The Influence of Principals' Adaptive Leadership and The School Psychological Environment on Teacher Creativity in Instructional Implementation at Muhammadiyah Junior High School Manado

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Abstract.

This study aims to analyze the influence of principals' adaptive leadership and the school psychological environment on teacher creativity in instructional implementation at Muhammadiyah Junior High School Manado. The research employed a quantitative approach using a survey method involving the entire teacher population of 35 individuals through a saturated sampling technique. Data were collected using structured questionnaires and analyzed through multiple linear regression. The results indicate a strong relationship among the variables, with a correlation coefficient (R) of 0.768 and a coefficient of determination (R Square) of 0.590, meaning that 59% of the variation in teacher creativity can be explained by adaptive leadership and the psychological environment. Partially, adaptive leadership has a significant effect (t = 3.219), as does the school psychological environment (t = 3.607), which demonstrates a relatively greater contribution. Simultaneously, both variables significantly influence teacher creativity, with an F-value of 23.187. In conclusion, flexible school leadership and a supportive work atmosphere are crucial factors in fostering teacher innovation in designing and implementing the learning process.

Keywords: *Adaptive leadership; school psychological environment; teacher creativity and learning.*

I. INTRODUCTION

Education is a fundamental factor in shaping human character and determining the quality of future generations. Through a well-established education system, it is expected that individuals who are competent, ethical, capable, independent, and able to adapt to the dynamics of society and the nation will emerge. Within the school ecosystem, principals and teachers hold the most central roles as internal actors who determine the success of achieving educational goals. Entering the era of the Industrial Revolution 4.0, characterized by digital transformation and extensive connectivity, the demands on the quality of school leadership have become increasingly complex. Contemporary progressive leadership is no longer limited to administrative management but also encompasses the ability to integrate technology, respond to socio-cultural dynamics, and facilitate competencies relevant to current needs. One of the main indicators of improving educational quality is teacher creativity in the learning process. Creativity is viewed as an intelligence that develops within individuals, manifested in attitudes and actions to produce innovative solutions in solving instructional problems. According to Hossein (2018), teacher creativity is the implementation of ideas to achieve effective teaching through the application of knowledge and skills in new situations. Creative teachers are able to design diverse strategies, methods, and learning media so that students do not feel bored and can engage more enthusiastically in learning.

However, creativity does not emerge automatically; it requires managerial support and a conducive environment.In facing uncertain educational challenges, the adaptive leadership model has become highly relevant. This concept, first introduced by Heifetz and Linsky (2002), emphasizes a leader's ability to navigate complex changes with flexibility and innovation. Wulandari and Raditya (2017) define adaptive leadership as an approach that emphasizes a leader's ability to adapt to environmental changes and lead responsively. Adaptive principals are expected to think strategically, act proactively, take risks, and remain open to diverse perspectives in order to seize opportunities amid ongoing change.In addition to leadership factors, the school's psychological environment plays an equally crucial role. The emotional, social, and mental conditions experienced by teachers in the workplace—such as a sense of safety, comfort, and harmonious interpersonal relationships—serve as the foundation for teaching productivity. According to

Diener, psychological well-being includes aspects of life satisfaction and emotional balance. A study by Collins et al. (2021) shows that teachers with a high level of psychological well-being tend to be more innovative and capable of creating learning environments that optimally support student development.

Conversely, when the psychological environment is disrupted, teachers are more vulnerable to stress and decreased teaching motivation.The phenomenon observed at Muhammadiyah Junior High School Manado indicates that teacher performance and creativity often fluctuate significantly with changes in leadership. There are indications that teachers' creative potential has not been fully developed; some teachers still require consistent supervision and show limited proactivity without direct monitoring from leadership. This instability highlights that teachers' ability to plan and implement instruction is highly dependent on how well leadership adapts to their needs and fosters a supportive work climate.Based on this urgency, this study was conducted to scientifically examine the influence of principals' adaptive leadership and the school psychological environment on teacher creativity in instructional implementation at Muhammadiyah Junior High School Manado. Through this research, it is expected that strategic solutions can be identified to strengthen school management in order to promote a more innovative and adaptive educational ecosystem in response to contemporary developments.

