

Impact of Work Environment, Discipline, and Motivation on Honorary Staff Performance at Surabaya Maritime Polytechnic

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ABSTRACT

Purpose: This study aims to analyze the influence of work environment, work discipline, and work motivation on the performance of Honorary Staff at Surabaya Maritime Polytechnic. It examines the extent to which these factors affect performance individually and collectively.

Design/methodology/approach: This research employs a quantitative approach using a survey method. The study population consists of 100 Honorary Staff at Surabaya Maritime Polytechnic, with a sample of 80 individuals selected using the Slovin formula at a 5% significance level. The sampling technique applied is simple random sampling. Data were collected through questionnaires and analyzed using multiple linear regression.

Findings: Partial tests reveal that the work environment does not significantly affect employee performance, whereas work discipline and work motivation have a positive and significant impact on performance. Simultaneous tests indicate that work environment, work discipline, and work motivation collectively have a significant influence on employee performance.

Research limitations/implications: This study is limited to a single institution, making it less generalizable to other sectors or organizations. Additionally, it only considers three independent variables, leaving other potential performance-influencing factors unanalyzed.

Practical implications: The findings highlight the importance of work discipline and motivation in enhancing employee performance. Although the work environment does not have a direct impact, it may still play a role when interacting with other variables.

Originality/value: This research contributes to understanding the key factors influencing the performance of Honorary Staff in the maritime education sector, an area that remains underexplored.

Paper type: Research paper.

Keyword: *Work Environment, Work Discipline, Work Motivation, Employee Performance*

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I. INTRODUCTION

The competition between businesses is growing more intense and forceful in the modern era of globalization. Human resources that are competitive and qualified might show that a business can compete with others. The advancement of the business will be impacted by effective human resource management. Employee performance indicates the quality of the company's human resources, and this is a critical first step in accomplishing corporate objectives. Employee performance has a significant role in the growth of organizations in the public service sector and government agencies. One such institution is Surabaya Maritime Polytechnic, which works under the Ministry of Transportation. Employee performance can influence both the number of cadets enrolling at Surabaya Maritime Polytechnic and the revenue generated by the institution. The level of interest among prospective students in

attending Surabaya Maritime Polytechnic serves as an indicator of how employee performance impacts the institution's overall growth and success. According to a survey conducted by the researchers, performance appraisal data from the last three years at Surabaya Maritime Polytechnic were obtained, as detailed below:

Table 1. Employee Performance Appraisal Data for 2021-2023

Year	Number of cadets enrolled	Percentage of BLU Income to Operating Interest
2021	1.974	79,68%
2022	1.828	61,79%
2023	1.837	60,25%

The aforementioned chart shows that, over the previous three years, 1,974 cadets enrolled in 2021; 1,828 registrants in 2022; and 1,837 cadets registered in 2023. According to the data on cadet registration for the previous three years, Surabaya Maritime Polytechnic has seen a decline in cadet enrolment, with just a minor gain in 2023. Similarly, the percentage of BLU revenue that went toward operations was 79.68% in 2021; 61.79% in 2022; and 60.25% in 2023. In the data on the income percentage during the previous three years that it has similarly declined. The researcher concluded that the issue was brought on by a decline in employee performance because both the number of registrants and the proportion of BLU income decreased. Several factors, such as the work environment, work discipline, and work motivation, could affect employee performance at Surabaya Maritime Polytechnic. In order to analyze employee performance, further studies can be carried out concerning the work environment, work discipline, and work motivation.

II. METHODS

This study employs a quantitative research method using a survey approach. According to Sahir (2021), quantitative research involves processing data through statistical tools, resulting in numerical data and findings. This approach emphasizes objective results, with data collected through questionnaires and evaluated for validity and reliability. Sugiyono (2010), as cited in Hartini et al. (2019), defines the object of research as an issue, problem, or topic examined in social research. In this study, the objects are the work environment, work discipline, and work motivation at Surabaya Maritime Polytechnic, which are analyzed to assess their impact on the performance of Honorary Staff at the institution.

A. Population and Sample

According to Sugiyono (2010), a population is a general group of objects or subjects with specific qualities and characteristics determined by researchers for study and conclusion-drawing. In this study, the population consisted of all Honorary Staff at Surabaya Maritime Polytechnic, totaling 100 individuals. Sample define as a subset of subjects or objects that represent the population. Sampling must align with the qualities and characteristics of the population (Hermawan, 2019). The number of samples in this study was determined using the Slovin formula with a 5% significance level. According to Riyanto and Putera (2022), the Slovin formula for sampling can be expressed as follows:

$$n = \frac{N}{1 + Ne^2}$$

Description:

n = Number of Samples

N = Total Population

e = Error rate in sampling

Given a population of 100 Honorary Staff at Surabaya Maritime Polytechnic, the calculation to determine the appropriate number of samples to be included in this study is outlined as follows:

$$\begin{aligned}
 n &= \frac{N}{1 + Ne} \\
 n &= \frac{100}{1 + (0, 25)} \\
 n &= \frac{100}{1, 25} \\
 n &= 80
 \end{aligned}$$

After performing the calculations using the Slovin formula with a significance level of 0.05 (5%), it was determined that the appropriate number of samples to be included in this study consisted of 80 Honorary Staff from Surabaya Maritime Polytechnic. This sample size was selected to ensure the reliability and representativeness of the data collected for the research analysis.

