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FACTORS THAT INFLUENCE PERFORMANCE

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Abstract

This study aims to analyze the influence of training, competence, and work effectiveness on employee performance, with moderation variables strengthening the relationship among these variables. The research was conducted at PT PLN (Persero) North Sumatra Distribution Management Implementation Unit (UP2D). The population consisted of 47 employees, and due to the relatively small population size, the saturated sampling technique was used, where the entire population was taken as the sample. The data analysis method applied a quantitative approach using the SmartPLS software. The results indicate that training has a negative and insignificant effect on employee performance, while competence and work effectiveness have a positive and significant effect. Additionally, the first moderating effect shows a negative and significant influence, whereas the second moderating effect has a positive but insignificant influence on performance. These findings suggest that in order to improve employee performance, the company should focus on enhancing employee competence and work effectiveness, while also evaluating training programs and moderating factors that affect the relationships among the variables studied.

Keywords: ***Training, Competence, Work Effectiveness, Employee Performance, Moderating Effect, SmartPLS.***

Background

Employee competencies encompass the knowledge, skills, and attitudes necessary to perform tasks effectively and efficiently. Training, meanwhile, is a process designed to improve these competencies. However, despite various training programs, there are still indications that employee performance at PLN (Distribution Management Implementation Unit (UP2D) North Sumatra is not optimal. This indicates the need for an in-depth evaluation of the influence of competence and training on employee performance. Several previous studies have shown that competence and training have a significant influence on employee performance. For example, research by Handayani et al. (2020) at PT. PLN Bali Main Distribution Unit found that competence and career development have a positive effect on employee performance. Similarly, research by Putri (2022) at PT. PLN Bandung Electricity Maintenance Center Unit showed that training has a significant effect on employee performance. However, although there is empirical evidence supporting the importance of competence and training, no research has specifically examined the influence of these two factors on employee performance at PLN UP2D North Sumatra. In addition, no research has considered performance effectiveness as a moderating variable in the relationship between competence, training, and employee performance. Therefore, this research is important to be conducted to fill the gap in the literature and provide practical recommendations for improving employee performance at PLN UP2D North Sumatra.

Formulation of the problem

1. Does competence have a positive and significant influence on employee performance at PLN UP2D North Sumatra?
2. Does job training have a positive and significant effect on employee performance at PLN UP2D North Sumatra?
3. Does work effectiveness have a positive and significant effect on employee performance at PLN UP2D North Sumatra?

4. Does Competence have a positive and significant effect on employee performance moderated by performance effectiveness at PLN UP2D North Sumatra?
5. Does job training have a positive and significant effect on employee performance moderated by performance effectiveness at PLN UP2D North Sumatra?

Research purposes

1. To test and analyze the influence of employee competency on employee performance at PLN UP2D North Sumatra.
2. To test and analyze the effect of training on employee performance at PLN UP2D North Sumatra.
3. To test and analyze the influence of effectiveness on employee performance at PLN UP2D North Sumatra.
4. To test and analyze the influence of Competence on employee performance moderated by performance effectiveness at PLN UP2D North Sumatra
5. To test and analyze the effect of job training on employee performance moderated by performance effectiveness at PLN UP2D North Sumatra.

Literature review

Employee Performance

Definition of Performance

Performance is the result of a person's work, both in terms of quality and quantity, in carrying out their duties in accordance with the responsibilities given (Mangkunegara, 2015). According to Mathis and Jackson (2015), employee performance is how well someone completes the work for which they are responsible.

Performance Indicators

According to Mathis and Jackson (2015), the performance indicators are as follows:

1. Quantity of work: the amount of work completed.
2. Quality of work: the quality standards of the work produced.
3. Punctuality: accuracy in completing tasks according to deadlines.
4. Presence: consistency and discipline in working hours.
5. Teamwork: contribution to cooperation in groups.
6. Initiative & Independence: Ability to work with minimal supervision and take initiative
7. Leadership (for managerial positions): Ability to lead, direct, and motivate a team

Factors that influence performance

According to Kasmir (2016), the factors that influence performance are as follows: 1. Ability 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

Competence is an ability to carry out or perform a job or task based on skills and knowledge and supported by the work attitude required by the job (Wibowo, 2016). Competence can also be interpreted as an intelligent, responsible action that a person has as a requirement to be considered capable by society in carrying out tasks in a particular field of work (Suhariadi, 2016). Literally, competence comes from the word competence which means skill, ability, and authority (Sutrisno, 2019). Competence can be measured by motives, traits, self-concept, knowledge, skills (Wibowo, 2016).

