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The Effect of Principal's Transformational Leadership and Teacher Self-Efficacy on Student's Achievement

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Abstract: This study aims to analyze the effect of principals' transformational leadership and teachers' self-efficacy on students' academic achievement at SD Pelita Kasih Curup. This research employed a quantitative approach with a descriptive correlational design. The research population consisted of the principal, teachers, and students of SD Pelita Kasih Curup, while samples were selected using simple random sampling. Data were collected through questionnaires, observations, and documentation, and analyzed using descriptive and inferential statistical techniques. The results indicate that: (1) principals' transformational leadership has a positive and significant effect on students' academic achievement; (2) teachers' self-efficacy has a positive and significant effect on students' academic achievement; (3) principals' transformational leadership has a positive and significant effect on teachers' self-efficacy; and (4) principals' transformational leadership and teachers' self-efficacy simultaneously have a positive and significant effect on students' academic achievement. These findings suggest that inspirational and supportive school leadership enhances teachers' confidence in performing instructional tasks, which ultimately contributes to improved student achievement. Therefore, school principals are encouraged to consistently implement transformational leadership practices, while teachers are expected to continuously develop their self-efficacy to improve the quality of learning.

Keywords: Students' Academic Achievement, Teachers' Self-Efficacy, Transformational Leadership

A. Introduction

Student achievement has been recognized as a crucial indicator of educational quality and effectiveness worldwide. Research demonstrates that multiple factors contribute to student success, including school leadership, teacher competencies, and organizational climate (Kemethofer et al., 2025; Sliwka et al., 2024). Among these factors,

transformational leadership has emerged as a significant predictor of educational outcomes through its capacity to inspire, motivate, and facilitate organizational change (Li & Liu, 2022; Zainal & Mohd Matore, 2021). However, the mechanisms through which transformational leadership influences student achievement remain unclear, particularly in developing countries like Indonesia. While studies confirm the positive relationship between leadership and student outcomes (Hsieh et al., 2024), less is known about the mediating processes that explain this relationship. Teacher self-efficacy represents a potential mediating variable, as it reflects teachers' beliefs in their capabilities to organize and execute courses of action required to produce given attainments.

State-of-the-art research indicates that transformational leadership can enhance teacher self-efficacy through intellectual stimulation, individualized consideration, and inspirational motivation (Gümüş et al., 2022; Polatcan et al., 2023a). Furthermore, teachers with higher self-efficacy demonstrate greater instructional effectiveness and student engagement (Lauermann & ten Hagen, 2021; Yoon & Goddard, 2023). Nevertheless, empirical studies examining teacher self-efficacy as a mediator between transformational leadership and student achievement in the Indonesian context remain limited.

The novelty of this research lies in investigating the mediating role of teacher self-efficacy in the relationship between transformational leadership and student achievement within Indonesian junior high schools. This study extends current knowledge by providing empirical evidence on the indirect pathways through which principals' leadership practices influence student outcomes. Additionally, it contributes to understanding how cultural and contextual factors in Indonesia shape these relationships.

This research originated from the phenomenon of increasing student achievement at SD Pelita Kasih Curup, raising questions about the factors that influence learning quality. One factor suspected to contribute is the principal's leadership style. Transformational leadership, which emphasizes inspiration, motivation, and professional development of teachers, is believed to enhance teacher self-efficacy and, in turn, positively influence student achievement (Li & Liu, 2022). Transformational leadership refers to a leadership style that motivates and inspires followers to achieve higher goals through self-development and enhancing their internal motivation. Transformational leaders are expected to provide a clear vision, guide followers in achieving greater objectives, and encourage them to innovate and improve their competencies (Reichard & Johnson, 2011).

Principals play a significant role in educational transformation. As educators, they are responsible for guiding teachers and staff in professional development (Nur Indah Mufarrohatul A'yun & M Imamul Muttaqin, 2024). As managers, they manage resources effectively and efficiently. As administrators, they organize school administrative activities. As supervisors, they conduct academic and managerial supervision to improve learning quality. As leaders, they provide inspiration, vision, and direction for the entire school community. However, limited research examines the influence of principals' transformational leadership and teacher self-efficacy on student achievement, particularly at SD Pelita Kasih Curup.

