The Influence of Work Motivation and Work Discipline on the Work Productivity of Employees at the Faculty of Mathematics and Natural Sciences, Manado State University

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Abstract

This research aims to determine and analyze the influence of work motivation and work discipline on work productivity partially and simultaneously. The method used in this research is descriptive quantitative with multiple regression analysis. The population in this study was 178 respondents with a sample of 119 respondents. The location of this research was carried out at the Faculty of Mathematics and Natural Sciences, Manado State University. Before the test was carried out, validity and reliability tests were carried out on 30 respondents and the results showed that all instruments were valid and reliable. The classical assumption test shows that everything meets the classical assumption requirements so that hypothesis testing can be carried out. Based on the hypothesis test, it was found that the Work Motivation variable (X1) with a value of tcount > ttable (6.029 < 1.658) with a positive value. So, there is a positive influence between variable X1 on Y, or in other words Ha is accepted and H0 is rejected. A significant value of 0.000<0.05 indicates that the influence value is significant. So overall the work motivation variable has a positive and significant effect on employee work productivity at the Faculty of Mathematics and Natural Sciences UNIMA. The research results show that the work discipline variable (X2) has a value of tcount > ttable (10.039 > 1.659) with a positive value. So, there is a positive influence between variable X1 on Y, or in other words Ha is accepted and H0 is rejected so that. A significant value of 0.000<0.05 indicates that the influence value is significant. So overall the work discipline variable has a positive and significant effect on employee work productivity at the Faculty of Mathematics and Natural Sciences UNIMA. The research results show that the value is significant at 0.0000 (sig 0.00000 < 0.05). This means showing that the regression equation obtained is reliable or that the model used is fixed. So, there is a joint or simultaneous influence between the Work Motivation and Work Discipline variables on the Work Productivity variable of employees at the Faculty of Mathematics and Natural Sciences UNIMA.

Keywords	Motivation, Discipline, Productivity, Employees

INTRODUCTION

The success of an organization in achieving its goals and aspirations is largely determined by the human factor, which is the object and subject of government administration and development in the fields of politics, economics, socio-cultural, land and security, therefore employee work productivity needs to be improved in quality and the quality.

Employees are one component of human resources that needs attention because employees are planners, actors and determinants of the realization of the organization. Employees in an organization are an important substance in the productivity of various ideas, regulations and policies aimed at increasing work productivity, ultimately also relying on active participation in organizing efforts.

Productivity is an absolute requirement for making successful employees who are able to self-regulate, which involves managing their way of life and managing their way of

working. Basically, productivity involves a patriotic mental attitude that looks at the future optimistically and is rooted in belief. The role of productivity is very much needed in terms of coordinating and motivating these employees so that work interest and productivity can be increased. Apart from that, the workforce must have a high level of ability and have a high level of awareness as well, in an effort to increase employee work productivity which will later influence the smooth implementation of government programs in the implementation of national development.

This also applies to the Faculty of Mathematics and Natural Sciences. According to Deming in Koronacki and Thompson, if the quality of productivity can be improved, (1) costs will be reduced due to reduced repair costs, fewer errors, minimal delays, and better utilization of time and materials; (2) work productivity increases; (3) market share increases due to quality improvements and price reductions; (4) the company's profitability increases so that it can survive in the business world; (5) the number of jobs is increasing. Thus, work productivity can be defined as a comparison between output and input to measure the level of success both qualitatively and quantitatively.

Good work motivation and work discipline are often associated with work productivity. Without talented people, there is no standard to satisfy others. A person's work motivation and work discipline, so that they are willing to work by providing their abilities and expertise optimally, will make the faculty a knowledgeable and qualified faculty and can make the faculty an exemplary faculty in demand among students. Based on this background, the author is interested in research with the title: "The Influence of Work Motivation and Work Discipline on Employee Work Productivity at the Faculty of Mathematics and Manado State University"

METHOD

This type of research is quantitative approach research. The population in this research were all employees at the Faculty of Mathematics and Natural Sciences, UNIMA, totaling 178 employees. Meanwhile, the population covered is employees in the administration section, totaling 178 employees. By using the Isaac Michael table with an error rate of 5%, the number of samples in this study was 119 people.

RESULTS AND DISCUSSION
Classic assumption test
Normality test

The data normality test in this research is used to determine whether the data for each variable is normally distributed. Data normality is important because it is usually assumed that the distributed data is representative of the population. The normality test in this study used the residual normality test. The condition for this test is that the data depicts the actual data following the diagonal line in the normal PP Plot of regression standardized residual.

