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Exploring the Impact of Competence, Work Environment, and Motivation on Employee Performance at PT. PLN (Persero) UID North Sumatra

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Abstract
This study aims to examine the effect of competence and work environment on employee performance with motivation as a mediating variable at PT. PLN (Persero) North Sumatra Main Distribution Unit (UID Sumut). The research employed a quantitative approach using Partial Least Square (PLS) analysis. The sample consisted of 137 employees selected using purposive sampling. The results indicate that competence and work environment have a positive and significant effect on motivation, and both directly and indirectly influence employee performance. Motivation is also proven to be an intervening variable that strengthens the effect of competence and work environment on employee performance. These findings highlight the importance of improving competence, creating a supportive work environment, and enhancing motivation to optimize employee performance at PT. PLN (Persero) UID North Sumatra.

Keywords: competence, work environment, motivation, employee performance.

INTRODUCTION

Employee performance is a key factor in achieving organizational goals, including in state-owned companies such as PT. PLN (Persero). As a company engaged in the electricity supply sector, PT. PLN plays a strategic role in supporting national development. Therefore, it is important to ensure that employees at UID North Sumatra have optimal performance. According to Ferine (2020), motivation has a significant partial effect on employee performance.PT PLN (Persero) UID North Sumatra, as an electricity distribution unit under PT PLN Pusat, is committed to improving employee performance to ensure a reliable electricity supply for the community. Employee competency is the foundation for performance improvement. Competency encompasses the knowledge, skills, and attitudes (Hidayat, 2021) required to complete tasks productively. Factors such as educational background, expertise, and experience also determine the quality of competency. Therefore, strengthening competency is expected to reduce work errors and increase the accuracy of work results.

A company's operational success is highly dependent on the quality of its human resources, with employee performance being a key indicator of organizational success. Performance is defined as measurable work results that can be compared to established standards (Khatimah et al., 2020). However, observations indicate that some employees still carry out their duties inaccurately. According to Guritno and Waridin (in Maria & Lestari, 2020), ideal performance includes achieving targets, punctuality, innovation, creativity, and minimizing errors.

Several factors that can influence employee performance include competence, work environment, and motivation. Competence encompasses the knowledge, skills, and attitudes

employees possess in carrying out their duties. The work environment encompasses the physical and psychological conditions in which employees work, which can impact comfort and productivity. Work motivation is an internal drive that influences the extent to which employees strive to achieve organizational goals.

Formulation of the problem

1. Does Competence have a positive and significant influence on Employee Performance at the PT. PLN (Persero) UID North Sumatra Office?
2. Does the Work Environment Have a Positive and Significant Influence on Employee Performance at the PT. PLN (Persero) UID North Sumatra Office?
3. Does Competence have a positive and significant effect on Motivation at the PT. PLN (Persero) UID North Sumatra Office?
4. Does the work environment have a positive and significant influence on motivation at the PT. PLN (Persero) UID North Sumatra office?
5. Does Motivation Have a Positive and Significant Influence on Employee Performance at the PT. PLN (Persero) UID North Sumatra Office?
6. Does Competence have a positive and significant influence on employee performance through motivation at the PT. PLN (Persero) UID North Sumatra Office?
7. Does the work environment have a positive and significant influence on employee performance through motivation at the PT. PLN (Persero) UID North Sumatra office?

Research purposes

1. To test and analyze the influence of Competence on Employee Performance at the PT. PLN (Persero) UID North Sumatra Office?
2. To test and analyze the influence of the work environment on employee performance at the PT. PLN (Persero) UID North Sumatra office?
3. To test and analyze the influence of Competence on Motivation at the PT. PLN (Persero) UID North Sumatra Office?
4. To test and analyze the influence of the work environment on motivation at the PT. PLN (Persero) UID North Sumatra office?
5. To test and analyze the influence of Motivation on Employee Performance at the PT. PLN (Persero) UID North Sumatra Office?
6. To test and analyze the influence of Competence on Employee Performance through Motivation at the PT. PLN (Persero) UID North Sumatra Office?
7. To test and analyze the influence of the work environment on employee performance through motivation at the PT. PLN (Persero) UID North Sumatra Office?

