

The Role of Occupational Health and Safety in Mediating Competence on Employee Performance at PT PLN (Persero) UP3 Pematangsiantar

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Abstract

This study aims to analyze the influence of competence and career improvement with occupational health and safety as a variable intervening in PT PLN (Persero) UP3 Pematangsiantar. This study uses a quantitative approach with a survey method. The sample amounted to 130 people consisting of 92 employees spread across the Customer Service Unit (ULP) and 48 people at the Pematang Siantar Customer Service Performer Unit (UP3) Office. The data analysis technique uses Structural Equation Modeling (SEM) based on Partial Least Square (PLS). The results of the study show that there is one hypothesis that is rejected, namely Employee Competence and Career Improvement have a positive but insignificant effect on employee performance and occupational health and safety on Career Improvement through Competency Improvement and Six more hypotheses are accepted. These findings indicate that improving individual competencies is key in improving careers to performance with K3 as the main goal. Therefore, it is recommended that organizations continue to encourage Competency Improvement to improve performance so that employee Career Improvement is also in line with Competency Improvement.

Keywords: Competence, Employee Performance, Occupational Health and Safety.

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Introduction

Employees certainly want to improve their performance well, where they will always work hard in completing every job given to them or the work they are undertaken, where the work can be completed if they are able to do the existing work well (Trillo-Cabello, Antonio F., Carrillo-Castrillo, Jesús A. and Rubio-Romero, 2021). Improving performance will create self-development of employees where the more abilities develop in employees, the more they will be able to do things outside of their competencies and existing fields of work, where the existing field of work can be easily adjusted to abilities, in accordance with the field of work and also the work procedures made in each work unit and department (Subhan, Aris, Joesah & and Budi Kusuma, 2023).

The more skills develop, the better the existing work results and can reduce the mistakes made, so that he will be able to increase work productivity, as well as create existing work achievements, where work achievements will result in the creation of a good and clear career for employees who work in an agency or company, where a good and clear career will improve the welfare of employees' lives continuously (Mallik, 2023). The relationship between performance and career advancement is very close, as good performance is often a major factor in a person's career progression. High-performing employees are more likely to be promoted to higher positions. Companies tend to give more responsibility to individuals who are proven to be able to perform well who will later be able to improve their careers well (Janietz, 2024).

Employees who have a brilliant career have hidden potential that has been stored, where even though they have good potential, consistency is something that must be possessed in completing work that must require more skills, where consistency in good performance builds an employee's reputation to become a professional. Employees who excel and have a good career and are professional are often more appreciated by their superiors and management (Gümüştas, Cihangir and Küskü, 2021).

Companies are looking for personnel who are able to handle more difficult tasks and have good leadership. People who perform well tend to be more attractive to industry leaders, who are able to improve *fire* company through its ability and expertise to create good work results that will increase the company's performance and productivity (Piffari, Claudia, 2024). The process of creating work results tends to be carried out by employees who have good and appropriate competencies, and in accordance with their field of work, where good and qualified competencies will ensure that the existing work can be completed properly without any fatal mistakes that harm the company as a whole (Diana, 2022).

Even good competence does not guarantee mistakes in the existing work results, where mistakes in work will have an impact on the health and safety of employees' work, where employees who have competence must reduce mistakes so that the employee can be protected from work accidents, so that the work he will carry out can avoid dangerous things that will interfere with his performance (Niebuhr, Fiona, 2022).

Employee occupational health and safety is something that needs to be done by the company, where the company always creates real protection for its employees, where employees will always feel comfortable at work without thinking that the work can interfere with work health and safety, where this thinking will interfere with employee performance, so that it will have an impact on the decrease in poor work results, which has an impact on the disruption of careers and employee positions that at any time the careers carried out will decrease due to their plummeting performance (Giorgi, Gabriele, 2020).

PT. PLN (Persero) UP3 Pematangsiantar is one of the customer service implementation units of PT PLN (Persero) UID in the North Sumatra region, where the unit has a total of 140 employees, where there are various competencies, so that there is a discrepancy between the competencies and positions currently held, which results in a lot of performance that is not achieved and risks to the safety and health of the employees themselves.

LITERATURE REVIEW

2.1 Definition of Competence

According to Spencer (2021), competence includes the knowledge, skills, and attitudes needed to carry out a job well. Competency is a combination of technical and non-technical abilities that support individuals in achieving desired goals in work.

The types of competencies are:

1. Technical competencies, such as the competency of operating a specific computer or equipment
2. Non-technical competencies, such as collaboration and teamwork skills
3. Managerial competence, such as decision-making skills
4. Personality competencies, such as creativity and innovation(Bozionelos, Nikos, Lin & and Lee, 2020).

