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Transformational Leadership and Organizational Culture as Predictors of Teacher Performance: Evidence from Path and SITOREM Analysis

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Abstract

This study examines the influence of transformational leadership and organizational culture on teacher performance among 158 teachers in A-accredited private vocational high schools in Bogor City, Indonesia. The objectives are (1) to analyze the direct and indirect effects of transformational leadership and organizational culture on teacher performance, and (2) to identify strategic improvement priorities using SITOREM. Path Analysis and SITOREM were applied. Results indicate that transformational leadership (β = 0.214; p = 0.002) and organizational culture (β = 0.243; p = 0.001) have significant direct effects on teacher performance. Work motivation and job satisfaction mediate these relationships, except for the non-significant indirect effect of self-efficacy through job satisfaction (β = 0.025; p = 0.060). SITOREM analysis identifies priority indicators for improvement based on Cost, Benefit, Urgency, and Importance (CBUI) criteria. This study contributes to vocational educational leadership and management theory and provides operational recommendations for school leaders and policymakers to sustainably enhance teacher effectiveness and institutional quality.

Keywords: **Transformational Leadership, Organizational Culture, Teacher Performance, Private Vocational Schools, SITOREM**

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INTRODUCTION

Vocational secondary education plays a strategic role in preparing a skilled and adaptive workforce capable of responding to rapid technological advancement, industrial transformation, and global competition. In Indonesia, the revitalization of vocational education has become a national priority to ensure alignment between school outcomes and labor market demands. The Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia has emphasized that strengthening teacher professionalism and performance is fundamental to improving the quality of vocational high schools (SMK). National education performance reports released by the Pusat Asesmen Pendidikan (2022–2024) indicate continuing disparities in learning outcomes, instructional practices, and school effectiveness across regions and school categories, including private vocational institutions.

According to recent statistical publications from the Badan Pusat Statistik (2023–2024), private vocational schools account for a substantial proportion of secondary education institutions and student enrollment in Indonesia. Although many private SMKs have achieved A accreditation status, variations in instructional quality and teacher performance persist. Accreditation reflects compliance with national standards; however, it does not automatically guarantee sustained instructional excellence in daily classroom practices.

At the global level, the 2023 edition of *Education at a Glance* published by the Organisation for Economic Co-operation and Development highlights that school leadership and organizational climate are among the most influential school-level factors affecting teacher effectiveness and student outcomes. Similarly, the 2023 Global Education Monitoring Report by UNESCO underscores the importance of strong instructional leadership and collaborative professional cultures in improving education systems worldwide. The World Bank (2022) further emphasizes that teacher effectiveness remains the most critical in-school determinant of student achievement in developing countries. These international and national reports collectively suggest that leadership and organizational culture are central to understanding variations in teacher performance.

Teacher performance is conceptualized as a multidimensional construct encompassing pedagogical competence, professional responsibility, instructional innovation, classroom management, and measurable learning outcomes. Recent empirical studies (2020–2024) consistently demonstrate that transformational leadership positively influences teacher motivation, organizational commitment, job satisfaction, and performance (Leithwood et al., 2020; Hallinger, 2021; Wang et al., 2023; Ritonga et al., 2022). Transformational leaders articulate

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a compelling vision, provide intellectual stimulation, foster professional growth, and demonstrate individualized consideration, thereby creating conditions that enhance teacher engagement and productivity. In the Indonesian educational context, several recent studies confirm that principals' transformational leadership significantly predicts teacher performance and school effectiveness (Andriani et al., 2022; Prasetyo & Anwar, 2023).

Beyond leadership, organizational culture plays a decisive role in shaping teacher behavior and performance. A positive and collaborative school culture promotes shared values, trust, collegiality, and continuous professional learning. Empirical research from 2020–2024 indicates that schools with strong organizational cultures demonstrate higher levels of teacher innovation, collective efficacy, and instructional improvement (Li & Liu, 2022; Kim & Lee, 2021; García-Martínez et al., 2022; Sihombing & Sitorus, 2023; Yasin et al., 2024). Furthermore, recent findings suggest that organizational culture can strengthen or mediate the relationship between transformational leadership and performance outcomes (Zhang & Wei, 2022; Hidayat et al., 2023). These studies imply that leadership and culture function as interrelated predictors of teacher performance within educational organizations.