LITERATURE REVIEW

Performance

According to Afandi (2018:83) Performance is the work results that can be achieved by a person or group of people in a company in accordance with their respective authorities

and responsibilities in an effort to achieve organizational goals illegally, without violating the law and without conflicting with morals and ethics.

Performance Indicators

According to Afandi (2018) employee performance indicators are as follows:

1. Quantity of work results
2. Quality of work results
3. Efficiency in carrying out tasks
4. Work discipline. Obedient to applicable laws and regulations
5. Initiative
6. Accuracy
7. Leadership
8. Honesty.
9. Creativity

Factors Affecting Performance

According to Kasmir (2016) are as follows:

1. Skills and expertise
2. Knowledge
3. Work plan
4. Personality
5. Work motivation
6. Leadership
7. Leadership style
8. Organizational culture
9. Job satisfaction
10. Work environment
11. Loyalty
12. Commitment
13. Work discipline.

Competence

According to Sedarmayanti (2017), competence is the work ability of each individual which includes aspects of knowledge, skills and work attitudes in accordance with established standards.

Competency Indicators

Competency indicators according to Sedarmayanti (2017):

1. Knowledge
   An individual's ability to understand and master information, procedures, or specific areas required to carry out tasks.
2. Skills

A person's technical and non-technical abilities in completing work effectively and efficiently.

3. Work Attitude
   An individual's attitude towards work, including motivation, responsibility, discipline, and cooperation.

Motivation

According to Robbins and Judge (2018), work motivation is an internal force that drives individuals to act or perform certain actions directed toward specific goals. According to Anintyas & Setia Tjahyanti (2023), motivation is a desire for talent caused by needs, desires, and willingness that drives an individual to use their physical and mental energy to achieve desired goals.

Work Motivation Indicators.

According to Robbins and Judge (2018), work motivation indicators are:

1. Achievement Expectancy: The desire to achieve optimal work results.
2. Development Opportunities: Opportunities to enhance skills and career.
3. Recognition and Rewards: Receiving positive feedback and rewards for performance.
4. Job Satisfaction: Level of satisfaction with one's job and work environment.

Work environment

According to Sedarmayanti (2017), the work environment is the totality of tools, materials, conditions, and procedures surrounding workers that can influence job performance and workplace comfort. A good work environment provides a sense of security and comfort, and motivates employees to work more productively. Conversely, a poor work environment can cause stress, lower morale, and even impact employee attendance and performance.

Work Environment Indicators

According to Sedarmayanti (2017), work environment indicators are divided into two main groups, namely:

1. Physical Work Environment
   The physical work environment relates to conditions that can be observed and felt directly by the five senses.
   The indicators include:
   a. Lighting
   b. Air circulation and ventilation
   c. Noise
   d. Workspace layout (Layout)
   e. Cleanliness and safety

2. Non-Physical Work Environment (Psychological/Social)
   a. Relationships between coworkers
   b. Relationship with superiors
   c. Leadership and management support
   d. Organizational culture