B. Data Collection Technique

The data collection technique represents a crucial component of the research process, as it significantly influences the quality and validity of the results obtained (Nizamuddin et al., 2021). In this study, the data collection process involved the use of primary data obtained through the distribution of questionnaires to the respondents. Additionally, the documentation method was employed to gather secondary data, including records on the number of cadet registrants and data reflecting the percentage of BLU (Public Service Agency) revenue compared to operating costs over the past three years, specifically for 2021, 2022, and 2023. These combined methods ensured a comprehensive and robust dataset for analysis.

C. Data Analysis Technique

The data analysis technique is a critical process that involves transforming raw data into meaningful and insightful information, which is essential for drawing conclusions and making informed decisions in research. In this context, the data analysis methods used in research are typically categorized into two main types: quantitative and qualitative data analysis. Each approach serves a different purpose and is selected based on the nature of the data and the research objectives. Quantitative data analysis focuses on numerical data and statistical methods, while qualitative data analysis deals with non-numerical data and seeks to identify patterns, themes, or concepts. According to Wahyuningrum (2022), the effectiveness of these techniques lies in their ability to systematically process and interpret data, ultimately contributing to the generation of reliable and valid results that support the research findings.

D. Testing of Research Instruments

1. Validity Test

An instrument is considered valid when it effectively measures the intended variables and consistently collects data that aligns with the objectives of the study. Validity ensures that the instrument provides accurate and reliable results, reflecting the true characteristics of the variables under investigation. The determination of an instrument's validity is based on specific criteria, which guide the decision-making process as follows:

1. If $r \text{ count} > r \text{ table}$, then the question is declared valid;
2. If $r \text{ count} < r \text{ table}$ then the statement is declared invalid;
3. If $r \text{ count}$ can be seen in the corrected item-total correlation column (Firdaus, 2021).

2. Reliability Test

Reliability refers to a measurement tool's degree of trustworthiness, dependability, or consistency in producing stable and consistent results. It indicates the extent to which the results of a measurement can be relied upon to reflect the characteristics being measured accurately. According to Firdaus (2021), a measurement can be considered reliable if, upon repeated application to the same subject under similar conditions, it consistently produces relatively similar results. This demonstrates good measurement consistency and ensures that the data obtained are not significantly influenced by external factors or random errors. Consequently, a construct or variable is deemed reliable when it consistently yields dependable outcomes across multiple iterations of testing.

3. Classical Assumption Test

a. Normality Test

The normality test is conducted to assess whether the residuals or the differences between observed and predicted values, in a given dataset follow a normal distribution. This test is crucial because the assumption of normality is fundamental to many statistical methods, particularly in regression analysis and hypothesis testing.

If the residuals are normally distributed, it suggests that the data fits well with the assumptions underlying these methods. However, in cases where the data distribution deviates from normality, as in this study, the distribution may exhibit characteristics such as skewness or the presence of outliers. These deviations can occur due to extreme values or anomalies within the data, which may indicate that the data does not follow a normal distribution, as highlighted by Firdaus (2021). Thus, the presence of such extreme values can complicate the analysis, as non-normal data may violate the assumptions of certain statistical techniques.

b. Multicollinearity Test

This test aims to examine whether there is a strong correlation between the independent variables in the linear regression model. It is used to detect the presence of multicollinearity by assessing the Variance Inflation Factor (VIF) value for each independent variable for the dependent variable. The decision rules for determining multicollinearity are as follows:

1. $VIF > 5$, then it is suspected to have multicollinearity problems
2. $VIF < 5$, then there is no multicollinearity
3. Tolerance < 0.1 , then it is suspected that there is a multicollinearity problem
4. Tolerance > 0.1 , then there is no multicollinearity (Firdaus, 2021)

c. Heteroscedasticity Test

This test is designed to determine whether there is an unequal variance of residuals across different observations in a regression model, a phenomenon known as heteroscedasticity. Heteroscedasticity occurs when the variability of the errors or residuals changes as a function of the independent variable(s), which can undermine the reliability and efficiency of regression estimates. To identify the presence of such symptoms, this study employs a statistical method known as the Glejser test. By using this test, the study aims to assess whether the variance of the residuals is constant across all levels of the independent variables or if it varies systematically, potentially indicating heteroscedasticity (Firdaus, 2021). The detection of heteroscedasticity is important because it affects the assumptions of ordinary least squares regression, and addressing it ensures the accuracy of the model's predictions and the validity of the statistical inferences made.