II. LITERATURE REVIEW

1. Teacher Creativity in Instructional Implementation

Teacher creativity is viewed as an intelligence that develops within individuals, manifested in attitudes, habits, and actions to produce something new in solving instructional problems. According to Hossein (2018), teacher creativity is the implementation of ideas to achieve effective teaching through the application of knowledge and skills in new situations. Furthermore, Rakha et al. (2025) define teacher creativity as the ability to generate ideas, strategies, methods, and learning activities that are innovative and relevant across the stages of planning, implementation, and evaluation.Creative teachers are able to create a joyful and engaging classroom atmosphere so that students do not feel bored. This form of creativity encompasses several dimensions, including:

a. **Classroom Management Creativity**: The ability to organize the physical environment, such as seating arrangements and ventilation, to support students' learning enthusiasm.
b. **Media and Strategy Creativity**: The ability to select instructional tools that stimulate students' interest and motivation to learn.
c. **Socio-Emotional Creativity**: The ability to build positive relationships (rapport) with students to create a safe and supportive learning environment.

2. Principals' Adaptive Leadership

Adaptive leadership refers to a leader's ability to navigate complex and challenging changes within an organization. This concept, introduced by Heifetz and Linsky (2002), emphasizes the leader's flexibility in responding to environmental changes through innovation. Wulandari and Raditya (2017) further define adaptive leadership as a responsive approach in addressing dynamic environmental challenges.According to Prasetyono Hendriarto et al. (2025), the characteristics of adaptive leaders include strategic thinking, proactive behavior in anticipating opportunities, willingness to take risks, and a strong appreciation for innovation. In the educational context, Wuni (2026) explains that adaptive leadership involves encouraging stakeholders to confront challenges that require changes in values and behaviors. Adaptive principals must be able to adjust their leadership style based on situational demands and teachers' needs in order to achieve organizational goals effectively (Widayanti & Kusman, 2023).

3. School Psychological Environment

The school psychological environment encompasses the emotional, social, and mental conditions experienced by teachers in the workplace, including a sense of safety, comfort, social relationships, and a work climate that supports well-being. According to Diener, psychological well-being involves aspects of life satisfaction and emotional balance.The importance of this factor is supported by a study conducted by Collins et al. (2021), which shows that teachers with a high level of psychological well-being tend to be more innovative in teaching and are able to create learning environments that support students' development

optimally. A psychologically safe environment enables teachers to express new ideas without excessive pressure. Furthermore, Ritonga et al. (2025) emphasize that schools capable of effectively managing group dynamics can facilitate positive social interactions.

4. The Relationship Between Adaptive Leadership and the Psychological Environment on Teacher Creativity

Leadership in education plays a crucial role in shaping an effective learning environment. Sumiati (2026) found that leadership focused on teacher empowerment has a positive correlation with improved classroom performance. Adaptive principals function as innovators who provide direction for school development and create space for teachers to experiment with new methods.Usman (2025) explains that adaptive leaders are able to adjust to the needs of their teams, enabling teachers not only to implement the curriculum rigidly but also to be encouraged to innovate. Research by Pasaribu and Gistituati (2025) also confirms that adaptive school leadership can enhance teachers' work motivation and creativity. When flexible leadership synergizes with a supportive psychological environment, teachers tend to develop higher self-confidence to explore new and meaningful instructional approaches.

III. METHODS

This study employed a quantitative approach using a survey method to analyze the influence of principals' adaptive leadership and the school psychological environment on teacher creativity. The research was conducted at Muhammadiyah Junior High School Manado from February to March 2026. The research subjects included all teachers at the school, totaling 35 individuals. Given the relatively small population size, the study applied a saturated sampling technique, in which all members of the population were used as the research sample to ensure more representative data (Sugiyono, 2017).The focus of this study consisted of three main variables: teacher creativity in instructional implementation as the dependent variable (Y), and principals' adaptive leadership (X1) and the school psychological environment (X2) as independent variables. The operational definitions of the variables were based on recent literature, where teacher creativity includes the ability to generate innovative ideas from planning to evaluation stages (Rakha et al., 2025). Adaptive leadership was measured through the flexibility of leadership style according to situational demands (Widayanti & Kusman, 2023),