The role of competence in improving employees' careers in a company is:

1. Improve performance and productivity
2. Become an added value for the company
3. Accelerating job promotion
4. Expanding career opportunities
5. Increase confidence and job satisfaction.

According to Spencer L. M & Spencer S. M (2021) competency indicators can be measured through various aspects as follows:

1. Technical Ability
2. Interpersonal Abilities
3. Troubleshooting and .

2.2 Employee Performance

According to Aulia et al. (2021), performance is a collection of a series of work results of quantity, quality, efficiency, and work effectiveness in achieving goals.

The factors that affect employee performance (Sato, Miho, 2024) be:

1. Work motivation
2. Occupational health and safety guaranteed
3. Training and development
4. Leadership and management.

The strategy is to improve employee performance (Akbari, Mohsen, 2022) be:

1. Provide training and development
2. Reward when the performance is good
3. Encourage creativity and innovation.

According to Aulia et al. (2021), the performance indicators are:

1. Quality of work
Showing neatness, thoroughness, and the interconnectedness of work results without ignoring the volume of work. Good quality work can avoid the level of errors in the completion of a job that can be beneficial for the progress of the Company.
2. Working quantity
Shows the large number of types of work carried out at one time so that efficiency and effectiveness can be carried out in accordance with the Company's goals.
3. Responsibility
Showing how much employees receive and carry out their work, be responsible for the results of their work as well as the facilities and infrastructure used and their daily work behavior.
4. Cooperation
Employees' willingness to participate with other employees vertically and horizontally both inside and outside of work so that work results will be better.

5. Initiative

Initiative from within the company members to do work and solve problems at work without waiting for orders from superiors or showing responsibility in work that is already an employee's obligation.

2.3 Occupational Safety and Health

According to Hasibuan, et al. (2020:3) the definition of Occupational Safety and Health (K3) is to improve and maintain the highest degree of all work both physically, mentally and socially in all types of companies, prevent the occurrence of health problems caused by work, protect workers in every job from risks caused by factors that interfere with health, place and maintain workers in a work environment that is in accordance with the conditions physiological and psychological aspects of workers and to create a fit between work and work and each person with his duties.

The role of occupational health and safety for employees working in the company are:

1. Reduce the risk of work accidents.
2. Creating occupational health and safety standards
3. Reduce employee medical expenses.

The Indicators of Occupational Safety and Health (K3) according to Hasibuan et al. (2020) are:

1. Frequency of Work Accidents
The number of work accident incidents in a given period, which indicates the level of safety of the work environment.
2. Severity of the accident. Measured by the number of working days lost due to work accidents.
The higher the severity, the greater the impact on productivity.
3. Total Occupational Diseases (PAK)
This indicator reflects the health condition of the worker that is directly related to the type of work or work environment.
4. Compliance with K3 Procedures
How far workers and management comply with the operational standards of K3 procedures, including the use of personal protective equipment (PPE).
5. Number of K3 Training Provided
Measuring the level of K3 education and training held to improve occupational safety awareness and skills.
6. Employee Participation in K3
ProgramsActive involvement of workers in activities, reporting, and evaluation of K3 programs

2.4 Conceptual Framework

The existing conceptual framework can be seen in this study are:

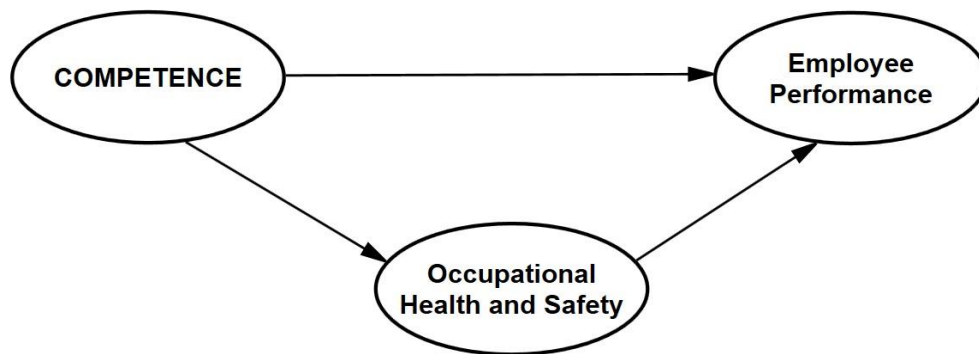


Figure 1. Research Conceptual Framework

2.5 Hypothesis

- H1: Competence has a positive and significant effect on employee performance at PT PLN (Persero) UP3 Pematangsiantar.
- H2: Competence has a positive and significant effect on occupational health and safety at PT PLN (Persero) UP3 Pematangsiantar.
- H3: Occupational health and safety have a positive and significant effect on the performance of employees at PT PLN (Persero) UP3 Pematangsiantar.
- H4: Competence has a positive and significant effect on performance through occupational health and safety variables at PT PLN (Persero) UP3 Pematangsiantar.