Picture 1. Normality Test Results

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Produktivitas Kerja
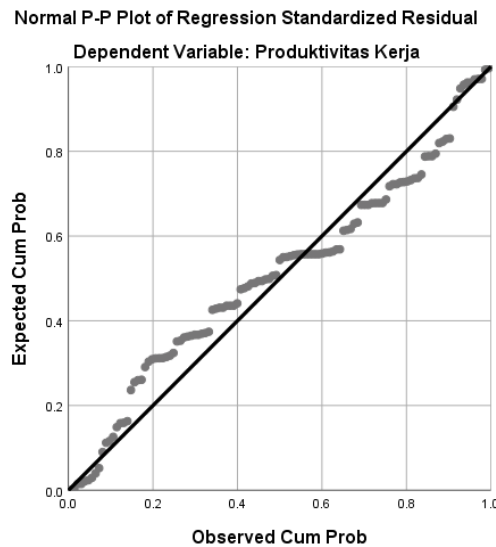
Based on the normality results above, the points in the normal PP Plot of regression standardized residual image are between the diagonal lines. So the regression in this study shows a normal distribution.

Heteroscedasticity Test

The heteroscedasticity test is used to see whether there are residual differences between observations in the regression model. The heteroscedasticity test in this study used the scatterplot test. If there are lines that are uniform and form a certain pattern, this indicates that a heteroscedasticity problem has occurred. And if the points spread out and do not form a certain pattern, then the regression model does not have heteroscedasticity problems.

Picture 2. Heteroscedasticity Test Results

Scatterplot
Dependent Variable: Produktivitas Kerja
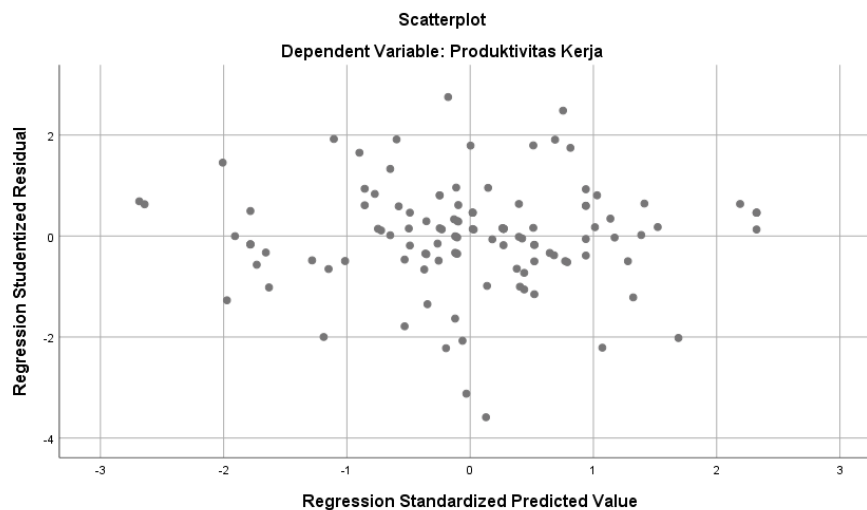
Source: SPSS25

Based on the results of the scatterplot image above, it shows that the points are spread between the right and left of the zero point and above and below the zero point. This indicates that the regression model in this study does not have heteroscedasticity problems. So this research can be continued.

Multicollinearity Test

This multicollinearity test aims to see whether the regression model finds a relationship between the independent variables. If the tolerance value is greater than 0.10 and the VIF value is less than 10.00, it can be seen that there are no signs of multicollinearity observed in the regression model. Below is a table of multicollinearity test results:

Table 1. Multicollinearity Test Results
Coefficientsa

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	VIF
1	(Constant)	3,334	2,351		1,418	,159		
	Work motivation	,524	,087	,361	6,029	,000	,910	1,099
	Work Discipline	,491	,049	,601	10,039	,000	,910	1,099

a. Dependent Variable: Work Productivity

Based on the results of the multicollinearity test, it can be seen that in the table above, in the Centered VIF column. The VIF value of all variables is not more than 10 (there is literature that says no more than 10) and the tolerance value is greater than 0.10, so it can be said that in this study there was no multicollinearity in the three independent variables. Based on the classical assumptions of linear regression with SPSS, a good linear regression model is one that is free from multicollinearity. Thus, the model above is free from multicollinearity.

