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School Quality Improvement through Transformational Leadership and Teacher Performance: A Study in Cengkareng District

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ABSTRACT. The study aims to determine the influence of principal transformational leadership and teacher performance on the quality of public elementary schools in Cengkareng District. The research method employs a quantitative approach, utilizing survey techniques. One hundred nine public elementary school teachers from Cengkareng District, West Jakarta, participated in this study. The research instrument used a validated questionnaire covering three variables: the principal transformational leadership variable consists of the dimensions of ideal influence, inspirational motivation, intellectual stimulation, and individual consideration; the teacher performance variable consists of the dimensions of quantity, quality, speed and accuracy, time, and communication; and the school quality variable consists of the dimensions of content standards, process standards, graduate competency standards, educator and Education personnel standards, infrastructure standards, management standards, financing standards, and assessment standards—data analysis using regression test with the help of SPSS 24 Software. The study's results showed that 44.1% of the principal's transformational leadership influenced school quality, 27.2% of teacher performance influenced school quality, and 45.1% of the principal's transformational leadership and teacher performance simultaneously influenced school quality. The conclusion is that teacher effectiveness and the principal's transformative leadership affect the school's quality. Therefore, transformational leadership and teacher performance can be used to improve school quality.

Keywords: *Principal's transformational leadership, Teacher performance, School quality*

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INTRODUCTION

School quality has become a significant issue in education in Indonesia (Kristiansen, 2006), including in public elementary schools. The ability of a school to provide high-quality education is closely related to the effectiveness of its leadership and the performance of its teachers (Hallinger & Heck, 2010). Among various leadership styles, transformational leadership has been widely recognized for its positive influence on improving school quality (Geijsel et al., 2003; Sun & Leithwood, 2012; Leithwood & Sun, 2012). Transformational leaders inspire and motivate teachers to achieve higher levels of performance, which ultimately improves student outcomes and school quality (Bass & Riggio, 2006; Bakker et al., 2023). However, although many studies emphasize the importance of transformational leadership, there is still debate about how it interacts with teacher performance to improve school quality in specific educational settings, especially in developing countries such as Indonesia.

Several recent studies have highlighted the impact of transformational leadership on teacher performance and student achievement (Sun & Leithwood, 2012; Shatzer et al., 2014; Boberg & Bourgeois, 2016; Li & Liu, 2022). However, there is inconsistency in the findings related to whether transformational leadership alone is sufficient to improve school quality or must be complemented by high teacher performance (Sharma & Singh, 2017; Rahman et al., 2020). High teacher performance is also needed to improve overall school quality. Research by Palembangan and Sihotang (2023) demonstrated that a positive school culture, combined with transformational leadership, significantly contributes to teacher performance. It means that the transformational leadership of the principal can catalyze an enhancement in teacher performance by fostering an inspiring and appreciative work environment. Some scholars argue that teacher performance is an important determinant of school quality, as important as transformational leadership. Research by Rizkie and Suriansyah (2022) investigated the direct and indirect effects of transformational leadership, quality culture, and job satisfaction on teacher performance. The study concluded that transformational leadership has a positive impact on teacher performance, both directly and through enhancing the quality of culture and job satisfaction.

Empirical research has highlighted the significant role of transformational leadership in improving teacher performance and overall school quality. Leithwood and Sun (2012) found that transformational leadership has a positive effect on student achievement, with a greater effect on mathematics than reading. In addition, transformational leadership fosters a collaborative school culture and supports teachers' professional development, ultimately increasing their commitment to achieving educational goals (Wilson, Heenan, et al., 2023). Furthermore, research suggests that teacher performance serves as an important mediator between leadership effectiveness and school quality (Papadakis et al., 2024). However, some studies suggest that while strong leadership is important, its impact on school quality is maximized when accompanied by high-performing teachers who implement innovative, student-centered teaching practices (Van Oord, 2013; Robinson & Gray, 2019; Shen et al., 2020). However, there remains inconsistency regarding the extent to which leadership alone can drive school improvement, as contextual factors such as institutional support and policy frameworks also play a significant role. These findings underscore the importance of conducting further research on the relationships between transformational leadership, teacher performance, and school quality, particularly in elementary schools.