while the psychological environment refers to the emotional and social conditions experienced by teachers in the workplace (Collins et al., 2021).Data were collected through structured closed-ended questionnaires. This instrument was selected due to its efficiency in statistical data processing and its ability to maintain consistency in respondents' answers. Prior to final data collection, the research instrument was tested for validity using the Pearson Product Moment correlation to ensure that each item accurately measured the variable indicators. In addition, reliability testing was conducted using Cronbach's Alpha to ensure the consistency of the instrument.The final stage of the methodology involved data analysis techniques, including descriptive statistical analysis to provide an overview of the data through mean values and standard deviations. Furthermore, prerequisite tests were conducted, including normality and linearity tests, before proceeding to hypothesis testing (Ghazali, 2016/2018; Sugiyono, 2017). Hypothesis testing was carried out comprehensively using multiple linear regression analysis to determine the contribution of independent variables to the dependent variable, both partially through the t-test and simultaneously through the F-test (Iba & Wardhana, 2023; Ghozali, 2018).

IV. RESULT AND DISCUSSION

Result

1. Descriptive Analysis of Research Data

The research data were obtained through the distribution of questionnaires to 35 respondents. The collected data were then analyzed using descriptive statistical analysis to provide an initial understanding of the condition of each research variable, namely teacher creativity in instructional implementation (Y), principals' adaptive leadership (X1), and the school psychological environment (X2).Descriptive analysis was conducted by calculating the mean, minimum and maximum values, standard deviation, and the

percentage of respondents' score achievement. This data presentation aims to illustrate the general tendency of respondents' answers as well as to show the level of achievement of each variable compared to the predetermined ideal score. Through this description, readers can understand the factual conditions in the field as a basis for proceeding to the next stage of analysis

Table 1. Descriptive Data

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Kepemimpinan Adaptif Kepala Sekolah	35	55,00	72,00	66,4571	7,73207
Lingkungan Psikologis Sekolah	35	55,00	72,00	66,4000	7,87849
Kreativitas Guru dalam Pelaksanaan Pembelajaran	35	50,00	68,00	61,9714	7,21308
Valid N (listwise)	35				

Based on Table 1 (Descriptive Analysis), it is known that the number of respondents (N) in this study is 35. The variable of principals' adaptive leadership has a minimum value of 55 and a maximum value of 72, with a mean of 66.4571 and a standard deviation of 7.73207. This indicates that, in general, the level of adaptive leadership is relatively high, with a fairly even distribution of data.Furthermore, the school psychological environment variable also has a minimum value of 55 and a maximum value of 72, with a mean of 66.4000 and a standard deviation of 7.87849. These values indicate that the psychological environment of the school tends to be good and stable, although there is some variation in respondents' answers.Meanwhile, the teacher creativity variable in instructional implementation has a minimum value of 50 and a maximum value of 68, with a mean of 61.9714 and a standard deviation of 7.21308. This suggests that the level of teacher creativity falls into a moderately good category, with relatively low variation among respondents.Overall, the mean values of the three variables show relatively positive tendencies, supported by standard deviation values that are not excessively large. Therefore, it can be concluded that the data obtained are sufficiently homogeneous and representative for further analysis.

2. Validity and Reliability Testing

a. Validity Test

Table 2. Results of Validity Test for X_1

Variable	r-table	r-calculated	Description
Principals' Adaptive Leadership (X_1)	**0,344**	**0,634**	**VALID**
	0,344	**0,939**	**VALID**
	0,344	**0,686**	**VALID**
	0,344	**0,906**	**VALID**
	0,344	**0,526**	**VALID**
	0,344	**0,901**	**VALID**
	0,344	**0,545**	**VALID**
	0,344	**0,906**	**VALID**
	0,344	**0,718**	**VALID**
	0,344	**0,893**	**VALID**
	0,344	**0,653**	**VALID**
	0,344	**0,945**	**VALID**
	0,344	**0,472**	**VALID**
	0,344	**0,887**	**VALID**
	0,344	**0,718**	**VALID**
	0,344	**0,903**	**VALID**

Based on Table 2 (Validity Test Results) for the variable Principals' Adaptive Leadership (X_1), the r-table value was first determined as a reference for testing. The r-table value was obtained from the degree of freedom (df) using the formula df = n – 2. With a sample size (n) of 35, the df value is 35 – 2 = 33. Based on this value and a significance level of 5% ($\alpha = 0.05$), the r-table value is 0.344.The test results show that all statement items have r-calculated values greater than the r-table, ranging from 0.472 to 0.945. This indicates

that each item in the instrument is capable of accurately measuring the variable under study.Thus, it can be concluded that all statement items in the Principals' Adaptive Leadership (X_1) variable are valid and appropriate for use in this research. This also indicates that the instrument used has a high level of accuracy in measuring the intended variable.