Despite the expanding body of literature, several gaps remain evident. First, many prior studies focus predominantly on public schools or general secondary education, while limited research specifically examines accredited private vocational high schools. Second, although transformational leadership and organizational culture have been widely investigated, fewer studies analyze their simultaneous predictive effects on teacher performance within an integrated causal framework in the Indonesian vocational context. Third, most previous studies rely on regression or Structural Equation Modeling (SEM), with limited application of analytical approaches that combine causal modeling with strategic priority identification for practical decision-making.

Bogor City, as a rapidly developing urban area within the Greater Jakarta region, hosts numerous A-accredited private vocational high schools that play an essential role in preparing skilled graduates. However, differences in leadership style, organizational climate, and professional collaboration may still influence teacher effectiveness within these institutions. Therefore, empirical investigation in this specific context is necessary to provide evidence-based insights that support sustainable school improvement strategies.

To address these gaps, this study employs path analysis to examine the direct and indirect effects of transformational leadership and organizational culture on teacher performance and integrates the Scientific Identification Theory for Operational Research in Education Management

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(SITOREM) analysis to identify priority indicators requiring improvement. By combining these approaches, the study not only tests theoretical relationships but also generates operational recommendations grounded in empirical evidence.

Accordingly, the objectives of this research are: (1) to analyze the direct and indirect effects of transformational leadership and organizational culture on teacher performance among A-accredited private vocational high school teachers in Bogor City; and (2) to determine strategic priority areas for improvement using SITOREM analysis. The findings are expected to contribute to the advancement of educational leadership and management theory, particularly within vocational education, and to provide practical guidance for school leaders and policymakers seeking to enhance teacher performance and institutional quality in a sustainable manner.

RESEARCH METHODOLOGY

This study utilizes Path Analysis and SITOREM methods as they complement each other in terms of analytical and applied approaches. Path analysis was selected to examine the direct and indirect effects between variables that are all directly measured (observed variables), making it more precise and efficient compared to other methods such as SEM-PLS, which is generally used for latent constructs with complex measurement models. Meanwhile, the SITOREM method is used to follow up on path analysis results by formulating strategic recommendations based on the identification of factors that can be used to improve the quality of the SIKP program.

SEM-PLS, which are typically used for latent constructs with complex measurement models. Meanwhile, the SITOREM method is used to follow up on the results of path analysis by formulating strategic recommendations based on the identification of factors that have a significant but still weak influence, thereby obtaining practical and operational improvement priorities. The combination of these two methods enables the research to produce findings that are not only theoretical but also applicable and beneficial for tangible improvements in performance quality.

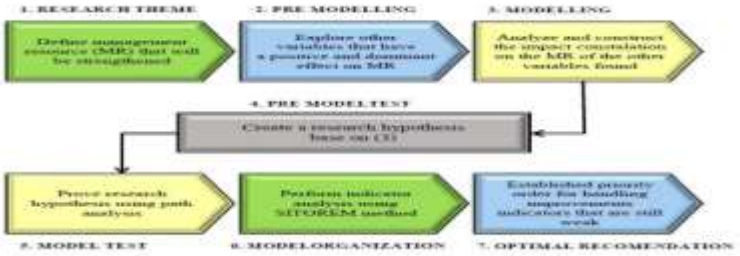
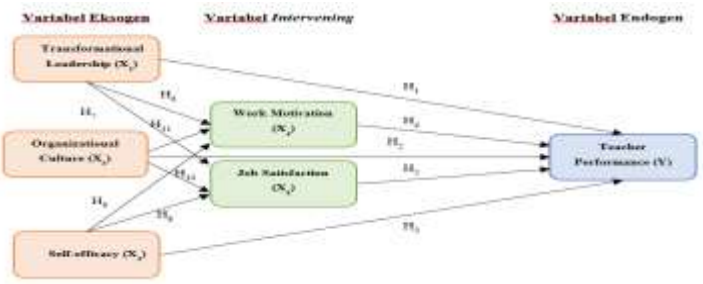


Figure 1: Stages in the POP-SDM Framework (W. Soenaryo, Setyaningsih, & Hardhienata, 2020)

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The purpose of administering the questionnaire to respondents was to obtain information about what they knew regarding several variables to be used as data sources in this study. The instrument used to measure. The variables examined in this study consist of Transformational Leadership, Organizational Culture, and Self-Efficacy as exogenous (independent) variables. Work Motivation and Job Satisfaction are positioned as mediating (intervening/endogenous) variables. Finally, Teacher Performance is treated as the primary endogenous (dependent) variable.