Although there is an increasing body of research on educational leadership, specifically exploring the combined effects of transformational leadership and teacher performance on school quality at the elementary level in Indonesia, it remains limited. Therefore, research is necessary to be conducted by examining the influence of principals' transformational leadership on teacher performance and the quality of public elementary schools in the Cengkareng District. Based on these problems, the research question is whether there is a simultaneous influence of principals' transformational leadership and teacher performance on school quality. This study aims to analyze the influence of principals' transformational leadership and teacher performance on school quality.

METHOD

This study employs a quantitative approach, utilizing a survey method, to investigate the impact of principal transformational leadership and teacher performance on the quality of Public Elementary Schools in Cengkareng District. The population in this study included 150 teachers who teach at SDN throughout Cengkareng District. By using the Slovin formula and a margin of error of 0.05, a sample of 109 randomly selected teachers was obtained. The data collection technique involved distributing questionnaires developed based on validated indicators from each research variable.

The research instrument for the school quality variable encompasses eight dimensions: content standards, process standards, graduate competency standards, educator and education

personnel standards, facility and infrastructure standards, management standards, financing standards, and education assessment standards. The principal's transformational leadership is measured based on four dimensions, namely idealized influence, inspirational motivation, intellectual stimulation, and individual consideration. Meanwhile, teacher performance is measured through four dimensions: quantity, quality, speed, punctuality, and communication.

The data obtained were analyzed using regression and correlation analysis techniques to test the relationship and influence between independent variables and dependent variables. Regression analysis was used to determine the extent to which the principal's transformational leadership and teacher performance contributed to school quality. In contrast, correlation analysis was used to see the relationship between each variable. All analyses were conducted using IBM SPSS Statistics 24 software to ensure the accuracy of the calculations and interpretation of the research results.

RESULT AND DISCUSSION

Result

Respondent Demographics

This study involved 109 teachers from six elementary schools in the Cengkareng area, West Jakarta. In summary, the distribution of the samples in this study is illustrated in Figure 1 below.

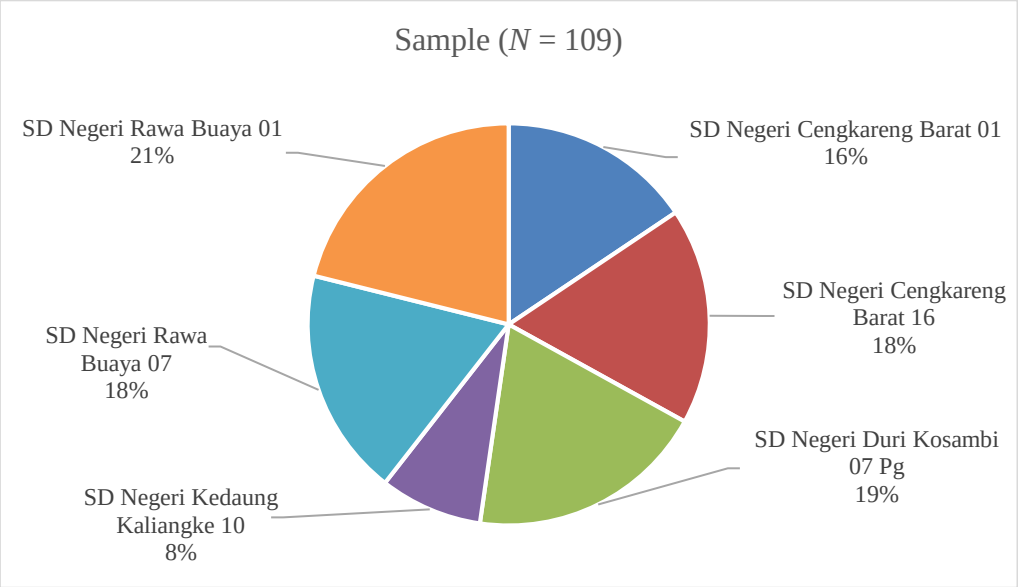


Figure 1. Distribution Diagram of Research Samples of Public Elementary School Teachers in Cengkareng District (*N*=109)

Based on Figure 1 above, it can be explained that the research sample came from SD Negeri Cengkareng Barat 01 with 17 teachers, SD Negeri Cengkareng Barat 16 with 19 teachers, SD Negeri Duri Kosambi 07 Pg with 21 teachers, SD Negeri Kedaung Kaliangke 10 with nine teachers, SD Negeri Rawa Buaya 07 with 20 teachers, and SD Negeri Rawa Buaya 01 with 23 teachers.

