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The Influence of Occupational Health and Safety (K3) Culture, Work Environment and Competence on Employee Performance of PT. Halmahera Persada in South Halmahera

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Abstract: In this study, the author will analyze the influence of Occupational Safety Culture on employee performance and job satisfaction through a quantitative approach using interview methods and content analysis. This study focuses on the relationship between manpower, work methods, behavior, competence, and work safety programs. Through in-depth analysis of data, interviews, and field observations on employees of PT. Halmahera Persada in South Halmahera. Data collection techniques by filling out questionnaires by sample respondents of 60 employees taken from a population of 623 employees. Furthermore, answers through closed questions by choosing one of the appropriate answers according to respondents on a rating scale of one (strongly disagree), two (disagree), three (neutral), four (agree), and five (strongly agree). The results prove that there is a direct influence of occupational safety and health, work environment, and competence on employee job satisfaction and performance, and there is an indirect influence of occupational safety and health through positive job satisfaction significantly on employee performance but does not have an impact on employee performance, because the value of the influence is smaller than the direct influence.

Keyword: Occupational Safety and Health, Environment, Competence, & Employee Performance.

INTRODUCTION

Industry is one of the driving wheels of the economy in Indonesia today. Competition that is getting tighter all the time, makes companies forced to always improve the management of their resources, especially Human Resources. Human resources are one important thing, so they must be managed properly to increase the effectiveness and efficiency of the organization or company, therefore existing human resources need to be developed in quality so that they can achieve optimal performance and can continue to develop in accordance with the guidance of the times like today. The quality of qualified human resources is indispensable for companies so that the company can achieve organizational goals optimally produce quality products and maintain the company's existence in the midst of very fierce competition. Human resources are seen as a very decisive element in the sustainability process of an organization because the

development of quality services will be realized if they are supported by quality human resources as well (Tangkilian, 2005). Human resources as a workforce must be very attached to occupational health and safety issues while working in a company. These safety and health problems can arise as a result of equipment and machinery disruptions because they can raise the risk of work accidents and disruption of the employee's occupational health. The term 'Occupational Safety and Health according to Occupational Safety & Health of America (OSHA) has a primary perspective as a scientific approach in the application of occupational health and safety.

Regarding productivity, PT. Halmahera Persada in South Halmahera is one of the large companies engaged in the field of nickel ore refining / Refinery, which is in the form of making raw materials for electric car batteries, which is made from raw materials in the form of nickel ore obtained from its own mine which comes directly to the factory/plant refinery. The company had around 450 employees in 2019 and continues to increase to around 623 employees in 2024. This company is one of the many companies in eastern Indonesia and the largest in the utilization of low-grade nickel ore with a fairly high product sales rate. Therefore, in order for the production turnover wheel to run well, it must be supported by attention to the Occupational Safety and Health (K3) of its employees. So that the job satisfaction desired by employees and the company can be achieved optimally, performance refers to employee achievement measured based on standards or criteria set by the company (Mathis and Jackson, 2007). Job satisfaction is very necessary and it is hoped that workers will be able to work at full capacity it will improve the company's performance. On the other hand, if employees are dissatisfied with their performance, there will be a condition of declining performance of the employee. Job satisfaction will create a positive atmosphere in employees that makes them better at work. The quality of job satisfaction will affect the work done by the employee, so it can be said that one of the supporting factors for the creation of superior performance is high job satisfaction, (Fadlallah, 2015).

Employees who have a high level of job satisfaction mean that they are satisfied with something they get in their work environment. High job satisfaction that can improve employee performance requires an occupational health and safety program for employees that will have an impact on the performance of the employees themselves.

Occupational safety culture can have a positive effect on employee performance and job satisfaction, this can be explained as follows:

- Employee performance
Good quality of work safety can improve employee performance because employees feel safe and protected. This makes employees more focused and motivated to complete their work tasks.
- Employee job satisfaction
Good quality of work safety can increase employee job satisfaction because employees feel safe and cared for.

The following is data on the number of work accidents that occurred to employees of the production department at PT. Halmahera Persada in South Halmahera in 2019-2024 as shown in Table 1.

