

## The Influence of Principal Leadership, Work Motivation, and the Availability of Practical Infrastructure on the Performance of Public Smk Teachers in Pelalawan District

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### ABSTRACT

**Background.** Teacher performance is a crucial factor in determining the quality of education in vocational schools, where the effectiveness of leadership, the level of work motivation, and institutional support are often assumed to influence instructional outcomes. In the context of State Vocational Schools in Pelalawan Regency, challenges related to optimizing teacher performance highlight the need for empirical investigation into organizational and individual factors that shape professional effectiveness. Understanding how leadership, motivation, and infrastructure interact is essential for informing evidence-based education management policies.

**Purpose.** This study aims to analyze the effect of principal leadership, work motivation, and the availability of practical infrastructure on the performance of teachers in State Vocational Schools in Pelalawan Regency, both partially and simultaneously.

**Method.** The study employed a quantitative research approach involving a population of 156 vocational school teachers, from which a sample of 108 teachers was selected. Data were collected through structured questionnaires and analyzed using descriptive and inferential statistical techniques to examine the relationships among the research variables.

**Results.** The results indicate that principal leadership has a significant effect on teacher performance, as shown by a significance value of 0.000 ( $<0.05$ ), demonstrating the important role of effective school leadership. Work motivation also significantly influences teacher performance, with a significance value of 0.029 ( $<0.05$ ), suggesting that higher motivation enhances teachers' professional outcomes. In contrast, the availability of practical infrastructure does not have a significant direct effect on teacher performance, as indicated by a significance value of 0.929 ( $>0.05$ ). Simultaneously, principal leadership, work motivation, and infrastructure availability significantly affect teacher performance, as reflected by an R-value of 0.660 and an F-count of 26.750 with a significance level of 0.000 ( $<0.05$ ).

**Conclusion.** The findings indicate that principal leadership and work motivation are the most influential factors in improving the performance of vocational school teachers, while the availability of practical infrastructure alone does not have a significant direct effect. These results suggest that education management efforts should prioritize strengthening school leadership and enhancing teacher motivation to improve overall educational quality.

### KEYWORDS

Principal Leadership, Work Motivation, Practice Infrastructure, Vocational Teacher Performance

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## INTRODUCTION

In order to ensure that graduates have the skills required by industry, the performance of vocational teachers in Vocational High Schools (SMK) is very important. However, in Pelalawan Regency, the quality of performance of vocational teachers at state vocational schools tends to decline, especially in terms of self-development. Many teachers are reluctant to update their competencies in accordance with technological developments and the changing demands of the industrial world (Mukhtar & MD, 2020; Suebudin, 2021). This can affect the ability of SMK graduates to adapt to the world of work, so that the quality of graduates becomes less competitive. Previous research states that teachers' pedagogical and professional competencies play a major role in improving teacher performance in learning (Gunanik et al., 2023; Herlina et al., 2023). Therefore, optimal performance of these teachers is needed to create graduates who are ready and able to compete in the job market.

Principal leadership in SMKs also plays an important role in creating a climate conducive to teacher performance development. Principals who have a vocational background and a deep understanding of vocational education will be more effective in directing policies that support vocational teachers. However, in Pelalawan District, most SMK principals come from non-vocational backgrounds or even from general secondary schools, so they are less steeped in the specific needs of vocational teachers in their professional development (Maya & Mahmudah, 2023; Suyitno, 2021). This causes the policies taken by school principals to be less favorable to the development of vocational teachers and their performance. In fact, research by Sutisna et al. (2023) and Wahdah et al. (2023) prove that effective principal leadership is able to provide the motivation and support needed by teachers to carry out their duties optimally. Sabariah (2021) suggests that school principals with good managerial skills are also able to improve the effectiveness of school management which has a direct impact on improving teacher performance.

Another important element in improving teachers' performance is their motivation towards their work. According to research Kusuma & Negara (2021) there is a significant correlation between work motivation and teacher performance. Teachers who have high work motivation will give their best during the learning process. This is further supported by Kartika & Ambara (2021) who found that teaching motivation and personality competence improve teacher performance. In addition, reward factors and a supportive work environment also affect teacher motivation, as shown by research Putri & Abadi (2022) which confirms that the rewards given to teachers can increase their work motivation. Research by Hidayat et al. (2022) also proves that a conducive work environment and social support from coworkers contribute to teacher motivation, creating a supportive atmosphere for the execution of their duties.

In addition to the leadership aspect, the availability of practical facilities and infrastructure in SMK greatly affects the learning process, especially for vocational subjects that demand a lot of practical activities. Adequate facilities and infrastructure allow teachers to maximize applicable and contextual learning methods, which bring students closer to real situations in the world of work. However, at SMK Negeri Pelalawan Regency, these practical facilities are still limited and often inadequate to meet students' skills training needs (Eldiana Harahap et al., 2023; Satria et al., 2022). Schools located far from the district city center, for example, generally have less complete facilities than schools located closer to the center of economic activity. This condition affects the effectiveness of learning that can be provided by teachers, especially in guiding students to master practical skills that meet industry standards (Jaya, 2021; Nurani & Sarino, 2017).

Other studies have also proven that a conducive work environment, including the availability of adequate infrastructure, can improve teacher motivation and performance. When teachers have

access to adequate facilities, they can devise learning programs that are more creative and relevant to industry demands (Darmawan et al., 2021; Raisal et al., 2022) . Good facilities not only help teachers in delivering the material, but also increase their motivation to work harder in providing the best to students. In the context of vocational education, a good physical environment creates a more interactive and binding learning experience for students (Dawam et al., 2022; Nurani & Sarino, 2017) . Thus, SMK managers in Pelalawan Regency need to pay attention to the availability of practical facilities that can support teaching and learning activities in their schools.

The availability of adequate practical facilities and infrastructure not only impacts teacher performance, but also has a positive impact on student motivation and engagement in the learning process. Research by Nurani & Sarino (2017) proves that a supportive learning environment can increase students' active participation, so they can learn more effectively and deeply. In addition, other research by Harahap et al. (2023) and Jaya (2021) also confirmed that adequate infrastructure is essential to ensure that the learning experience provided is relevant to the skills needed in the world of work. Research by Satria et al. (2022) mentioned that facilities relevant to industry standards will assist students in understanding and mastering skills relevant to their future jobs.