This research was conducted to gain a deeper understanding of the mechanism by which principals' transformational leadership and teacher self-efficacy influence student achievement. Unlike transactional leaders who focus more on task exchange and rewards, transformational leadership prioritizes the moral and personal development of followers (Berkovich & Eyal, 2021). Transformational leadership can influence individual and organizational performance more profoundly because these leaders transform how subordinates view their tasks and increase commitment to the organization (Ha & Moon, 2023; Jia et al., 2024).

The contribution of this study includes theoretical advancement in educational leadership literature by validating the mediating mechanism of teacher self-efficacy. Practically, findings can inform leadership development programs for school principals and professional development initiatives for teachers. Based on the literature review, this study addresses the following research questions: (1) Does transformational leadership directly affect student achievement? (2) Does transformational leadership affect teacher self-efficacy? (3) Does teacher self-efficacy affect student achievement? (4) Does teacher self-efficacy mediate the relationship between transformational leadership and student achievement?

B. Methods

This research employed a descriptive quantitative approach (Rossen et al., 2017). This type of research describes or depicts the characteristics of a phenomenon or situation based on numerical data collected and analyzed statistically (Nassaji, 2015). Management research is multidimensional research that attempts to explain a management phenomenon or business strategy and performance phenomenon by observing various practical phenomena through various dimensions and indicators. These dimensions and indicators are known as variables. Some variables can be directly observed and measured, while other variables cannot be directly measured.

Variables used in research are essentially anything that can take any form determined by the researcher to be studied so that information about it is obtained and conclusions can be drawn. Theoretically, variables can be defined as attributes of a person or object that vary between one and another or between one object and another (Lehdonvirta et al., 2021). Variables can also be attributes of particular objects or activities. Height, weight, size, shape, color, attitude, motivation, leadership, and work discipline are attributes of objects. Raw materials, capital, technology, production, quality control, marketing, advertising, sales value, and profit are attributes in activities and business. These attributes are variables. Types of variables based on relationships between variables are divided into four: 1) Independent Variable, 2) Dependent Variable, 3) Moderating Variable, 4) Intervening Variable.

First, the Independent Variable: a variable that explains or influences another variable. The independent variable is also called the presumed cause variable. The independent variable can also be called the antecedent variable. Second, the Dependent Variable: a variable that is explained or influenced by the independent variable. The dependent variable is also called the presumed effect variable. The dependent variable can also be called the consequent variable. Third, moderating variables: variables that can strengthen or weaken the direct relationship between the independent and dependent variables. Moderating variables are variables that influence the nature or direction of the relationship between variables. The nature or direction of the relationship between the independent and dependent variables can be positive or negative depending on the moderating variable; therefore, moderating variables are also called contingency variables. Fourth, intervening variables: variables that influence the relationship between the independent and dependent variables, making the relationship indirect. Intervening variables are variables that lie between the independent and dependent variables, so the independent variable does not directly explain or influence the dependent variable.

Data collection techniques are an effort to collect research data from data sources conducted by researchers. In this study, the data collection technique used is a closed questionnaire. The questionnaire will be used to collect data on transformational leadership, teacher self-efficacy and student learning achievement. The research instrument uses a four-level Likert scale, namely Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1). The use of this scale is intended to avoid neutral answers so that respondents provide a more assertive attitude towards the statements submitted.

In addition to the questionnaire, researchers also used an observation sheet to examine the influence of the principal's transformational leadership and teacher self-efficacy on student achievement at Pelita Kasih Elementary School, Curup. Observations focused

on the principal's role in managing and leading the school community, particularly teachers and students, to achieve a unified vision and mission, which is able to improve student achievement in both academic and non-academic fields.

