

The Effect of Transformational Leadership and Interpersonal Communication on Guru Penggerak Work Effectiveness: The Mediating Role of Learning Organization and Work Motivation

Yusef Gunawan^{1*}, Sri Setyaningsih², Griet Helena Laihad³

^{1,2,3}Pakuan University, Bogor, Indonesia



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ABSTRACT

Objective: This study aims to examine the direct and indirect effects of transformational leadership and interpersonal communication on the work effectiveness of *Guru Penggerak* in curriculum implementation, with learning organization and work motivation as mediating variables. **Methods:** A quantitative survey design was employed involving 116 *Guru Penggerak* teachers from public elementary schools in Bogor Regency, selected through proportional random sampling. Data were collected using validated questionnaires and analyzed using descriptive statistics, prerequisite tests (normality, homogeneity, and linearity), and path analysis supported by the Sobel test to examine mediation effects. **Results:** The findings indicate that transformational leadership, interpersonal communication, learning organization, and work motivation have positive and significant direct effects on teacher work effectiveness. Learning organization and work motivation are the strongest predictors. Additionally, both variables significantly mediate the relationship between leadership, communication, and work effectiveness, with indirect effects found to be stronger than direct effects. **Novelty:** This study offers an integrative causal model that combines leadership, communication, organizational learning, and motivation in explaining teacher work effectiveness. It also highlights the dominant mediating role of learning organization and work motivation, providing a more comprehensive understanding of how leadership and communication influence educational outcomes in the context of curriculum reform.

INTRODUCTION

Improving the quality of learning remains a central agenda in global educational reform, particularly in the context of rapid socio-economic change, digital transformation, and post-pandemic recovery (Adam et al., 2025). International organizations emphasize that the effectiveness of learning is not merely determined by curriculum design but is strongly influenced by leadership practices and teachers' professional competence in implementing the curriculum (UNESCO, 2021). School principals play a strategic role as instructional leaders who supervise, guide, and support teachers to ensure that teaching and learning processes align with educational goals and quality standards (Achmad & Mulyati, 2023a). At the same time, teachers are required to possess strong curriculum competence to translate policy frameworks into meaningful classroom practices that foster student engagement and learning outcomes (Adhinugraha, 2024).

In Indonesia, these global challenges intersect with national educational reforms, particularly through the implementation of the *Merdeka Curriculum* and the *Guru Penggerak* program (Budiyanto, 2025). These initiatives aim to strengthen teacher professionalism, pedagogical autonomy, and student-centered learning while positioning principals as catalysts for instructional improvement (Chai et al., 2013). However, empirical evidence suggests that variations in learning quality across schools remain substantial (Baker & Inventado, 2014), indicating that the effectiveness of principal

supervision and teachers' curriculum competence has not yet been optimally realized in practice (OECD, 2021). This condition highlights the need for systematic investigation into how leadership supervision and teacher competence interact to influence learning effectiveness, particularly at the elementary school level (Behav. Sci. (Huangshan Univ), 2025).

Although previous studies frequently discussed principal supervision and teacher curriculum competence as determinants of learning effectiveness, the present study specifically focuses on transformational leadership and interpersonal communication as the main organizational factors influencing the work effectiveness of *Guru Penggerak* teachers. In this context, transformational leadership reflects the developmental and inspirational dimensions of school leadership beyond administrative supervision, while interpersonal communication represents the quality of professional interaction that supports collaboration, motivation, and organizational learning within schools. Furthermore, learning organization and work motivation are positioned as mediating variables that explain the indirect mechanisms through which leadership and communication influence teacher work effectiveness. Therefore, this study seeks to provide a more integrated understanding of organizational and behavioral factors affecting teacher effectiveness in the implementation of the Merdeka Curriculum.

Principal supervision has been widely recognized as a critical mechanism for improving instructional quality through classroom observation, feedback, coaching, and professional development support (Hallinger & Heck, 2010). Effective supervision contributes to teachers' instructional improvement, professional growth, and alignment with curriculum standards (Nurfadhilah, 2024). Nevertheless, several studies report that supervision practices often remain administrative and compliance-oriented rather than developmental and instructional, limiting their impact on classroom learning (Chen & Liu, 2023). This gap between ideal and actual supervision practices raises concerns about the extent to which principal supervision contributes meaningfully to learning effectiveness, especially in reform-oriented contexts (Manalu, 2024).

In parallel, teacher curriculum competence defined as teachers' understanding of curriculum goals, content structure, learning strategies, and assessment principles has been identified as a key determinant of instructional quality and student achievement (Darling-Hammond et al., 2020). Teachers with strong curriculum competence are more capable of designing coherent learning experiences, adapting instruction to student needs, and implementing innovative pedagogical approaches. (Entwistle, 2009) However, recent studies indicate that curriculum reforms often outpace teachers' readiness, resulting in inconsistent implementation and limited impact on learning outcomes (Almerich & Orellana, 2021). This challenge is particularly relevant in decentralized education systems, where teachers are expected to exercise professional judgment while adhering to national standards.