In an effort to improve teacher performance, a combination of good leadership and adequate practice facilities is essential. Research by Jaya (2021) proves that when principals support teachers' performance and provide adequate facilities, teachers will be more motivated and have high job satisfaction. This job satisfaction will have a positive impact on their performance, which in turn supports the quality of education in SMK (A'yun, 2022; Badaruddin, 2022) . In this case, the synergy between good leadership and supportive facilities can create a conducive work environment, which is very important in the learning process.

Thus, improving the quality of education in SMK requires a holistic and integrated approach, which involves improving teacher competence, support from principals and work motivation, and the availability of adequate infrastructure. All these elements are interrelated in creating an effective learning environment that supports the achievement of student competencies. This is because the role of all stakeholders in vocational education is very important to realize this goal (Maya & Mahmudah, 2023; Suyitno, 2021; Wahdah et al., 2023) . Therefore, this study aims to understand the extent to which the principal's leadership, Work Motivation, and the availability of practical infrastructure facilities can affect the performance of vocational teachers at SMK Negeri Pelalawan Regency. In addition, it is also to find out the extent of the contribution of each of these factors in improving the performance of vocational teachers in SMK?

## RESEARCH METHODOLOGY

(Sugiyono, 2018) states that when there are at least two independent variables, the researcher will utilize multiple linear regression to predict the condition (rise and fall) of the dependent variable. The multiple linear regression approach uses multiple variables with one dependent variable. This analysis is used to determine whether there is an influence of independent variables, namely Principal Leadership ( $X_1$ ), Work Motivation ( $X_2$ ), and Availability of Practice Infrastructure ( $X_3$ ). While the dependent variable in this study is the performance of SMK teachers.

This research was conducted at State Vocational Schools in Pelalawan Regency. This research was conducted from October to December 2024. Population is a collection of people who have similar unique characteristics (Creswell, 2015) . The participants in this study were all teachers of SMK Negeri in Pelalawan Regency. According to Creswell (2015) a sample is a collection of the target population that the researcher wants to study in order to draw generalizations about the target

population. A proportional random strategy will be used to sample teachers and students. According to Sugiyono (2018) sampling technique is the random selection of sample members from a population without taking into account the strata of the population.

The sample in this study were State SMK Teachers in Pelalawan Regency. To determine the number of samples in this study, the Issac and Michael formula was used with an error rate of 5% (Sugiyono, 2018) . The following is the calculation of the population and sample size of this study based on the Isaac and Michael formula with a 5% error.

Table 1: Total Population and Sample

School Name	Number of SMK Teachers	Sample
SMKN 1 Pangkalan Kerinci	69	48
SMKN 1 Kerumutan	20	14
SMKN 1 Ukui	15	9
SMKN 1 Pangkalan Lesung	20	14
SMKN 1 Pangkalan Kuras	19	13
SMKN 1 Bunut	13	8
Total	156	108

### Research Variables

This study involves one dependent variable and three independent variables. The dependent variable is SMK Teacher Performance (Y), which reflects the effectiveness and efficiency of teachers in carrying out professional duties, including planning, implementing learning, and evaluating learning outcomes. The first independent variable is Principal Leadership ( $X_1$ ), which is the principal's ability to direct, motivate, and create a conducive work environment for teachers. The second independent variable is Work Motivation ( $X_2$ ), which includes internal and external drives that affect teacher performance, such as physiological needs, rewards, and a supportive work environment. The third independent variable is Availability of Practice Infrastructure ( $X_3$ ), which includes laboratory facilities, workshops, and supporting equipment for skills-based learning. All these variables were measured using questionnaires and observations.

### Data Collection Techniques and Instruments

This study used two data collection techniques, namely questionnaires and documentation. The questionnaire was used as the main instrument to measure the variables of Principal Leadership ( $X_1$ ), Work Motivation ( $X_2$ ), and Availability of Practice Infrastructure ( $X_3$ ). The questionnaire used is closed with a five-level Likert scale, which measures respondents' attitudes, beliefs, and perceptions of research variables. The Likert scale used consists of Strongly Agree (5), Agree (4), Neutral (3), Disagree (2), and Strongly Disagree (1).

In addition to the questionnaire, the documentation method was used to obtain secondary data, such as the number of teachers, school accreditation status, and vocational teacher performance. The instruments in this study were developed based on the established theoretical framework and tested for validity and reliability before being used in data collection.

Research instruments are tested for validity and reliability before use to ensure measurement reliability. The validity test is conducted to assess the extent to which the instrument can measure the intended concept, while the reliability test is used to evaluate the consistency of the measurement results.

The validity test was carried out with Pearson's Product Moment correlation using IBM SPSS Statistics 25, with valid criteria if  $r\text{-count} > r\text{-table}$  (0.361) at the 5% significance level. Validation was carried out with expert judgment by two experts, who provided feedback to improve the

instrument. The validity test results show that all statement items in the principal leadership questionnaire and the availability of practice infrastructure are valid, while in the questionnaire of work motivation and teacher performance, there is one invalid item each and must be deleted. The reliability test was conducted using the Cronbach's Alpha method, where the instrument is considered reliable if  $\alpha \geq 0.600$ . Reliability analysis was conducted using IBM SPSS Statistics 25, and the results showed that all research instruments had an acceptable level of reliability.

With the results of validity and reliability tests that meet the standards, this research instrument is considered suitable for use in data collection to measure the effect of principal leadership, work motivation, and the availability of practical infrastructure on the performance of SMK teachers in Pelalawan Regency. Data Analysis Technique

Data analysis in this study includes grouping data based on variables and categories of respondents, presenting data in tabular form, and processing data to answer research questions and test hypotheses. The hypothesis tested in this study is the effect of Principal Leadership ( $X_1$ ), Work Motivation ( $X_2$ ), and Availability of Practical Infrastructure ( $X_3$ ) on SMK Teacher Performance ( $Y$ ), both individually and simultaneously.