Competency Indicators

Based on Wibowo's theory (2016), the competency indicators are as follows:

1. Knowledge
   Theoretical and conceptual understanding related to work.
   Ability to apply knowledge in real situations
2. Skills
   Technical skills (hard skills) required for the job.
   Non-technical skills (soft skills) such as communication, leadership, and teamwork.
3. Attitude
   Behaviors and values that support performance (e.g. integrity, discipline, responsibility).
   Motivation and commitment in work.
4. Performance Outcomes
   Concrete evidence of the application of competencies in the form of work results (output)
   Achievement of set targets or standards.
5. Self-Development
   Willingness to continue learning and improving competence. Motivation and commitment to work.
   Adaptation to change and innovation

Training

Training is the process of developing employees' skills, knowledge, and attitudes through activities designed to improve their job performance. In the context of human resource management, training plays a crucial role in optimizing employee productivity and efficiency. Empirical research shows that training has a positive impact on employee performance, providing a basis for organizations to invest in training programs. Research has shown that training has a significant positive impact on employee performance, indicating that increased training is directly proportional to improved employee performance (Anggereni, 2019). Furthermore, training not only directly impacts performance but also mediates through the learning process (Wardhana & Muslichah, 2021).

Training Indicators

According to (Wardhana & Muslichah, 2021), training indicators are:

1. Reaction: Suitability of training methods to participant needs.
2. Learning: Increase in participants' knowledge after training.
3. Behavior: Application of training results in daily work
4. Results: The impact of training on work productivity.

Work Effectiveness

Work effectiveness is the extent to which organizational goals are achieved through activities carried out by employees efficiently and optimally. According to Gibson et al. (2019), effectiveness reflects an organization's success in using resources to achieve goals. The Role of Effectiveness as a Moderating Variable Moderating variables influence the strength or direction of the relationship between two other variables. In this context, performance effectiveness acts as a variable that strengthens or weakens the influence of competence and training on employee performance. If work effectiveness is high, the relationship between competence/training and performance will be stronger.

Work Effectiveness Indicators

According to Gibson et al. (2019) indicators of work effectiveness are:

1. Work productivity: work results compared to input.
2. Quality of work: level of conformity to standards.
3. Efficient use of resources: how employees use time and work tools.
4. Job satisfaction: individual perception of his work.

CONCEPTUAL FRAMEWORK

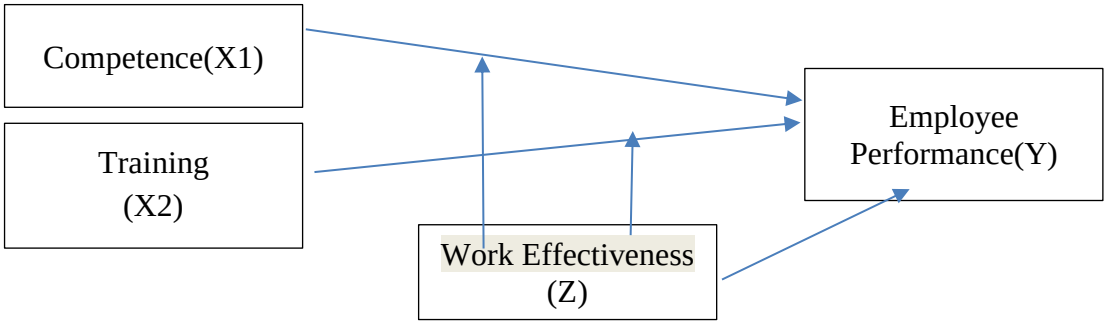

Figure 1: Conceptual Framework

Research Hypothesis

H 1: Competence has a positive and significant effect on employee performance at PLN UP2D North Sumatra.
H2: Job training has a positive and significant impact on employee performance at PLN UP2D North Sumatra.
H3: Work effectiveness has a positive and significant effect on employee performance at PLN UP2D North Sumatra.
H4: Competence has a positive and significant effect on employee performance moderated by work effectiveness at PLN UP2D North Sumatra.
H5**:** Job training has a positive and significant effect on employee performance moderated by work effectiveness at PLN UP2D North Sumatra.

RESEARCH METHODS

Types of research

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

Time and Place of Research

This research was conducted in June 2025, for 3 months. This research was conductedat PLN UP2D North Sumatra, Jln Kolonel Yos Sudarso No. 284, Medan.