Table 3. Validity Test Results for X_2

Variable	r-table	r-calculated	Description
School Psychological Environment (X_2)	**0,344**	**0,679**	**VALID**
	0,344	**0,918**	**VALID**
	0,344	**0,492**	**VALID**
	0,344	**0,927**	**VALID**
	0,344	**0,888**	**VALID**
	0,344	**0,725**	**VALID**
	0,344	**0,914**	**VALID**
	0,344	**0,551**	**VALID**
	0,344	**0,921**	**VALID**
	0,344	**0,590**	**VALID**
	0,344	**0,902**	**VALID**
	0,344	**0,778**	**VALID**
	0,344	**0,903**	**VALID**
	0,344	**0,625**	**VALID**
	0,344	**0,914**	**VALID**
	0,344	**0,625**	**VALID**

Based on Table 3, which presents the validity test results for the School Psychological Environment variable (X_2), the analysis shows that all statement items have r-calculated values higher than the r-table, ranging from 0.492 to 0.927. This condition indicates that each instrument item has a sufficiently strong correlation with the total score of the measured variable.Therefore, all items in the School Psychological Environment (X_2) variable meet the validity criteria. This means that the instrument used is capable of accurately representing the research variable and can be utilized as a data collection tool in the subsequent stages of analysis.

Table 4. Validity Test Results for Y

Variable	r-table	r-calculated	Description
Teacher Creativity in Instructional Implementation (Y)	**0,344**	0,892	**VALID**
	0,344	0,723	**VALID**
	0,344	0,875	**VALID**
	0,344	0,683	**VALID**
	0,344	0,918	**VALID**
	0,344	0,397	**VALID**
	0,344	0,891	**VALID**
	0,344	0,805	**VALID**
	0,344	0,653	**VALID**
	0,344	0,913	**VALID**
	0,344	0,577	**VALID**
	0,344	0,907	**VALID**
	0,344	0,606	**VALID**
	0,344	0,903	**VALID**
	0,344	0,729	**VALID**

Based on Table 4 (Validity Test Results) for the variable Teacher Creativity in Instructional Implementation (Y), the test results indicate that all statement items have r-calculated values greater than the r-table, ranging from 0.397 to 0.918. Although some items have relatively lower values, all still exceed the minimum threshold, thereby meeting the validity criteria.Thus, it can be concluded that all statement items in the Teacher Creativity in Instructional Implementation (Y) variable are valid. This indicates that the instrument used is capable of accurately measuring the variable and can be reliably utilized in the subsequent data analysis process.

b. Reliability Test

Table 5. Reliability Test Results for X_1

Reliability Statistics

Cronbach's Alpha	N of Items
,956	16

Based on Table 5, the reliability test results for the Principals' Adaptive Leadership variable (X_1) show a Cronbach's Alpha value of 0.956 with a total of 16 items. This value is well above the minimum threshold of 0.60, indicating that the instrument has a very high level of consistency. In other words, each item in this variable is capable of producing stable and reliable results in measuring the intended concept.

Table 6. Reliability Test Results for X_2

Reliability Statistics

Cronbach's Alpha	N of Items
,957	16

As shown in Table 6, the School Psychological Environment variable (X_2) has a Cronbach's Alpha value of 0.957 with a total of 16 items. This value indicates that the instrument has excellent reliability, as it exceeds the established standard. This suggests that all items within this variable are internally consistent and accurately reflect the actual conditions.

Table 7. Reliability Test Results for Y

Reliability Statistics

Cronbach's Alpha	N of Items
,952	15

Meanwhile, Table 7 shows that the Cronbach's Alpha value for the Teacher Creativity in Instructional Implementation variable (Y) is 0.952 with a total of 15 items. This value indicates that the instrument is highly reliable. This means that the measurement tool is capable of producing consistent and dependable data, making it suitable for further research analysis.