The hypothesis in this study is a temporary conjecture regarding the relationship between variables that needs to be tested empirically. According to Sugiyono (2015), hypotheses can be statistical if they relate to the relationship between samples and populations. Hypothesis testing was carried out using simple linear regression analysis to test the relationship of each independent variable to the dependent variable separately. Meanwhile, multiple regression analysis was used to test the simultaneous relationship between the three independent variables on teacher performance. This data analysis was conducted with the help of SPSS to ensure accuracy in testing the relationship between variables.

#### Simple Linear Regression Analysis

This simple linear regression analysis test is used to test the relationship between the independent variable ( $X$ ) and the dependent variable ( $Y$ ) using the equation formula:  $\hat{Y} = a + bX$

The description of the equation above is:

$Y$  = dependent variable

$a$  = price of  $Y$  when  $X = 0$  (constant)

$b$  = regression coefficient

$X$  = independent variable

Calculations to determine the strength of the relationship between the independent variable and the dependent variable can be calculated by calculating the correlation coefficient. This type of correlation can only be used in a straight line (linear) variable relationship using Pearson's product moment correlation.

#### Multiple Regression Analysis (3 predictors)

If there are two or more independent variables that act as changing predictor factors, multiple regression analysis is used to estimate the state of the dependent variable. The multiple linear regression equation with three predictors is shown below. according to Sugiono (2012: 283), namely:  $Y = a + b_1X_1 + b_2X_2 + b_3X_3$

Description

$a$  = coefficient

$b$  = variable

$X_1$  = independent variable 1

X2= independent variable 2

X3= independent variable 3

#### Simultaneous Testing (F Test)

In simultaneous testing, the dependent variable will be used to test the relationship between the two independent variables. The F test is a statistical test used in simultaneous testing. The F value from the calculation is then compared with the F table or F obtained using a risk or significance level of 5% and the degrees of freedom of the numerator and denominator, namely  $V1 = M$  and  $V2 = (n-m - 1)$  where the criteria used are if  $F_{hitung} \leq F_{tabel}$  then the data is accepted, meaning that there is no significant relationship between the independent variables together (simultaneously) with the dependent variable, and if  $F_{hitung} > F_{tabel}$  then the data is rejected, meaning that there is a significant relationship between the independent variables together (simultaneously) on the dependent variable.

#### Effective Contribution (SE)

In regression analysis, effective contribution (SE) is a metric that measures the contribution of the independent variable to the dependent variable. The total value of the coefficient of determination or R square ( $R^2$ ), equals the sum of the effective contributions of each independent variable. Use the following formula to get the amount of Effective Contribution (SE):  $SE(X)\% = \beta(X) \times \text{Correlation Coefficient} \times 100\%$ .

#### Relative Contribution (SR)

A metric known as relative contribution (SR) is used to show how much the predictor variables contribute to the regression sum of squares. Each independent variable contributes 100% or the same amount overall. Having regression and correlation analysis results is one of the requirements for obtaining SE and SR. Use the following formula to determine the amount of Relative Contribution (SR):  $SR(X)\% = (SE(X)\%) / R^2$ .

## RESULT AND DISCUSSION

The description of the analysis results describes the research data in the form of descriptive statistical analysis. This statistical analysis presents the results of hypothesis testing as a starting point for decision making. This descriptive presents data in the variables studied in the distribution table with calculations through the minimum (Min), maximum (Max), mean (M), median (Me), mode (Mo), standard deviation (SD), and criterion score (Cresswell, 2012).

Minimum is the smallest data value of the data. Maximum is the largest data value of the data. Mean (Creswell, 2012) is the total score divided by the number of scores. Median is the middle value of a set of data that has been arranged in order from smallest to largest. The mode is the data that appears frequently in the group. Standard deviation is a standard measure of deviation from the mean (Sugiyono, 2018) . The total score per variable is the maximum score of the scale multiplied by the number of question items multiplied by the number of respondents (Sugiyono, 2018) . The instrument measurement in this study uses a rating scale, for favorable items (positive value) ranging from 5 to 1, so that the data obtained is as in Table 2.

Table 2. Summary of Statistical Data Description

Statistics					
		Principal Leadership (X1)	Work Motivation (X2)	Availability of Infrastructure (X3)	SMK Teacher Performance (Y)
N	Valid	108	108	108	108
	Missing	0	0	0	0

Mean	73.45	64.19	67.14	68.14
Median	75.00	63.50	67.00	68.50
Mode	80	75	64	75
Std. Deviation	6.104	6.668	7.817	5.347
Variance	37.260	44.457	61.111	28.588
Minimum	47	46	44	58
Maximum	80	75	80	75
Sum	7933	6933	7251	7359
Criterion Score	8640	8100	8640	8100

The value of each research variable is calculated using the formula dividing the total score per research variable by the criterion score then multiplied by 100% or the value per variable 
$$= \frac{\text{Skor total per variabel}}{\text{Skor kriteria}} \times 100$$
 then categorized according to the qualifications of the questionnaire results per variable to make conclusions per variable.

The value of each question item can be calculated using the formula of the total score per question item from the respondent divided by the maximum score per question item multiplied by 100% or the value per question item 
$$= \frac{\text{Skor total per item pertanyaan}}{\text{Skor maksimal per item pertanyaan}} \times 100$$
, then categorized according to the qualifications of the questionnaire results per question item from the respondent to make conclusions per question item.

The qualification of values per variable and per item uses the assessment criteria (Arikunto, 2009), as shown in the following table:

Table 3. Percentage Score

Percentage of score obtained	Category
81 - 100 %	Very High
61 - 80 %	High
41 - 60 %	Simply
21 - 40 %	Low
0 - 20 %	Very Low

The explanation of the variables of Principal Leadership (X1), Work Motivation (X2), Availability of Practical Infrastructure (X3), and Vocational Teacher Performance (Y) in this study is as follows:

#### Principal Leadership (X1)

The variable Principal Leadership is measured using a 16-item questionnaire / statement with five alternative answers, namely strongly agree (SS), agree (S), neutral (N), disagree (TS) and strongly disagree (STS) with a gradation of the highest value of 5 and the lowest value of 1.

The results of the calculation of question items or statements of Principal Leadership obtained a maximum value of 80, a minimum value of 47, a mean of 73.45, a median of 75.00, a mode of 80, a variance of 37.260, and a standard deviation of 6.104.