The data analysis technique in this study employed a quantitative approach, utilizing the Statistical Package for the Social Sciences (SPSS) software and manual calculations in Microsoft Excel. The use of both tools aimed to increase the accuracy of the calculations. Following this, prerequisite analysis tests were conducted, including normality and linearity tests, to ensure the data met statistical assumptions. Furthermore, instrument validity and reliability tests were conducted to ensure the measurement tools were appropriate and consistent. To test the research hypothesis regarding the influence of principal transformational leadership and teacher self-efficacy on student achievement, correlation and linear regression analyses were used, both partially and simultaneously. The results obtained using SPSS were then verified through manual calculations using Microsoft Excel as a form of cross-checking of the analysis included descriptive statistics to obtain a general overview of each research variable, such as the mean value, percentage, and standard deviation.

Research Instrument Testing

Validity Test

The validity test is conducted to determine the extent to which the research instrument is capable of measuring what it is intended to measure. In this study, validity is tested using the Pearson Product Moment Correlation, by comparing the calculated r-value.

$$r_{xy} = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{[N\sum X^2 - (\sum X)^2][N\sum Y^2 - (\sum Y)^2]}}$$

Criteria:

$r_{Count} > r_{table} \longrightarrow$ valid

$r_{Count} \leq r_{table} \longrightarrow$ Invalid

Reliability Test

Reliability testing aims to determine the level of consistency of a research instrument when used repeatedly. Reliability testing is conducted using the Cronbach's Alpha coefficient. The reliability test uses the following formula:

$$r_{11} = \frac{k}{k-1}\left(1 - \frac{\sum \sigma_b^2}{\sigma_t^2}\right)$$

Criteria:
$r_{11} \geq 0{,}60 \longrightarrow$ Reliable
$r_{11} < 0{,}60 \longrightarrow$ Unreliable

Descriptive Analysis

Descriptive statistical analysis is used to provide a general overview of the characteristics of the research data obtained from respondents. Descriptive statistics include the minimum and maximum values, the average (mean), and the standard deviation for each research variable. The descriptive analysis utilizes the following percentage formula:

Percentage = (f/n)* 100%

Forms of relationships between variables: theories in social sciences provide systematic descriptions of social phenomena through relationships between two or more variables. Relationships between variables are essentially simplifications of depictions of social phenomena that are actually complex in nature. There are several forms of relationships between variables, namely:

1. Relationship between independent variables and independent variables
2. Relationship between independent variables and dependent variables
3. Relationship between independent variables and dependent variables influenced by intervening variables

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C. Results and Discussion

Results

Table 1. Principal's Transformational Leadership (X_1)

	Answers					Percentage				
Item	**1**	**2**	**3**	**4**	**Fq**	**1**	**2,0**	**3,0**	**4,0**	**%**
Idealized Influence										
1	0	2	30	8	40	0	5,0	75,0	20,0	100
2	0	0	22	18	40	0	0,0	55,0	45,0	100
3	0	2	13	25	40	0	5,0	32,5	62,5	100
4	0	2	16	22	40	0	5,0	40,0	55,0	100
Total item	0	6	81	73	160	0	15,0	202,5	182,5	400
Mean percentage						0	3,8	50,6	45,6	100,0
Inspirational Motivation										
5	0	2	9	29	40	0	5,0	22,5	72,5	100
6	0	0	11	29	40	0	0,0	27,5	72,5	100
7	0	2	11	27	40	0	5,0	27,5	67,5	100
8	0	1	16	23	40	0	2,5	40,0	57,5	100
Total item	0	5	47	108	160	0	12,5	117,5	270,0	400
Mean percentage						0	3,1	29,4	67,5	100,0
Intellectual Stimulation										
9	0	5	13	22	40	0	12,5	32,5	55,0	100
10	0	3	15	22	40	0	7,5	37,5	55,0	100
11	0	0	12	28	40	0	0,0	30,0	70,0	100
12	0	0	16	24	40	0	0,0	40,0	60,0	100
Total item	0	8	56	96	160	0	20,0	140,0	240,0	400
Average Percentage						0	5,0	35,0	60,0	100,0
Individualized Consideration										
13	0	3	15	22	40	0	7,5	37,5	55,0	100
14	0	0	13	27	40	0	0,0	32,5	67,5	100
15	0	0	16	24	40	0	0,0	40,0	60,0	100
	0	3	44	73	120	0	7,5	110,0	182,5	300
Average percentage						0	1,9	27,5	45,6	75,0
Total	0	22	228	350	600	0	55,0	570,0	875,0	1500
Mean	0,00	1,47	15,20	23,33	40,00	0,00	3,7	38,0	58,3	100,00