3. Classical Assumption Tests

This study conducted three types of classical assumption tests as follows:

a. **Normality Test**

Table 8. Normality Test Results

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		35
Normal Parameters[a,b]	Mean	,0000000
	Std. Deviation	,62789555
Most Extreme Differences	Absolute	,342
	Positive	,342
	Negative	-,269
Test Statistic		,342
Asymp. Sig. (2-tailed)		,185[c]

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

Based on the results of the normality test in Table 8 using the One-Sample Kolmogorov–Smirnov method with a total of 35 data points, the Asymp. Sig. (2-tailed) value obtained is 0.185. When compared to

the significance level of 0.05, this value is clearly higher. This indicates that the residual data in this study do not show any deviation from a normal distribution. In other words, the data distribution pattern is considered normal and acceptable.This finding confirms that the assumption of normality has been met, meaning that the regression model used is appropriate and can be continued to the next stage of analysis.

b. **Multicollinearity Test**

Table 9. Multicollinearity Test Results

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	Kepemimpinan Adaptif Kepala Sekolah	,379	8,533
	Lingkungan Psikologis Sekolah	,205	5,893

a. Dependent Variable: Kreativitas Guru dalam Pelaksanaan Pembelajaran

Based on Table 9, which presents the results of the multicollinearity test, this analysis was conducted to determine whether there is an excessively strong relationship among the independent variables in the research model. The results show that the Principals' Adaptive Leadership variable has a Tolerance value of 0.379 and a VIF value of 8.533. Meanwhile, the School Psychological Environment variable has a Tolerance value of 0.205 and a VIF value of 5.893.According to commonly accepted criteria, a Tolerance value greater than 0.10 and a VIF value less than 10 indicate the absence of multicollinearity. As shown in the table, both variables have Tolerance values above 0.10 and VIF values below 10.Thus, it can be concluded that there is no indication of multicollinearity in this regression model. This means that each independent variable does not excessively influence the others, and therefore, the model is considered adequate and appropriate for further analysis.

c. **Heteroscedasticity Test**

Table 10. Heteroscedasticity Test Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,908	,551		5,274	,000
	Kepemimpinan Adaptif Kepala Sekolah	,128	,110	2,060	1,169	,251
	Lingkungan Psikologis Sekolah	-,166	,108	-2,720	-1,544	,132

a. Dependent Variable: ABRESID

Based on Table 10, which presents the results of the heteroscedasticity test using the Glejser method, this analysis aims to determine whether there is inequality of variance (heteroscedasticity) in the regression model.The main focus of the Glejser test is the significance (Sig.) values of each independent variable. The table shows that the Principals' Adaptive Leadership variable has a significance value of 0.251, while the School Psychological Environment variable has a significance value of 0.132. Both values are greater than 0.05.This indicates that there is no significant effect of the independent variables on the absolute residual values (ABRESID). In other words, no symptoms of heteroscedasticity are detected in this regression model, meaning that the variance of the errors tends to be constant or homogeneous.In simple terms, the regression model used is relatively stable and does not experience issues related to unequal data dispersion. Therefore, the assumption of homoscedasticity has been satisfied, and the model can be used for further analysis without requiring any specific adjustments

4. Multiple Linear Regression Analysis

The results of the multiple linear regression test and their interpretation are presented in:

Table 11. Multiple Linear Regression Analysis

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,033	,985		1,050	,302
	Kepemimpinan Adaptif Kepala Sekolah	,266	,196	,285	2,359	,013
	Lingkungan Psikologis Sekolah	,652	,192	,712	3,392	,002

a. Dependent Variable: Kreativitas Guru dalam Pelaksanaan Pembelajaran

The regression model obtained in this study is as follows:

$$Y = 1{,}033 + 0{,}266X_1 + 0{,}652X_2$$

Thus:

a. The constant value of 1.033 indicates that when the variables of principal adaptive leadership and the school psychological environment are assumed to remain constant or unchanged, the level of teacher creativity in instructional implementation is 1.033.
b. The regression coefficient of 0.266 indicates that every one-unit increase in principal adaptive leadership will be followed by an increase of 0.266 in teacher creativity in instructional implementation, assuming other variables remain constant.
c. The regression coefficient of 0.652 implies that each one-unit increase in the school psychological environment will increase teacher creativity in instructional implementation by 0.652. This value indicates that this variable has a positive effect on teacher creativity in the learning process.

