

The Effect of Work Discipline on Work Productivity of Construction Employees

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Abstract: Progress and developments in the world of construction have greatly spurred the growth and development of the construction services business, especially in Indonesia. When carrying out activities, companies need human resources to achieve company goals, namely work productivity. Work productivity is a measure of input and output as well as the role of labor in the company. The factor that affect work productivity is work discipline. Discipline is an attempt to comply with the applicable regulations in the company. Employees must pay attention to the part of work discipline, especially employee absenteeism. Because work discipline greatly affects employee productivity factors. That's why this research was conducted to determine the effect of work discipline on work productivity with case study in PT. PP (Persero) TBK. EPC Division RDMP RU V Balikpapan Project. The method used in this research uses multiple linear regression analysis with SPSS 23.0, 21 indicators that affect project work productivity of PT. PP includes employee compliance with all company regulations, and at work can improve performance. This is supported by the t-count work discipline value of 2.155 and a significant value of less than 0.05 with values of 0.044.

Keywords: construction; employees; productivity; regression

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INTRODUCTION

Progress and developments in the world of construction, greatly spur the growth and development of the construction services business, especially in Indonesia. Every company that is built has the hope of having rapid development. When carrying out its activities, companies really need human resources that support efforts and the goals set by the company (Mathis&Jackson, 2016). Productivity is defined as the relationship between actual or physical results (goods) or services with the actual input. Work productivity is the level of the workforce's ability to provide a product, and work productivity has a relationship between the output (job output) and the time it takes the workforce to produce the product. Companies must be able to increase the

productivity of their human resources (Hasibuan, 2011). Occupational health and safety (OHS) is an activity that guarantees safe working conditions to avoid physical and mental disabilities, direct and control the work environment. safe working conditions to avoid physical and mental disability, direct, controlling employees in carrying out their duties and providing assistance in accordance with applicable regulations.

This becomes very important for human resource managers to increase worker productivity is employee discipline (Sedarmayanti, 2014). PT. PP (Persero) TBK. EPC Division RDMP RU V Balikpapan project has three scopes of work, namely bored pile, cooling water system, and jetty. In this study, the researcher used multiple linear regression data analysis methods with SPSS 23.0 and used a Likert scale. This study uses

interview techniques and questionnaires. Subjects in this study are project stakeholders PT. PP (Persero) Tbk. EPC Division Several preliminary studies.

RESEARCH METHOD

Type of Research

The method used in this research starts with a determination of OHS management topics, problem identification, literature study, data collection techniques, preliminary survey, questionnaire design, questionnaire distribution, and conclusions (Sugiyono, 2017). And the help of SPSS 23.0 (Sugiyono dan Susanto, 2015; Sulyanto, 2011). Based on the data obtained, it is known that the population is 161 people.

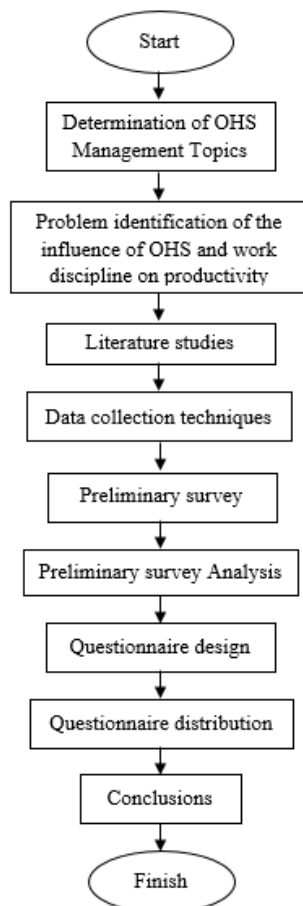


Fig. 1. Research flow chart.

Sampling Technique

The sampling technique used by the researcher is the Non-Probability sampling

technique. The sample in this research amounted to 22 respondents. There are two research variables, the dependent and the independent variables. Research variables and question indicators were obtained from previous research. The data analysis used is multiple linear regression and hypothesis testing.

Hypothesis

In this study, the researchers proposed the following hypothesis:

H1 : It is suspected that work discipline has an effect on the work productivity of PT. PP (Persero) TBK. EPC Division

H2 : It is suspected that occupational safety and health (OSH) has an effect on the work productivity of PT. PP (Persero) TBK. EPC Division

H3 : It is suspected that work discipline and occupational safety and health (OSH) have an effect on the work productivity of PT. PP (Persero) TBK. EPC Division.

Data Analysis

Analysis data used in this research is multiple linear regression. And there are 4 parts, the first is the data quality test, the second is the classic assumption test, the third multiple linear regression test, and the last hypothesis test (Ghozali, 2013)

RESULTS AND DISCUSSION

Data Quality Test

This section consists of 2 tests, namely validity and reliability.

Data quality tests have two tests, Validity and reliability. The validity test is used to measure the validity or validity of a questionnaire. A questionnaire is said to be valid if the questions on the questionnaire are able to reveal something that will be measured by the questionnaire. Reliability is a tool to measure a questionnaire which is an indicator of the variable.