Population

This study uses a research population of all employees.at PLN UP2D North Sumatraemployees, namely 47 people. According to Sugiyono (2018) Population is a generalization area consisting of objects or subjects that have certain qualities and characteristics determined by researchers to study and then draw conclusions.

Sample

The sample of this study is all existing populations.at PLN UP2D North Sumatra, namely 47employees using saturated sampling techniques. According to Sugiyono (2018) a sample is the total number and characteristics of the population.

Data source

The research data sources used by researchers are:

1. Primary data sources, primary data sources are where researchers obtain data directly. Sugiyono (2018) Primary data sources are data sources that directly provide data to data collectors or researchers.
2. Secondary data sourcesis data that has been collected, processed and published by another party (not the researcher himself), so that the researcher only needs to reuse the data for new analysis purposes.

Data collection technique

The data collection technique used is a questionnaire, the researcher will distribute the questionnaire to the respondents who are the sample. According to Sugiyono (2018), a questionnaire is a data collection technique carried out by giving a set of written questions or statements to respondents 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 Imam 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."

Data analysis

1. Validity & Reliability Test(Cronbach's Alpha > 0.7).
2. Multiple Linear Regression: The effect of X1 and X2 on Y.
3. MRA: Interaction test (X1×Z and X2×Z).
4. Classical Assumption Test: Normality, multicollinearity.

RESULTS AND DISCUSSION

Research Test

The following is a complete and systematic explanation of the Research Test using SmartPLS, which is commonly used in quantitative research based on Structural Equation Modeling – Partial Least Squares (PLS-SEM):

Outer Model

Outer ModelThe Measurement Model in SmartPLS is used to test the validity and reliability of indicators used to measure a construct (latent variable). The goal is to ensure that the research instrument (questionnaire) actually measures what it is supposed to measure. From the test results, it is known that there are four variables in the model that will be used in the research, as listed below:

Convergent Validity

Convergent Validityis a measure that indicates the extent to which indicators of a construct are highly correlated with each other and truly represent the intended construct. The main purpose of this test is to ensure that each indicator in a variable is consistent and has the ability to explain the variable well.

The outer loading test was conducted to assess the convergent validity of each indicator against the latent construct being measured. An indicator is said to have good validity if its outer loading value is ≥ 0.70. However, values between 0.50 and 0.69 can still be considered to be retained if the overall AVE value of the construct remains ≥ 0.50 and the indicator is theoretically relevant. The following is an interpretation based on the results of data processing:

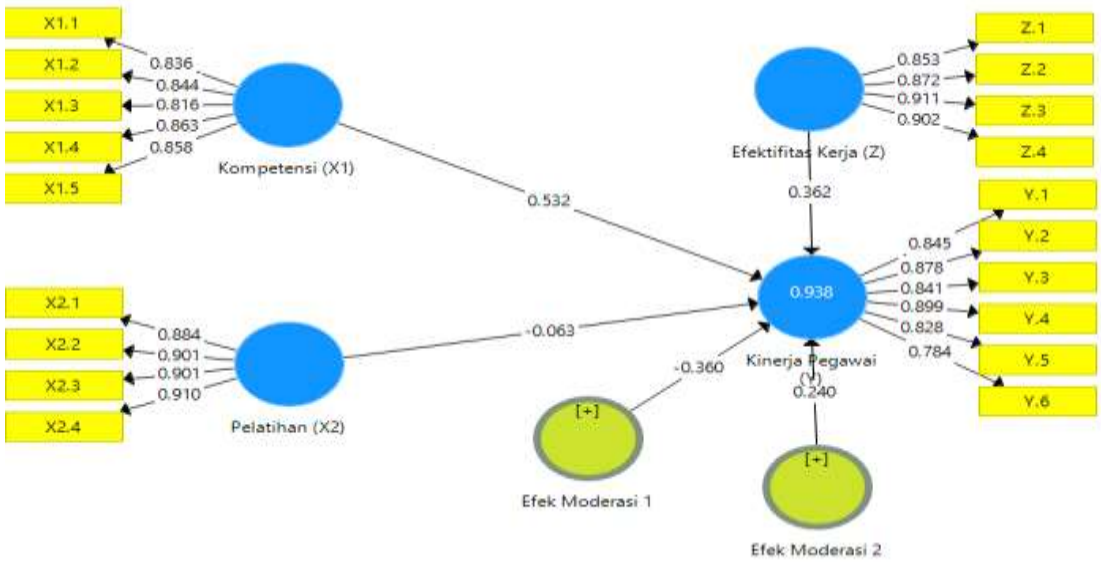

Figure 2. Research Model in SmartPLS

The 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 equations.