Based on the data obtained, the total score of the Principal Leadership variable is 7933 and the criterion score of the Principal Leadership variable is 8640. Then the value of the Principal Leadership variable was analyzed using the percentage formula to determine the category, as follows:

$$Presentase = \frac{\text{Skor yang diperoleh}}{\text{Skor Maksimal}} \times 100 = \frac{7933}{8640} \times 100 = 91.82 \text{ which is categorized as very high.}$$

#### Work Motivation (X2)

The Work Motivation variable is measured using a 15-item questionnaire / statement with five alternative answers, namely strongly agree (SS), agree (S), neutral (N), disagree (TS) and strongly disagree (STS) with the highest value gradation of 5 and the lowest value of 1.

The results of the calculation of question items or statements of Work Motivation obtained a maximum value of 75, a minimum value of 46, a mean of 64.19, a median of 63.50, a mode of 75, a variance of 44.457, and a standard deviation of 6.668.

Based on the data obtained, the total score of the Work Motivation variable is 6933 and the criterion score of the Work Motivation variable is 8100. Then the value of the Work Motivation variable is analyzed using the percentage formula to determine the category, as follows:

$$Presentase = \frac{\text{Skor yang diperoleh}}{\text{Skor Maksimal}} \times 100 = \frac{6933}{8100} \times 100 = 85.59 \text{ which is categorized as very high.}$$

#### Availability of Practice Infrastructure (X3)

The variable availability of practical infrastructure is measured using a 16-item questionnaire with five alternative answers, namely strongly agree (SS), agree (S), neutral (N), disagree (TS) and strongly disagree (STS) with a gradation of the highest value of 5 and the lowest value of 1.

The results of the calculation of the question items or the Availability of Practice Infrastructure statement obtained a maximum value of 80, a minimum value of 44, a mean of 67.14, a median of 67.00, a mode of 64, a variance of 61,111, and a standard deviation of 7.817.

Based on the data obtained, the total score of the Practice Infrastructure Availability variable is 7251 and the criterion score of the Practice Infrastructure Availability variable is 8640. Then the variable value of the Availability of Practical Infrastructure Facilities is analyzed using the percentage formula to determine the category, as follows:

$$Presentase = \frac{\text{Skor yang diperoleh}}{\text{Skor Maksimal}} \times 100 = \frac{7251}{8640} \times 100 = 83.9 \text{ categorized as very high.}$$

#### SMK Teacher Performance (Y)

The variable SMK Teacher Performance is measured using a questionnaire of 15 questions/statements with five alternative answers, namely strongly agree (SS), agree (S), neutral (N), disagree (TS) and strongly disagree (STS) with a gradation of the highest score of 5 and the lowest score of 1.

The results of the calculation of question items or statements of SMK Teacher Performance obtained a maximum value of 75, a minimum value of 58, a mean of 68.14, a median of 68.50, a mode of 75, a variance of 28.588, and a standard deviation of 5.347.

Based on the data obtained, the total score of the SMK Teacher Performance variable is 7359 and the criterion score of the SMK Teacher Performance variable is 11760. Then the value of the SMK Teacher Performance variable is analyzed using the percentage formula to determine the category, as follows:

$$Presentase = \frac{\text{Skor yang diperoleh}}{\text{Skor Maksimal}} \times 100 = \frac{7359}{8100} \times 100 = 90.9 \text{ categorized as very high.}$$

### Hypothesis Test Results

Hypothesis testing was analyzed with the help of Excel and SPSS programs. Hypothesis testing uses simple regression techniques to determine the effect of each independent variable on the dependent variable and multiple regression analysis to determine the effect together and

multiple correlations. A summary of the results of testing the research hypothesis can be seen in Table.

Table 4. Partial Hypothesis Testing

Hypothesis	T-Count	Sig.	Description
X1 to Y	5.469	.000	There is an Influence
X2 to Y	2.214	.029	There is an Influence
X3 to Y	-0.090	.929	No Effect

Source: Primary Data 2025

Table 5. Simultaneous Hypothesis Testing

Hypothesis	F-Count	Sig.	Description
X1, X2, and X3 on Y	26.750	0,000	There is an Influence

Source: Primary data processed 2025

The explanation of the analysis results to determine the influence between each variable is as follows:

The Effect of Principal Leadership on the Performance of Vocational School Teachers

The first hypothesis formulation tested in this study is that there is an effect of Principal Leadership on the Performance of Vocational School Teachers in Pelalawan Regency .

The magnitude of the influence of the Principal Leadership variable on the Performance of SMK Teachers can be seen in the following table:

Table 6. The Effect of Principal Leadership on the Performance of Vocational School Teachers

Coefficients <sup>a</sup>					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	23.971	4.961		4.832	.000
Principal Leadership (X1)	.457	.084	.522	5.469	.000
1 Work Motivation (X2)	.171	.077	.213	2.214	.029
Availability of Infrastructure (X3)	-.006	.066	-.009	-.090	.929

a. Dependent Variable: SMK Teacher Performance (Y)

Source: Primary data processed 2025

The table above explains the partial hypothesis test of the effect of Principal Leadership on the Performance of SMK Teachers in Pelalawan Regency. Based on the significance value of the Coefficients Table, the significance value of the Principal Leadership variable is 0.000 < 0.05 , so it can be stated that Ho is rejected and Ha is accepted. This means that the Principal Leadership variable (X1) has a significant effect on the SMK Teacher Performance variable (Y).

The Effect of Work Motivation on Vocational Teacher Performance

The second hypothesis formulation tested in this study is that there is an effect of Work Motivation on the Performance of SMK Teachers in Pelalawan Regency. The magnitude of the influence of the Work Motivation variable on the Performance of SMK Teachers can be seen in the following table:

Table 7. Effect of Work Motivation on Vocational Teacher Performance

Model	Coefficients <sup>a</sup>				t	Sig.
	Unstandardized Coefficients		Standardized Coefficients			
	B	Std. Error	Beta			
(Constant)	23.971	4.961		4.832	.000	
Principal Leadership (X1)	.457	.084	.522	5.469	.000	
Work Motivation (X2)	.171	.077	.213	2.214	.029	
Availability of Infrastructure (X3)	-.006	.066	-.009	-.090	.929	

a. Dependent Variable: SMK Teacher Performance (Y)

Source: Primary data processed 2025

The table above explains the partial hypothesis test of the effect of Work Motivation on the Performance of SMK Teachers in Pelalawan Regency. Based on the significance value of the Coefficients Table, the significance value of the Work Motivation variable is  $0.029 < 0.05$ , so that it can be stated that  $H_0$  is rejected and  $H_a$  is accepted. This means that the Work Motivation variable (X2) has a significant effect on the SMK Teacher Performance variable (Y).