Previous empirical studies have examined the individual effects of principal supervision and teacher competence on learning outcomes, yet most have relied on simple correlational or regression approaches (Leithwood et al., 2020). Limited attention has been given to analyzing the direct and indirect relationships among these variables within an integrated model. Moreover, few studies have employed path analysis (Setyaningsih, 2020) combined with SITOREM (Scientific Identification Theory for Operational Research in Education Management) (Hardhienata, 2019) to not only explain causal relationships but also identify priority areas for improvement based on empirical

evidence. This methodological gap is particularly evident in research focusing on *Guru Penggerak* teachers at the elementary school level, especially in regional contexts such as Bogor Regency.

Based on the theoretical and empirical gaps identified above, the problem formulation of this study can be stated as follows: (1) Do transformational leadership and interpersonal communication have direct effects on the work effectiveness of *Guru Penggerak* teachers? (2) Do transformational leadership and interpersonal communication significantly influence learning organization and work motivation? (3) Do learning organization and work motivation mediate the relationship between transformational leadership, interpersonal communication, and teacher work effectiveness? Addressing these questions is important to clarify the causal relationships among organizational, motivational, and communication factors in improving teacher effectiveness within educational reform contexts.

Given these gaps, this study is both timely and necessary. It aims to investigate the role of principal supervision and teacher curriculum competence in influencing learning effectiveness among *Guru Penggerak* elementary school teachers in Bogor Regency using path analysis and the SITOREM approach. By integrating explanatory and decision-oriented analytical methods (Sulistiasih & Widodo, 2025), this research is expected to contribute theoretically to the literature on instructional leadership and teacher professionalism, while practically providing evidence-based recommendations for school leaders and policymakers to enhance learning quality. Ultimately, the findings of this study are intended to support the continuous improvement of educational practice in line with national reform agendas and global standards of educational quality.

RESEARCH METHOD

This study adopts a quantitative research approach to examine relationships among variables through numerical data and statistical analysis (Creswell & Creswell, 2023). Quantitative methods enable the generation of objective, measurable, and generalizable findings by applying inferential statistics to large-scale datasets (Achmad & Mulyati, 2023b). This approach is particularly appropriate for testing theoretical models and causal relationships in educational and organizational research (Sugiyono, 2021). A survey research design was employed to systematically collect primary data using a structured, closed-ended questionnaire. Survey designs are widely recognized for their efficiency in capturing perceptions and behaviors across large populations and for supporting robust statistical analysis (Ridwan, 2022)

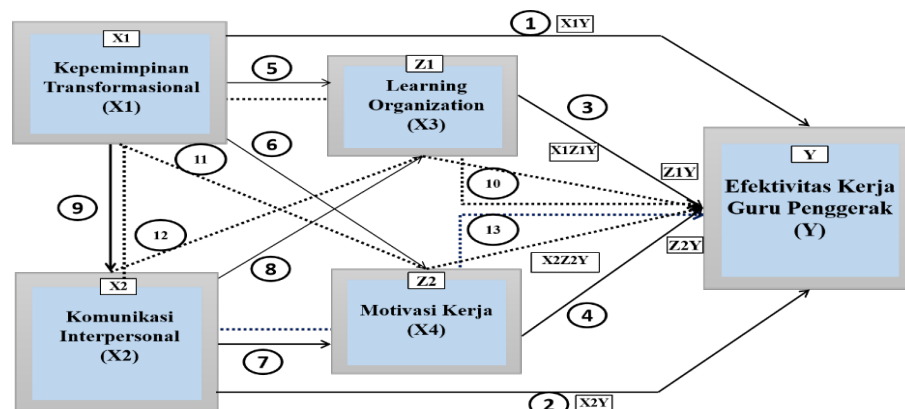


Figure 1. Research Constellation

The research instrument utilized a five-point Likert scale, which is effective for measuring latent constructs and ensuring reliability, consistency, and comparability of responses (Lasrin et al., 2025). The study investigates five variables, consisting of four independent variables: Transformational Leadership, Interpersonal Communication, Learning Organization, and Work Motivation, and one dependent variable, namely the Work Effectiveness of *Guru Penggerak* teachers. This design supports comprehensive hypothesis testing through descriptive statistics, correlation analysis, and path analysis, allowing examination of both direct and mediated effects among variables (Hair et al., 2021).

The research was conducted in East Bogor Regency, which was randomly selected due to its wide distribution of public elementary schools, substantial number of *Guru Penggerak* teachers, and representative educational characteristics (Susilowati et al., 2025). East Bogor consists of seven districts: Gunung Putri, Cileungsi, Klapanunggal, Jonggol, Cariu, Sukamakmur, and Tanjungsari. According to the Bogor Regency Statistics Office (2025), the region includes 276 public elementary schools with 435 active *Guru Penggerak* teachers, forming the study population. A proportional multistage random sampling technique was applied to select 116 teachers, ensuring representativeness and strengthening the external validity of the findings (Prihatmojo et al., 2024).