Table 1. Number of Work Accidents of PT. Halmahera Persada Employees in South Halmahera

Years	Number of Employees	Classification of Accident Types				Amount
		<i>Fatality</i>	<i>Medical Treatment</i>	<i>First Aid Case</i>	<i>Property Damage</i>	
2019	450	0	2	6	1	9
2020	524	0	5	17	6	28
2021	537	0	1	11	4	16
2022	556	0	6	16	7	29
2023	603	0	8	19	11	38

Years	Number of Employees	Classification of Accident Types				Amount
		Fatality	Medical Treatment	First Aid Case	Property Damage	
2024	623	0	11	24	9	44

Source: PT. Halmahera Persada Halmahera Selatan, 2024.

Looking at the data in Table 1. Above, the number of employees who experience work accidents is arguably increasing every year. Referring to the classification of accidents above, starting from property damage (accidents that result in material losses or company property), First Aid Cases (accidents that result in minor injuries and do not require professional medical treatment), Medical Treatment Cases (accidents that cause serious injuries and require professional medical care and can result in loss of working time for the victim), Fatality (accidents that result in death for the victim). To minimize the possibility of an increase in work accidents, supervision and work discipline must be improved. A good supervision system will create work discipline for all employees, so that this will reduce the risk of work accidents at PT. Halmahera Persada in South Halmahera. Occupational safety is a tool in an effort to achieve the highest degree of occupational health and safety which aims to improve the welfare and health of the workforce. According to (Widodo, 2005), occupational safety and health are definitively a planned force and effort to prevent accidents or occupational diseases. Occupational safety is also a very sensitive matter in relation to increasing production which is characterized by the demand to increase the efficiency and productivity of human factors in the production system.

The following is an accident pyramid that can be a general overview of the increase in accident classification if hazard control is not carried out as shown in figure 1.



Source : <http://saptasarana.co.id>

Figure 1. Pyramid of Accidents

If we look at the graphic info above, that if the employee does not report an accident or nearmiss, then it will have the potential to escalate into an accident resulting in material damage or loss of company property (property damage), then if it is not reported it will increase upwards and has the potential to become a minor accident (first aid case) and also a serious accident (medical treatment case). All of this will have the potential to escalate into an accident resulting in fatality if the hazards and risks of the work and work area are not reported and managed. This emphasizes that job satisfaction is a person's point of view, both positive and positive that is formed in job satisfaction from the assessment of their work (Siagian, 2006). This opinion is supported by the explanation that occupational safety is a protection for the safety and comfort of work experienced by workers, both physically and mentally in their work environment (Bangun, 2012). Occupational health is also a condition that indicates that a person is free from

physical, mental, emotional or pain disorders caused by the work environment (Mangkunegara, 2009).

Seeing that the implementation of good K3 practices, a good environment and superior employee competence, will affect employee performance that increases and has a positive effect on the company's productivity, this study is made for hypotheses including:

- H1: The relationship between occupational health and safety (K3) and employee performance.
- H2: The relationship between the environment and employee performance.
- H3: The relationship between competence and employee performance.
- H4: The relationship between occupational health and safety (K3) and employee job satisfaction.
- H5: Relationship between the environment and employee job satisfaction.
- H6: The relationship between employee competence and employee job satisfaction.

METHOD

This study uses a quantitative descriptive method, focusing on the explanation and description of each variable tested using numerical data. The variables in this study include independent (X) and dependent (Y) variables. The independent variables in this study are Occupational Health and Safety / K3 (X_1), Work Environment (X_2) and Competency (X_3), while the dependent variables are employee performance (Y).

Population and Sample

Population in a study usually refers to a group that has the same typology in the organization. In this study, the population consisted of 623 employees of PT. Halmahera Persada in South Halmahera and the number of samples in this study is 60 respondents.

Data Collection Techniques

a. Literature Studies

This study is a method of collecting data and information through literature research, which includes journals and previous studies, literature, and sources related to research materials. This is important in research because it aims to improve theoretical and applied understanding.

b. Observation

It is a literature study to obtain data or information through journal review, identifying samples and previous research.

c. Interview

This data collection is used by researchers when they are going to conduct a preliminary study to identify further problems, or when they want to get an in-depth picture of a number of respondents

d. Questionnaire

The questionnaire uses the Likert scale format by considering the weight of the scores on the respondent's questions and answers.

Data Analysis Techniques

a. Classic Assumption Test

This test is used to ensure that the regression equation can give an accurate estimate, not vague and biased to maintain consistency, bias using normality, homogeneity and linearity tests.

b. Test Hypothesis using path analysis

This analysis is related to making a path diagram for research, formulation and hypothesis testing.