Conceptual Framework

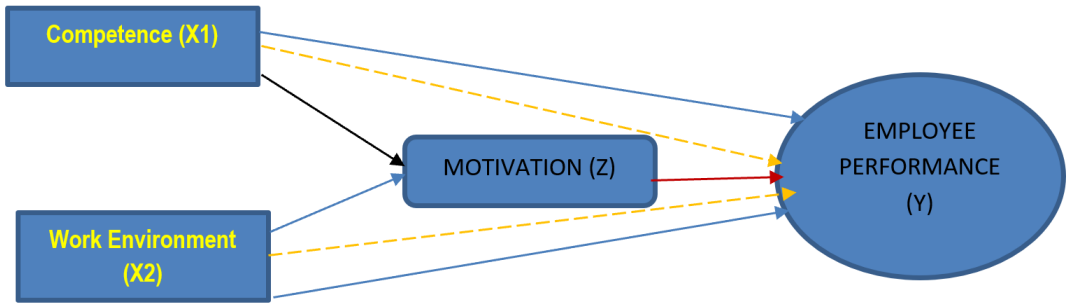

Figure 1: Conceptual Framework

Hypothesis

1. Competence has a positive and significant influence on employee performance at the PT. PLN (Persero) UID North Sumatra office.
2. The work environment has a positive and significant influence on employee performance at the PT. PLN (Persero) UID North Sumatra office.
3. Motivation has a positive and significant effect on employee performance at the PT. PLN (Persero) UID North Sumatra office.
4. Competence has a positive and significant influence on employee motivation at the PT. PLN (Persero) UID North Sumatra office.
5. The work environment has a positive and significant influence on employee motivation at the PT. PLN (Persero) UID North Sumatra office.
6. Competence has a positive and significant influence on employee performance through motivation at the PT. PLN (Persero) UID North Sumatra office.
7. The work environment has a positive and significant influence on employee performance through motivation at the PT. PLN (Persero) UID North Sumatra office.

METHOD

Types of research

According to Sugiyono (2018), quantitative data is a research method based on positivity (concrete data), research data in the form of numbers that will be measured using statistics as a calculation test tool, related to the problem being researched to produce a conclusion.

Data Types and Sources The data used in this study consists of:

1. Primary Data: Obtained through questionnaires distributed to respondents.

2. Secondary Data: Derived from company reports, academic journals, and previous studies related to HR management.

Research Population and Sample

The population in this study is employeesPT. PLN (Persero) UID North Sumatra Office, as many as 137 people. The research sample was determined using a saturated sample with a total of 137 respondents.

Data collection technique

According to Sugiyono (2018), a questionnaire is a data collection technique carried out by giving respondents a set of written questions or statements to answer.

Data Analysis Methods

The statistical test tool used in this study is the variance-based structural equation test or better known as Partial Least Square (PLS) using SmartPLS 3.0 software. According to Ghozali (2016), the Partial Least Square (PLS) method explains that the variance-based structural equation model (PLS) is able to describe latent variables (not directly measured and measured using indicators (manifest variables). According to Imam Ghozali (2016), Partial Least Square (PLS) is defined as follows: "Partial Least Square (PLS) is a powerful analysis method because it does not assume that data must be measured on a certain scale, and the number of samples is small. The purpose of Partial Least Square (PLS) is to help researchers obtain latent variable values for prediction purposes."

Outer Model

This model includes testing individual item reliability, internal consistency or construct reliability, and average variance extracted. These three measures are grouped based on convergent validity, which measures the degree of correlation between variables and latent variables. In addition to convergent validity, there is also discriminant validity testing. Measurement modeling is carried out to determine the relationship between variables and their indicators. This individual item reliability test describes the correlation between each measurement item (metric) and its structure in the standardized loading factor value. If the ideal load factor value is greater than 0.5, this indicator is valid as an indicator that can measure the structure. Next, internal consistency measurements are carried out, evaluated by composite reliability with a minimum value of 0.7. Convergent validity is then measured by testing the Average Variance Extracted (AVE) value. This value describes the amount of variance or variation in the manifest variable that can be accommodated by the latent variable. An ideal AVE value of 0.5 means the convergent validity value is good. Discriminate validity is evaluated by cross-loading, then comparing the AVE value with the squared correlation value between variables. The crossloading measure is to compare the correlation of a variable with other block variables, which shows that the variable predicts its block size better than other blocks. Another measure of discriminant validity is that the

square of the AVE must be greater than the correlation between the other variables, or the AVE value must be greater than the square of the correlation between the variables.

Inner model

Researchers conduct structural model measurements to determine the relationships between hypothesized structures. This model involves several steps in the evaluation. The first step is to examine the significance of the relationships between variables. This can be seen from the path coefficient, which describes the strength of the relationship between variables. A path coefficient (β) with a threshold value greater than 0.2 indicates that the path is influential in the model.

The second step is to test the T-test value using the bootstrapping method using a two-tailed test with a 5% significance level to test the research hypothesis. If the T-test value is greater than α, the developed research hypothesis is accepted.

The third step is to evaluate the value$R2$ (coefficient of determinant). This value explains the variance of each target variable with a standard size of around 0.75 being declared strong, around 0.5 being moderate, and less than 0.25 indicating a low level of variance.