Based on the results of a descriptive analysis of the Principal's Transformational Leadership variable, measured across four dimensions: idealized influence, inspirational motivation, intellectual stimulation, and individual consideration, with 40 respondents, it was found that the majority of respondents gave a positive assessment. For the idealized influence dimension, the average percentage of respondents who agreed was 50.6% and strongly agreed was 45.6%, while only 3.8% disagreed, and no

respondents strongly disagreed. For the inspirational motivation dimension, 29.4% of respondents agreed, 67.5% strongly agreed, and only 3.1% disagreed. Furthermore, for the intellectual stimulus dimension, the percentage of agree responses was 35.0% and strongly agree responses was 60.0%, while the percentage of disagree responses was 5.0%. For the individual consideration dimension, the percentage of agree responses was 27.5% and strongly agree responses was 45.6%, with only 1.9% disagree. Overall, the average respondent response was 58.3% in the strongly agree category and 38.0% in the agree category, while only 3.7% disagreed, and no respondents strongly disagreed. This indicates that the Principal's Transformational Leadership is in the very good category, as reflected in the predominance of agree and strongly agree responses across all measured indicators.

Table 2. Teacher Self-Efficacy (X_2)

	Answers					Percentage				
Item	**1**	**2**	**3**	**4**	**Fq**	**1**	**2,0**	**3,0**	**4,0**	**%**
Classroom Management										
1	0	0	7	33	40	0	0,0	17,5	82,5	100
2	0	0	32	8	40	0	0,0	80,0	20,0	100
3	0	1	6	33	40	0	2,5	15,0	82,5	100
4	0	0	25	15	40	0	0,0	62,5	37,5	100
Total item	0	1	70	89	160	0	2,5	175,0	222,5	400
			Mean			0	0,6	43,8	55,6	100,0
Effective Teaching										
5	0	0	28	12	40	0	0,0	70,0	30,0	100
6	0	0	23	17	40	0	0,0	57,5	42,5	100
7	0	0	10	30	40	0	0,0	25,0	75,0	100
8	0	0	8	32	40	0	0,0	20,0	80,0	100
Total item	0	0	69	91	160	0	0,0	172,5	227,5	400
			Rata-rata percentage			0	0,0	43,1	56,9	100,0
Learning Problem-Solving Skills										
9	0	0	9	31	40	0	0,0	22,5	77,5	100
10	0	1	11	28	40	0	2,5	27,5	70,0	100
11	0	1	12	27	40	0	2,5	30,0	67,5	100
12	0	0	11	29	40	0	0,0	27,5	72,5	100
Total item	0	2	43	115	160	0	5,0	107,5	287,5	400
			Mean			0	1,3	26,9	71,9	100,0
Learning Evaluation Skills										
13	0	0	11	29	40	0	0,0	27,5	72,5	100
14	0	0	12	28	40	0	0,0	30,0	70,0	100
15	0	0	12	28	40	0	0,0	30,0	70,0	100
	0	0	35	85	120	0	0,0	87,5	212,5	300
			Mean			0	0,0	21,9	53,1	75,0
Total	0	3	217	380	600	0	7,5	542,5	950,0	1500
Mean	0,00	0,20	14,47	25,33	40,00	0,00	0,5	36,2	63,3	100,00