Furthermore, the research sample was analyzed based on the length of teaching with a sample of 109 teachers in Public Elementary Schools throughout Cengkareng District. The distribution of research samples based on the length of teaching experience of teachers in this study showed a fairly wide variation, with a total of 109 respondents. The details are illustrated in Figure 2 below.

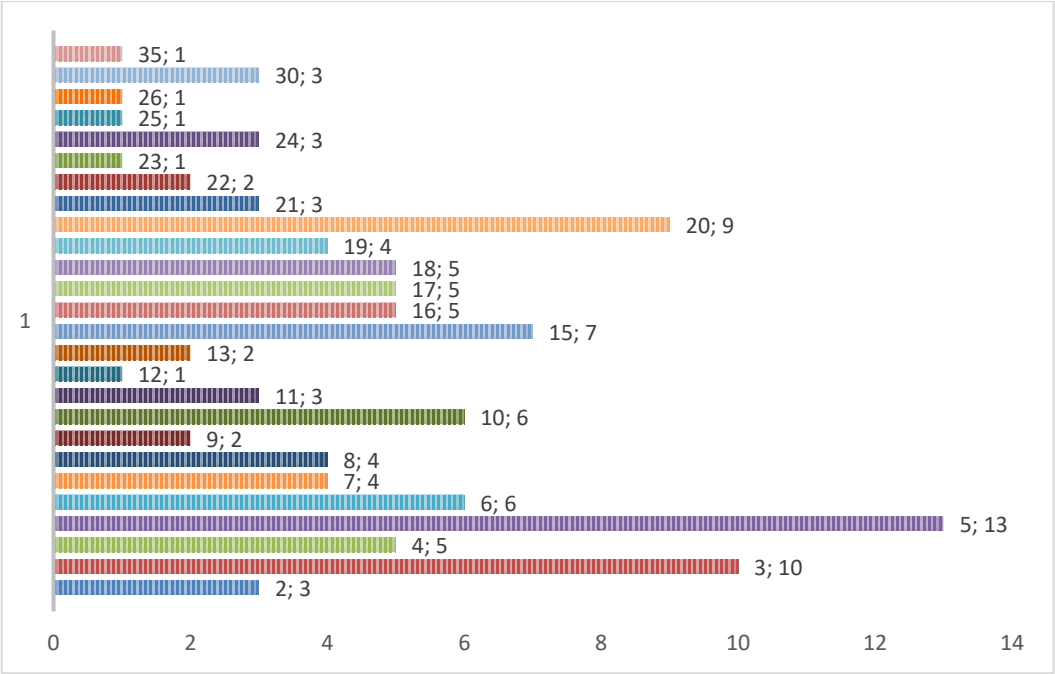


Figure 2. Distribution Graph of Research Samples of Public Elementary School Teachers in Cengkareng District Based on Length of Teaching Experience

Based on Figure 2 above, it can be seen that the range of teaching experience of Elementary School Teachers in Cengkareng District ranges from 2 to 35 years. The majority of teachers have between 3 and 10 years of teaching experience, with the highest number in the 5-year category, at 13 teachers. Additionally, the school has nine teachers with 20 years of experience, as well as several teachers with more than 25 years of experience, including one teacher with 35 years of experience. These data reflect a combination of young and experienced teachers, which can affect the quality of the school.

Descriptive Statistics

Table 1 present's descriptive statistics for the variables of principal transformational leadership (X1), teacher performance (X2), and school quality (Y) based on data collected from 109 respondents. The descriptive statistics displayed include the mean, median, mode, standard deviation, variance, and minimum and maximum values of each variable.

Table 1. Descriptive Statistics of Principal Transformational Leadership, Teacher Performance, and School Quality

		Transformational Leadership (X_1)	Teacher Performance (X_2)	School Quality (Y)
N	Valid	109	109	109
	Missing	0	0	0
Mean		85.99	87.22	90.17
Median		88.00	90.00	94.00
Mode		87	93	94
Std. Deviation		10.613	11.667	10.816
Variance		112.639	136.118	116.991
Minimum		50	59	53
Maximum		108	111	112

Based on Table 1, the mean value of the principal's transformational leadership is 85.99, with a median of 88.00 and a mode of 87. Meanwhile, teacher performance has a mean of 87.22, a median of 90.00, and a mode of 93. For school quality, the mean value reaches 90.17, with a median of 94.00 and a mode of 94. The standard deviation value indicates the level of data spread, where school quality has a standard deviation of 10.816, suggesting variation in respondents' perceptions of school quality. Overall, these results indicate that the mean values of the three variables are in the high category, with relatively moderate data variation, as indicated by the standard deviation and variance values that are not too extreme.

