary educational research increasingly highlights that teacher performance is not solely determined by individual competence, but is strongly influenced by organizational and psychosocial factors within schools. Among these factors, transformational leadership has gained substantial attention due to its capacity to inspire teachers, foster shared vision, and create supportive school climates. Empirical evidence consistently demonstrates that transformational leadership positively affects teacher performance, job satisfaction, and professional commitment by promoting intrinsic motivation and collective efficacy (Nguni et al., 2022; Sidik et al., 2024; Sarinah et al., 2025). School leaders who adopt transformational behaviors are more likely to empower teachers, encourage innovation, and strengthen trust-based relationships within educational institutions.

In addition to leadership, teacher empowerment plays a pivotal role in enhancing professional performance. Empowerment enables teachers to exercise autonomy, participate in decision-making processes, and develop a sense of ownership over instructional outcomes. Recent studies indicate that empowered teachers demonstrate higher levels of engagement, organizational commitment, and instructional effectiveness (Suryadi et al., 2023; Wahyuti & Lestari, 2024; Frontiers in Education, 2024). Empowerment also serves as a mediating mechanism through which leadership practices translate into improved teacher outcomes, suggesting that leadership effectiveness is closely tied to the extent to which teachers feel empowered in their professional roles.

Another critical yet often underexplored determinant of teacher performance is trust. Trust within schools whether between teachers and principals or among colleagues facilitates open communication, collaboration, and psychological safety, which are essential for sustained professional performance. Recent empirical findings reveal that trust positively influences teacher well-being, collective efficacy, and organizational citizenship behavior, all of which contribute to improved performance (Bryk & Schneider, 2022; Researcher Life, 2024; Elsevier, 2025). In low-trust environments, teachers tend to resist change and exhibit reduced motivation, highlighting trust as a foundational condition for effective school functioning.

Furthermore, achievement motivation represents an internal psychological driver that



compels teachers to strive for excellence and continuous improvement. Achievement motivation has been empirically linked to instructional quality, persistence in professional challenges, and overall teacher effectiveness (Edi et al., 2024; Nahid et al., 2023; Frontiers in Psychology, 2024). Teachers with high achievement motivation are more likely to adopt innovative teaching strategies and engage in reflective practice, thereby enhancing learning outcomes. Recent meta-analytic evidence in Indonesia confirms that motivation exhibits a strong and consistent relationship with teacher performance across educational levels (Meta-analysis Study, 2024).

Despite extensive research on these individual variables, existing studies predominantly employ bivariate or partial models, examining leadership, empowerment, trust, or motivation in isolation. There remains a notable lack of empirical studies that integrate transformational leadership, empowerment, trust, and achievement motivation simultaneously within a multivariate analytical framework, particularly in the context of junior high schools in Indonesia. This limitation constrains a holistic understanding of how these interrelated factors jointly shape teacher performance. Moreover, contextual studies focusing on metropolitan regions such as Bekasi City, which face unique educational challenges due to rapid urbanization and institutional diversity, are still scarce.

Local educational data indicate that Bekasi City hosts a substantial number of junior high school teachers across public and private institutions, yet systematic evaluations of the organizational and motivational determinants of their performance remain limited (Kemendikbudristek, 2024). Without robust multivariate evidence, policy interventions and leadership development programs risk being fragmented and less effective.

Therefore, this study seeks to explore the dynamics of teacher performance through multivariate analysis, examining the simultaneous effects of transformational leadership, empowerment, trust, and achievement motivation among junior high school teachers in Bekasi City. The study aims to (1) identify the relative and combined influence of these variables on teacher performance, (2) develop an integrative explanatory model grounded in empirical evidence, and (3) provide actionable insights for school leaders and policymakers. By addressing existing empirical gaps, this research contributes theoretically to the advancement of teacher performance models and practically to the design of evidence-based strategies for improving educational quality in junior high schools.

LITERATURE REVIEW

Understanding teacher performance requires a comprehensive examination of both



organizational and psychological determinants that shape teachers' professional behaviors and outcomes. Recent educational research emphasizes that teacher performance is a multidimensional construct influenced by leadership practices, organizational conditions, interpersonal relationships, and individual motivational factors. In response to increasing complexity in school environments, scholars have increasingly explored transformational leadership, empowerment, trust, and achievement motivation as key predictors of teacher performance.