d. Autocorrelation Test

The autocorrelation test is performed to determine whether there is a correlation between the error terms, or residuals, in a regression model across different periods. Specifically, it tests for a correlation between the confounding errors at period t and the errors at the previous period, $t-1$. The presence of such a correlation suggests that the errors are not independent of each other, which is a violation of one of the key assumptions underlying regression analysis. When autocorrelation is present, it indicates that the model might not be adequately capturing the relationships between the variables, potentially leading to biased or inefficient estimates. One of the most widely used methods for testing autocorrelation is the Durbin-Watson (DW) statistic, which provides a numerical value indicating the degree of autocorrelation in the residuals. A DW value close to 2 suggests no autocorrelation, while values significantly lower or higher than 2 signal the presence of positive or negative autocorrelation, respectively. This test is crucial for ensuring the validity of regression models, as autocorrelation can affect the accuracy of statistical inferences, leading to misleading conclusions (Firdaus, 2021).

4. Multiple Linear Regression Analysis

According to Sahir (2021), multiple regression is a statistical analysis method that involves the relationship between more than two variables, including two or more independent variables and one dependent variable. This technique is widely used to understand the impact of multiple factors on a single outcome, allowing researchers to assess how each independent variable contributes to changes in the dependent variable while controlling for the influence of other variables. By incorporating multiple predictors, multiple regression enables a more comprehensive analysis of complex relationships within the data. The formula for the multiple regression equation, which represents the mathematical relationship between the independent variables and the dependent variable, can be expressed as follows:

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

Description:

Y	=	Dependent Variable
X_1, X_2, X_3	=	Independent Variable
A	=	Constant
b_1, b_2, b_3	=	Regression Coefficients
e	=	Confounding Variables

5. Hypothesis Test

a. Test of Coefficient of Determination (R^2)

According to Ghazali (2018), the coefficient of determination (R^2) serves as a critical metric in assessing the explanatory power of a regression model. Essentially, it measures the extent to which the model can explain the variation in the dependent variable based on the independent variables included in the analysis. In other words, R^2 indicates how well the independent variables collectively account for the observed changes in the dependent variable. The value of R^2 ranges from zero to one, where a value closer to one suggests that the model explains a high proportion of the variance in the dependent variable, while a value closer to zero implies that the model does not provide a strong explanation of the variation. Therefore, the coefficient of determination is an essential measure of model fit and is frequently used to evaluate the effectiveness of regression models in predicting or explaining outcomes.

b. T-Test (Partial Test)

According to Mulyono (2018), the t-test is used to determine whether the independent variables have a significant effect on the dependent variable when considered individually. This test helps assess whether each independent variable contributes meaningfully to explaining the variation in the dependent variable. The validity of the hypothesis is determined based on the following conditions:

1. Rejecting the null hypothesis (H_0) and accepting the alternative hypothesis (H_a) occurs if the t-count is greater than the t-table value, or if the t-significance (t-sig) is less than the significance level (α). The rejection of H_0 indicates that the independent variable has a significant effect on the dependent variable under study.
2. Accepting the null hypothesis (H_0) and rejecting the alternative hypothesis (H_a) happens if the t-count is less than the t-table value, or if the t-significance (t-sig) is greater than the significance level (α). Acceptance of H_0 suggests that the independent variable does not have a significant impact on the dependent variable being studied.

c. F Test (Simultaneous)

According to Mulyono (2018), the F test is a statistical method used to assess whether the independent variables, when considered together, have a significant effect on the dependent variable in a regression model. This test evaluates the overall fit of the model and tests the joint significance of all the predictors included in the model. By calculating the F-statistic, we can determine if the independent variables, in combination, explain a significant portion of the variance in the dependent variable. The results of the F test are then compared to a critical value obtained based on a risk level, or significance level, typically set at 5%. This comparison is essential in deciding whether the independent variables as a group significantly contribute to explaining the variation in the dependent variable. The decision criteria for interpreting the F test results are as follows:

The null hypothesis (H_0) is rejected if the F-count is greater than the F-table value or if the significance value (sig) is less than the significance level (α) of 0.05. In this case, rejecting H_0 indicates that the independent variables, when considered together, have a statistically significant effect on the dependent variable. Conversely, the alternative hypothesis (H_a) is accepted if the F-count is less than the F-table value or if the significance value (sig) is greater than the significance level (α) of 0.05. This would suggest that the independent variables do not collectively have a significant impact on the dependent variable.

III. RESULTS AND DISCUSSION

A. Research Results

Before the questionnaire was administered to the research sample, a pilot test was conducted to determine whether the research instrument could effectively measure the research variables. This trial included validity and reliability tests.