Prerequisite Test

Normality Test

This test aims to evaluate whether the residual distribution in the research model meets the normality assumption, a crucial prerequisite for further statistical analysis.

Table 2. Results of Residual Normality Test Using the Kolmogorov Smirnov Test

		Unstandardized Residual
N		109
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	8.0160250 8
Most Extreme Differences	Absolute	.063
	Positive	.063
	Negative	-.055
Test Statistic		.063
Asymp. Sig. (2-tailed)		.200[c,d]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.

Based on Table 2, the results of the One-Sample Kolmogorov-Smirnov test with $N = 109$ show that the average residual is 0.0000000 with a standard deviation of 8.016. The Test Statistic value of 0.063 indicates the level of deviation between the residual distribution and the normal distribution. The asymptotic significance value (Asymp. Sig. (2-tailed) = 0.200) is greater than 0.05, indicating that the residuals in this regression model are normally distributed.

Linearity Test

This test aims to determine whether the model used is consistent with the linearity assumption, which is a primary requirement in regression analysis. The results of the linearity test for school quality (Y), transformational leadership of the principal (X_1), and teacher performance (X_2) are presented in Tables 3 and 4 below.

Table 3. Results of the linearity test of school quality (Y) and the principal's transformational leadership (X_1)

		.	Sum of Squares	df	Mean Square	F	Sig.
School quality (Y) * Principal's transformational leadership (X_1)	Between Groups	(Combined)	7751.163	29	267.281	4.323	.000
		Linearity	5566.725	1	5566.725	90.046	.000
		Deviation from Linearity	2184.438	28	78.016	1.262	.210
	Within Groups		4883.864	79	61.821		
	Total		12635.028	108			

Table 4. Results of the linearity test of school quality (Y) and teacher performance (X_2)

			Sum of Squares	df	Mean Square	F	Sig.
School quality (Y) * Teacher performance (X_2)	Between Groups	(Combined)	7649.539	31	246.759	3.811	.000
		Linearity	3432.985	1	3432.985	53.022	.000
		Deviation from Linearity	4216.554	30	140.552	2.171	.003
	Within Groups		4985.489	77	64.747		
	Total		12635.028	108			

Based on Table 3, the results of the linearity test show that the relationship between the Principal's Transformational Leadership (X_1) and School Quality (Y) is linear. The F value of 90.046, with a significance level of 0.000 in the Linearity row, indicates that the relationship between the two variables is highly significant in a linear pattern. Meanwhile, the Deviation from the Linearity value has F = 1.262 with a significance of 0.210, which is greater than 0.05. It indicates that there is no significant deviation from linearity, so the regression model used can be considered appropriate and valid for describing the relationship between the principal's transformational leadership and school quality. Meanwhile, in Table 4, the results of the linearity test show that the relationship between Teacher Performance (X_2) and School Quality (Y) is generally significant, but there are indications of Deviation from the linear pattern. The F value of 53.022, with a significance level of 0.000 in the Linearity row, indicates that the relationship between teacher performance and school quality is highly significant and linear.

Multicollinearity Test

To ensure that the independent variables do not have too high a correlation with each other. High multicollinearity can lead to instability in the estimation of the regression coefficients and compromise the validity of the research results. The results of the multicollinearity test are presented in Table 5 below.

Table 5 Results of Multicollinearity Test on the Regression Model of Principal Transformational Leadership (X_1), Teacher Performance (X_2), and School Quality (Y)

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	29.010	6.703		4.328	.000		
	Principal Transformational Leadership (X_1)	.583	.099	.572	5.878	.000	.547	1.827
	Teacher Performance (X_2)	.126	.090	.136	1.401	.164	.547	1.827