RESEARCH METHODS

3.1 Types of Research

This research method was carried out with a quantitative descriptive method using the analysis of the structural equation model (SEM) method, where according to (James, Kaconco, 2024) SEM analysis is a data analysis that explains that some construct variables have an influence on some other construct variables. The population in this study is 140 employees at PT PLN (Persero) UP3 Pematangsiantar, where the sampling method is using the saturated sample method, which according to (James, Kaconco, 2024) The saturated sampling method is sampling that is part of the research population. The number of samples that emerged was 140 employees at PT PLN (Persero) UP3 Pematangsiantar with data collection techniques using observation studies, as well as the distribution of questionnaires to respondents, namely employees in the work area of PT PLN (Persero) UP3 Pematangsiantar.

3.2 Research Location and Research Time

The location of the research was conducted at PT PLN (Persero) UP3 Pematangsiantar which is located at Jalan Kapten M.H. Sitorus No.1, Proklamasi, Kec. The research was carried out for 3 months, from May to July 2025.

3.3 Population and Sample

The population and sample in this study are all active employees in the work area of PT PLN (Persero) UP3 Pematangsiantar. The number of employees in the work area of PT PLN (Persero) UP3 Pematangsiantar is 140 employees, with details: 48 employees in the Customer Service Implementation Unit Office and 92 employees spread across 10 UP3 Pematangsiantar

Customer Service Units. Sampling was done using the slovin formula with a total of 103 samples.

RESULTS AND DISCUSSION

4.1 Outer Model *Analysis*

Outer Model *analysis* using *the PLS Algorithm*, yielding:
Validity Test

Table 1. Value of Outer Loadings

	Competence	Employee Performance	Occupational Health and Safety
X1.1	0,794		
X1.2	0,819		
X1.3	0,906		
Y.1		0,892	
Y.2		0,870	
Y.3		0,842	
Y.4		0,867	
Y.5		0,858	
Z.1			0,836
Z.2			0,850
Z.3			0,836
Z.4			0,868
Z.5			0,852
Z.6			0,863
Z.7			0,842

Source: PLS Smart Output, 2025

Based on the values in Table 1 above, showing the results of the outer model test through the loading factor / outer loadings value, all indicators in each variable have a loading value ≥ 0.70 . This shows that each indicator is able to represent a measured construct validly and robustly. Therefore, it can be concluded that all items in the questionnaire have met the criteria of convergent validity and can be used in subsequent analysis. For more details on the above value, you can also see the following figure.

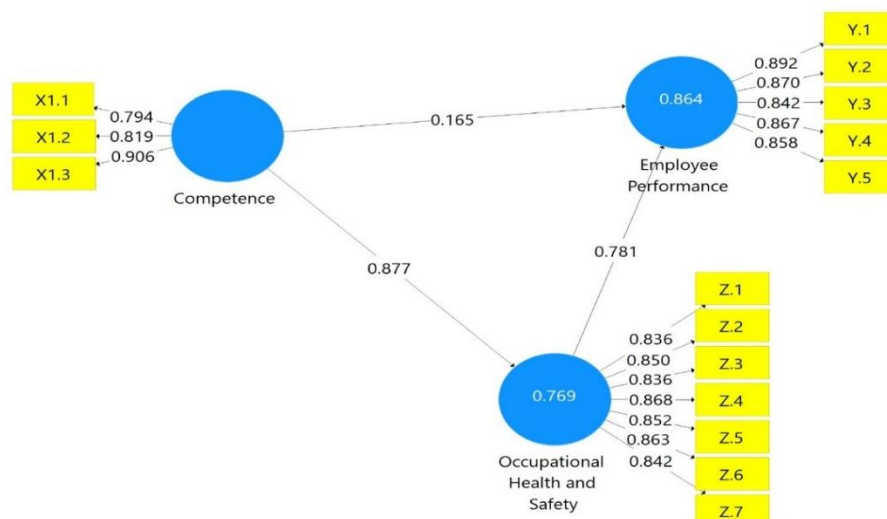


Figure 2. Outer Loadings

Table 2. Construct Reliability and Validity Test Reliability Test

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Competence	0,792	0,809	0,878	0,707
Employee Performance	0,917	0,917	0,937	0,750
Occupational Health and Safety	0,936	0,936	0,948	0,722

Source: PLS Smart Output, 2025

From Table 2 above, the reliability test results show that Cronbach's Alpha and Composite Reliability values on all constructs have values above 0.70. This shows that all indicators have high internal consistency and are reliable in measuring their respective constructs. Thus, the research instrument is declared reliable and feasible for use in structural model testing.