1. Validity and Reliability Test Results

a. Validity Test

The results of the validity test for the Employee Performance variable are presented in the table below. To calculate the value of the critical r (r-table), the formula $df = (N-2)$ is used, where df represents the degrees of freedom and N is the sample size. In this study, there were 80 samples, so the df value is 78. Once the df value is determined, it refers to the r-table to find the critical value at a 5% significance level (0.05) for a two-tailed test. According to the table, the r-table value for 80 samples with a df of 78 and a 5% significance level is 0.2199, which rounds to 0.220 (as seen in the r-distribution table).

Table 2 Validity Test Results

Variables	Indicator	corrected item-total correlation	R Table	Description
	X1.1	0,545	0,220	Valid
	X1.2	0,649	0,220	Valid
	X1.3	0,560	0,220	Valid
	X1.4	0,660	0,220	Valid
	X1.5	0,363	0,220	Valid
	X1.6	0,393	0,220	Valid
Work Environment (X1)	X1.7	0,595	0,220	Valid
	X1.8	0,688	0,220	Valid
	X1.9	0,697	0,220	Valid
	X1.10	0,713	0,220	Valid
	X1.11	0,373	0,220	Valid
	X1.12	0,381	0,220	Valid
Work Discipline (X2)	X2.1	0,724	0,220	Valid
	X2.2	0,752	0,220	Valid
	X2.3	0,688	0,220	Valid
	X2.4	0,713	0,220	Valid
	X2.5	0,752	0,220	Valid
	X2.6	0,745	0,220	Valid
	X2.7	0,841	0,220	Valid
	X2.8	0,785	0,220	Valid
Work Motivation (X3)	X3.1	0,469	0,220	Valid

Variables	Indicator	corrected item-total correlation	R Table	Description
	X3.2	0,529	0,220	Valid
	X3.3	0,685	0,220	Valid
	X3.4	0,576	0,220	Valid
	X3.5	0,654	0,220	Valid
	X3.6	0,588	0,220	Valid
	X3.7	0,681	0,220	Valid
	X3.8	0,644	0,220	Valid
	X3.9	0,500	0,220	Valid
	X3.10	0,698	0,220	Valid
Employee Performance (Y)	Y.1	0,719	0,220	Valid
	Y.2	0,601	0,220	Valid
	Y.3	0,669	0,220	Valid
	Y.4	0,652	0,220	Valid
	Y.5	0,664	0,220	Valid
	Y.6	0,716	0,220	Valid
	Y.7	0,600	0,220	Valid
	Y.8	0,369	0,220	Valid
	Y.9	0,610	0,220	Valid
	Y.10	0,582	0,220	Valid

Based on the results of the validity test calculation presented in Table 3.1 above, it can be concluded that all the statement items associated with the research variables exhibit a Pearson correlation significance that is greater than the corresponding value from the r table, which is 0.220. This means that the calculated r-value (r count) for each statement item exceeds the critical r-value from the table (r table), indicating that the relationships between the variables and their corresponding items are statistically significant. As a result, it can be confidently concluded

that all of the statement items are valid and can be reliably used as instruments for further research, ensuring their appropriateness for measuring the intended variables in subsequent studies.

b. Reliability Test Results

In this study, a Reliability Test was conducted to assess whether the questionnaire provided to the respondents could be deemed reliable and consistent over time. The primary criterion for determining reliability in this context is the Cronbach's alpha value, which is a statistical measure used to evaluate the internal consistency of the questionnaire items. For the questionnaire to be considered reliable, the Cronbach's alpha value must exceed 0.6, which is equivalent to 60%, indicating a moderate to strong level of internal consistency. To carry out this Reliability Test, the SPSS Statistics version 26 application was utilized, as it is a widely recognized tool for conducting such analyses. The test was performed to ensure that the individual items of the questionnaire align well with each other and effectively measured the intended variables without significant errors or inconsistencies. The following section presents the results of the Reliability Test that were obtained, providing insights into the overall reliability of the questionnaire used in this study.

Table 3 Reliability Test Results

Question Item	Cronbach's alpha	Description
Work Environment (X1)	0,785	<i>Reliable</i>
Work Discipline (X2)	0,884	<i>Reliable</i>
Work motivation (X3)	0,796	<i>Reliable</i>
Employee Performance (Y)	0,806	<i>Reliable</i>

Based on the Reliability Test results presented in Table 3.2 above, it can be conclusively stated that all of the variables examined in this study—namely, Work Environment, Work Discipline, Work Motivation, and Employee Performance—demonstrate a sufficient level of reliability and can therefore be considered consistent and dependable. This conclusion is drawn from the Cronbach's alpha values, which are used to assess the internal consistency of each variable. For each of the aforementioned variables, the Cronbach's alpha value exceeds the threshold of 0.6, which is the minimum standard required to indicate an acceptable level of reliability. Specifically, these values suggest that the questionnaire items associated with each variable are strongly correlated, meaning they consistently measure the intended constructs without significant discrepancies or errors. As such, the reliability of these variables has been confirmed, ensuring that they can be confidently used in further analyses and contribute to the overall validity of the study's findings.