Autocorrelation Test

The autocorrelation test can be seen with the Durbin-Watson (DW) test. The conditions for this test are by looking at the Watson Durbit table value at a significance of 5% (0.05). The number of independent variables is 2, while the number of samples is N= 119. So, the dL value is found to be 1.6669 and the dU value is 1.7352.

Table 2. Autocorrelation Test Results
Model Summary b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.788a	,622	,615	3.08749	2,077

a. Predictors: (Constant), Work Discipline, Work Motivation
b. Dependent Variable: Work Productivity
Source: SPSS25

Based on the table above, it is known that the Durbin-Watson (dw) value is 2.077. Next, this value will be compared with the Watson Durbit table value at a significance of 5% (0.05) with the formula (k:2). the number of independent variables is 2, while the number of samples is N= 119. So the dL value is found to be 1.6669 and the dU value is 1.7352. The Durbin-Watson (dw) value of 2.077 is greater than the upper limit (dU) which is 1.7352 and less than (4-Du) 4-1.7352= 2.2648. So, as is the basis for taking the basis for taking the Watson Durbin test above, it can be concluded that there are no problems or symptoms of autocrelation. So that the research above can be continued.

Multiple Regression Analysis

Multiple linear regression analysis is a linear relationship between two or more independent variables and one dependent variable. The following is a linear regression equation model shown in the table below:

Table 3. Multiple Linear Regression Analysis
Coefficientsa

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	3,334	2,351		1,418	0.159
	Work motivation	0.524	0.087	0.361	6,029	0,000
	Work Discipline	0.491	0.049	0.601	10,039	0,000

a. Dependent Variable: Work Productivity

Source: SPSS25

Multiple Regression Results:
$$Y = \alpha + b_1X_1 + b_2X_2 + e$$
$$Y = 3.334 + 0.524 \, X_1 + 0.491 \, X_2 + e$$

Information:
Y   = Work Productivity
α   = Constant
X1   = Work Motivation
X2   = Work Discipline
e   = Error term
From the equation above it can be explained that:

1. A constant value of 3.334 indicates that if the dependent variable, namely work productivity, is zero, then work productivity is a constant of 3.334%.

2. The work motivation coefficient value of 0.524 indicates that an increase in work motivation in one numerical unit will result in work productivity of 0.524% assuming other variables are constant.
3. The work discipline coefficient value of 0.491 indicates that an increase in work discipline in one numerical unit will result in work productivity of 0.491% assuming other variables are constant.

Hypothesis Testing Results with t Test (Partial)

Table 4. t test results
Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3,334	2,351		1,418	0.159
	Work motivation	0.524	0.087	0.361	6,029	0,000
	Work Discipline	0.491	0.049	0.601	10,039	0,000

a. Dependent Variable: Work Productivity
Source: SPSS25

Making the decision to reject or accept the hypothesis with a total of 119 data and a significance level of 5% with the formula ttable = nk-1 = 119-2-1 = 116 so that the ttable value for data 116 of 1,658 was selected based on the following criteria:
1. If tcount < t_{table}, then H0 is accepted, and Ha is rejected (there is no influence).
2. If tcount > t_{table}, then H0 is rejected, and Ha is accepted (there is an influence).

Based on the table of results of multiple linear regression calculations using SPSS version 25 above, it can be analyzed as follows:
1. It is known for the Work Motivation variable (X1) that the value of tcount > ttable (6.029 < 1.658) with a positive value. So, there is a positive influence between variable X1 on Y, or in other words Ha is accepted and H0 is rejected. A significant value of 0.000<0.05 indicates that the influence value is significant. So overall the work motivation variable has a positive and significant effect on employee work productivity at the Faculty of Mathematics and Natural Sciences UNIMA.
2. It is known that in the work discipline variable (X2) the value of tcount > ttable (10.039 > 1.659) with a positive value. So, there is a positive influence between variable So overall the work discipline variable has a positive and significant effect on employee work productivity at the Faculty of Mathematics and Natural Sciences UNIMA.

Simultaneous F Test (F-Test).

The results of SPSS data processing in the F test are to see whether or not there is an influence of the independent variables together (simultaneously) on the dependent variable and to test whether the model used is fixed or not.