Coefficient of Determination (R²)

In assessing a model with PLS it starts by looking at the R-square for each dependent latent variable. The table below is the result of Rsquare estimation using SmartPLS.

Table 3. R Square Results

	R Square	R Square Adjusted
Employee Performance	0,864	0,862
Occupational Health and Safety	0,769	0,768

Source: Smart PLS, 2025

In table 3, there is an R square value in both dependent variables for the Occupational Health and Safety variable, there is an R square value of 0.769. The square value of employee performance is 0.864, meaning that Competence and Occupational Health and Safety are 0.864 or 86.4%, the rest is in other variables outside the model.

4.2 Structural Model Testing (Inner Model)

Internal testing of the model or structural model is carried out to see the relationship between the construct, significance value and R-square of the research model. Structural models are evaluated using R-square for dependent constructs.

Hypothesis Testing

Direct Influence Between Variables

The direct influence between variables can be seen in the value of *path coefficients*. The results of the data processing show the value of direct influence can be seen in the following table.

Table 4. Path Coefficients (Direct Influence)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Competence -> Employee Performance	0,165	0,163	0,082	2,014	0,045
Competence -> Occupational Health and Safety	0,877	0,879	0,019	45,310	0,000
Occupational Health and Safety -> Employee Performance	0,781	0,784	0,078	10,067	0,000

Source: PLS Smart Output, 2025

In the results of Table 4, there are the following direct influence values:

1. Occupational Health and Safety has a positive and significant effect on Employee Performance with a t-statistical value of 10.067 above 1.96 and a significance of 0.000 below 0.05, meaning that Occupational Health and Safety has a positive and significant effect on Employee Performance because the significance value is below 0.05.
2. Competency has a positive and significant effect on occupational health and safety with a t-statistical value of 45.310 above 1.96 and a significance of 0.000 below 0.05, meaning that occupational health and safety has a positive and significant effect on employee performance because the significance value is below 0.05.
3. Competence has a positive and significant effect on employee performance with a t-statistical value of 2.014 above 1.96 and significance of 0.045 below 0.05, meaning that competence has a positive and significant effect on employee performance because the significance value is below 0.05. This research is in line with research conducted by Aulia et al (2021) which states that competence has a positive and significant effect on employee performance.

Indirect Influence Between Variables

The indirect influence between variables can be seen in the value of *specific indirect effects*, which can be seen in Table 5 below.

Table 5. *Specific Indirect Effects*

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Competence -> Occupational Health and Safety -> Employee Performance	0,685	0,690	0,073	9,442	0,000

Source: Smart PLS, 2025

In table 5, there is an indirect influence between variables which will be explained as follows:

1. Competence has a positive and significant effect on Employee Performance through Occupational Health and Safety with a t-statistical value of 9.442 and a significance value of 0.000, meaning that Occupational Health and Safety plays a role as an intervening variable between Competency and employee performance.

CONCLUSION

1. Competence has a positive and significant effect on employee performance at PT PLN (Persero) UP3 Pematangsiantar.
2. Competence has a positive and significant effect on occupational health and safety at PT PLN (Persero) UP3 Pematangsiantar.
3. Occupational health and safety have a positive and significant effect on the performance of employees at PT PLN (Persero) UP3 Pematangsiantar.
4. Competency has a positive but insignificant effect on performance through occupational health and safety variables at PT PLN (Persero) UP3 Pematangsiantar.

SUGGESTION

1. Increase transparency and objectivity in the promotion process, for example through a measurable performance and competency appraisal system. Provide a clear career path, so that employees are motivated to improve their competencies for promotion. Involve employability evaluation as one of the key indicators in promotion decisions.

2. Conduct a training need analysis periodically to ensure that the training materials are in accordance with the challenges and work needs of employees. Develop a variety of training methods, such as project-based training, case studies, or technology-based training (e-learning). Evaluate training results to ensure there is a real improvement in competence and implementation in the workplace.
3. Focus on developing soft skills and hard skills in a balanced manner, such as communication skills, collaboration, problem solving, and mastery of technology. Create a system of monitoring and evaluation of employees' abilities periodically, to map out further development needs. Implement a coaching and mentoring system by senior employees as a means of knowledge transfer and competency improvement.

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