RESULTS AND DISCUSSION

Outer Model Analysis

Measurement model testing (outer model) is used to determine the specific relationship between latent and manifest variables. This test has convergent validity, discriminant validity, and reliability.

Convergent Validity

This test is proven by the factor loading value of 0.7, as well as the Average Variance Extracted (AVE) value limit of 0.5; anything above this value is considered valid. This means that the indicator value is considered valid if it describes the construct variable with a value greater than 0.7. The structural model in this study is shown in the following figure:

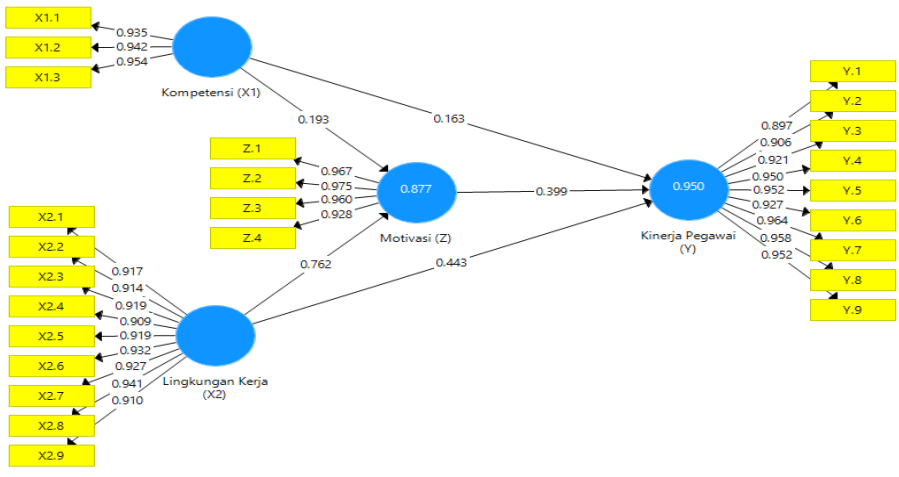

Figure 2. Outer Model

Smart PLS output for loading factor gives the results in the following table: Outer Loadings In this study there is an equation and the equation consists of two substructures for substructure 1

$Z = b1X1 + b2X2 + e1$

$Z = 0.193 + 0.762 + e1$

For substructure 2

$Y = b2X1 + b4X2 + b3Z + e2$

$Y = 0.163 + 0.443 + 0.399 + e2$

Table 1. Outer Loadings

	Employee Performance (Y)	Competence (X1)	Work Environment (X2)	Motivation (Z)
X1.1		0.935		
X1.2		0.942		
X1.3		0.954		
X2.1			0.917	
X2.2			0.914	
X2.3			0.919	
X2.4			0.909	
X2.5			0.919	
X2.6			0.932	
X2.7			0.927	
X2.8			0.941	
X2.9			0.910	
Y.1	0.897			
Y.2	0.906			
Y.3	0.921			
Y.4	0.950			
Y.5	0.952			
Y.6	0.927			
Y.7	0.964			
Y.8	0.958			
Y.9	0.952			
Z.1				0.967
Z.2				0.975
Z.3				0.960
Z.4				0.928

Outer loading indicates the strength of each indicator's contribution to forming a latent construct. A good loading value is ≥ 0.70, indicating high convergent validity, meaning the indicator is highly suitable for measuring the intended variable. All indicators of the four

constructs (Competence, Work Environment, Motivation, and Employee Performance) had values above 0.70, with the majority exceeding 0.90. This indicates that all indicators are highly convergently valid and suitable for use in the research model. No indicators needed to be eliminated. These results demonstrate that the research instrument has excellent measurement quality, making it reliable for proceeding to the structural model analysis (inner model).