2. Classical Assumption Test Results

The classical assumption test is an analytical procedure conducted in research to identify potential violations of the classical assumptions in a multiple linear regression model. This study employs tests for normality, multicollinearity, heteroscedasticity, and autocorrelation, which are explained as follows:

a. Normality Test Results

The normality test assesses whether the regression model's residuals follow a normal distribution. This test is performed using the Kolmogorov-Smirnov technique. The results of the normality test are presented in the table below:

One-Sample Kolmogorov-Smirnov Test	
	Unstandardized Residual
N	80
Normal Parameters ^{a,b}	Mean .0000000
	Std. Deviation 2.68994522
Most Extreme Differences	Absolute .087
	Positive .070
	Negative -.087
Test Statistic	.087
Asymp. Sig. (2-tailed)	.200 ^{c,d}

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

Figure 1 Normality Test Results

Source: SPSS Normality Test Results Version 26.00

According to the results of the normality test shown in Figure 3.1, the regression model satisfies the assumption of normality. This conclusion is based on the probability value obtained from the test, which is 0.200. Since this value is greater than the significance threshold of 0.05, it indicates that the residuals of the regression model follow a normal distribution. As a result, the model meets the required conditions for normality and is deemed appropriate for further statistical analysis and interpretation.

b. Multicollinearity Test Results

The analysis of multicollinearity is performed by examining the Variance Inflation Factor (VIF) values. If the observed VIF value exceeds 10, it indicates a potential multicollinearity problem. This suggests that one or more independent variables may be highly correlated with others, which can adversely affect the accuracy and reliability of the regression model.

Table 4 Multicollinearity Test Results

Model	Collinearity Statistic	
	Tolerance	VIF
(Constant)		
Work Environment (X1)	0,622	1,609
Work Discipline (X2)	0,610	1,639
Work Motivation (X3)	0,505	1,980

Based on the results of the Multicollinearity Test presented in Table 3.3, the tolerance and Variance Inflation Factor (VIF) values for the independent variables are as follows: variable X1 has a tolerance of 0.622 and a VIF of 1.609; variable X2 has a tolerance of 0.610 and a VIF of 1.639; and variable X3 has a tolerance of 0.505 and a VIF of 1.980. Since all tolerance values are below 1 and all VIF values are below 5, it can be concluded that the regression model does not exhibit multicollinearity problems. This indicates that there is no significant correlation among the independent variables, ensuring that the model is suitable for further analysis.

c. Heteroscedasticity Test Results

The Heteroscedasticity test is conducted to assess whether there are variations in the residual variance across different observations in the regression model. If significant differences in residual variance are found between observations, it indicates the presence of heteroscedasticity in the model. To detect heteroscedasticity, the analysis

was performed using the Glejser Test, with a significance level set at greater than 0.05. The results of the Heteroscedasticity Test are presented in the table below.

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1	(Constant)	-1.067	2.207	-.483	.630
	TOTAL_X1	-.022	.052	-.055	.670
	TOTAL_X2	.124	.070	.250	.082
	TOTAL_X3	-.011	.073	-.023	.877

a. Dependent Variable: ABS

Figure 2 Heteroscedasticity Test Results

Source: Heteroscedasticity Test Results SPSS Version 26.00

As shown in Figure 3.2 above, the significance values for the variables under consideration are as follows: 0.670 for the Work Environment variable, 0.082 for the Work Discipline variable, and 0.877 for the Work Motivation variable. These values are derived from the Glejser Test, which is used to detect heteroscedasticity in the regression model. In this case, since all the significance values for the variables X1 (Work Environment), X2 (Work Discipline), and X3 (Work Motivation) exceed the threshold of 0.05, it indicates that there is no statistically significant evidence of heteroscedasticity. This suggests that the variance of the residuals remains constant across the observations, making the regression model appropriate for further analysis without concerns of heteroscedasticity.

d. Autocorrelation Test Results

The Autocorrelation test is performed to examine whether there is a correlation between the residuals (or errors) of the regression model at period t and the residuals at the previous period (t-1). Autocorrelation occurs when the residuals are not independent, meaning that the error in one period is related to the error in the preceding period. This can lead to biased estimates and unreliable results in regression analysis. According to Firdaus (2021), the presence of autocorrelation indicates a problem in the model that needs to be addressed. The results of the Autocorrelation Test, which provides insight into whether such a correlation exists, are presented in the following table:

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.764 ^a	.583	.567	2.743	1.809

a. Predictors: (Constant), TOTAL_X3, TOTAL_X1, TOTAL_X2
b. Dependent Variable: TOTAL_Y

Figure 3 Autocorrelation Test Results

Source: Autocorrelation Test Results SPSS Version 26.00

As shown in Figure 3.2 above, the results of the Autocorrelation Test yield a Durbin-Watson (DW) value of 1.809. This value is then compared with the critical values from the Durbin-Watson table, based on a significance level of 5%. To make this comparison, the formula $(k; N)$ is used, where "k" represents the number of independent variables, which in this case is 3, and "N" represents the number of observations, which is 80. Therefore, the critical values are determined for $(k; N) = (3; 80)$. From the Durbin-Watson table, the lower critical value (d_L) is 1.5600, and the upper critical value (d_U) is 1.7153. Additionally, the value of $(4 - d_U)$ is calculated to be 2.2847.