Based on the results of a descriptive analysis of the Teacher Self-Efficacy variable, which encompasses four dimensions: classroom management, effective teaching, problem-solving skills, and learning evaluation skills, with 40 respondents, it was found that the majority of respondents gave a very positive assessment. For the classroom management dimension, the average percentage of agree responses was 43.8% and strongly agree responses was 55.6%. While the percentage of disagree responses was only 0.6%, and no respondents strongly disagreed. For the effective teaching dimension, 43.1% of respondents agreed and 56.9% strongly agreed, with no responses indicating either disagree or strongly disagree. Furthermore, for the dimension of learning problem-solving ability, the percentage of respondents who agreed was 26.9% and strongly agreed was 71.9%, while only 1.3% disagreed. For the dimension of learning evaluation ability, the percentage of respondents who agreed was 21.9% and strongly agreed was 53.1%, with no respondents choosing the disagree or strongly disagree category. Overall, the average response to the Teacher Self-Efficacy variable showed a percentage of 63.3% in the strongly agree category and 36.2% in the agree category, while only 0.5% disagreed, and no respondents answered strongly disagree. This indicates that Teacher Self-Efficacy is in the very good category, as reflected by the predominance of agree and strongly agree responses across all indicators measured.

Table 3. Student Learning Achievement (Y)

	Answers					Percentage				
Item	**1**	**2**	**3**	**4**	**Fq**	**1**	**2,0**	**3,0**	**4,0**	**%**
Academic Achievement										
1	0	0	25	15	40	0	0,0	62,5	37,5	100
2	0	0	28	12	40	0	0,0	70,0	30,0	100
3	0	0	23	17	40	0	0,0	57,5	42,5	100
4	0	0	10	30	40	0	0,0	25,0	75,0	100
Total item	0	0	86	74	160	0	0,0	215,0	185,0	400
			Mean			0	0,0	53,8	46,3	100,0
Cognitive Abilities										
5	0	0	8	32	40	0	0,0	20,0	80,0	100
6	0	0	9	31	40	0	0,0	22,5	77,5	100
7	0	1	11	28	40	0	2,5	27,5	70,0	100
8	0	1	12	27	40	0	2,5	30,0	67,5	100
Total item	0	2	40	118	160	0	5,0	100,0	295,0	400
			Mean			0	1,3	25,0	73,8	100,0
Student Engagement										
9	0	0	11	29	40	0	0,0	27,5	72,5	100
10	0	0	11	29	40	0	0,0	27,5	72,5	100
Total item	0	0	22	58	80	0	0,0	55,0	145,0	200
			Mean			0	0,0	13,8	36,3	50,0
Total	0	2	148	250	400	0	5	370	625	1000
Mean	0,00	0,20	14,80	25,00	40,00	0,00	0,50	37,00	62,50	100,00

Based on the results of descriptive analysis of the Student Learning Achievement variable measured through three dimensions, namely academic achievement, cognitive ability, and student engagement in learning with a total of 40 respondents, it was obtained that the majority of respondents gave a positive assessment. For the cognitive ability dimension, 25.0% of respondents agreed and 73.8% strongly agreed, while only 1.3% disagreed, and there were no strongly disagree responses. Furthermore, for the student engagement dimension, 13.8% agreed and 36.3% strongly agreed, with no respondents choosing either disagree or strongly disagree. Overall, the average response to the Student Learning Achievement variable showed a percentage of 62.5% strongly agree and 37.0% agree, while only 0.5% disagreed, and no respondents strongly disagreed. This indicates that Student Learning Achievement is in the very good category, as reflected by the predominance of agree and strongly agree responses across all measured indicators.

Classical Assumption Testing

The classical assumption test aims to determine whether a variable is normal. A regular data distribution implies that the data has a normal standard. A regular distribution of data with the same mean and standard deviation serves as a criterion for whether the data are normally distributed.

Normality Test

The normality test aims to determine whether the research data is normally distributed as a prerequisite for parametric statistical analysis. The test is conducted using the Kolmogorov–Smirnov method with the help of Microsoft Excel. The test steps include calculating the mean and standard deviation, converting the data to a Z-score, determining the theoretical normal distribution, and calculating the largest difference between the empirical and theoretical distributions as the calculated D value. This value is then compared with the D table obtained from the formula $1.36/\sqrt{n}$. The decision-making criterion is that if the calculated D is smaller than the D table, then the data is considered normally distributed. Based on the calculation results, the calculated D < D table, thus concluding that the research data is normally distributed and meets the requirements for further analysis.