RESULTS AND DISCUSSION

Results

The results of this study were obtained from the measurement of several variables, namely Driving Teacher Work Effectiveness (Y), Transformational Leadership (X1), Interpersonal Communication (X2), Learning Organization (X3), and Work Motivation (X4), which were assessed using respective instrument items. Data were collected from 116 teacher and school principal respondents and analyzed using descriptive statistics to provide a general overview of the data distribution (Creswell & Creswell, 2018; Sekaran & Bougie, 2019).

Tabel 1. Summary of Descriptive Statistics for Research Variables

	Statistics				
	Transformational Leadership	Interpersonal Communication	Learning Organization	Work Motivation	Driving Teacher Work Effectiveness
Mean	78.02	87.79	82.09	88.07	83.48
Std. Error of Mean	.679	1.161	.933	.935	.981
Median	78.00	88.00	83.00	89.00	86.00
Mode	82	96	86	92	88
Std. Deviation	7.316	12.509	10.052	10.074	10.560
Variance	53.530	156.479	101.043	101.491	111.521
Skewness	-.223	.005	-.242	-.238	-.256
Std. Error of Skewness	.225	.225	.225	.225	.225
Range	26	46	38	38	46
Minimum	64	64	62	68	64
Maximum	90	110	100	106	110

The data description included calculations of mean, median, mode, standard deviation, frequency distribution (variance), score range, and sample variance. In addition, histogram graphs were provided to compare theoretical and empirical scores, and the average indicator scores for each variable were calculated (Hair et al., 2021). Data

presentation was conducted sequentially for each research variable, ensuring clarity and systematic reporting of results (Field, 2018).

The prerequisite analysis testing was conducted to ensure that the data were appropriate for use in parametric statistical analysis. Three types of tests were applied, namely the normality test to confirm that the data were normally distributed, the homogeneity test to examine the equality of variances among groups, and the linearity test to ensure the existence of a linear relationship between the independent variable (X) and the dependent variable (Y).

1. Normality Test of the Standard Error of Estimate

Prior to conducting path analysis, the initial requirement that must be fulfilled is the normality test, which aims to verify that the data from each variable involved in the model are normally distributed. The normality test is essential because path analysis is a form of parametric statistical analysis that assumes normal data distribution. In this study, the normality test was applied to the residual values of each path equation. The testing was performed using the Kolmogorov-Smirnov (K-S) test, as this test is commonly employed to assess normal distribution in studies with large sample sizes ($n > 50$). This is consistent with the present study, which involved 116 respondents. The path structure analyzed in this study consisted of four equation models, as follows:

Structure 1: $Y \leftarrow X1 \leftarrow X2 \leftarrow X3 \leftarrow X4$ (Teacher Driving Effectiveness (Y) $\leftarrow$ Transformational Leadership (X1) $\leftarrow$ Interpersonal Communication (X2) $\leftarrow$ Learning Organization (X3) $\leftarrow$ Work Motivation (X4))

Structure 2: $X3 \leftarrow X1 \leftarrow X2$ (Learning Organization (X3) $\leftarrow$ Transformational Leadership (X1) $\leftarrow$ Interpersonal Communication (X2))

Structure 3: $X4 \leftarrow X1 \leftarrow X2$ (Work Motivation (X4) $\leftarrow$ Transformational Leadership (X1) $\leftarrow$ Interpersonal Communication (X2))

2. Variance Homogeneity Test

The homogeneity test in this study was conducted to determine whether the variances among data groups were homogeneous. The test employed was Levene's Test at a significance level of 0.05. The data were considered homogeneous if the significance value (p-value) was greater than 0.05, indicating that there was no statistically significant difference in variances among the groups. In other words, the variances were equal or similar (homogeneous), thereby satisfying the assumptions required for conducting parametric statistical analyses such as ANOVA or path analysis. The results of the homogeneity test are presented in the following table. The results of the homogeneity of variance test for other variable structures are presented in the following table.

Table 2. Homogeneity Test of Variance for Other Variable Structures

Structure	Sig. (χ^2)	Levene Statistic	Remark
$X4 \rightarrow X1 \rightarrow X2$	0.05	0.143	Homogeneous

Based on the results of the variance homogeneity test using Levene's Test for the structure $X4 \rightarrow X1 \rightarrow X2$, a significance value of $0.143 > 0.05$ was obtained, indicating that the variances among the variables are homogeneous. Therefore, the data meet the homogeneity assumption and are appropriate for use in path analysis within this structure.