Table 1. Validity And Reliability Test

Variable	Indicator	R-Correlation		Description	Coefficient Cronbach's Alpha	
		R-scale	R-table		Description	Description
Safety and Health Work	K4	0,925	0,422	Valid	0,88	Reliable
	K8	0,627	0,422	Valid	0,88	Reliable
	K11	0,909	0,422	Valid	0,88	Reliable
	K13	0,808	0,422	Valid	0,88	Reliable
	K14	0,924	0,422	Valid	0,88	Reliable
	K16	0,481	0,422	Valid	0,88	Reliable
Work Discipline	DK1	0,353	0,422	Invalid	0,73	Reliable
	DK3	0,506	0,422	Valid	0,73	Reliable
	DK5	0,71	0,422	Valid	0,73	Reliable
	DK6	0,728	0,422	Valid	0,73	Reliable
	DK7	0,751	0,422	Valid	0,73	Reliable
	DK8	0,749	0,422	Valid	0,73	Reliable
	DK9	0,563	0,422	Valid	0,73	Reliable
Work Productivity	DK10	0,443	0,422	Valid	0,73	Reliable
	PK1	0,769	0,422	Valid	0,94	Reliable
	PK2	0,177	0,422	Invalid	0,94	Reliable
	PK3	0,866	0,422	Valid	0,94	Reliable
	PK4	0,661	0,422	Valid	0,94	Reliable
	PK5	0,899	0,422	Valid	0,94	Reliable
	PK6	0,95	0,422	Valid	0,94	Reliable
	PK7	0,865	0,422	Valid	0,94	Reliable
	PK8	0,833	0,422	Valid	0,94	Reliable
PK9	0,821	0,422	Valid	0,94	Reliable	

It was found that of the 3 variables each had 6, 8, and 9 question indicators. The results obtained from the validity test on the OSH variable are valid, the work discipline variable on DK1 indicators is invalid so it will be used in the next analysis stage for as many as 7 indicators, and for the work productivity, variable PK2 indicators is invalid so that it will be used in analysis stage the as many 8 indicators. The r-count value obtained must be $>$ r-table and the r-table value of 0.042. and for the reliability test, reliable results were obtained because the value of Cronbach's alpha count was $>$ 0.60.

Classic Assumption Test

In the classical assumptions test, there are several tests that must be carried out, namely Normality Test, Multicollinearity Test, and Heteroscedasticity Test (Riduwan and Sunarto, 2017). The implementation of the normality test can use the Kolmogorov-Smirnov test, with the applicable criteria, namely if the significance result $>$ 0.05 (5%) which means the residuals are normally distributed. If the probability value alpha coefficient is greater than 0.05, it can be normally distributed, otherwise if the coefficient value is smaller than 0.05, it cannot be normally distributed.

Table 2. Normality Test

One-sample kolnogorov-Smirnov Test		
		Unstandardized Residual
N		22
Normal Parameters ^{a,b}	Mean	,0000000
	Std.Deviation	3,1856047
Most Extreme Differences	Absolute	,174
	Positive	,063
	Negative	-,174
Test Statistic		,174
Asymp. Sig. (2-tailed)		,082

The results of Asym.sig (2-tailed) are $0.082 > 0.05$. If the probability of the calculation result is greater than 0.05, it means that the data distribution is normal.

Multicollinearity is a condition where the independent variables in the regression equation have a close correlation (relationship) with each other. The aim is to test whether the regression model formed, there is a high or perfect correlation between independent variables or not. Test multicollinearity test can be seen by looking at the VIF (Variance Inflation Factor) of each independent variable on the dependent variable. If VIF value is not more than 10, then the regression model is declared to have no symptoms of multicollinearity [8].

Table 3. Multicollinearity Test

Modal	Coefficients				Collinearity Statistics		
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Tolerance	VIF
	B	Std. Error	Beta				
1. (Constant)	11,502	7,540		1,525	,144		
X1	,487	,226	,399	2,155	,044	,992	1,008
X2	,331	,128	,479	2,590	,018	,992	1,008

a. Dependent Variable : Y

The tolerance for X1 and X2 is $0.092 > 0.10$ & VIF X1 and X2 are $1.008 < 10,000$. It can be concluded that there are no symptoms of multicollinearity.

The heteroscedasticity test aims to test whether in the regression model there is an inequality of variance from one observation to other observations. If the variance of the residuals of one observation and other observations is constant, it is called homoscedasticity and if it is different it is called heteroscedasticity.

Table 4. Heteroscedasticity Test

Modal	Coefficients			T	Sig.
	Unstandardized Coefficients		Srandardized Coefficients		
	B	Std. Error	Beta		
1. (Constant)	-4,051	4,465		-.907	,376
X1	,250	,134	,387	1,869	,077
X2	-,063	,076	-,171	-,827	,419

a. Dependent Variable : ABS

The significance value or sig is 0.077 and 0.419. The value of sig > 0.05 so it can be concluded that there is no heteroscedasticity problem.