The Effect of the Availability of Practical Infrastructure on the Performance of Vocational School Teachers

The second hypothesis formulation tested in this study is that there is an effect of the Availability of Practical Infrastructure Facilities on the Performance of SMK Teachers in Pelalawan Regency. The magnitude of the influence of the variable Availability of Practical Infrastructure Facilities on the Performance of SMK Teachers can be seen in the following table:

Table 8. The Effect of the Availability of Practical Infrastructure on the Performance of SMK Teachers

Model	Coefficients <sup>a</sup>				t	Sig.
	Unstandardized Coefficients		Standardized Coefficients			
	B	Std. Error	Beta			
(Constant)	23.971	4.961		4.832	.000	
Principal Leadership (X1)	.457	.084	.522	5.469	.000	
1 Work Motivation (X2)	.171	.077	.213	2.214	.029	
Availability of Infrastructure (X3)	-.006	.066	-.009	-.090	.929	

a. Dependent Variable: SMK Teacher Performance (Y)

Source: Primary data processed 2025

The table above explains the partial hypothesis test of the effect of the availability of practical infrastructure on the performance of vocational school teachers in Pelalawan Regency. Based on the significance value of the Coefficients Table, the significance value of the Availability of Practical Infrastructure variable is  $0.929 > 0.05$ , so it can be stated that  $H_0$  is accepted and  $H_a$  is rejected. This means that the variable Availability of Practical Infrastructure Facilities (X3) does not have a significant effect on the Vocational Teacher Performance variable (Y).

The Effect of Principal Leadership, Work Motivation, and Availability of Practical Infrastructure on SMK Teacher Performance

The fourth hypothesis formulation tested in this study is that there is an influence of Principal Leadership, Work Motivation, and Availability of Practical Infrastructure on the Performance of Vocational School Teachers in Pelalawan Regency. Multiple linear regression analysis calculations were performed using the SPSS 25 program.

The influence of Principal Leadership, Work Motivation, and Availability of Practical Infrastructure on Vocational Teacher Performance can be seen in the following table:

The Effect of Principal Leadership, Work Motivation, and Availability of Practical Infrastructure on the Performance of Vocational School Teachers

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.660 <sup>a</sup>	.436	.419	4.07455

a. Predictors: (Constant), Availability of Infrastructure (X3), Principal Leadership (X1), Work Motivation (X2)

The R number of 0.660 proves that there is an influence between the dependent variable of SMK teacher performance with all the independent variables, namely principal leadership, work motivation, and the availability of practical infrastructure facilities together. The R Square number or the Coefficient of Determination is positive at 0.436 (derived from  $0.660 \times 0.660$ ). This means that the variation of the vocational teacher performance variable can be explained by the principal leadership variable, work motivation, and the availability of practical infrastructure together by 43.6%, while the remaining ( $100 - 43.6 = 56.4$ ) or 56.4% is explained by other factors.

The results of multiple linear regression coefficients of Principal Leadership, Work Motivation, and Availability of Practice Infrastructure on Vocational Teacher Performance are as follows:

Table 10: Regression Coefficient of Principal Leadership, Work Motivation, and Availability of Practical Infrastructure on Vocational Teacher Performance

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	23.971	4.961		4.832	.000

Principal Leadership (X1)	.457	.084	.522	5.469	.000
Work Motivation (X2)	.171	.077	.213	2.214	.029
Availability of Infrastructure (X3)	-.006	.066	-.009	-.090	.929

a. Dependent Variable: SMK Teacher Performance (Y)

The regression equation obtained based on the coefficients table is as follows:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3$$

$$Y = 23.971 + 0.457 X_1 + 0.171 X_2 + -0.006 X_3$$

a. The equation proves that the coefficient value of X1 is 0.457, which means that Principal Leadership (X1) increases by 1 point, then the Performance of SMK Teachers (Y) will increase by 0.457 points assuming X2 remains constant.

b. The X2 coefficient is 0.171, which means that if the value of Work Motivation (X2) increases by 1 point, the value increase in SMK Teacher Performance (Y) will increase by 0.171 assuming X1 is constant.

c. The coefficient of X3 is -0.006 which means that if the value of the Availability of Practical Infrastructure (X3) increases by 1 point, the value increase in the Performance of SMK Teachers (Y) will increase by -0.006 assuming X1 and X2 are constant.

The F-test results prove that the significance value is  $0.000 < 0.05$ . As for the F-count, it is known that the value of 26,750 is greater than the F-Table value of  $F(k; n-k) = F(3; 105)$ . The F-Count value of 26,750 is greater than the F-Table value at the 5% significance level using the formula  $F(k; n-k) = F(3; 105)$  with 108 samples, the F-Table value of 2.691 is obtained. This means that  $H_0$  is rejected and  $H_a$  is accepted, thus proving that variables X1, X2 and X3 simultaneously affect variable Y. Thus it can be concluded that the Principal's Leadership variable, Work Motivation, and the Availability of Practical Infrastructure variable simultaneously affect the Vocational Teacher Performance variable in Pelalawan Regency.

Effective contribution (SE)

To calculate the amount of Effective Contribution (SE) using the formula:  $SE(X)\% = \beta(X) \times \text{Correlation Coefficient} \times 100\%$

$$SE(X)\% = \beta(X) \times \text{Correlation Coefficient} \times 100\%$$

$$SE(X_1)\% = 0.522 \times 0.637 \times 100\% = 33.3\%$$

$$SE(X_2)\% = 0.213 \times 0.501 \times 100\% = 10.7\%$$

$$SE(X_3)\% = -0.009 \times 0.413 \times 100\% = -0.4\%$$

$$SE \text{ Total} = SE(X_1)\% + SE(X_2)\% + SE(X_3)\%$$

$$\text{Total SE} = 33.3\% + 10.7\% + -0.4\% = 43.6\%$$

Based on the results of the above calculations, it can be seen that the effective contribution (SE) of the Principal Leadership Variable (X1) to the performance of SMK teachers (Y) is 33.3%. While the effective contribution (SE) of the Work Motivation Variable (X2) to the performance of vocational teachers (Y) is 10.7%. While the effective contribution (SE) of the variable availability of practical infrastructure (X3) to the performance of vocational teachers (Y) is -0.4%. For the total effective contribution (SE) is 43.6% or equal to the coefficient of determination (Rsquared) of regression analysis, namely 43.6%.