Table 3. Summary of the Homogeneity Test of Variance

Structure	Sig. (χ^2)	Levene Statistic	Remark
$Y \rightarrow X_1 \rightarrow X_2 \rightarrow X_3 \rightarrow X_4$	0.05	0.273	Homogeneous
$X_3 \rightarrow X_1 \rightarrow X_2$	—	0.489	Homogeneous
$X_4 \rightarrow X_1 \rightarrow X_2$	—	0.521	Homogeneous

3. Linearity Test of the Regression Model

The linearity test was conducted to examine whether a linear relationship exists between the independent variables and the dependent variable. This test was performed using analysis of variance (ANOVA) with reference to the F-table at a significance level of 0.05. A regression relationship is considered linear if the calculated F-value (Calculated) is smaller than the critical F-value from the F-table (F_{table}). The results of the significance and linearity tests of the regression equations are presented as follows. A summary of the calculation results for all regression models examined in this study is presented in the following table.

Table 4. Summary of Regression Models

Nu.	Model	Model Regresi	Significance Test Results
1	Y above X_1	$\hat{y} = 24.153 + 0,756 X_1$	Signifikan
2	Y above X_2	$\hat{y} = 44.279 + 0.447X_2$	Signifikan
3	Y above X_3	$\hat{y} = 19.787 + 0776X_3$	Signifikan
4	Y above X_4	$\hat{y} = 16.054 + 0766X_4$	Signifikan
5	X_3 above X_1	$\hat{y} = 24.965 + 0732X_1$	Signifikan
6	X_3 above X_2	$\hat{y} = 42.000 + 0457X_2$	Signifikan
7	X_4 above X_1	$\hat{y} = 30.787 + 0.734X_1$	Signifikan
8	X_4 above X_2	$\hat{y} = 47.802 + 0.459X_1$	Signifikan

Meanwhile, the overall results of the linearity test for the regression models in this study are presented in the summary shown in the following table.

Table 5. Summary of the Significance Test Results of the Regression Models (F-test)

Nu.	Model	Sig	α	Significance Test Results
1	Y above X_1	0,000b	0,005	Signifikan
2	Y above X_2	0,000b	0,005	Signifikan
3	Y above X_3	0,000b	0,005	Signifikan
4	Y above X_4	0,000b	0,005	Signifikan
5	X_3 above X_1	0,000b	0,005	Signifikan
6	X_3 above X_2	0,000b	0,005	Signifikan
7	X_4 above X_1	0,000b	0,005	Signifikan
8	X_4 above X_2	0,000b	0,005	Signifikan

Syarat Signifikan: $\text{Sig} < \alpha$

The overall results of the linearity test for the regression models in this study are presented in the summary shown in the following table.

Table 6. Summary of the Linearity Test of the Regression Models

Nu	Model	Sig	α	Significance Test Results
1	Y above X_1	0,000b	0,005	Signifikan
2	Y above X_2	0,000b	0,005	Signifikan
3	Y above X_3	0,000b	0,005	Signifikan
4	Y above X_4	0,000b	0,005	Signifikan
5	X_3 above X_1	0,000b	0,005	Signifikan
6	X_3 above X_2	0,000b	0,005	Signifikan
7	X_4 above X_1	0,000b	0,005	Signifikan
8	X_4 above X_2	0,000b	0,005	Signifikan

Syarat Signifikan: $\text{Sig} < \alpha$

4. Model Testing

After the data collected from all public elementary schools (SD Negeri) in East Bogor were processed and analyzed through the required statistical tests, the next stage in testing the causal model was conducting path analysis. The model testing was carried out through the following steps.

a. Correlation among Variables

The correlation test among variables was conducted comprehensively using SPSS version 26, and the results are presented in the following tables.

Table 7. Description of Correlations among Variables

Model of Variable Relationships	Pearson Correlation	Sig. (2 tailed)	N	Description
X1 — Y Transformational Leadership and Teacher Driving Effectiveness	0.524**	0.000	116	A significant moderate correlation between transformational leadership and teacher driving effectiveness
X2 — Y Interpersonal Communication and Teacher Driving Effectiveness	0.529**	0.000	116	A significant moderate correlation between interpersonal communication and teacher driving effectiveness
X3 — Y Learning Organization and Teacher Driving Effectiveness	0.739*	0.000	116	A significant strong correlation between learning organization and teacher driving effectiveness
X4 — Y Work Motivation and Teacher Driving Effectiveness	0.730**	0.000	116	A significant strong correlation between work motivation and teacher driving effectiveness
X1 — X3 Transformational Leadership and Learning Organization	0.533**	0.000	116	A significant moderate correlation between transformational leadership and learning organization
X2 — X3 Interpersonal Communication and Learning Organization	0.568**	0.000	116	A significant moderate correlation between interpersonal communication and learning organization
X1 — X4 Transformational Leadership and Work Motivation	0.533**	0.000	116	A significant moderate correlation between transformational leadership and work motivation
X2 — X4 Interpersonal Communication and Work Motivation	0.570**	0.000	116	A significant moderate correlation between interpersonal communication and work motivation

b. Path Relationship Model among Variables in Structure 1

The variable relationship model in Structure 1 consists of one endogenous variable, namely Teacher Driving Effectiveness (Y), and four exogenous variables: Transformational Leadership (X1), Interpersonal Communication (X2), Learning Organization (X3), and Work Motivation (X4). In addition, there is one residual variable denoted by e_1 . Based on these relationships, the path model for Structure 1 is illustrated as follows.