$Y = b1X1 + b2Z + b3X1Z\ e1$
$Y = 0.532 + 0.362 – 0.360 + e1$

$Y = b2X2 + b3Z + b4X2Z + e2$
$Y = -0.063 + 0.362 + 240 + e2$

Table 1. Outer Loadings

	Moderation Effect 1	Moderation Effect 2	Work Effectiveness (Z)	Employee Performance (Y)	Competence (X1)	Training (X2)
Competence (X1) * Work Effectiveness (Z)	**1,324**					
Training (X2) * Work Effectiveness (Z)		**1,222**				
X1.1					**0.836**	
X1.2					**0.844**	
X1.3					**0.816**	
X1.4					**0.863**	
X1.5					**0.858**	
X2.1						**0.884**
X2.2						**0.901**
X2.3						**0.901**
X2.4						**0.910**
Y.1				**0.845**		
Y.2				**0.878**		
Y.3				**0.841**		
Y.4				**0.899**		
Y.5				**0.828**		
Y.6				**0.784**		
Z.1			**0.853**			
Z.2			**0.872**			
Z.3			**0.911**			
Z.4			**0.902**			

Source: Smart PLS 3.3.3.

Based on the outer loading results, all indicators for each construct had values above 0.70, indicating convergent validity. No indicators needed to be eliminated. The combination of high loading values and a sufficient number of indicators indicates that the model has strong and reliable measurement.

Discriminant Validity

Discriminant validityThe purpose of discriminant validity testing is to test whether a construct is truly distinct from other constructs in the model. This test is important to ensure that each variable in the study measures a distinct concept and that there is no overlap between constructs. One way to assess discriminant validity is to compare the indicator's outer loading value against its own construct and against other constructs (cross-loading). If the outer

loading value for the original construct is higher than for the other constructs, then the indicator has good discriminant validity.

Table 2. Discriminant Validity

	Moderation Effect 1	Moderation Effect 2	Work Effectiveness (Z)	Employee Performance (Y)	Competence (X1)	Training (X2)
Competence (X1) * Work Effectiveness (Z)	1,000	0.962	-0.742	-0.832	-0.784	-0.758
Training (X2) * Work Effectiveness (Z)	0.962	1,000	-0.717	-0.818	-0.822	-0.692
X1.1	-0.695	-0.686	0.747	0.784	0.836	0.822
X1.2	-0.664	-0.752	0.719	0.739	0.844	0.653
X1.3	-0.694	-0.740	0.736	0.795	0.816	0.735
X1.4	-0.652	-0.674	0.820	0.761	0.863	0.732
X1.5	-0.606	-0.623	0.847	0.878	0.858	0.785
X2.1	-0.746	-0.664	0.748	0.786	0.765	0.884
X2.2	-0.672	-0.621	0.896	0.848	0.777	0.901
X2.3	-0.613	-0.580	0.910	0.824	0.858	0.901
X2.4	-0.700	-0.625	0.818	0.800	0.786	0.910
Y.1	-0.724	-0.659	0.815	0.845	0.787	0.862
Y.2	-0.757	-0.726	0.798	0.878	0.761	0.706
Y.3	-0.698	-0.717	0.808	0.841	0.882	0.835
Y.4	-0.640	-0.623	0.844	0.899	0.843	0.831
Y.5	-0.681	-0.664	0.796	0.828	0.763	0.747
Y.6	-0.740	-0.789	0.674	0.784	0.729	0.591
Z.1	-0.679	-0.680	0.853	0.857	0.802	0.690
Z.2	-0.642	-0.642	0.872	0.754	0.792	0.784
Z.3	-0.667	-0.617	0.911	0.873	0.814	0.929
Z.4	-0.634	-0.598	0.902	0.816	0.846	0.919

Source: Smart PLS 3.3.3.

All constructs in the research model have met the requirements for discriminant validity, meaning that each construct is unique and can be clearly distinguished from the others. Thus, measurements between constructs can be considered reliable and valid for use in further analysis, such as testing the structural model (inner model).