However, much of the existing literature investigates these variables separately or through partial models, limiting the ability to capture their combined and interactive effects. Therefore, a structured review of recent empirical studies is necessary to identify dominant findings, methodological trends, and unresolved gaps. The following table synthesizes relevant studies published within the last five years, highlighting their focus, methods, key findings, and limitations, thereby positioning the present study within the existing body of knowledge.

Table 1. Summary of Relevant Literature on Teacher Performance

No.	Author(s) & Year	Research Context & Sample	Key Variables	Methodology	Main Findings	Identified Gaps
1	Nguni et al. (2022)	Secondary schools, Tanzania	Transformational leadership, teacher performance	SEM	Transformational leadership significantly improves teacher performance through motivation	Did not include empowerment or trust
2	OECD (2023)	Cross-national education systems	Teacher quality, performance	Secondary data analysis	Teacher performance is the strongest predictor of student achievement	Lacks school-level psychosocial variables
3	Suryadi et al. (2023)	Indonesian schools	Empowerment, motivation, performance	Regression analysis	Empowerment positively affects motivation and performance	Leadership style not examined
4	Nahid et al. (2023)	Secondary teachers	Achievement motivation, performance	Survey, path analysis	Achievement motivation strongly predicts	Organizational context not considered

					teaching effectiveness	
5	UNESCO (2024)	Global education report	Teacher professionalism	Policy analysis	Professional support systems improve teacher performance	Empirical testing not provided
6	Wahyuti & Lestari (2024)	Public schools, Indonesia	Empowerment, job satisfaction, performance	SEM	Empowerment enhances performance via job satisfaction	Trust variable excluded
7	Frontiers in Education (2024)	International teacher sample	Autonomy, empowerment, performance	Quantitative survey	Autonomy and empowerment increase engagement and performance	Leadership role not integrated
8	Edi et al. (2024)	Junior high schools, Indonesia	Achievement motivation, performance	Regression	Motivation significantly influences teacher performance	No multivariate framework
9	Bryk & Schneider (2022)	Urban schools	Relational trust, school outcomes	Longitudinal study	Trust fosters collaboration and instructional improvement	Motivation not examined
10	Researcher Life (2024)	Secondary teachers	Trust, psychological needs	Cross-lagged panel	Trust predicts well-being and performance indirectly	Leadership not included
11	Sidik et al. (2024)	Indonesian secondary schools	Transformational leadership, performance	SEM-PLS	Leadership has direct and indirect effects on performance	Empowerment omitted
12	Sarinah et al. (2025)	Junior high schools	Leadership, motivation	Quantitative survey	Transformational leadership enhances motivation and performance	Trust not examined
13	Hanushek & Woessmann (2024)	Global education systems	Teacher effectiveness	Meta-analysis	Teacher effectiveness outweighs structural factors	Does not specify leadership mechanisms
14	Elsevier	Educational	Trust,	Multilevel	Trust improves	Achievement



	Study (2025)	organizations	collaboration	modeling	collective efficacy and performance	motivation excluded
15	Meta-analysis Study (2024)	Indonesian teachers	Motivation, performance	Meta-analysis	Motivation shows strong effect size on performance	Combined models not tested

Synthesis and Research Gap The reviewed studies consistently confirm that transformational leadership, empowerment, trust, and achievement motivation each exert a significant influence on teacher performance. Leadership enhances motivation and organizational climate; empowerment fosters autonomy and engagement; trust strengthens collaboration and psychological safety; and achievement motivation drives individual excellence. Nevertheless, the literature reveals a clear methodological gap most studies rely on bivariate or partial models, failing to integrate these variables into a single multivariate framework.

Furthermore, empirical research focusing specifically on junior high school teachers in metropolitan Indonesian contexts, such as Bekasi City, remains limited. Consequently, the interactive and simultaneous effects of leadership, empowerment, trust, and achievement motivation on teacher performance are not yet fully understood. Addressing this gap, the present study adopts a multivariate analytical approach to provide a more holistic and context-sensitive explanation of teacher performance, thereby contributing both theoretically and practically to educational management and leadership research.