The diagram of the causal relationship model among variables in Structure 1, which represents the empirical causal relationships of Transformational Leadership (X1), Interpersonal Communication (X2), Learning Organization (X3), and Work Motivation (X4) on Teacher Driving Effectiveness (Y), is presented in the following figure.

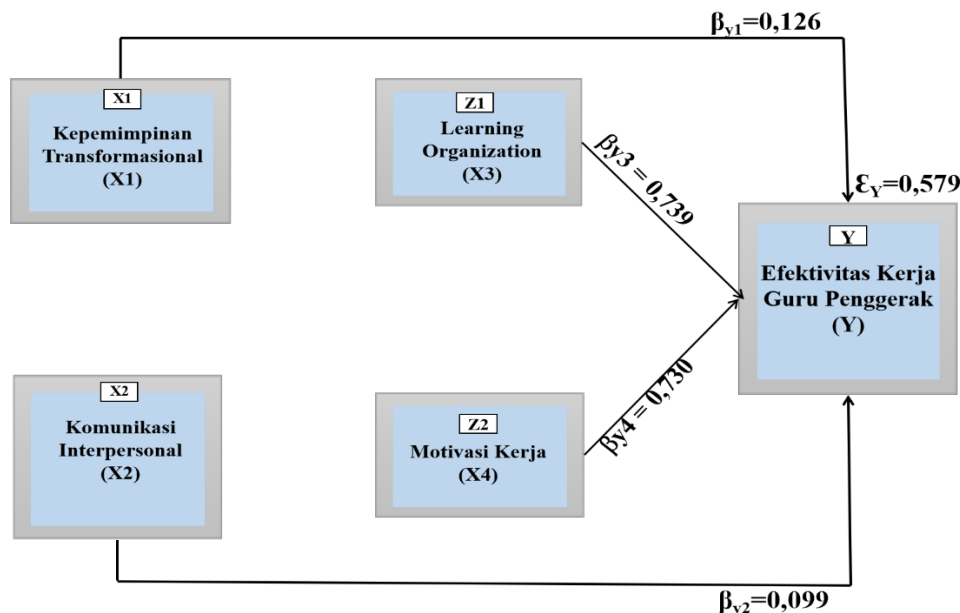


Figure 2. Model of Causal Relationships Between Variables in Structural Equation Modelling 1

Based on the calculation results presented in the table above, the path coefficients in Structure 1 indicate that $\beta_{y1} = 0,126 = 0.126$ for Transformational Leadership (X1) on Teacher Driving Effectiveness (Y), $\beta_{y2} = 0.099$ for Interpersonal Communication (X2) on Y, $\beta_{y3} = 0.739$ for Learning Organization (X3) on Y, and $\beta_{y4} = 0.730$ for Work Motivation (X4) on Y. All significance values (sig.) are less than 0.05; therefore, H_0 is rejected, and the effects of each independent variable on Y are statistically significant. The results of the linear regression model test for Structure 1 are presented in the table below.

Table 8. Summary of the Regression Model for Structure 1

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.815 ^a	.664	.652	6.226
a. Predictors: (Constant), <u>Motivasi Kerja</u> , <u>Kepemimpinan Transformatif</u> , <u>Komunikasi Interpersonal</u> , <u>Learning Organization</u>				

The magnitude of the error coefficient $\rho_{y\epsilon_1}$ is calculated as $\sqrt{1-R^2} = \sqrt{1-0,664} = 0,579$. Based on this calculation, the empirical causal relationship framework of variables X1, X2, X3, and X4 on Y in Structure 1 is expressed as: $\hat{y} = 0.126X_1 + 0.099X_2 + 0.739X_3 + 0.730X_4 + \epsilon_y$. The magnitude of the influence of variables other than X1, X2, X3, and X4 on Y is represented by the error term, with a value of $\epsilon_y \approx 0.579$.

c. Path Relationship Model among Variables in Structure 2

The variable relationship model in Structure 2 consists of one endogenous variable, namely Learning Organization (X3), two exogenous variables Transformational Leadership (X1) and Interpersonal Communication (X2) and one residual variable denoted as e_2 . Based on these relationships, the path model for Structure 2 is illustrated as follows.