Since the calculated DW value of 1.809 falls between the upper critical value ($dU = 1.7153$) and the complementary value ($4 - dU = 2.2847$), it can be concluded that there is no evidence of autocorrelation in the regression model. This result indicates that the residuals from different periods are independent, satisfying the assumption of no autocorrelation.

3. Multiple Linear Regression Analysis Test Results

Multiple regression models are commonly employed to assess the impact of two or more independent variables on a single dependent variable. In this study, the analysis was conducted using Multiple Linear Regression to examine the relationships between the variables. The regression model was performed with the assistance of the SPSS Statistics 26 software, a widely used tool for conducting statistical analyses. This application was chosen for its robust capabilities in handling complex regression models, ensuring accurate and reliable results in the examination of how the independent variables influence the dependent variable.

Model	Coefficients ^a					
	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	
	B	Std. Error				
1	(Constant)	7.602	3.549	2.142	.035	
	TOTAL_X1	.053	.068	.073	.778	.439
	TOTAL_X2	.237	.115	.196	2.063	.043
	TOTAL_X3	.550	.099	.581	5.574	.000

a. Dependent Variable: TOTAL_Y

Figure 4 Test Results of Multiple Linear Regression Analysis

Source: Linear Regression SPSS Version 26.00

From the regression equation presented above, the relationship between the independent variables (Work Environment, Work Discipline, and Work Motivation) and the dependent variable (Employee Performance) can be explained in greater detail as follows:

1. The Constant (7.602): This value represents the intercept of the regression equation. It indicates that, if the independent variables (Work Environment, Work Discipline, and Work Motivation) remain constant, meaning no change occurs in these factors, the expected value of the dependent variable, Employee Performance (Y), will be 7.602 units. In other words, when all the independent variables are zero, employee performance will be 7.602 units.
2. Coefficient of Work Environment (X1) – 0.053: The coefficient of 0.053 for the Work Environment variable means that for every 1-unit increase in the Work Environment, Employee Performance is expected to increase by 0.053 units, assuming that the values of Work Discipline and Work Motivation remain unchanged. This suggests a positive relationship between the work environment and employee performance, where improvements in the work environment contribute to better performance.
3. Coefficient of Work Discipline (X2) – 0.237: The coefficient of 0.237 for Work Discipline indicates that for every 1-unit increase in the Work Discipline variable, Employee Performance will increase by 0.237 units, assuming other variables, such as Work Environment and Work Motivation, remain constant. This shows that a higher level of work discipline leads to an improvement in employee performance.
4. Coefficient of Work Motivation (X3) – 0.550: The coefficient of 0.550 for Work Motivation signifies that for every 1-unit increase in the Work Motivation variable, Employee Performance is expected to increase by 0.550 units, with all other variables held constant. This demonstrates a strong positive impact of work motivation on employee performance, suggesting that higher motivation leads to significantly better performance.

In conclusion, the regression model indicates that each of the independent variables—Work Environment, Work Discipline, and Work Motivation—has a positive effect on Employee Performance. The coefficients reflect the magnitude of these effects, showing that improvements in any of these areas can lead to increased employee performance.

4. Hypothesis Test

a. Test Results Coefficient of Determination

The Coefficient of Determination (R^2) is a statistical measure used to assess the strength of the relationship between the independent and dependent variables. The value of R^2 ranges from 0 to 1 ($0 \leq R^2 \leq 1$), where a value closer to 1 indicates a strong relationship, and a value closer to 0 suggests a weak or no relationship. The primary purpose of R^2 is to quantify the proportion of variance in the dependent variable that can be explained by the

independent variable(s). In this study, data analysis was conducted using SPSS Statistics 26 to calculate the R^2 value and evaluate the impact of the independent variables on the dependent variable. The following are the results obtained from the data analysis:

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.764 ^a	.583	.567	2.743	1.809
a. Predictors: (Constant), TOTAL_X3, TOTAL_X1, TOTAL_X2					
b. Dependent Variable: TOTAL_Y					

Figure 5 Test Results of the Coefficient of Determination

Source: Results of the Determination Coefficient Test SPSS Version 26.00

As shown in Figure 3.4 above, the Adjusted R Square value is 0.583. This indicates that the independent variables—Work Environment, Work Discipline, and Work Motivation—can explain 58.3% of the variation in Employee Performance, after adjusting for the sample size and the number of independent variables. The remaining 41.7% of the variation in Employee Performance is attributed to other factors not included in this analysis. This suggests that while these three variables play a significant role in influencing employee performance, other unexamined factors also contribute to the overall performance outcomes.