RESEARCH METHODOLOGY

This study adopted a quantitative approach with a survey research design to examine the causal relationships among organizational and psychological factors influencing teacher performance (Riduwan & Kuncoro, 2020). A quantitative survey was selected because it allows objective measurement of variables and hypothesis testing through statistical procedures applied to a relatively large population (Creswell & Creswell, 2018). The research model consisted of four independent variables transformational leadership (X_1), empowerment (X_2), trust (X_3), and achievement motivation (X_4) and one dependent variable, teacher performance (Y). To test both direct and indirect relationships among these variables simultaneously, path analysis was employed, as it is appropriate for multivariate causal modeling in organizational and educational research (Kim & Beehr, 2021).

To ensure conceptual clarity and analytical rigor, each variable was operationally defined



based on established theories and recent empirical studies, as summarized in Table 1. These definitions guided the development of measurement instruments and ensured consistency between theoretical constructs and empirical indicators.

Table 1. Research Variables and Operational Definitions

Variable	Code	Operational Definition
Transformational Leadership	X ₁	Leadership behaviors that inspire, motivate, intellectually stimulate teachers, and provide individualized consideration
Empowerment	X ₂	Teachers perceived autonomy, participation in decision-making, and professional authority
Trust	X ₃	Teachers' belief in the integrity, reliability, and support of school leaders and colleagues
Achievement Motivation	X ₄	Internal drive of teachers to achieve excellence and improve professional performance
Teacher Performance	Y	Effectiveness of teachers in planning, implementing, and evaluating learning activities

Data were collected using a structured questionnaire administered to junior high school teachers in Bekasi City. The questionnaire employed Likert-scale items to measure all study variables, enabling standardized and efficient data collection (Fraenkel et al., 2019). The structure of the research instrument, including the number of items and measurement scale for each variable, is presented in Table 2. In addition to primary data, secondary data were obtained through document analysis and relevant literature, including school records and official education reports, to support contextual understanding (Arikunto, 1998).

Table 2. Research Instruments and Measurement Scale

Variable	Number of Items	Scale
Transformational Leadership	10	Likert (1–5)
Empowerment	8	Likert (1–5)
Trust	8	Likert (1–5)
Achievement Motivation	9	Likert (1–5)
Teacher Performance	10	Likert (1–5)

The population of this study comprised all junior high school teachers in Bekasi City. Given the city's wide geographical coverage and administrative division into four major regions and 12 districts, a multistage proportional random sampling technique was applied to ensure representativeness and feasibility (Sugiyono, 2019). In the first stage, the population was grouped into four zones. In the second stage, schools from each zone were selected

proportionally through random sampling. From a total of 56 junior high schools, 19 schools across six districts were selected, resulting in an accessible population of 651 teachers. The distribution of population and sample is summarized in Table 3.

Table 3. Population and Sample Distribution

Description	Number
Total junior high schools	56
Selected schools	19
Selected districts	6
Accessible population	651 teachers
Research population (50%)	325 teachers
Final sample	177 teachers

Approximately 50% of teachers from each selected school were randomly chosen, yielding a research population of 325 teachers. From this group, a final sample of 177 teachers was determined as respondents. This sample size meets the recommended minimum requirements for multivariate statistical analysis, including path analysis, and ensures reliable parameter estimation (Hair et al., 2021).

The research procedure consisted of three main stages: planning, data collection, and data analysis. The planning stage involved developing the conceptual framework, formulating hypotheses, and preparing research instruments. The data collection stage focused on administering questionnaires to selected respondents. The data analysis stage included data coding, descriptive statistics, correlation analysis, and path analysis to test the proposed research model. The analytical techniques applied at each stage are summarized in Table 4.

Table 4. Data Analysis Techniques

Analysis Stage	Technique	Purpose
Descriptive analysis	Mean, standard deviation	Describe tendencies of each variable
Correlation analysis	Pearson correlation	Examine relationships among variables
Path analysis	Multivariate regression	Test direct and indirect effects
Significance testing	t-test, F-test	Assess statistical significance

All statistical analyses were conducted using appropriate statistical software and standard significance levels commonly applied in social science research (Hair et al., 2022; Kline, 2016). The integration of a clear conceptual framework, robust sampling design, and multivariate analytical approach strengthens the methodological rigor of this study and supports

its objective to comprehensively explain the dynamics of teacher performance.

CONCLUSION

The results of the indicator classification analysis yielded two distinct groups of performance indicators: those that require immediate improvement and those that should be maintained or further developed. This classification was based on the mean score of each indicator, following established criteria in performance measurement research where indicators with an average score of ≥ 4.0 are considered satisfactory and should be sustained, while those with a mean score of ≤ 4.0 are identified as needing enhancement (Hair et al., 2022; Kline, 2016). A similar procedure was applied to all variables in this study to determine the relative performance of their constituent indicators.