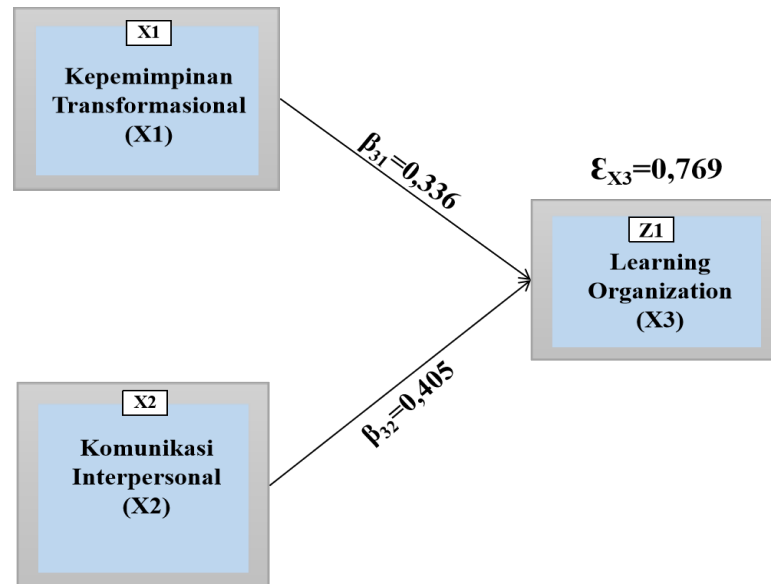


Figure 3. Model of Causal Relationships Between Variables in Structural 2

Based on the calculation results, the structural equation model for Structure 2 is expressed as: $\hat{y} = 0,336 + 0,405$. This model indicates that Transformational Leadership (X1) has an effect on Learning Organization (X3) with a path coefficient of $\beta_{31} = 0.336$, while Interpersonal Communication (X2) influences Learning Organization (X3) with a path coefficient of $\beta_{32} = 0.405$. All significance values are less than 0.05; therefore, H_0 is rejected, and the effects of X1 and X2 on X3 are statistically significant.

Table 9. Summary of the Regression Model for Structure 2

		Coefficients ^a				
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	17.515	7.932		2.208	.029
	Kepemimpinan Transformasional	.462	.114	.336	4.060	.000
	Komunikasi Interpersonal	.325	.067	.405	4.892	.000

a. Dependent Variable: Learning Organization

d. Path Relationship Model among Variables in Structure 3

The variable relationship model in Structure 3 consists of one endogenous variable, namely Work Motivation (X4), two exogenous variables Transformational Leadership (X1) and Interpersonal Communication (X2) and one residual variable denoted as e_3 . Based on these relationships, the path model for Structure 3 is illustrated as follows.

Based on the calculation results, the structural equation model for Structure 3 is expressed as: $\hat{y} = 0,336 + 0,406$. This model indicates that Transformational Leadership (X1) has an effect on Work Motivation (X4) with a path coefficient of $\beta_{41} = 0.336$, while Interpersonal Communication (X2) also influences Work Motivation (X4) with a path coefficient of $\beta_{42} = 0.406$. All significance values are less than 0.05; therefore, H_0 is rejected, and the effects of X1 and X2 on X4 are statistically significant.

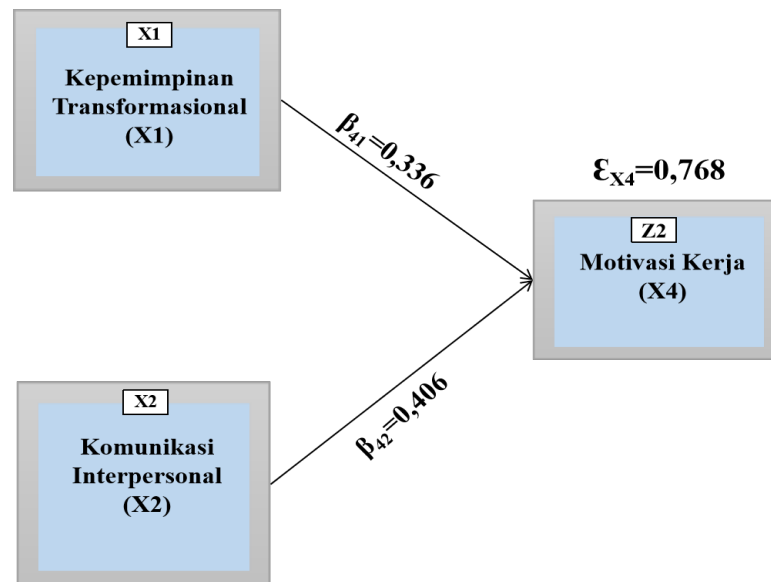


Figure 4. Model of Causal Relationships Between Variables in Structural 3

5. Indirect Effect Test (Sobel Test)

The indirect effect test was conducted to measure the effectiveness of the intervening variable as a mediator between the independent and dependent variables. The effect of the intervening variable was calculated through the following analysis.