b. T-Test Results (Partial Test)

Before utilizing SPSS, it is essential to first determine the t-table value. This value can be found by referring to the t-table and selecting a significance level of 5% (or 0.05) for a two-tailed test. The degree of freedom (df) is calculated using the formula: $\sqrt{(df = n - k)}$, where n represents the number of observations and k represents the number of independent and dependent variables. In this study, the df value is 76, and with a significance level of 5%, the corresponding t-table value is 1.992, as indicated by the t-distribution table. The results of this study can now be interpreted as follows:

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
	B	Std. Error			
1	(Constant)	7.602	3.549	2.142	.035
	TOTAL_X1	.053	.068	.778	.439
	TOTAL_X2	.237	.115	.196	.2063
	TOTAL_X3	.550	.099	.581	5.574
a. Dependent Variable: TOTAL_Y					

Figure 6 T-Test Results (Partial Test)

Source: SPSS T Test Results Version 26.00

As shown in Figure 3.5, the significance values provide insight into the relationships between the variables. The results of the T-test are summarized as follows:

- The effect of the Work Environment variable (X1) on Employee Performance (Y) is found to be 0.439, which is greater than the 0.05 significance level, and the t-value is 0.778, which is lower than the critical t-table value of 1.992. This indicates that the Work Environment variable (X1) does not significantly affect Employee Performance (Y).
- In contrast, the effect of the Work Discipline variable (X2) on Employee Performance (Y) has a significance value of 0.043, which is less than 0.05, and the t-value is 2.063, which exceeds the t-table value of 1.992. This suggests that the Work Discipline variable (X2) does have a significant effect on Employee Performance (Y).
- Similarly, the effect of the Work Motivation variable (X3) on Employee Performance (Y) is highly significant, with a significance value of 0.000, which is well below the 0.05 threshold, and a t-value of 5.574, which is greater than the t-table value of 1.992. This indicates that Work Motivation (X3) significantly affects Employee Performance (Y).

c. F-Test Results (Simultaneous Test)

To determine the F-table value, it is necessary to calculate the degrees of freedom (df1 and df2). The formula for df1 is $df1 = k - 1$ and for df2, it is $df2 = n - k$, where k represents the number of variables (both independent and dependent), and n represents the number of respondents or research samples. In this study, k = 4 and n = 80, so the degrees of freedom are calculated as $df1 = 4 - 1 = 3$ and $df2 = 80 - 4 = 76$. With a significance level of 5%, the F-table value for (3;76) is 2.72, as indicated in the F-distribution table. The results of the F-test are summarized in the following table:

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	800.571	3	266.857	35.480	.000 ^b
	Residual	571.629	76	7.521		
	Total	1372.200	79			

a. Dependent Variable: TOTAL_Y
b. Predictors: (Constant), TOTAL_X3, TOTAL_X1, TOTAL_X2

Figure 7 F Test Results (Simultaneous)

Source: F test SPSS version 26.00

Based on the F-test results presented in the table above, the significance value for testing the combined effect of the Work Environment, Work Discipline, and Work Motivation on Employee Performance is 0.000, with an F-value of 35.480. This indicates that the effect of the Work Environment (X1), Work Discipline (X2), and Work Motivation (X3) variables on Employee Performance (Y) is highly significant, as the significance value (0.000) is less than the 0.05 threshold, and the F-value (35.480) exceeds the critical F-table value of 2.72. Therefore, it can be concluded that these three variables collectively have a significant impact on Employee Performance (Y). Based on this finding, the alternative hypothesis (Ha) is accepted, and the null hypothesis (Ho) is rejected.

B. Analysis and Discussion of Research Results

1. The impact of Work Environment on Employee Performance

The results of testing the first hypothesis indicate that the Work Environment does not have a significant effect on the performance of Honorary Staff at the Surabaya Maritime Polytechnic, leading to the rejection of the first hypothesis (H1). This conclusion is based on a significance value of 0.439, which is greater than the 0.05 threshold. Therefore, it can be inferred that the Work Environment does not significantly influence Employee Performance. This suggests that other factors, such as work discipline, work motivation, and additional variables, play a more dominant role in determining employee performance. However, the study also highlights that the absence of a significant influence does not diminish the importance of the Work Environment. A positive work environment can still offer valuable benefits, such as enhancing job satisfaction, improving employee welfare, and fostering better employee retention.