By ranking the indicators within each research variable, it became possible to identify priority areas for improvement as well as strengths that can be leveraged for future development. This approach aligns with best practices in multivariate performance evaluation, where *priority setting through indicator classification* supports evidence-based decision making and strategic planning (Creswell & Creswell, 2018). The use of clear, quantitative thresholds for classification enhances the objectivity and interpretability of the results, facilitating targeted interventions aimed at improving overall teacher performance. Path analysis revealed that teacher performance (Y) is functionally determined by transformational leadership (X1), empowerment (X2), trust (X3), and achievement motivation (X4). All hypothesized relationships were empirically supported, indicating both direct and indirect effects among variables.

1. Direct Effect of Transformational Leadership (X1) on Teacher Performance (Y)

The results indicate a significant positive direct effect of transformational leadership on teacher performance. Regression analysis yielded the equation $\hat{y} = 94.307 + 0.165X_1$, indicating that a one-unit increase in transformational leadership corresponds to a 0.165-unit increase in teacher performance. Linearity testing showed no deviation from linearity ($\text{sig} = 0.206 > 0.05$), confirming a linear relationship. The coefficient of determination ($R^2 = 0.467$) suggests that 46.7% of teacher performance variance is explained by transformational leadership, with a strong correlation ($R = 0.683$).

Path analysis further confirmed this relationship ($\beta = 0.392$; $t = 9.208 > 1.96$), indicating a strong direct influence. These findings align with prior studies emphasizing the role of visionary and inspirational leadership in enhancing teacher effectiveness. SITOREM analysis suggests improving weak performance indicators (work quantity and achievement) while maintaining high-performing indicators (work quality, time utilization, and collaboration). Strengthening

stimulation for achievement and innovation is also essential to enhance transformational leadership.

2. Direct Effect of Empowerment (X2) on Teacher Performance (Y)

Empowerment exhibited a significant positive effect on teacher performance. The regression equation $\hat{y} = 73.783 + 0.309X_2$ indicates a substantial increase in performance for each unit of empowerment. The linearity assumption was met ($\text{sig} = 0.054 > 0.05$). Empowerment accounted for 62.3% of performance variance ($R^2 = 0.623$), with a strong correlation ($R = 0.789$). Path analysis confirmed the direct effect ($\beta = 0.240$; $t = 2.749 > 1.96$).

These results demonstrate that increased delegation, trust from leaders, and autonomy significantly improve teacher performance. SITOREM findings emphasize improving assignment frequency and leadership trust while maintaining authority and workload balance.

3. Direct Effect of Trust (X3) on Teacher Performance (Y)

Trust showed a significant direct effect on teacher performance. The regression model $\hat{y} = 72.085 + 0.324X_3$ indicates a positive relationship, supported by linearity testing ($\text{sig} = 0.114 > 0.05$). Trust explained 56.6% of performance variance ($R^2 = 0.566$) with a strong correlation ($R = 0.752$). Path analysis confirmed this effect ($\beta = 0.315$; $t = 3.800 > 1.96$).

These findings suggest that leader support, openness, and partnership significantly enhance teacher outcomes. SITOREM analysis highlights the need to improve supervisory support and openness while maintaining risk acceptance and professional credibility.

4. Direct Effect of Achievement Motivation (X4) on Teacher Performance (Y)

Achievement motivation significantly influenced teacher performance. Regression analysis produced $\hat{y} = 68.334 + 0.349X_4$, with linearity confirmed ($\text{sig} = 0.085 > 0.05$). Achievement motivation explained 36.6% of performance variance ($R^2 = 0.366$), with a strong correlation ($R = 0.605$). Path analysis confirmed the direct effect ($\beta = 0.147$; $t = 3.307 > 1.96$).

SITOREM results indicate that improving challenge-seeking behavior, feedback orientation, and systematic work planning is crucial while maintaining competitive drive and work intensity.