Table 10. Summary of Indirect Effects (Sobel Test)

Indirect Effect	Z cont.	Z table ($\alpha = 0.05$)	Decision	Conclusion
Transformational Leadership (X1) on Teacher Driving Effectiveness (Y) through Learning Organization (X3)	5.31	1.96	H_0 rejected, H_1 accepted	Mediation confirmed
Interpersonal Communication (X2) on Teacher Driving Effectiveness (Y) through Learning Organization (X3)	5.62	1.96	H_0 rejected, H_1 accepted	Mediation confirmed
Transformational Leadership (X1) on Teacher Driving Effectiveness (Y) through Work Motivation (X4)	5.28	1.96	H_0 rejected, H_1 accepted	Mediation confirmed
Interpersonal Communication (X2) on Teacher Driving Effectiveness (Y) through Work Motivation (X4)	5.56	1.96	H_0 rejected, H_1 accepted	Mediation confirmed

6. Hypothesis Testing

After the structural model analysis was completed, the calculation results were used to test the hypotheses in order to determine both the direct and indirect effects among the variables. Conclusions regarding the proposed hypotheses were drawn based on the calculation of path coefficients and significance tests for each examined path. The decisions for all hypotheses are explained as follows.

Based on the above calculations, there is a positive indirect effect of Interpersonal Communication (X2) on Teacher Driving Effectiveness (Y) through Work Motivation (X4) as a mediating variable. This indicates that the better the interpersonal communication implemented, the greater its impact on teacher driving effectiveness through the enhancement of work motivation in public elementary schools in Bogor Regency.

Table 11. Summary of Hypothesis Testing Results

Nu.	Hypothesis	Path Coefficient	Statistical Test	Decision	Conclusion
1	Direct positive effect of Transformational Leadership (X1) on Teacher Driving Effectiveness (Y)	0.126	$H_0: \beta_{y_1} \leq 0$ $H_{A1}: \beta_{y_1} \geq 0$	H_0 rejected, H_1 accepted	Direct positive effect
2	Direct positive effect of Interpersonal Communication (X2) on Teacher Driving Effectiveness (Y)	0.099	$H_0: \beta_{y_2} \leq 0$ $H_{A1}: \beta_{y_2} \geq 0$	H_0 rejected, H_1 accepted	Direct positive effect
3	Direct positive effect of Learning Organization (X3) on Teacher Driving Effectiveness (Y)	0.739	$H_0: \beta_{y_3} \leq 0$ $H_{A1}: \beta_{y_3} \geq 0$	H_0 rejected, H_1 accepted	Direct positive effect
4	Direct positive effect of Work Motivation (X4) on Teacher Driving Effectiveness (Y)	0.730	$H_0: \beta_{y_4} \leq 0$ $H_{A1}: \beta_{y_4} \geq 0$	H_0 rejected, H_1 accepted	Direct positive effect
5	Direct positive effect of Transformational Leadership (X1) on Learning Organization (X3)	0.336	$H_0: \beta_{31} \leq 0$ $H_{A1}: \beta_{31} \geq 0$	H_0 rejected, H_1 accepted	Direct positive effect
6	Direct positive effect of Transformational Leadership (X1) on Work Motivation (X4)	0.336	$H_0: \beta_{41} \leq 0$ $H_{A1}: \beta_{41} \geq 0$	H_0 rejected, H_1 accepted	Direct positive effect
7	Direct positive effect of Interpersonal Communication (X2) on Learning Organization (X3)	0.405	$H_0: \beta_{32} \leq 0$ $H_{A1}: \beta_{32} \geq 0$	H_0 rejected, H_1 accepted	Direct positive effect
8	Direct positive effect of Interpersonal Communication (X2) on Work Motivation (X4)	0.406	$H_0: \beta_{42} \leq 0$ $H_{A1}: \beta_{42} \geq 0$	H_0 rejected, H_1 accepted	Direct positive effect
9	Indirect positive effect of Transformational Leadership (X1) on Teacher Driving Effectiveness (Y) through Learning Organization (X3)	0.248	$H_0: \beta_{x13y} \leq 0$ $H_{A1}: \beta_{x13y} \geq 0$	H_0 rejected, H_1 accepted	Indirect positive effect
10	Indirect positive effect of Transformational Leadership (X1) on Teacher Driving Effectiveness (Y) through Work Motivation (X4)	0.245	$H_0: \beta_{x14y} \leq 0$ $H_{A1}: \beta_{x14y} \geq 0$	H_0 rejected, H_1 accepted	Indirect positive effect
11	Indirect positive effect of Interpersonal Communication (X2) on Teacher Driving Effectiveness (Y) through Learning Organization (X3)	0.299	$H_0: \beta_{23y} \leq 0$ $H_{A1}: \beta_{23y} \geq 0$	H_0 rejected, H_1 accepted	Indirect positive effect
12	Indirect positive effect of Interpersonal Communication (X2) on Teacher Driving Effectiveness (Y) through Work Motivation (X4)	0.296	$H_0: \beta_{24y} \leq 0$ $H_{A1}: \beta_{24y} \geq 0$	H_0 rejected, H_1 accepted	Indirect positive effect

Discussion

The effectiveness of *Guru Penggerak* is assessed to measure the achievement of learning objectives and the optimal implementation of the curriculum (Direktorat Guru Pendidikan Dasar, 2025). Teacher work effectiveness is evaluated through indicators such as strategic planning, classroom management, utilization of technology and resources, positive interaction, learning outcome orientation, constructive evaluation,

and teaching enthusiasm These findings indicate that most *Guru Penggerak* possess strong strategic and reflective capacities in designing and evaluating learning (Kemendikbudristek, 2023). Teaching enthusiasm also plays an important affective role in creating meaningful learning experiences. Previous studies support that systematic lesson planning, constructive feedback, and teacher enthusiasm significantly enhance work effectiveness and student engagement (Al Hakim et al., 2021)). However, challenges remain in classroom management, digital integration, and the use of learning data, which are essential in implementing the *Merdeka Curriculum*.