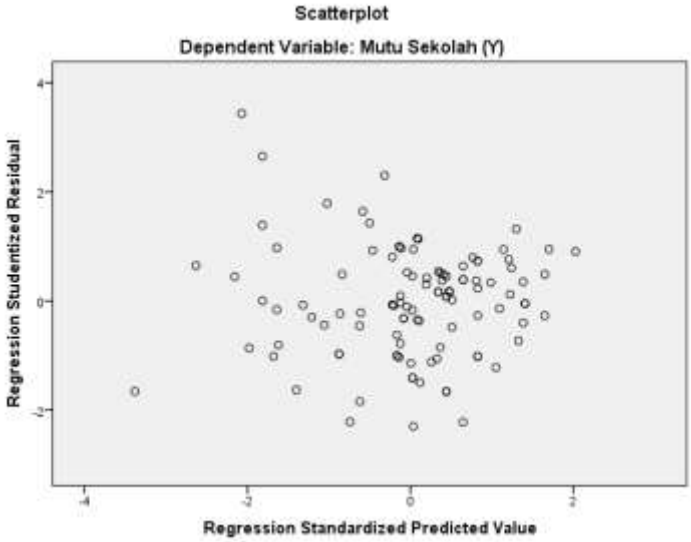
a. Dependent Variable: Mutu Sekolah (Y)

Based on Table 5, the results of the multicollinearity test based on indicate that there is no multicollinearity problem in the regression model. It can be seen from the tolerance values for the Principal Transformational Leadership (X_1) and Teacher Performance (X_2) variables, each of which is 0.547, exceeding the minimum limit of 0.10. In addition, the Variance Inflation Factor (VIF) value for both variables is 1.827, far below the threshold of 10, indicating that there is no excessively high relationship between the independent variables in the model.

Heteroscedasticity Test

The heteroscedasticity test is used to test whether there is a difference in the variance of the residuals (errors) in the regression model. The results of this test are presented in Figure 3. Based on Figure 3, it can be observed that the data points are evenly distributed above and below the

value of 0 without clustering on one side. In addition, the distribution of these points does not form a wavy pattern that widens and narrows and does not show a particular pattern.



Hypothesis Testing

The results of the hypothesis test for the relationship between the principal's transformational leadership and teacher performance on quality are presented in Table 6 below.

Table 6. Summary Model Results between Principal Transformational Leadership (X_1) and Teacher Performance (X_2) on School Quality (Y)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.671[a]	.451	.440	8.091

a. Predictors: (Constant), Teacher Performance (X_2), Principal Transformational Leadership (X_1)
b. Dependent Variable: School Quality (Y)

Table 6 shows that the correlation coefficient (r) value is 0.671, indicating a strong positive relationship between the principal's transformational leadership and teacher performance in terms of school quality. The R Square value of 0.451 indicates that the two independent variables together explain 45.1% of the variation in school quality. In contrast, the remaining 54.9% is influenced by other factors not included in this model. In addition, the Adjusted R-squared value of 0.440 indicates that, after adjusting for the number of predictors, the contribution of the independent variables to school quality remains significant. The Standard Error of the Estimate value of 8.091 indicates the standard error rate in the model prediction. These results suggest that the principal's transformational leadership and teacher performance play a crucial role in enhancing school quality, indicating that strategies to improve educational quality should consider both variables simultaneously.

Table 7. ANOVA Analysis of the Influence of Principal Transformational Leadership (X_1) and Teacher Performance (X_2) on School Quality (Y)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5695.308	2	2847.654	43.496	.000[b]
	Residual	6939.719	106	65.469		
	Total	12635.028	108			

a. Dependent Variable: School Quality (Y)
b. Predictors: (Constant), Teacher Performance (X_2), Principal Transformational Leadership (X_1)

Table 7 shows that the Sum of Squares value for the regression is 5,695.308, indicating the variation in school quality that can be explained by the principal's transformational leadership and teacher performance. Meanwhile, the Sum of Squares for the residual is 6939.719, which reflects the variation that this model cannot explain. The F-statistic value of 43.496, with a significance level (Sig.) of 0.000, indicates that the overall regression model is significant at the 95% confidence level ($p < 0.05$). It means that both the principal's transformational leadership and teacher performance have a significant effect on school quality simultaneously. These results confirm that effective leadership from the principal and optimal teacher performance play a crucial role in improving school quality; therefore, both should be considered in the strategy for enhancing educational quality.

Table 8. Regression Coefficient of the Influence of Principal Transformational Leadership (X_1) and Teacher Performance (X_2) on School Quality (Y)

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	29.010	6.703		4.328	.000
	Principal Transformational Leadership (X_1)	.583	.099	.572	5.878	.000
	Teacher Performance (X_2)	.126	.090	.136	1.401	.164

a. Dependent Variable: School Quality (Y)

Table 8 shows that the constant in the regression model is 29.010, indicating that when the principal's transformational leadership and teacher performance are both zero, the school quality remains at that level. The regression coefficient for the principal's transformational leadership (X1) is 0.583, with a t-value of 5.878 and a significance level of 0.000, indicating that this variable has a positive and significant effect on school quality. Meanwhile, the regression coefficient for teacher performance (X2) is 0.126, with a t-value of 1.401 and a significance level of 0.164, indicating that this variable does not have a statistically significant effect on school quality at a significance level of 0.05. The Standardized Coefficients Beta value also shows that the principal's transformational leadership has a more decisive influence than teacher performance. These results confirm that in efforts to improve school quality, the principal's leadership factor plays a more dominant role than teacher performance. However, both remain important in the context of educational management.