DISCUSSION

Descriptive data analysis aims to provide a comprehensive overview of the distribution characteristics of each research variable. The evaluation of the data is conducted using several statistical parameters, including the mean, median, mode, standard deviation, variance, range, minimum value, maximum value, and total sum of the data. These statistical indicators offer a detailed understanding of central tendency, variability, and overall data dispersion across the observed variables.

In addition to these statistical measures, the findings of this study also present frequency distributions to illustrate the pattern of data distribution more clearly. Histograms are further employed to provide a graphical representation of the data, enabling visual assessment of distribution patterns, symmetry, and potential skewness. The descriptive analysis is conducted on six research variables: Teacher Performance, Transformational Leadership, Organizational Culture, Self-Efficacy, Work Motivation, and Job Satisfaction. The data were collected from the responses of 158 private vocational high school (SMK) teachers in Bogor City, West Java, Indonesia, who completed a structured questionnaire designed to measure each respective variable.

Prerequisite testing for analysis is a fundamental step to determine whether data analysis can proceed using parametric statistics. The use of parametric statistics requires that the data meet certain assumptions to ensure that the generalization of research results is considered valid. The prerequisite tests in this study include: 1. Normality Test, 2. Homogeneity Test, and 3.

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Linearity Test.

1. **Test of the Standardized Residuals for Normality**

The normality test aims to examine whether the disturbance variable or residuals in the regression model are normally distributed. If the data are normally distributed, the analysis can proceed using parametric statistical methods. Conversely, if the normality assumption is not met, it is recommended to use non-parametric statistical techniques. The normality testing of the standard error of estimate is conducted to ensure that the difference between the predicted values and the actual observed values (residuals) in the regression model follows a normal distribution. This assumption is essential to ensure that the results of the t-test and F-test in simple linear regression analysis are statistically valid.

Table 1 Summary of the Normality Test of Standardized Residuals

No	Standardized Residual	Test Statistic	Asymp. Sig. (2-tailed)	Requirement	Conclusion
1	Y on X_1	0.056	0.200	> 0.05	Normal
2	Y on X_2	0.058	0.200	> 0.05	Normal
3	Y on X_3	0.061	0.200	> 0.05	Normal
4	Y on X_4	0.059	0.200	> 0.05	Normal
5	Y on X_5	0.063	0.200	> 0.05	Normal
6	X_4 on X_1	0.056	0.200	> 0.05	Normal
7	X_4 on X_2	0.058	0.200	> 0.05	Normal
8	X_4 on X_3	0.062	0.200	> 0.05	Normal
9	X_5 on X_1	0.056	0.200	> 0.05	Normal
10	X_5 on X_2	0.059	0.200	> 0.05	Normal
11	X_5 on X_3	0.064	0.200	> 0.05	Normal

The results in Table 1 show that all standardized residuals for the regression equations have a significance value (A symp. Sig.) greater than 0.05. This indicates that the residuals are normally distributed, meaning the normality assumption required for parametric regression analysis is satisfied.

From the calculation results, the Z statistic was obtained at 1.877. The hypothesis test shows that Z statistic 1.877 < 1.96. Therefore, it can be concluded that there is no significant positive indirect effect of Self-Efficacy on Teacher Performance through Job Satisfaction.

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Furthermore, the Indirect Coefficient (coefficient of the indirect effect) was obtained at 0.024, which means that the magnitude of the effect of X3 on Y through X5 is 2.4%. A summary of all hypothesis testing results is presented in Table 1 below.