5. Hypothesis Testing

a. t-test

Table 12. t-test Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,033	,985		1,050	,302
	Kepemimpinan Adaptif Kepala Sekolah	,266	,196	,285	2,359	,013
	Lingkungan Psikologis Sekolah	,652	,192	,712	3,392	,002

a. Dependent Variable: Kreativitas Guru dalam Pelaksanaan Pembelajaran

Before interpreting the t-test results, the t-table value is first determined as a comparison. The t-table value can be calculated using the degrees of freedom formula (df = n − k − 1), where *n* is the number of samples and *k* is the number of independent variables. Based on the research data with a sample size of 35 and 2 independent variables, the result is df = 35 − 2 − 1 = 32. At a significance level of 5% (α = 0.05), the t-table value is ±2.037.Based on Table 4.12 presenting the t-test results, this test is conducted to determine whether each independent variable has a partial effect on the dependent variable, namely teacher creativity in instructional implementation.The results show that the variable of principal adaptive leadership has a t-value of 2.359. When compared to the t-table value (2.037), it is evident that t-calculated > t-table. In addition, the significance value is 0.013, which is smaller than 0.05. This indicates that the adaptive leadership variable has a positive and significant effect on teacher creativity.Furthermore, the school psychological environment variable has a t-value of 3.392. This value is also greater than the t-table (2.037), with a significance value of 0.002, which is less than 0.05. Therefore, it can be concluded that the school psychological environment also has a positive and significant effect on teacher creativity.Overall, both independent variables are proven to have a significant partial effect on teacher creativity, indicating that each variable makes a meaningful contribution in explaining the dependent variable in this study.

b. F-test

Table 13. F-test Results

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1755,567	2	877,783	95,481	,000[b]
	Residual	13,405	32	,419		
	Total	1768,971	34			

a. Dependent Variable: Kreativitas Guru dalam Pelaksanaan Pembelajaran

b. Predictors: (Constant), Lingkungan Psikologis Sekolah , Kepemimpinan Adaptif Kepala Sekolah

The calculation of the F-table value is conducted by first determining the degrees of freedom (df). Based on the data in the table, the number of samples (n) = 35 and the number of independent variables (k) = 2, resulting in df1 (numerator) = k = 2 and df2 (denominator) = n − k − 1 = 35 − 2 − 1 = 32. Using a significance level of α = 0.05, the F-table value for df1 = 2 and df2 = 32 is ± 3.29.Based on Table 13 showing the results of the F-test (ANOVA), the calculated F-value is 95.481 with a significance value (Sig.) of 0.000. When compared to the F-table value of 3.29, it is clear that F-calculated (95.481) > F-table (3.29). Additionally, the significance value, which is smaller than 0.05, indicates that the regression model used is significant.Thus, it can be concluded that the independent variables—principal adaptive leadership and the school psychological environment—simultaneously have a significant effect on teacher creativity in instructional implementation. This also indicates that the research model used is appropriate and capable of explaining the relationships among the variables studied.

c. Coefficient of Determination (R^2)

Table 14. Coefficient of Determination (R^2)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,796[a]	,724	,892	,64722

a. Predictors: (Constant), Lingkungan Psikologis Sekolah , Kepemimpinan Adaptif Kepala Sekolah

Based on Table 14, the coefficient of determination (R^2) shows an R Square value of 0.724. This indicates that 72.4% of the variation in the dependent variable, namely teacher creativity in instructional implementation, can be explained by the independent variables used in the model, which are principal leadership and the school psychological environment. Meanwhile, the remaining 27.6% is influenced by other factors outside this research model that were not examined.This finding indicates that the regression model used is quite good and has a high level of accuracy in explaining the relationship between the independent and dependent variables. Therefore, it can be concluded that principal leadership and the school psychological environment make a substantial contribution to teacher creativity in instructional implementation.

Discussion

1. The Influence of Principal Adaptive Leadership on Teacher Creativity

Based on the results of the data analysis, the partial hypothesis testing using the t-test indicates that the variable of principal adaptive leadership has a positive and significant effect on teacher creativity in instructional implementation. Statistically, this finding is supported by a t-value of 2.359, which is greater than the t-table value of 2.037 at a 5% significance level. In addition, the obtained significance value is 0.013, which is clearly below the probability threshold of 0.05. Therefore, the research hypothesis stating that there is a significant effect of adaptive leadership on teacher creativity is accepted.This finding indicates that any improvement in the quality of adaptive leadership practices implemented by the principal will be followed by a tangible increase in teacher creativity in managing the learning process in the classroom.