RESULTS AND DISCUSSION

Validity Test

To evaluate the validity, the calculated r value must exceed the table value for each question asked to the respondent. This test is used to determine the validity of the questionnaire used by the researcher. The r table value at a significant 5% with $df-2 = 28$ and $\alpha = 0.05$ is 0.361.

Table 2. Results of Validity Test of Employee Performance Variable (Y)

Variable	Item	r_{count}	r_{table}	Information
Performance (Y)	1	0,676	0,361	Valid
	2	0,843	0,361	Valid
	3	0,761	0,361	Valid
	4	0,756	0,361	Valid
	5	0,792	0,361	Valid
	6	0,796	0,361	Valid
	7	0,725	0,361	Valid
	8	0,802	0,361	Valid

Source: Results of processed data calculations, 2024

Table 3. Results of the Validity Test of the Occupational Health and Safety Variable (X₁)

Variable	Item	r_{count}	r_{table}	Information
Occupational Health and Safety K3 (X ₁)	1	0,746	0,361	Valid
	2	0,783	0,361	Valid
	3	0,767	0,361	Valid
	4	0,825	0,361	Valid
	5	0,614	0,361	Valid
	6	0,768	0,361	Valid
	7	0,777	0,361	Valid
	8	0,709	0,361	Valid

Source: Results of processed data calculations, 2024

Table 4. Results of Validity Test of Work Environment Variables (X₂)

Variable	Item	r_{count}	r_{table}	Information
Work Environment (X ₂)	1	0,906	0,361	Valid
	2	0,848	0,361	Valid
	3	0,544	0,361	Valid
	4	0,833	0,361	Valid
	5	0,770	0,361	Valid
	6	0,695	0,361	Valid
	7	0,858	0,361	Valid
	8	0,808	0,361	Valid

Source: Results of processed data calculations, 2024

Table 5. Employee Competency Variable Validity Test Results (X₃)

Variable	Item	r_{count}	r_{table}	Information
Competency (X ₃)	1	0,777	0,361	Valid
	2	0,806	0,361	Valid
	3	0,773	0,361	Valid
	4	0,825	0,361	Valid
	5	0,834	0,361	Valid
	6	0,793	0,361	Valid
	7	0,725	0,361	Valid
	8	0,802	0,361	Valid

Source: Results of processed data calculations, 2024

Based on the existing table (X_1 , X_2 , X_3 , and Y) it can be said to be valid. This data is based on the applicable formula, where if the r_{count} value exceeds the r_{table} value, then the question is declared valid. The validity of each instrument is assessed based on whether the correlation coefficient (r_{count}) is $>$ from the value (r_{table}) at the sig level of 0.05, which is 0.361.

Reliability Test

This test uses Cronbach's Alpha to assess whether the test instrument is reliable in terms of its capabilities, and each instrument is considered reliable if its reliability coefficient falls within the criteria of $r > 0.60$.

Table 6. Employee Performance Variable Reliability Test Results (Y)

Reliability Statistics	
Cronbach's Alpha	N of Items
.899	8

Source: Results of processed data calculations, 2024

Table 6 shows that 8 statement items in the Employee Performance variable (Y) have high reliability and are very reliable. This is because the Cronbach's Alpha value is greater than 0.60, namely $0.899 > 0.60$.

Table 7. Results of Reliability Test of Occupational Health and Safety Variables (X_1)

Reliability Statistics	
Cronbach's Alpha	N of Items
.916	8

Source: Results of processed data calculations, 2024

Table 7 shows that 8 statement items in the Occupational Health and Safety variable (X_1) have high reliability and are very reliable. This is because the Cronbach's Alpha value is greater than 0.60, namely $0.916 > 0.60$.

Table 8. Environmental Variable Reliability Test Results (X_2)

Reliability Statistics	
Cronbach's Alpha	N of Items
.936	8

Source: Results of processed data calculations, 2024

Table 8 shows that 8 statement items in the Environment variable (X_2) have high reliability and are very reliable. This is because the Cronbach's Alpha value is greater than 0.60, namely $0.936 > 0.60$.

Table 9. Competency Variable Reliability Test Results (X_3)

Reliability Statistics	
Cronbach's Alpha	N of Items
.885	8

Source: Results of processed data calculations, 2024

Table 9 shows that 8 statement items in the Competence variable (X_3) have high reliability and are very reliable. This is because the Cronbach's Alpha value is greater than 0.60, namely $0.885 > 0.60$.