2. Homogeneity Test

The homogeneity test is conducted to determine whether the sample objects under study have the same variance (are homogeneous) or not. In this study, the homogeneity of the variable data was tested using Bartlett's test. The data are considered to have homogeneous variance if the significance value (Sig.) > 0.05.

Table 2 Summary of Data Variance Homogeneity Test

No	Variable	Sig (Bartlett Test)	Requirement	Conclusion
1	Y on X_1	0.274	0.05	Homogeneous
2	Y on X_2	0.312	0.05	Homogeneous
3	Y on X_3	0.225	0.05	Homogeneous
4	Y on X_4	0.361	0.05	Homogeneous
5	Y on X_5	0.298	0.05	Homogeneous
6	X_4 on X_1	0.321	0.05	Homogeneous
7	X_4 on X_2	0.304	0.05	Homogeneous
8	X_4 on X_3	0.318	0.05	Homogeneous
9	X_5 on X_1	0.285	0.05	Homogeneous
10	X_5 on X_2	0.296	0.05	Homogeneous
11	X_5 on X_3	0.261	0.05	Homogeneous

The results in Table 2 show that all variables have a significance value (Sig.) greater than 0.05. This indicates that the variances of the sample data are homogeneous, meaning the homogeneity assumption required for parametric regression analysis is satisfied.

3. Linearity Test of the Regression Model

The linearity test aims to examine whether the regression line between the dependent variable (Y) and the independent variable (X) has a linear relationship or not. This test is conducted using the Lack of Fit test through the ANOVA table in SPSS 26.

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Table 3 Summary of Regression Linearity

Variable Relationship	Linearity Test Sig.	Requirement	Conclusion
$\hat{Y}$ on X_1	0.118	0.05	Linear. Can be used to predict teacher performance influenced by Transformational Leadership.
$\hat{Y}$ on X_2	0.112	0.05	Linear. Can be used to predict teacher performance influenced by Organizational Culture.
$\hat{Y}$ on X_3	0.158	0.05	Linear. Can be used to predict teacher performance influenced by Self-Efficacy.
$\hat{Y}$ on X_4	0.102	0.05	Linear. Can be used to predict teacher performance influenced by Work Motivation.
$\hat{Y}$ on X_5	0.108	0.05	Linear. Can be used to predict teacher performance influenced by Job Satisfaction.
X_4 on X_1	0.188	0.05	Linear. Can be used to predict work motivation influenced by Transformational Leadership.
X_4 on X_2	0.928	0.05	Linear. Can be used to predict work motivation influenced by Organizational Culture.
X_4 on X_3	0.182	0.05	Linear. Can be used to predict work motivation influenced by Self-Efficacy.
X_5 on X_1	0.227	0.05	Linear. Can be used to predict job satisfaction influenced by Transformational Leadership.
X_5 on X_2	0.412	0.05	Linear. Can be used to predict job satisfaction influenced by Organizational Culture.
X_5 on X_3	0.135	0.05	Linear. Can be used to predict job satisfaction influenced by Self-Efficacy.

The results in Table 3 show that all regression equations have a significance value (Sig.) greater than 0.05. This indicates that the relationships between the dependent and independent variables are linear, meaning the linearity assumption required for regression analysis is satisfied.

4. Hypotheses analysis

After the structural model analysis was conducted, the results were used to test the hypotheses in order to determine the direct and indirect effects of each variable. The conclusions of the hypotheses were drawn based on the path coefficient scores and the significance values for

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each path.