2. The Impact of Work Discipline on Employee Performance

The findings from the second hypothesis test reveal that work discipline has a significant impact on the performance of Honorary Staff at the Surabaya Maritime Polytechnic. Consequently, the second hypothesis (H2) is accepted. This conclusion is supported by statistical evidence, as the effect of work discipline on employee performance showed a p-value of 0.043, which is below the significance threshold of 0.05. These results indicate that work discipline plays a crucial role in enhancing employee performance. Higher levels of work discipline, characterized by punctuality, adherence to rules and procedures, responsibility, and consistency in task execution, lead to improved productivity, quality of work, and adherence to targets or deadlines. This study underscores the importance of fostering work discipline within organizations. Honorary Staff with disciplined work habits tend to exhibit better performance outcomes, which are essential for achieving organizational goals. The implications of this research are particularly significant for organizational management. Companies should prioritize efforts to instill and maintain high levels of work discipline among employees. This can be achieved through the development and implementation of policies and procedures that encourage disciplined behaviors. Effective strategies might include robust supervision and control mechanisms, as well as reward and punishment systems tailored to reinforce desired behaviors. By focusing on work discipline, organizations can create an environment that not only improves individual employee performance but also contributes to the overall success and efficiency of the organization.

3. The Impact of Work Motivation on Employee Performance

The results of the third hypothesis test indicate that work motivation has a significant effect on the performance of Honorary Staff at the Surabaya Maritime Polytechnic, confirming the acceptance of the third hypothesis (H3). This conclusion is supported by statistical analysis, where the effect of work motivation on employee performance produced a highly significant p-value of 0.000, well below the 0.05 threshold. These findings demonstrate that work motivation is a key determinant of employee performance. Higher levels of work motivation, driven by factors such as job satisfaction, goal achievement, responsibility, and a desire for professional development, are associated with improved employee outcomes. Employees with strong motivation tend to exhibit higher productivity, enhanced work quality, and greater initiative in completing tasks. The implications of this research are critical for organizations aiming to enhance employee performance. Companies and organizations should prioritize work motivation in their human resource management strategies. Practical approaches to fostering motivation include offering targeted training and development opportunities, recognizing and rewarding employee achievements, and cultivating a work environment that inspires and sustains employee enthusiasm and drive. By addressing these motivational factors, organizations can not only boost individual employee performance but also strengthen overall organizational efficiency and success.

4. The Impact of Work Environment, Work Discipline, and Work Motivation on Employee Performance

The results of the fourth hypothesis test demonstrate that the work environment, work discipline, and work motivation significantly and collectively affect the performance of Honorary Staff at the Surabaya Maritime Polytechnic. As such, the fourth hypothesis (H4) is accepted. This conclusion is supported by statistical evidence, where the combined effect of these factors yielded a p-value of 0.000, well below the 0.05 significance threshold. These findings highlight the interconnected influence of the work environment, work discipline, and work motivation on employee performance. Together, these factors contribute to enhancing overall productivity and the quality of work. A supportive work environment, characterized by positive physical and social conditions, fosters employee satisfaction and engagement. Similarly, high work discipline, marked by punctuality, adherence to rules, and consistency, ensures efficiency and reliability. Finally, strong work motivation, driven by goal achievement, job satisfaction, and professional growth, further encourages employees to excel in their roles. The study's implications are vital for organizations aiming to optimize employee performance. Management needs to prioritize improvements in these three areas. Creating a conducive work environment, reinforcing discipline through effective policies and supervision, and fostering motivation through rewards, recognition, and development opportunities are practical steps organizations can take to enhance employee performance. By addressing these aspects collectively, organizations can build a foundation for sustained success and achieve their performance objectives effectively.

IV. CONCLUSION

Based on the research conducted, the results of the analysis and hypothesis testing in the previous chapter can be summarized as follows:

1. Effect of Work Environment (X1)

The analysis revealed that the Work Environment variable (X1) has a significance value of 0.439, which is greater than the threshold value of 0.05. Therefore, it can be concluded that the Work Environment (X1) does not have a significant partial effect on Employee Performance (Y).

2. Effect of Work Discipline (X2)

The results indicated that the Work Discipline variable (X2) has a significance value of 0.043, which is less than the threshold value of 0.05. This finding concludes that Work Discipline (X2) has a significant partial effect on Employee Performance (Y).

3. Effect of Work Motivation (X3)

The findings showed that the Work Motivation variable (X3) has a significance value of 0.000, which is below the threshold value of 0.05. Thus, it can be concluded that Work Motivation (X3) has a significant partial effect on Employee Performance (Y).

4. Combined Effect of Work Environment, Work Discipline, and Work Motivation

The analysis demonstrated that the combined variables—Work Environment (X1), Work Discipline (X2), and Work Motivation (X3)—have a significance value of 0.000, which is less than the threshold value of 0.05. Consequently, it can be concluded that Work Environment (X1), Work Discipline (X2), and Work Motivation (X3) collectively and significantly influence Employee Performance (Y).

These results highlight the critical role of fostering strong work discipline and cultivating high levels of motivation among employees as fundamental drivers of improved performance. At the same time, they emphasize the necessity of addressing environmental factors in a comprehensive and integrated manner to create a supportive and conducive work setting. By paying close attention to these interconnected aspects, organizations can effectively enhance employee productivity, job satisfaction, and overall performance outcomes, ultimately contributing to the achievement of their broader strategic objectives.

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