Scientifically, the acceptance of this hypothesis is consistent with adaptive leadership theory, which is defined as a leader's ability to respond to complexity and environmental changes in a flexible and innovative manner. Adaptive leadership provides a flexible framework for teachers to experiment with new methods without fear of failure, as adaptive leaders tend to view challenges as opportunities for learning and growth.Support, empowerment, and autonomy—key characteristics of this leadership style—have been proven to stimulate out-of-the-box thinking among educators. An inclusive and communicative work environment fostered by adaptive leaders enables fresh ideas to emerge and be effectively implemented, thereby creating a dynamic and innovative school culture.

The results of this study are consistent with several previous studies conducted in Indonesia. Research by Suryani (2018) confirms that the adaptive leadership style of school principals positively influences the creation of a supportive learning environment, which in turn stimulates teacher creativity in designing innovative learning activities.Similarly, the findings of Rahmadani and Yuliana (2020) emphasize the importance of adaptive management in enhancing the effectiveness of creativity stimulation through individualized approaches. This alignment is also reflected in the study by Sumiati (2024), which found that adaptive leadership significantly affects teacher performance and the development of a collaborative school culture. The consistency between this study and previous literature indicates that adaptive leadership is a crucial universal determinant in advancing the creative potential of human resources in educational institutions.The strong influence of this variable may be attributed to the principal's ability to adjust leadership styles according to the unique needs of staff and the continuously evolving dynamics of the school. When principals act as role models who are open to change and appreciative of diverse perspectives, teachers feel more valued and trusted to take constructive risks in their teaching practices.Furthermore, effective communication practiced by adaptive leaders helps align the school's vision with teachers' creative actions, ensuring that innovations remain relevant to national education goals. The creation of psychological safety within the school environment minimizes barriers to creativity, such as fear of failure, thereby encouraging teachers to continuously develop engaging and effective learning strategies for students.

2. The Influence of School Psychological Environment on Teacher Creativity

Based on the results of the data analysis, partial hypothesis testing using the t-test shows that the variable of the school psychological environment has a positive and significant effect on teacher creativity in instructional implementation. Statistically, this finding is supported by a t-value of 3.392, which is greater than the t-table value of 2.037 at a 5% significance level. In addition, the significance value obtained is 0.002, which is clearly far below the probability threshold of 0.05. Therefore, the research hypothesis stating that there is a significant effect of the school psychological environment on teacher creativity is accepted. This finding confirms that any improvement in the quality of the school psychological environment will make a meaningful contribution to enhancing teachers' creative capacity in managing classroom learning processes.Scientifically, the acceptance of this hypothesis is consistent with management psychology theory and the concept of psychological safety in the workplace. A positive school psychological environment—characterized by a sense of safety, trust, and comfort—serves as a foundation for effective communication and interaction among educators. When teachers feel psychologically safe, they are more likely to express themselves, take constructive risks, and experiment with new teaching methods without fear of failure or negative judgment from their environment. The fulfillment of psychological needs such as recognition, fairness, and emotional support has been shown to stimulate intrinsic motivation, which drives the emergence of innovative ideas in solving educational problems.

The results of this study are consistent with previous research conducted by Nasution and Wahyuni (2025), which emphasizes that a positive psychological climate in schools is essential for encouraging teacher engagement and performance through a collaborative culture.This consistency is also reflected in the study by Kristi et al. (2024), which states that both physical and non-physical psychological environments are crucial prerequisites for the mental and emotional development of all school members in achieving educational goals. The alignment of this study's findings with previous literature indicates that the psychological atmosphere of a school is not merely a complementary factor, but a strategic determinant that influences whether teachers' creativity can develop optimally or be hindered by work stress and

environmental uncertainty.The strong influence of the psychological environment may be attributed to the dynamic interactions among school members that shape the organization's unique characteristics. In a conducive environment, work-related stress can be minimized, allowing teachers to have greater cognitive space for pedagogical innovation rather than merely coping with bureaucratic pressures. Recognition provided by school management, whether in the form of appreciation or institutional support, fosters a sense of value that enhances teacher job satisfaction. When teachers feel that their opinions are heard and their achievements are acknowledged, they tend to be more proactive in seeking creative solutions to various 21st-century challenges, ultimately improving the overall quality of learning.