Discriminant Validity

Further research will determine the validity of the data using Discriminate Validity, with the aim of determining whether the cross-loading value is greater than other latent variables in order to identify indicators that have a strong relationship with the concept. The following table displays the cross-loading findings from the validity test, as follows:

Table 2. Discriminant Validity

	Employee Performance (Y)	Competence (X1)	Work Environment (X2)	Motivation (Z)
X1.1	0.842	0.935	0.827	0.808
X1.2	0.855	0.942	0.853	0.848
X1.3	0.843	0.954	0.812	0.790
X2.1	0.859	0.784	0.917	0.824
X2.2	0.833	0.789	0.914	0.773
X2.3	0.896	0.837	0.919	0.840
X2.4	0.903	0.825	0.909	0.859
X2.5	0.880	0.819	0.919	0.860
X2.6	0.857	0.780	0.932	0.861
X2.7	0.898	0.805	0.927	0.865
X2.8	0.925	0.835	0.941	0.921
X2.9	0.878	0.821	0.910	0.911
Y.1	0.897	0.783	0.879	0.924
Y.2	0.906	0.800	0.885	0.883
Y.3	0.921	0.866	0.880	0.874
Y.4	0.950	0.867	0.912	0.877
Y.5	0.952	0.860	0.904	0.882
Y.6	0.927	0.845	0.890	0.876
Y.7	0.964	0.837	0.920	0.903
Y.8	0.958	0.849	0.907	0.896
Y.9	0.952	0.855	0.894	0.910
Z.1	0.909	0.856	0.880	0.967
Z.2	0.924	0.839	0.895	0.975
Z.3	0.937	0.824	0.945	0.960
Z.4	0.874	0.791	0.847	0.928

All indicators in the table have the highest loadings on their respective constructs. This means each construct has unique indicators and is conceptually distinct from the others. Therefore, it can be concluded that discriminant validity has been met based on the cross-loading test.

Composite reliability

In composite reliability research, each variable is evaluated using its reliability value. If the variable value is greater than 0.60, the research is considered reliable; if it is between 0.60 and 0.7, it is unreliable. The table below shows the Coranbach's alpha, composite reliability, and AVE values, which are used to determine whether the research is reliable and valid.

Table 3. Construct Reliability and Validity

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Employee Performance (Y)	**0.982**	**0.985**	**0.877**
Competence (X1)	**0.939**	**0.961**	**0.891**
Work Environment (X2)	**0.978**	**0.980**	**0.848**
Motivation (Z)	**0.970**	**0.978**	**0.917**

Cronbach's Alpha measures internal reliability, namely the consistency between items within a construct. Value ≥ 0.70: good reliability Value ≥ 0.90: very high reliability. All constructs have a Cronbach's Alpha value > 0.93, meaning that all constructs are very reliable internally and the items within each construct are consistent in measuring the intended variable. CR assesses the strength of the relationship between indicators within a construct. The minimum CR limit = 0.70 Values above 0.90 indicate very strong composite reliability All CR values above 0.96 indicate that the Competence, Work Environment, Motivation, and Employee Performance constructs have very high internal consistency and composite reliability, so they can be relied upon in measurements.AVE shows how much of the indicator's variance can be explained by the construct.Minimum AVE limit = 0.50. A value > 0.80 means the construct has excellent convergent validity. All constructs have AVE > 0.84, even reaching 0.917 for Motivation. This indicates that the indicators in each construct are able to explain most of the construct's variance (very high convergent validity).These results strengthen the results of previous outer loadings that the research instrument is very strong, valid, and reliable, so it is suitable for use to measure the relationship between variables in the structural model.

Inner Model Analysis

The structural model (inner model) is evaluated to ensure the resulting base model is robust and correct. Several markers that can be used to identify the stages of the main model assessment include:

Coefficient of Determination (R2)

Based on the data processing that has been carried out using the SmartPLS 3.0 program, the R Square value is obtained as follows:

Table 4. R Square Results

	R Square	Adjusted R Square
Employee Performance (Y)	0.950	0.948
Motivation (Z)	0.877	0.876

R^2 value = 0.950 → This means that 95.0% of the variation in Employee Performance can be explained by the independent variables in the model, such as Competence, Work Environment, and Motivation.The model has a very strong predictive power for the Employee Performance variable. Only the remaining 5% is influenced by other factors outside the model. The R^2 value = 0.877 → This means that 87.7% of the variation in Motivation can be explained by independent variables, such as Competence and Work Environment. The model is also very strong in explaining the Motivation variable. Only the remaining 12.3% is influenced by other variables outside the model.