Discussion

The results of this study indicate that the principal's transformational leadership has a significant influence on school quality, although the effect on teacher performance is not statistically significant. This finding aligns with the research of Riggio et al. (2004), which confirms that transformational leadership can enhance organizational effectiveness, including in schools. In addition, research conducted by Leithwood and Jantzi (2005) also confirms that the principal's transformational leadership can encourage positive changes in school quality by creating a clear vision and increasing teacher motivation.

The results of the analysis of the findings in this study indicate that teacher performance does not have a significant effect on school quality, which is contrary to the research of Rivkin et al. (2005), which found that teacher quality is the main factor influencing student achievement. Another study by Rockoff (2004) also shows that differences in teacher effectiveness can have a significant impact on student academic achievement. This difference in results may be caused by environmental factors, such as a less comprehensive teacher performance appraisal system or other external factors that are more influential in determining school quality. In addition, several studies have shown that the influence of teacher performance on educational quality is often mediated by other factors, such as principal leadership, school policies, and parental involvement (Hattie & Yates, 2013).

The *R* Square value of 0.451 indicates that the principal's transformational leadership and teacher performance together explain 45.1% of the variation in school quality. This finding aligns with a study conducted by Le Fevre and Robinson (2015), which demonstrated that school leadership makes a significant contribution to school effectiveness and improves student academic performance. However, another study by Marzano et al. (2005) found that the contribution of principal leadership to student learning outcomes was only around 25%. Therefore, other factors, such as curriculum, facilities, infrastructure, and school community support, also play an important role in improving the quality of education.

The results of the ANOVA test indicate that the regression model used in this study is statistically significant overall, with an F-value of 43.496 and a p-value of 0.000. These results align with the findings of Heck and Hallinger (2014), who stated that principal leadership contributes to school achievement through structural changes and organizational culture. Studies in China have demonstrated that principal leadership promotes a collaborative culture and professional structure, which in turn influences teacher commitment and, ultimately, student achievement (Li et al., 2022). Strengthening this, Zhan et al. (2023) found that transformational principals improve teacher achievement, which ultimately drives improved school achievement. However, research by Spillane et al. (2001) emphasized that effective leadership does not only come from the principal but also collaboration with teachers and school staff in developing effective policies to improve school quality. Thus, although the results of this study emphasize the importance of transformational leadership, a more collective leadership strategy can also be an alternative to improving school quality.

The results of the regression coefficient analysis show that the principal's transformational leadership has a more decisive influence than teacher performance in improving school quality. It supports the research of Bass and Avolio (1994), which states that transformational leadership can enhance organizational effectiveness by fostering trust and team member involvement. In line with this, Wilson Heenan et al. stated that the principal's transformational leadership consistently influences teacher motivation and commitment as well as positive school culture, all of which have a substantial effect on institutional quality. The transformational leadership style not only improves school climate but also has a significant impact on teaching practices and student outcomes (Hyseni Duraku et al., 2021). However, research by Day et al. (2016) shows that the impact of principal leadership on school quality is long-term and requires policy continuity. Therefore, steps and strategies to improve school quality need to consider aspects of leadership that are not only transformational but also adaptive to changes and the needs of the educational environment.

CONCLUSION

In conclusion, principal leadership and teacher performance contribute to school quality. Multiple regression analysis reveals that the combination of principal transformational leadership and teacher performance collectively explains 45.1% of the variation in school quality. However, principal leadership has a more dominant influence than teacher performance in improving school quality. The findings of this study support the Theory of transformational leadership in Education, which posits that principals with a clear, inspiring, and innovative vision can significantly enhance school quality. In addition to principal leadership and teacher performance, other factors such as parental involvement, educational policies, and learning environments also need to be considered. Therefore, the findings of this study recommend that schools develop strategies that involve all stakeholders, including teachers, students, parents, and the community, to create a more conducive and sustainable learning environment.

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