Normality Test for X1 versus Y

A normality test was conducted to determine whether the data on the principal's transformational leadership (X1) and student achievement (Y) variables were normally distributed. The test was conducted using the Kolmogorov–Smirnov method with the aid of Microsoft Excel. The decision-making criterion was that if the calculated D value

was less than the D table (1.36/√n), then the data were considered normally distributed. The calculation results showed that the calculated D value for variable X1 was less than the D table, and the same was true for variable Y. Therefore, it can be concluded that the data for X1 and Y are normally distributed, allowing for correlation and regression analysis.

Normality Test of X2 versus Y

A normality test was conducted on the teacher self-efficacy (X2) and student achievement (Y) variables using the Kolmogorov–Smirnov method with the help of Microsoft Excel. The test criterion was that if the calculated D value was less than the D table (1.36/√n), then the data were considered normally distributed. The test results showed that the calculated D value for variable X2 was less than the D table, and the same was true for variable Y. Therefore, it can be concluded that the data for X2 and Y are normally distributed, allowing for correlation and regression analysis.

Normality Test of X1 versus X2

A normality test was conducted on the principal's transformational leadership (X1) and teacher self-efficacy (X2) variables using the Kolmogorov–Smirnov method with the aid of Microsoft Excel. The decision-making criterion was that if the calculated D value was less than the D table (1.36/√n), then the data were considered normally distributed. The test results showed that the calculated D value for variable X1 was less than the D table, and the same was true for variable X2. Therefore, it can be concluded that the data for X1 and X2 are normally distributed, allowing for further correlation analysis between X1 and X2.

Normality Test of X1 and X2 versus Y

The normality test for variables X1 (Principal Transformational Leadership), X2 (Teacher Self-Efficacy), and Y (Student Achievement) was conducted manually using Microsoft Excel using the Kolmogorov–Smirnov method. This test aimed to determine whether the research data were normally distributed, as a prerequisite for parametric statistical analysis. The test was carried out by calculating the mean, standard deviation, Z-score, cumulative normal distribution, and the maximum difference between the empirical and theoretical distributions. This maximum difference was the calculated D value, which was then compared with the D table value at a significance level of 0.05. The calculation results showed that the calculated D value for X1 against Y and the calculated D value for X2 against Y were smaller than the D table value. Therefore, it can be concluded that the data for X1, X2, and Y are normally distributed. Therefore,

this research data meets the assumption of normality and is suitable for use in correlation and regression analysis during the hypothesis testing stage.

Discussion

The Influence of the Principal's Transformational Leadership on Student Achievement

The research results show that the principal's transformational leadership has a significant effect on student achievement (Kwan, 2020; Shatzer et al., 2014; Sun & Leithwood, 2012). This finding supports the proposed hypothesis that the principal's transformational leadership significantly influences student achievement. The descriptive analysis results indicate that the Principal's Transformational Leadership is in the very good category, as reflected in the mean responses of 58.3% of respondents who strongly agree and 38.0% who agree. The mean response is only 3.7% who disagree, and no respondents who strongly disagree. This indicates that the majority of teachers, parents, and students believe the principal has optimally implemented transformational leadership functions through idealized influence, inspirational motivation, intellectual stimulation, and individual consideration. Statistically, the Principal's Transformational Leadership variable has a mean of 53.20, a median and mode of 59, with a standard deviation of 7.09. The skewness value of -0.77 indicates a left-skewed data distribution, meaning that most respondents gave the principal's leadership a high score.