Transformational leadership significantly contributes to improving teacher work effectiveness. This leadership is reflected through inspirational vision, collaborative behavior, intellectual stimulation, and individualized consideration. SITOREM results show that inspirational vision and collaborative behavior are strengths (Benitez et al., 2020), while intellectual stimulation and individualized consideration need reinforcement. Principals who articulate a clear vision and foster collaboration strengthen teacher commitment and motivation (Boamah et al., 2018). However, enhancing intellectual stimulation and personal support is crucial to developing teacher creativity, self-efficacy, and readiness for change (Juliansyah, 2023)

Interpersonal communication also plays an important role in supporting teacher effectiveness. Positive attitude, message clarity, feedback, and expressiveness are well-developed indicators, while openness, empathy, support, and equality require improvement. Effective communication promotes coordination, trust, and professional relationships, whereas weak openness and empathy indicate gaps in two-way communication that may hinder collaboration and performance ((Andi Hermawan et al., 2023).

Learning Organization practices strongly influence teacher effectiveness. Knowledge acquisition and transfer, behavioral change, and performance improvement are well-established (Almerich & Orellana, 2021), indicating that learning occurs beyond theory and translates into professional practice. However, innovation, adaptability, and individual and collective development still need strengthening to ensure responsiveness to educational change.(Fitroh, 2025). Work motivation is another key factor. Self-development, status, and incentives are strong motivators, while responsibility, recognition, and working conditions require improvement. Teachers who feel valued, supported, and empowered demonstrate higher commitment and effectiveness(Bahagia et al., 2024).

Overall, this study confirms that *Guru Penggerak* effectiveness is shaped through an integrated system of transformational leadership, interpersonal communication, learning organization, and work motivation. Path analysis reveals that learning organization and work motivation have the strongest direct effects, while leadership and communication exert greater influence through these mediating variables. This highlights the importance of fostering a supportive learning culture and sustained motivation to enhance teacher effectiveness.

CONCLUSION

This study examined the direct and indirect effects of Transformational Leadership and Interpersonal Communication on the Work Effectiveness of *Guru Penggerak* teachers, with Learning Organization and Work Motivation serving as mediating variables. The findings demonstrate that all variables in the proposed model significantly contribute to

teacher work effectiveness, both directly and indirectly. Among these variables, Learning Organization and Work Motivation emerged as the strongest predictors, indicating that organizational learning culture and motivational factors play a central role in strengthening teacher effectiveness in curriculum implementation.

The study further confirms that Transformational Leadership and Interpersonal Communication do not merely influence teacher effectiveness independently but also operate through the enhancement of organizational learning and teacher motivation. The indirect effects were found to be stronger than the direct effects, emphasizing the importance of creating supportive school environments characterized by collaborative leadership, effective communication, continuous learning, and sustained motivation.

Theoretically, this study contributes to the development of an integrated causal model linking leadership, communication, organizational learning, and motivation within the context of educational reform. Practically, the findings provide evidence-based implications for school leaders and policymakers to strengthen professional learning culture and motivational support systems for teachers implementing the *Merdeka Curriculum*.

However, this study has several limitations. First, the research was limited to public elementary schools in Bogor Regency, which may restrict the generalizability of the findings to other educational contexts or regions. Second, the study relied solely on quantitative survey data, limiting deeper exploration of participants' experiences and contextual factors. Third, the cross-sectional design only captured relationships at a single point in time and did not examine long-term changes in teacher effectiveness. Therefore, future research is recommended to involve broader educational settings, apply mixed-method or longitudinal approaches, and incorporate additional variables such as organizational climate, school culture, or teacher professional identity to enrich the understanding of teacher effectiveness in educational reform contexts.

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***Yusef Gunawan (Corresponding Author)**

Pakuan University,
Jl. Pakuan, RT.02/RW.06, Tegallega, Kecamatan Bogor Tengah, Kota Bogor, Jawa Barat 16129
Email: achmadfaiz8@gmail.com

Sri Setyaningsih

Pakuan University,
Jl. Pakuan, RT.02/RW.06, Tegallega, Kecamatan Bogor Tengah, Kota Bogor, Jawa Barat 16129
Email: sri.setyaningsih@unpak.ac.id

Griet Helena Laihad

Pakuan University,
Jl. Pakuan, RT.02/RW.06, Tegallega, Kecamatan Bogor Tengah, Kota Bogor, Jawa Barat 16129
Email: griet.helena.laihad@unpak.ac.id