Relative Contribution (SR)

To calculate the amount of Relative Contribution (SR) using the formula:  $SR(X)\% = (SE(X)\%) / R(2)$

$$SR(X1)\% = 33.3\% / 43.6 = 76\%$$

$$SR(X2)\% = 10.7\% / 43.6 = 25\%$$

$$SR(X3)\% = -0.4\% / 43.6 = -1\%$$

$$SR \text{ Total} = SR(X1)\% + SR(X2)\% + SR(X3)\%$$

$$SR \text{ Total} = 76\% + 25\% - 1\%$$

$$SR \text{ Total} = 100\%$$

Based on the results of the above calculations, it can be seen that the relative contribution (SR) of the Principal Leadership Variable (X1) to the performance of SMK teachers (Y) is 76%. While the relative contribution (SR) of the Work Motivation Variable (X2) to the performance of vocational teachers (Y) is 25%. While the relative contribution (SR) of the availability of practical infrastructure (X3) to the performance of vocational teachers (Y) is -1%. For the total relative contribution (SR) is 100% or equal to 1.

### The Effect of Principal Leadership on the Performance of Vocational School Teachers

The results of partial hypothesis testing on the effect of Principal Leadership on SMK Teacher Performance prove that in the Coefficients Table the significance value of the Principal Leadership variable is  $0.000 < 0.05$ , so it can be stated that  $H_0$  is rejected and  $H_a$  is accepted. This means that Principal Leadership has a significant effect on the Performance of State SMK Teachers in Pelalawan Regency. The results of this study are also in line with research findings of Herry et al (Herry et al., 2020), Nurani & Sarino (Nurani & Sarino, 2017), and Romadhon & MS (Romadhon & Ms, 2021) which emphasize the importance of leadership in creating a positive work environment and supporting teacher motivation and productivity.

In the leadership perspective, transformational and democratic leadership styles are two types that are widely discussed. Transformational leadership, with a focus on teacher development and empowerment, has been shown to improve teacher performance by 20.9% (Dammen et al., 2022). On the other hand, a democratic leadership style that involves teachers in the decision-making process, according to Solihin et al. (Solihin et al., 2021) and Jaya (Jaya, 2021), contributes greatly to teachers' job satisfaction, which has implications for increasing their motivation and performance. Therefore, choosing the right leadership style can be an effective strategy in improving the quality of teachers' work.

Work motivation is an important variable in the relationship between principal leadership and teacher performance. Research by Mariatie et al (Mariatie et al., 2021) and Hartawan (Hartawan, 2020) proved that principals who create a positive work climate and provide emotional support can significantly increase teacher motivation, which in turn has an impact on their performance. This confirms the importance of a leadership approach that focuses not only on administrative aspects but also includes motivational and emotional aspects.

In addition, academic supervision by school principals plays an important role in supporting teacher performance. Good supervision provides constructive feedback and helps teachers overcome challenges in the classroom. Nadeak (Nadeak, 2022) and Abidin (2021) found a significant relationship between principals' supervision and improved teacher performance. Thus, appropriate supervision strategies are necessary to ensure effective teacher professional development.

Compensation and rewards are another important aspect. Research proves that principals who provide fair compensation and rewards to outstanding teachers can increase their motivation and

performance. As explained by Fitriyanti et al. (Fitriyanti et al., 2022) , Herry et al. (Herry et al., 2020) , and Romadhon & MS (Romadhon & Ms, 2021) , appropriate rewards create a positive work culture that encourages teachers to achieve optimal work results.

A conducive organizational culture is also a determining factor in supporting teacher performance. Timor (Timor, 2018) and Adzkiya (Adzkiya, 2021) found that an inclusive, collaborative and respectful organizational culture among colleagues increased teacher engagement and motivation. Therefore, principals need to focus on developing a positive organizational culture as part of their leadership strategy.

The context and dynamics of each school also influence leadership effectiveness. Principals who are flexible and responsive to teachers' challenges and needs tend to be more successful in improving teacher performance (Novita & Kale, 2023; Shahab et al., 2023) . This proves the need for principals to continuously develop their leadership skills to align with the specific needs of the school.

In conclusion, the principal's leadership has a significant influence on teacher performance in vocational schools. Through the application of appropriate leadership styles, effective supervision, motivational support, fair rewards, and the development of organizational culture, principals can create a work environment that supports the achievement of optimal teacher performance. This research underscores the need for further exploration to understand the strategic role of school principals in improving the overall quality of education.

#### The Effect of Work Motivation on Vocational Teacher Performance

The results of partial hypothesis testing of the effect of Work Motivation on the Performance of State SMK Teachers in Pelalawan Regency prove that in the Coefficients Table, the significance value of the Work Motivation variable is  $0.029 < 0.05$ , so it can be stated that  $H_0$  is rejected and  $H_a$  is accepted. This means that Work Motivation has a significant effect on the Performance of SMK Teachers in Pelalawan Regency. The results of this study are in line with the research of Iba et al. (Iba et al., 2021) and Rahmadona et al. (Rahmadona et al., 2021) which states that work motivation acts as the main driver in achieving optimal performance among educators.

Work motivation can be divided into intrinsic and extrinsic motivation, both of which have a significant impact on teacher performance. Intrinsic motivations, such as personal satisfaction and a sense of accomplishment, encourage teachers to carry out tasks with high commitment, while extrinsic motivations, such as rewards and incentives, provide additional encouragement from outside. Research by Rahmadona et al. (Rahmadona et al., 2021) proves that teachers who have intrinsic motivation are more passionate about teaching, while extrinsic motivation strengthens the sustainability of good performance Widayati et al. (2020) . Thus, the combination of both can maximize the quality of SMK teachers' performance.