Normality Test

Data normality test is conducted to ensure that the data used as a regression model can follow a normal distribution, and is said to be normal if the data has an even data distribution and is not too skewed to the left or right, and the test device used uses Normal Probability Plots.

Table 10. Data Normality Test – Kolmogorov Smirnov

		Unstandardized Residual
N		60
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Dev.	3.40145068
Most Extreme Differences	Absolute	.080
	Positive	.069
	Negative	-.080
Test Statistic		.080
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

Based on table 10, the Asymp Sig (2-tailed) value can be obtained which has a value of 0.200. If Sig > 0.05, then the significant value exceeds 0.05 (0.200>0.05, then this indicates that the data is normally distributed, so in this study the conclusion is that all residual value variables follow a normal distribution.

Homogeneity Test

This homogeneity test shows a significant value of the study > 0.50 (0.160 > 0.05). This result shows that the requirements for homogeneity in all variables studied have been met homogeneously.

Linearity Test

Based on the linearity test, it can be seen that the relationship between variables in the study has met the linearity criteria with a sig linearity value of < 0.05 and a sig dev. value of linearity > 0.05.

Hypothesis Testing

Based on the analysis of the data obtained, the t-test obtained the influence of K3 on employee performance reached 9.036 with a sig of 0.000. This shows that the hypothesis submitted supports the positive and significant influence of K3 on employee performance. Furthermore, the t-test calculated on the influence of K3 on employee competence is 3.407 with a significance level of 0.001. This shows the positive influence of K3 on employee competence. Meanwhile, the t-test of the influence of employee competence on performance is 6.579 with a significance level of 0.000. This can show that there is an influence of employee competence on employee performance.

For the indirect impact of K3 on competence through the work environment, the t-test is 3.184 and this is almost the same as the direct influence of K3 on competence of 3.407 with a significance value of 0.001 <0.05, so it can be concluded that indirectly K3 through the work environment has an effect on competence.

The results of the calculation of the indirect influence of K3 on performance through work competence show a t-test value of 3.135 with a significance level of 0.001 <0.05, this shows that K3 has a significant indirect influence on performance through employee competence.

CONCLUSION

Conclusion

From the results of the study on the significant influence of K3, work environment and employee competence on employee performance at PT. Halmahera Persada in South Halmahera, it can be concluded that there is a positive and significant relationship between K3

and the work environment, as well as between K3 and employee competence. The work environment shows a positive and significant influence on work competence. Employee performance is positively and significantly influenced by K3, the work environment and employee competence.

Suggestions

The implementation of the Accident Pyramid in the workplace involves a series of steps and strategies to identify, prevent, and manage accident risks. Here are some suggestions that can be taken as company recommendations:

1. Understanding the Accident Pyramid
 - Educate employees about the concept of the Accident Pyramid and the importance of reporting near misses.
 - Emphasis on the fact that minor incidents have the potential to develop into more serious accidents.
2. Incident Analysis
 - Collect and analyze data related to near misses, minor accidents, and fatalities.
 - Identify trends and patterns to identify potential risk areas.
3. Safety Training and Awareness
 - Conduct regular safety training to increase employee awareness of risks and precautions.
 - Engage employees in safety simulations or drills to practice responding to emergency situations.
4. Work Environment Improvement
 - Ensure that the work environment is designed to minimize the risk of accidents.
 - Conduct routine inspections of equipment, work tools, and infrastructure to detect and repair potential hazards.
5. Risk Management
 - Involve employees in the risk identification process.
 - Develop and implement risk management strategies to reduce the potential for accidents.
6. Emergency Training
 - Conduct emergency training to ensure that employees know how to respond quickly and effectively in emergency situations.
7. Routine Safety Audits
 - Conduct regular safety audits to evaluate the effectiveness of the safety program.
 - Involve stakeholders in the evaluation to gain diverse perspectives.
8. Implement Safety Regulations
 - Ensure compliance with applicable safety regulations.
 - Apply sanctions or incentives according to the level of compliance and safety performance.
 - Optimize the provision of Personal Protective Equipment (PPE) that is appropriate to the work conditions.
9. Employee Communication and Involvement
 - Build open communication channels between management and employees.
 - Engage employees in the decision-making process and safety improvements.

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