Multiple Linear Regression Analysis Test

This study uses the data analysis method of multiple linear regression analysis, used because there is more than one independent variable in the study.

Table 5. Multiple Linear Regression Analysis Test

Modal	Unstandardized Coefficients		Srandardized Coefficients	t	Sig.
	B	Std. Error	Beta		
	1. (Constant)	11,502	7,540		
X1	,487	,226	,399	2,155	,044
X2	-,331	,128	-,479	2,590	,018

It can be seen that the result value in column B in constant (a) is 11.502 while the value of the variable X1 is 0.487 and the value X2 is 0.331.

Can be concluded:

- A constant of 11.502 means that employee work productivity increases if work discipline and OSH exist or are carried out in the company PT. PP (Persero) Tbk. EPC Division.
- The regression coefficient for work discipline and OSH variables are 0.487 and 0.331. The relationship between work and discipline and OSH on employee work productivity is positive.

Hypothesis Test

This section consists of two tests, the first is a partial test (t) and the last is a simultaneous test (f). The t-statistical test aims to show how the partial effect of the independent or independent variables on the dependent variable, namely by comparing the t-table

and t-count [10]. The F statistical test aims to show whether all variables or independent variables (occupational safety and health and work discipline) are included in the model. (occupational safety and health and work discipline) included in the model have a joint influence on the dependent or dependent variable (employee productivity).

Table 6. Partial Test (t)

Modal	Unstandardized Coefficients		Srandardized Coefficients	t	Sig.
	B	Std. Error	Beta		
	1. (Constant)	11,502	7,540		
X1	,487	,226	,399	2,155	,044
X2	-,331	,128	-,479	2,590	,018

The t-table value is 2.093

Partial test analysis results (t):

- sig value is $0.044 < 0.05$ and the t-count value is $2.155 > 2.093$ so H1 is accepted.
- sig value is $0.018 < 0.05$ and the t-count value is $2.590 > 2.093$ so H2 is accepted.

Table 7. Simultaneous Test (f)

Modal	Sum of Squares	df	Mean Square	F	Sig.
1. Regression	117,254	2	58,627	5,227	,016 ^b
Residual	213,110	19	11,216		
Total	330,364	21			

(H3) sig value is $0.016 < 0.05$ & f-count of $5.227 > 3.49$ so H3 is accepted.

- The influence of work discipline on employee work productivity of PT. PP (Persero) Tbk. EPC Division RDMP RU V Balikpapan project based on the results of the t-test, the t-table value is 2.093. So that value of t-count > t-table or $2.155 > 2.093$. And significant value is $0.044 < 0.05$. So the concluded H1 is accepted.
- Effect of occupational safety and health (OSH) on work productivity of construction employees of PT. PP (Persero) Tbk. EPC Division t value > t table or $2.590 > 2.093$. so the concluded H2 is accepted.
- The influence of occupational safety and health (OSH) and work discipline on work productivity of PT. PP (Persero) Tbk. EPC Division f table value is 3.49. F-count > F- table or $5.227 > 3.49$ and value sig is $0.016 < 0.05$. So the

concluded H3 is accepted.

CONCLUSION

The conclusion of the study of the effect of occupational safety and health (OSH) and work discipline on the work productivity of construction employees of PT PP. (Persero) Tbk. EPC Division RDMP RU V Balikpapan Project with the method of multiple linear regression analysis and using the help of SPSS23 software. multiple linear regression analysis and using the help of SPSS23 software is as follows:

- 1) In this study, it was found that work discipline had an effect on the work productivity of construction employees at PT. PP (Persero) Tbk. EPC Division.
- 2) Found that occupational safety and health (OSH) had an effect on the work productivity of the construction PT. PP (Persero) Tbk. EPC Division
- 3) Found that occupational safety and health (OSH) and work discipline have a joint or simultaneous influence on the work productivity of the construction PT. PP (Persero) Tbk. EPC Division.

SUGGESTIONS

Suggestions for project parties and further researchers based on the results of the research that has been done are as follows:

1. It is recommended that companies improve occupational safety and health programs (OSH) in order to ensure employee welfare and avoid the risk of work accidents during construction projects. OSH can support the increase in employee productivity, which in turn will have a positive impact on the company.
2. It is recommended that companies improve work discipline for employees. Prioritize enforcing company regulations and consequences for employees who violate company regulations. Work discipline must be considered in the

company and carried out by all workers to increase employee work productivity, so that company targets will be achieved.

3. For researchers who will conduct research in the same place in order to further develop the results of their research, by raising objects or research variables that are different from this research. Can add other indicators so that they have answers with different variants, and can add the number of respondents when conducting research.
4. For researchers who will conduct research with similar objects or variables, it is advisable to add other variables that are likely to affect employee productivity, such as employee work motivation, skills, income levels, work environment and social security.

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