A positive work environment is also one of the important factors supporting teachers' work motivation. Adequate facilities, harmonious working relationships, and collegial support create a conducive work atmosphere. Based on research Kusmaniar (2024), Ramadani & Alfian (2023) and Wicaksono, (2023) prove that a supportive work environment can significantly increase teachers' work motivation, which in turn has a positive impact on their performance. Therefore, school management needs to create and maintain a pleasant work environment to improve teacher performance in a sustainable manner.

In addition, the principal's role in providing support and supervision cannot be ignored. Principals who are able to provide rewards, feedback and recognition of teachers' achievements can increase their work motivation. Studies conducted by Fitriyanti et al. (2022) and Solihin et al. (2021) prove that a supportive and empowering leadership style can create high self-confidence among teachers, thus improving their performance. Therefore, effective principal leadership is an important element in supporting the success of SMK teachers.

Equally important, a fair compensation system is an additional boost to teachers' work motivation. Salaries, allowances and incentives that are in line with their contributions have been shown to encourage higher morale. Research by Ramadani & Alfian (2023) and Suwondo, (2023) found that teachers who felt they were properly compensated were more motivated to perform their duties well. Thus, evaluation and transparency in compensation should be a major concern for school management.

Training and professional development also play an important role in increasing work motivation. Teachers who get the opportunity to improve their skills through training feel more confident and motivated. Research by Musrinih (2023) and Novita & Kale (2023) proves that relevant training not only improves competence, but also motivates teachers to give their best in the learning process. Therefore, schools need to provide development programs that suit teachers' needs.

High teacher motivation not only affects their performance, but also impacts student learning outcomes. Motivated teachers tend to be more innovative and creative in teaching, which ultimately increases student engagement in the learning process. Studies conducted by Anam, (2023) and Ismayati (2023) found a positive relationship between teacher work motivation and student achievement, proving that improving teacher work motivation can improve the overall quality of education.

However, challenges in improving work motivation remain. High workloads, excessive administrative tasks and lack of management support are often obstacles. Research by Herlina (2023) and Rantau & Agustriyana (2023) proved that uncontrolled workload can decrease teachers' work motivation, which negatively affects their performance. Therefore, it is important for school management to manage workload effectively and provide the support needed.

Overall, work motivation has a significant influence on SMK teachers' performance. Factors such as a positive work environment, principal support, fair compensation, and training and professional development can effectively improve teachers' work motivation. Thus, efforts to increase work motivation will not only improve teacher performance, but also the overall quality of education in SMKs.

### The Effect of Practice Infrastructure Availability on Vocational Teacher Performance

The results of the partial hypothesis testing of the effect of the Availability of Practical Infrastructure Facilities on the Performance of SMK Teachers prove that in the Coefficients Table the significance value of the Availability of Practical Infrastructure variable is  $0.929 > 0.05$ , so it can be stated that  $H_0$  is accepted and  $H_a$  is rejected. This means that the availability of practical infrastructure facilities does not have a significant effect on the performance of state vocational school teachers in Pelalawan Regency. The results of this study indicate that although practical infrastructure is available, it does not directly contribute to improving teacher performance. Previous research from Ardiana (2017) and D. Handayani (2019) also proved similar results, where the availability of infrastructure facilities is not always directly proportional to teacher performance.

Thus, further exploration of other factors that can significantly affect teacher performance is needed.

One of the main reasons the availability of infrastructure facilities does not have a significant effect on teacher performance can be explained through the dominance of other more decisive factors, such as work motivation, pedagogical competence, and managerial support from school principals. Previous research D. Handayani (2019), Aini et al. (2022) and Nuraeni (2023) proved that teachers' work motivation has a more significant influence on their performance than material factors. Motivated teachers are often able to overcome infrastructure limitations. Thus, attention to intrinsic factors and the work environment is very important in an effort to improve teacher performance.

In addition, the quality of the infrastructure is often more decisive than its mere availability. Inadequate or unsuitable facilities for practicum needs can be an obstacle, even if they are physically available. Research conducted by Hartinem, (2024), and Iskandar et al. (2024) states that the quality of practical tools and materials has more influence on student learning outcomes and teacher performance than the number or presence of these facilities. Therefore, school management needs to emphasize the quality of facilities that are relevant to learning needs.

Work environment and organizational culture factors also play an important role. A positive work environment and supportive organizational culture have been shown to improve teacher performance. Teachers who work in a collaborative and supportive environment tend to be more productive and committed to their duties, regardless of limited infrastructure (Audiana & Firdaus, 2024; Handika, 2024). Thus, creating a conducive work environment is one of the important strategies in supporting teacher performance.

The role of the principal as a leader cannot be ignored. Effective principal leadership, through good supervision, constructive feedback and appreciation of teacher performance, can overcome various challenges, including limited infrastructure. Research by Nuraeni (2023) and Wijaya et al. (2022) supports that principals who support and empower teachers can significantly improve their motivation and performance. Therefore, principals' leadership development strategies should be a priority.

In conclusion, although the availability of practical infrastructure in SMKs does not prove a significant influence on teacher performance, the role of other factors such as work motivation, quality of facilities, principal support, and work environment is much more important in improving teacher performance. A holistic approach that considers these various factors is needed to create effective school management strategies. Further research needs to be conducted to identify the complex relationships between these factors in the context of vocational education.

#### The Effect of the Availability of Practical Infrastructure, Work Motivation, and the Availability of Practical Infrastructure Together on SMK Teacher Performance

The test results on the Model Summary prove that the R value is 0.660, proving that there is an influence between the vocational teacher performance variable and all independent variables, namely the principal's leadership, work motivation, and the availability of practical infrastructure facilities together. Furthermore, the F-test results prove that the significance value is  $0.000 < 0.05$  and the F-count value is  $26,750 > F\text{-Table } 2,691$ . This means that Principal Leadership, Work Motivation, and Availability of Practical Infrastructure simultaneously affect the Performance of SMK Teachers in Pelalawan Regency. The results of this study indicate that the combination of principal leadership, work motivation, and practice infrastructure plays a very important role in

improving teacher performance in Pelalawan Regency (Efendi & Hardiyanto, 2021; Iba et al., 2021; Jufrizen, 2021) .