Hypothesis Testing

After assessing the inner model, the next step is to assess the relationship between idle builds, as hypothesized in this review. Speculative testing in this review is conducted by examining T-statistics and P-values. Speculation is announced if the T-influence value is >1.96 and P-values <0.05. The following is the direct impact of the Path Coefficient:

Table 5. Path Coefficients (Direct Effect)

	Original Sample (O)	T Statistics (| O/STDEV |)	P Values	Results
Competence (X1) -> Employee Performance (Y)	0.163	2,744	**0.003**	**Accepted**
Competence (X1) -> Motivation (Z)	0.193	2,609	**0.005**	**Accepted**
Work Environment (X2) -> Employee Performance (Y)	0.443	4,164	**0,000**	**Accepted**
Work Environment (X2) -> Motivation (Z)	0.762	10,706	**0,000**	**Accepted**

Motivation (Z) -> Employee Performance (Y)	0.399	5,029	**0,000**	**Accepted**

In table 5 there are the results of the hypotheses in the research, so the explanation of this research is as follows:

1. Competence has a positive and significant effect on employee performance with an original sample value of 0.163 and p values of 0.003. Good employee competence significantly improves employee performance, although its influence is not as large as other variables.
2. Competence has a positive and significant effect on motivation with an original sample value of 0.193 and a p value of 0.005. The higher an employee's competence, the higher their work motivation.
3. The work environment has a positive and significant effect on employee performance with an original sample value of 0.443 and p values of 0.000. A conducive work environment greatly contributes to improving employee performance.
4. Work environment has a positive and significant effect on motivation with an original sample value of 0.762 and p values of 0.000. A good work environment is the main factor that dominantly drives employee work motivation.
5. Motivation has a positive and significant effect on employee performance with an original sample of 0.399 and p values of 0.000. Employees who have high motivation will have more optimal performance.

Table 6. Path Coefficients (Indirect Effect)

	Original Sample (O)	T Statistics (| O/STDEV |)	P Values	Results
Competence (X1) -> Motivation (Z) -> Employee Performance (Y)	0.077	2,337	**0.010**	**Accepted**
Work Environment (X2) -> Motivation (Z) -> Employee Performance (Y)	0.304	4,517	**0,000**	**Accepted**

6. Competence has a positive and significant effect on employee performance through motivation, with a p-value of 0.077 for the original sample and a p-value of 0.010. Good employee competence can increase work motivation and ultimately drive performance improvement. Although its contribution is not dominant, this relationship remains statistically significant.
7. Work environment has a positive and significant effect on employee performance through motivation, with an original sample value of 0.304 and a p value of 0.000. A comfortable and supportive work environment significantly increases employee motivation, which in

turn substantially improves employee performance. This mediation effect is strong and dominant, indicating that motivation is an important intermediary in this relationship.

CLOSING

Conclusion

1. Competence has a positive and significant influence on employee performance..
2. Competence also has a positive and significant influence on employee motivation..
3. Work environment has a positive and significant influence on employee performance..
4. The work environment also has a very strong influence on employee motivation..
5. Motivation has a positive and significant influence on employee performance..
6. There is a significant indirect influence of Competence on Employee Performance through Motivation.
7. There is also a significant indirect influence of the work environment on employee performance through motivation.

Suggestion

1. Training and Competency Development of Employees Agencies are advised to hold routine training that is in accordance with task requirements and technological developments, so that employees have relevant skills and can support optimal performance.
2. Improving the Quality of the Work Environment Leaders need to create a comfortable, healthy, safe and supportive work environment, both physically (work facilities, lighting, ventilation) and non-physically (social relations, positive work culture).
3. Increasing Motivation with Incentives and Recognition A system of incentives, rewards, and recognition for employee achievements is needed so that they feel appreciated and motivated to work better.
4. Integrating HR Strategy Holistically Organizations need to develop an integrated HR strategy by paying attention to the relationship between competency, work environment, motivation, and performance so that human resource development programs are more targeted.
5. Utilization of Performance Evaluation Data Use performance evaluation data as material for designing competency improvement policies, improving the work environment, and reward systems that have a direct impact on increasing work motivation and productivity.

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