Table 5. Simultaneous F Test Results
ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1815.968	2	907.984	95,251	,000b
	Residual	1105.779	116	9,533		
	Total	2921,748	118			

a. Dependent Variable: Work Productivity

b. Predictors: (Constant), Work Discipline, Work Motivation

Source: SPSS25

The results of data processing in the table above show a significant value of 0.0000 (sig 0.00000 < 0.05). This means showing that the regression equation obtained is reliable or that the model used is fixed. So there is a joint or simultaneous influence between the Work Motivation and Work Discipline variables on the Work Productivity variable of employees at the Faculty of Mathematics and Natural Sciences UNIMA.

Coefficient of Determination (R2)

The Coefficient of Determination aims to see or measure how far the model's ability is to explain the dependent variable. The results of the coefficient of determination test in this study are shown in the table below:

Table 6. Determination Coefficient Test Results

Model Summary b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.788a	0.622	0.615	3.08749

a. Predictors: (Constant), Work Discipline, Work Motivation

b. Dependent Variable: Work Productivity

From the SPSS output display in the table above, the Adjusted R Square is 0.615. This indicates that the contribution of the Work Motivation variable (X1) and the Work Discipline variable (X2) is 61.5%, while the remaining is 38.5% (100-61 .5) is determined by other factors outside the model which were not detected in this study.

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Based on the research results, it shows that the Work Motivation variable (X1) has a value of tcount > ttable (6.029 < 1.658) with a positive value. So there is a positive influence between variable X1 on Y, or in other words Ha is accepted and H0 is rejected. A significant value of 0.000<0.05 indicates that the influence value is significant. So overall the work motivation variable has a positive and significant effect on employee work productivity at the Faculty of Mathematics and Natural Sciences UNIMA.

The results of this research are in line with research conducted bySaleh & Utomo (2018), Efendi et al., (2020), Kuswibowo (2020), Suryadewi et al., (2020), Katarina & Kusumayadi (2021)AndPrawoto & Hasyim (2022)states that work motivation influences employee work productivity.

The Influence of Work Discipline on Employee Work Productivity at the Faculty of Mathematics and Natural Sciences UNIMA

Based on the research results, it shows that the work discipline variable (X2) has a value of tcount > ttable (10.039 > 1.659) with a positive value. So, there is a positive influence between variables. So overall the work discipline variable has a positive and significant effect on employee work productivity at the Faculty of Mathematics and Natural Sciences UNIMA.

The results of this study are in line with research Efendi et al., (2020), Suryadewi et al., (2020), Kuswibowo (2020), Katarina & Kusumayadi (2021) And Prawoto & Hasyim (2022) states that work discipline influences employee work productivity. However, this research is not in line with researchSaleh & Utomo (2018) stated that work discipline does not have a significant effect on work productivity.

The Influence of Work Motivation and Work Discipline on Employee Work Productivity at the Faculty of Mathematics and Natural Sciences UNIMA

The research results show that the value is significant at 0.0000 (sig 0.00000 < 0.05). This means showing that the regression equation obtained is reliable or that the model used is fixed. So, there is a joint or simultaneous influence between the Work Motivation and Work Discipline variables on the Work Productivity variable of employees at the Faculty of Mathematics and Natural Sciences UNIMA.

The results of this research are in line with research which states that work motivation and work discipline simultaneously influence work productivity(Trihudiyatmanto, 2017; Efendi, Hendri and Kurniawan, 2020; Kuswibowo, 2020; Katarina and Kusumayadi, 2021).

CONCLUSION
1. The results of the research show that the Work Motivation variable (X1) has a value of tcount > ttable (6.029 < 1.658) with a positive value. So, there is a positive influence between variable X1 on Y, or in other words Ha is accepted and H0 is rejected. A significant value of 0.000<0.05 indicates that the influence value is significant. So overall

the work motivation variable has a positive and significant

effect on employee work productivity at the Faculty of Mathematics and Natural Sciences UNIMA

2. The research results show that the work discipline variable (X2) has a value of tcount > ttable (10.039 > 1.659) with a positive value. So, there is a positive influence between variable X1 on Y, or in other words Ha is accepted and H0 is rejected so that. A significant value of 0.000<0.05 indicates that the influence value is significant. So overall the work discipline variable has a positive and significant effect on employee work productivity at the Faculty of Mathematics and Natural Sciences UNIMA.

3. The research results show that the value is significant at 0.0000 (sig 0.00000 < 0.05). This means showing that the regression equation obtained is reliable or that the model used is fixed. So, there is a joint or simultaneous influence between the Work Motivation and Work Discipline variables on the Work Productivity variable of employees at the Faculty of Mathematics and Natural Sciences UNIMA

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