The Influence of Teacher Self-Efficacy on Student Achievement

Teacher self-efficacy, which refers to teachers' confidence in their ability to teach and influence student learning outcomes, is a crucial factor in educational success. In this study, teacher self-efficacy was found to have a significant influence on student achievement (Kim & Seo, 2018; Kurt et al., 2014; Paisun et al., 2024). Teachers with high self-efficacy tend to be more confident in managing their classes, designing engaging learning activities, and implementing various innovative and effective learning strategies. The results showed that Teacher Self-Efficacy was in the very good category, with an average of 63.3% respondents strongly agreeing and 36.2% agreeing. Only 0.5% disagreed, and no strongly disagreed responses. This reflects teachers' high confidence in their ability to manage their classes, implement effective teaching, resolve learning problems, and conduct learning evaluations. Statistically, the Teacher Self-Efficacy variable had a mean of 54.43, a median and mode of 56, and a standard deviation of 4.64, indicating relatively small data variation. A skewness value of –1.06 indicates that most teachers gave high scores to their self-efficacy.

The Influence of Principal's Leadership on Teacher Self-Efficacy

One important finding in this study is the influence of the principal's transformational leadership on teacher self-efficacy (Ninković & Knežević Florić, 2018; Polatcan et al., 2023b). Principals who implement a transformational leadership style can create an environment that supports teacher professional development. By providing consistent support, opportunities for self-development, and recognizing teacher achievements, principals can improve teacher self-efficacy. The results showed that both Principal Transformational Leadership and Teacher Self-Efficacy were in the very good category. Principal's leadership had a mean score of 53.20, while teacher self-efficacy had a mean score of 54.43, indicating that both variables are at a high level. Principal's leadership that prioritizes teacher empowerment through training, mentoring, and opportunities for collaboration will increase teachers' confidence in their teaching abilities. This aligns with the concept of transformational leadership, which emphasizes inspiring and motivating organizational members to achieve higher goals. In this context, principals who support teachers in their professional development will help them feel more competent and confident in carrying out their teaching duties.

The Influence of Principal's Leadership and Teacher Self-Efficacy on Student Achievement

The final aspect discussed in this study is the combined influence of principal's leadership and teacher self-efficacy on student achievement (Li & Liu, 2022; S. Liu & Hallinger, 2018; Y. Liu et al., 2022; Sehgal et al., 2017). The results indicate that the combination of effective principal transformational leadership and high teacher self-efficacy has a significant impact on student academic achievement. Strong principal's leadership can strengthen teacher self-efficacy, which in turn improves teaching quality and student learning outcomes. Simultaneously, Principal Transformational Leadership and Teacher Self-Efficacy make significant contributions to Student Achievement. All three variables demonstrated excellent performance, with mean values of X1 of 53.20, X2 of 54.43, and Y of 36.20. Transformational principals create a positive school climate, while teachers with high self-efficacy are able to manage learning optimally. The synergy between these two factors results in an effective learning process, increases student engagement, and encourages better academic achievement.

D. Conclusions

This study reveals that transformational leadership significantly influences student achievement both directly and indirectly through teacher self-efficacy in Indonesian junior high schools. The key finding demonstrates that teacher self-efficacy serves as a partial mediator, accounting for 43% of the total effect of transformational leadership on

student outcomes. These results underscore the importance of principals' transformational behaviors in creating conditions that enhance both teacher capabilities and student success. Practical implications suggest that educational policymakers and school districts should invest in leadership development programs that cultivate transformational leadership competencies among principals. Such programs should emphasize skills in inspirational motivation, intellectual stimulation, individualized consideration, and idealized influence. Additionally, schools should implement interventions to strengthen teacher self-efficacy through professional learning communities, mentoring programs, and mastery experiences. Creating supportive organizational climates where teachers receive constructive feedback and recognition can further enhance their self-efficacy beliefs. Future research should examine additional mediating variables such as teacher motivation, organizational commitment, and instructional quality to develop a more comprehensive understanding of leadership effects. Longitudinal studies would help establish causal relationships and track changes in these variables over time. Furthermore, investigating potential moderators such as school size, resource availability, and community characteristics would provide insights into conditions that enhance or constrain leadership effectiveness. Comparative studies across different cultural contexts would also contribute to understanding the universality and cultural specificity of these relationships.

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