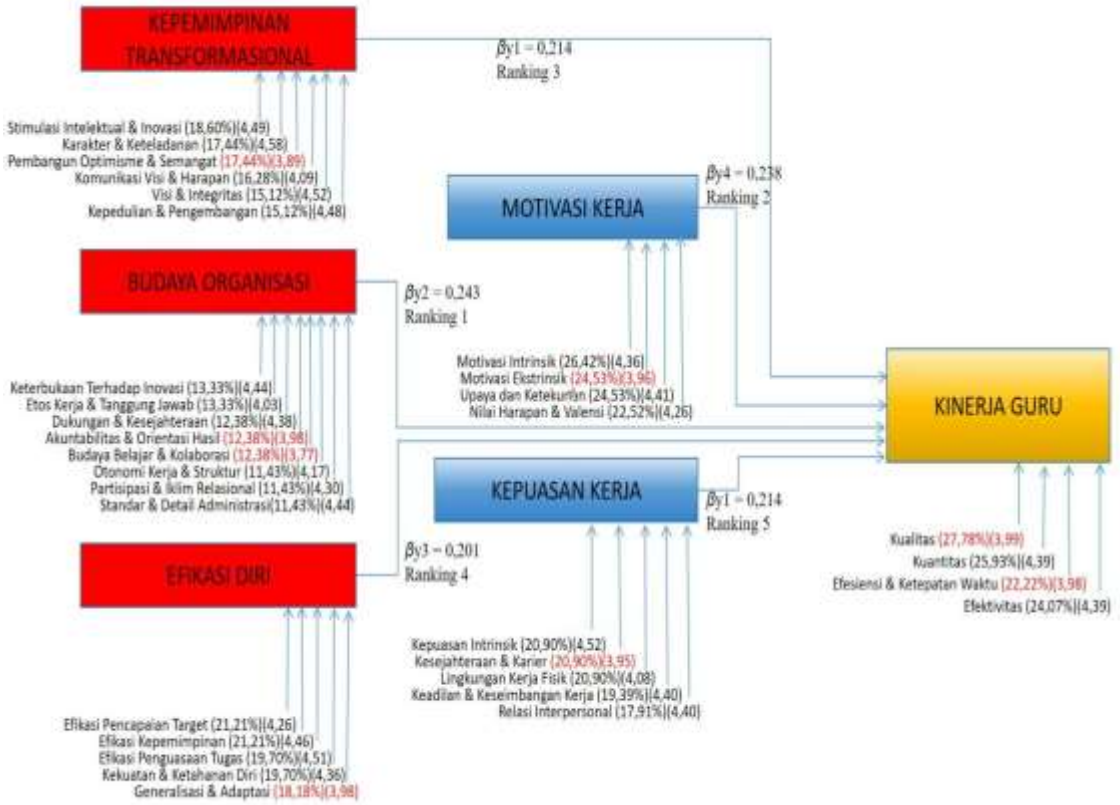
Table 4 Summary of Hypothesis Testing Results

No	Variable Relationship	Beta (β)	Sig. Value	t-calculated	t-table	Test Decision
1	X1 → Y	0.214	0.002	3.161	1.98	Significant
2	X2 → Y	0.243	0.001	3.460	1.98	Significant
3	X3 → Y	0.201	0.013	2.518	1.98	Significant
4	X4 → Y	0.238	0.005	2.878	1.98	Significant
5	X5 → Y	0.137	0.007	2.731	1.98	Significant
6	X1 → X4	0.254	0.000	3.670	1.98	Significant
7	X2 → X4	0.298	0.000	4.184	1.98	Significant
8	X3 → X4	0.221	0.003	3.000	1.98	Significant
9	X1 → X5	0.195	0.003	2.987	1.98	Significant
10	X2 → X5	0.268	0.000	3.705	1.98	Significant
11	X3 → X5	0.182	0.014	2.506	1.98	Significant
12	X1 → Y through X4	0.104	0.023	2.267	1.96	Significant
13	X2 → Y through X4	0.128	0.018	2.354	1.96	Significant
14	X3 → Y through X4	0.088	0.038	2.071	1.96	Significant
15	X1 → Y through X5	0.027	0.045	2.000	1.96	Significant
16	X2 → Y through X5	0.036	0.025	2.239	1.96	Significant
17	X3 → Y through X5	0.025	0.060	1.877	1.96	Not Significant

5 SITOREM

Scientific Identification Theory to Conduct Operation Research in Education Management (SITOREM) is a scientific method developed to identify theoretical variables for conducting operational research in the field of Educational Management (Sri Setyaningsih, 2024). In the context of correlational research and path analysis, SITOREM is used strategically to measure the strength of relationships by assessing the degree of association and influence of independent variables on the dependent variable, analyze actual achievement by evaluating research results for each variable indicator to capture the real situation in the field, and determine the weight of each indicator using the "Cost, Benefit, Urgency, and Importance" (CBUI) criteria to establish a priority scale.

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