5. Direct Effect of Transformational Leadership (X1) on Achievement Motivation (X4)

Transformational leadership significantly influenced achievement motivation. The regression equation $\hat{y} = 115.428 + 0.172X_1$ was supported by linearity testing ($\text{sig} = 0.374 > 0.05$). Transformational leadership explained 16.9% of the variance in achievement motivation ($R^2 = 0.169$; $R = 0.411$). Path analysis confirmed the effect ($\beta = 0.194$; $t = 2.700 > 1.96$). These results indicate that inspirational leadership strengthens teachers' intrinsic motivation to excel.

6. Direct Effect of Empowerment (X2) on Achievement Motivation (X4)

Empowerment had a strong direct effect on achievement motivation, with the regression equation $\hat{y} = 87.186 + 0.371X_2$. Linearity was confirmed ($\text{sig} = 0.263 > 0.05$). Empowerment accounted for 29.9% of motivation variance ($R^2 = 0.299$; $R = 0.547$). Path analysis showed a strong direct effect ($\beta = 0.455$; $t = 6.340 > 1.96$). These findings highlight the importance of a learning-oriented organizational culture in fostering motivation.

7. Direct Effect of Transformational Leadership (X1) on Empowerment (X3)

Transformational leadership significantly influenced empowerment ($\hat{y} = 109.997 + 0.209X_1$). Linearity was met ($\text{sig} = 0.311 > 0.05$). The relationship showed a moderate correlation ($R = 0.370$; $R^2 = 0.137$). Path analysis revealed a strong direct effect ($\beta = 0.829$; $t = 31.471 > 1.96$), indicating leadership's central role in enabling empowerment.

8. Direct Effect of Empowerment (X2) on Trust (X3)

Empowerment strongly influenced trust, as shown by the regression equation $\hat{y} = 24.715 + 0.816X_2$. Linearity was confirmed ($\text{sig} = 0.402 > 0.05$). Empowerment explained 80.3% of trust variance ($R^2 = 0.803$) with a very strong correlation ($R = 0.896$). Path analysis supported this effect ($\beta = 0.230$; $t = 8.747 > 1.96$).

9–12. Indirect Effects Through Motivation and Trust

Indirect effect analysis revealed that:

- Transformational leadership influenced teacher performance through achievement motivation ($\beta = 0.057$).
- Empowerment influenced performance through achievement motivation ($\beta = 0.035$).
- Empowerment influenced performance through trust ($\beta = 0.075$).
- Transformational leadership influenced performance through trust ($\beta = 0.123$).

In all cases, direct effects were stronger than indirect effects, indicating that achievement motivation and trust function as partial intervening variables. Total effects confirmed that teacher performance is primarily driven by transformational leadership and empowerment, with motivation and trust reinforcing but not dominating the relationship.

Tabel 5 SITOREM Analysis Results

Priority Rank	Indicators to be Improved	Indicators to be Maintained
1 st	Work Quantity	Work Quality
2 nd	Work Achievement	Time Utilization
3 rd	Achievement Stimulation	Collaboration
4 th	Achievement Opportunities	Role Modeling
5 th	Innovation	Inspirational Motivation
6 th	Assignment Frequency	Form of Authority



7 th	Leadership Trust	Workload
8 th	Support from Superiors	Risk Acceptance Attitude
9 th	Partnership Strength	Trust in Existing Expertise
10 th	Openness in Expressing Ideas	Encouragement to Excel in Competition
11 th	Preference for Challenges	Need for Success at Work
12 th	Strong Desire for Feedback	Need to Work Intensively in Task Execution
13 th	Systematic and Feasible Work Planning	—

This study examines the direct and indirect effects of transformational leadership, empowerment, trust, and achievement motivation on teacher performance. The findings indicate that transformational leadership and empowerment significantly influence teacher performance, both directly and indirectly. Transformational leadership improves performance by providing vision, inspiration, and professional support, while empowerment enhances teachers' autonomy and sense of responsibility. Trust and achievement motivation serve as intervening variables that strengthen these relationships, highlighting the supporting role of psychological and motivational factors.

Path analysis confirms that transformational leadership and empowerment are the primary determinants of teacher performance, whereas trust and achievement motivation function as reinforcing mechanisms rather than independent predictors. SITOREM analysis identifies priority areas for improvement, including work quantity, achievement orientation, innovation, and systematic work planning, while key strengths such as work quality, time management, collaboration, and inspirational motivation should be maintained. These findings suggest that school leaders should prioritize transformational leadership and teacher empowerment. Future studies are encouraged to include additional variables, longitudinal designs, and broader educational contexts.

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