Principal leadership is a key element that contributes directly to teacher performance. Principals who have a democratic leadership style not only create a collaborative working atmosphere, but also encourage active participation of teachers in decision-making. This leadership style gives teachers a greater sense of ownership and responsibility, thus increasing their work motivation (Dawam et al., 2022; Rahmadona et al., 2021) . In addition, effective principals provide moral support, constructive feedback, and appreciation for teachers' performance. Research proves that such support significantly influences teacher performance by creating higher self-confidence and job satisfaction (Fitriyanti et al., 2022; Hidayat et al., 2022) . In practice, good principals also have the ability to read teachers' needs and provide training or guidance according to individual needs. This proves that inclusive and adaptive leadership can be one of the strategic solutions to improve teacher performance in SMK.

Work motivation also plays a crucial role in determining the level of teacher performance. Highly motivated teachers tend to be more enthusiastic in carrying out tasks, more consistent in achieving targets, and more innovative in solving learning challenges. Research conducted by Jaya, (2021) and (Marlinda et al., 2024) proved a significant positive relationship between work motivation and teacher performance. Work motivation can be influenced by various factors, including the rewards given by the principal, opportunities for professional development, and a conducive work environment. Effective motivation-boosting strategies, such as performance-based incentives, ongoing training, and competency development programs, have been shown to increase teacher engagement in the education process (Fahmi et al., 2021; Marhadi et al., 2024; Wicaksono, 2023) Therefore, it is important for school principals to pay attention to the motivational needs of teachers and create policies that support their welfare, both materially and non-materially.

The availability of practical infrastructure is also an important pillar in supporting teacher performance. Adequate infrastructure can increase the effectiveness of learning by providing facilities that support teaching and learning activities. However, research Arka Deva Al Asyraf & Agustina Widodo (2024) and Azizatussaadah (2024) and Hamidah & Supardi (2024) proves that its effect on teacher performance is not as strong as principal leadership and work motivation. This is because the quality of infrastructure is also a determining factor; inadequate facilities can hinder the smooth learning process, while facilities that are designed according to needs can provide optimal benefits. For example, well-equipped and functional laboratories in SMK can improve students' practical skills as well as facilitate teachers in integrating theory with practice (Ichlasurohmah et al., 2023; Zulkarnaen et al., 2020) . Therefore, it is important to ensure that the available infrastructure is not only sufficient in quantity, but also meets quality standards relevant to the needs of vocational education.

The multiple regression analysis used in this study also proved that the three variables do not stand alone, but rather influence each other. For example, principals who have the ability to lead effectively can create a positive working climate, which in turn increases teachers' work motivation. High work motivation then influences how teachers utilize the available infrastructure to achieve better teaching outcomes. Previous research by Ahyari & Marnisah (2023), Musrinih (2023), and Safrizal et al. (2024) confirms that the combination of principal leadership and work motivation has both a direct and indirect influence on teacher performance, which in turn impacts on the overall quality of learning. Therefore, a holistic and synergistic approach is needed to improve teacher performance, especially in vocational education.

In addition to these three main variables, this study also proved the importance of considering other external factors, such as school culture and community support. A positive school culture, for example, can strengthen teachers' work motivation by creating a sense of community and collective support. Support from the community can also provide the moral and material boost needed to improve teacher performance (N. Handayani et al., 2023; Ichtiarini et al., 2023). Therefore, principals need to create strategies that not only focus on internal development, but also establish strong relationships with external stakeholders.

In conclusion, this study proves that the principal's leadership, work motivation, and the availability of practical infrastructure simultaneously have a significant influence on teacher performance in Pelalawan Regency vocational schools. Principals who apply an inclusive leadership style, create a conducive work environment, and ensure the availability of adequate infrastructure can significantly improve teacher performance. Further research is recommended to explore the interaction between these three variables and other factors, such as educational technology and government policies, to come up with more comprehensive solutions to improve teacher performance.

## CONCLUSION

Based on the results of the study, it can be concluded that Principal Leadership and Work Motivation have a significant influence on the Performance of State SMK Teachers in Pelalawan Regency, while the Availability of Practical Infrastructure has no significant effect on teacher performance. Partially, the effect of Principal Leadership on SMK Teacher Performance is proven significant with a significance value of  $0.000 < 0.05$ , so the alternative hypothesis ( $H_a$ ) is accepted. This shows that effective leadership from school principals can improve teachers' motivation, discipline, and performance in carrying out their duties. Similarly, Work Motivation has a significant effect on SMK Teacher Performance, with a significance value of  $0.029 < 0.05$ . Teachers who have high motivation tend to be more disciplined, enthusiastic in teaching, and able to face educational challenges better.

In contrast, the availability of practice infrastructure does not have a significant effect on the performance of vocational teachers, with a significance value of  $0.929 > 0.05$ . This result indicates that although practice facilities are available, their existence does not directly contribute to improving teacher performance. Possibly, other factors such as facility utilization, pedagogical skills, and managerial support play a greater role in determining teacher performance than just the availability of practice facilities.

The results of the simultaneous test (F-test) show that the variables of Principal Leadership, Work Motivation, and Availability of Practical Infrastructure jointly affect the Performance of SMK Teachers, with a significance value of  $0.000 < 0.05$  and F-count  $26.750 > F$ -table  $2.691$ . Overall, these three variables provide an effective contribution of 43.6% to the performance of vocational teachers, with a relative contribution reaching 100%, which means there are still other factors outside this study that also affect teacher performance.

The research conclusion of this study confirms that leadership and motivation factors have a dominant role in improving the performance of SMK teachers. In the context of education management, strengthening principals' leadership and increasing teachers' motivation through training, rewards and a conducive working environment are more effective strategies than simply

providing facilities. Therefore, education policy should focus more on developing the leadership capacity of school principals and improving the welfare and motivation of teachers, which will ultimately have an impact on improving the overall quality of education. In addition, the results of this study can also serve as a basis for future research to explore other factors that contribute to teacher performance, such as pedagogical competence, organizational culture and school community support. This is important to provide a more comprehensive picture of efforts to improve teacher professionalism and the effectiveness of the education system at the SMK level.

### AUTHORS' CONTRIBUTION

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.

Author 2: Conceptualization; Data curation; In-vestigation.

Author 3: Data curation; Investigation.

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