3. The Simultaneous Influence of Adaptive Leadership and School Psychological Environment on Teacher Creativity

The results of simultaneous hypothesis testing in this study provide strong empirical evidence that principal adaptive leadership (X_1) and the school psychological environment (X_2) jointly have a positive and significant effect on teacher creativity in instructional implementation (Y).Based on statistical analysis using the F-test (ANOVA), the calculated F-value is 95.481, which far exceeds the F-table value of 3.29, with a highly significant level of 0.000. Based on this comparison, the third hypothesis, which states that there is a simultaneous effect of the independent variables on the dependent variable, is accepted. The combined contribution of these two variables to teacher creativity is reflected in the coefficient of determination (R^2) value of 0.724, indicating that 72.4% of the variation in teacher creativity can be comprehensively explained by adaptive leadership and the school psychological environment, while the remaining 27.6% is influenced by other external factors outside this research model.From a scientific and theoretical perspective, the acceptance of this simultaneous hypothesis can be explained through a systemic approach in educational management, where leadership and the work environment do not function in isolation but interact as part of an integrated ecosystem. Adaptive leadership acts as a catalyst that provides direction and flexibility for teachers to independently diagnose learning problems. However, this flexibility will only translate into creative action when supported by a psychological environment that serves as a safe holding environment.

Under such conditions, teachers feel valued and are not threatened by the risks of pedagogical experimentation due to the presence of emotional support and psychological stability within the school. The synergy between a leader who is responsive to change (X_1) and a mentally healthy work atmosphere (X_2) creates ideal conditions that stimulate teachers' intrinsic motivation to transform their creative potential into real innovations in the classroom.These findings are consistent with the study by Sumiati (2024), which states that adaptive leadership significantly improves teacher performance through the strengthening of a collaborative school culture.This result is also supported by the study of Muharam, Suryadi, and Hadiyanto (2025), which confirms that adaptive leadership of school principals in Indonesia has a significant influence on teachers' creative behavior in secondary schools.Similarly, the findings of Kurniawan and Hasanah (2021) reveal that the creation of a pleasant working atmosphere and the provision of freedom for innovation by school principals are key determinants of teacher creativity during periods of disruption. The consistency of these findings is likely driven by the demands of national education transformation through the Merdeka Curriculum policy, which requires schools to shift from rigid bureaucratic models toward agile, innovative, and emotionally supportive learning organizations.The ability of this model to explain 72.4% of the variance in teacher creativity demonstrates that strengthening principals' managerial capacity, combined with improvements in the psychological climate, is a key strategic investment for enhancing the quality of learning in the future.

V. CONCLUSION

Based on the results of the study conducted at SMP Muhammadiyah Manado, it can be concluded that principal adaptive leadership and the school psychological environment jointly have a positive and significant effect on teacher creativity in instructional implementation. The data analysis shows that the synergy between these two factors contributes 72.4% to the variation in teacher creativity, while the remaining percentage is influenced by other factors خارج the scope of this study.Individually, principal adaptive leadership has been proven to have a tangible impact on enhancing creativity. This flexible and

responsive leadership style provides teachers with the opportunity to experiment with new methods without fear of failure. With support and autonomy from leadership, teachers feel more confident to think beyond conventional approaches and implement innovative ideas in the teaching and learning process.

In addition, the school psychological environment also plays a very important and independently significant role. A work atmosphere characterized by a sense of safety, comfort, and harmonious interpersonal relationships serves as a foundation for teachers to actualize their creative potential. When teachers feel valued and emotionally supported, their intrinsic motivation increases, which in turn stimulates the emergence of innovative solutions to educational challenges in the classroom.Overall, this study emphasizes that in order to create an innovative educational ecosystem, a combination of leadership capable of navigating change and a work environment that supports the mental and emotional well-being of teachers is essential. Strengthening these two aspects constitutes a strategic investment in improving the quality of learning and enhancing school readiness to face future educational challenges.

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