Composite reliability

In this study, construct reliability and convergent validity were tested using three main indicators: Cronbach's Alpha, used to measure internal consistency between indicators within a construct. A value greater than 0.70 is considered good. Composite Reliability (CR) measures the overall reliability of the construct. The recommended value is greater than 0.70. Average Variance Extracted (AVE): indicates the amount of variance captured by the construct from its indicators compared to the variance due to measurement error. A good AVE value is greater than 0.50. Based on the results of data processing using SmartPLS software, the following results were obtained:

Table 3. Construct Reliability and Validity

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Moderation Effect 1	**1,000**	**1,000**	**1,000**
Moderation Effect 2	**1,000**	**1,000**	**1,000**
Work Effectiveness (Z)	**0.908**	**0.935**	**0.783**
Employee Performance (Y)	**0.920**	**0.938**	**0.716**
Competence (X1)	**0.899**	**0.925**	**0.712**
Training (X2)	**0.921**	**0.944**	**0.808**

Source: Smart PLS 3.3.3.

Based on the results of the reliability and construct validity tests using the SmartPLS approach, it can be concluded that all variables in this research model have met the required reliability and validity criteria. This is indicated by the Cronbach's Alpha and Composite Reliability values for all variables being above the minimum threshold of 0.70, indicating that the research instrument has excellent internal consistency. The Average Variance Extracted (AVE) values for all constructs were also above 0.50, indicating that each construct has adequate convergent validity and is able to explain more than 50% of the variance in its indicators. Specifically, the variables of Work Effectiveness, Employee Performance, Competence, and Training show high reliability and validity values, indicating that the constructs are measured with appropriate and consistent indicators. The constructs of Moderation Effect 1 and Moderation Effect 2 have perfect values (1.000) on all test indicators because they only consist of one indicator, and this is still acceptable in PLS-SEM with special considerations.

Inner Model Analysis

The inner model, or structural model, is used to test the relationships between latent constructs (latent variables) based on the theoretical model formulated in the research. Evaluation of the inner model is carried out in several stages, namely:

Coefficient of Determination (R2)

By using the SmartPLS 3.0 program to process the data, here's how to determine the R Square value:

Table 4. R Square Results

	R Square	Adjusted R Square
Employee Performance (Y)	0.938	0.931

Source: Smart PLS 3.3.3.

The R Square value of 0.938 indicates that 93.8% of the variation in the Employee Performance variable (Y) can be explained by the independent variables contained in the model, namely Competence (X1), Training (X2), Work Effectiveness (Z), and two Moderation Effects included in the model. This model can be said to be very good and strong, because almost all of the variability in Employee Performance can be explained by the constructs in the model. Thus, the inner model has shown that the relationship between variables in this model is worthy of further research.

Hypothesis Testing

Hypothesis testing in this study was conducted through path coefficient analysis on the structural model (inner model) using SmartPLS software. The criteria for stating whether a hypothesis is accepted or rejected are as follows: The hypothesis is accepted if the T-statistic value is ≥ 1.96 and the P-value is ≤ 0.05 (for a 5% significance level). The hypothesis is rejected if the T-statistic is <1.96 or the P-value is >0.05. As follows:

Table 5. Hypothesis Results

	Original Sample (O)	T Statistics (| O/STDEV |)	P Values	Results
Moderation Effect 1 -> Employee Performance (Y)	-0.360	1,813	**0.035**	**Accepted**
Moderation Effect 2 -> Employee Performance (Y)	0.240	1,060	**0.145**	**Rejected**
Work Effectiveness (Z) -> Employee Performance (Y)	0.362	1,840	**0.033**	**Accepted**
Competence (X1) -> Employee Performance (Y)	0.532	2,588	**0.005**	**Accepted**
Training (X2) -> Employee Performance (Y)	-0.063	0.283	**0.389**	**Rejected**

Source: Smart PLS 3.3.3.

The results and explanation of the hypothesis in table 5 above are as follows:

1. Moderation Effect 1 has a negative and significant effect on Employee Performance. This is evidenced by a coefficient value of -0.360, a T-statistic of 1.813, and a P-value of 0.035. Since the P-value is <0.05, this hypothesis is accepted. This means that Moderation Effect 1 significantly weakens the influence of the independent variable on Employee Performance.
2. Moderation Effect 2 has a positive but not significant effect on Employee Performance.The effect coefficient is 0.240 with a T-statistic of 1.060 and a P-value of 0.145. Since the P-value is > 0.05, this hypothesis is rejected. This indicates that Moderation Effect 2 has not had a significant impact on Employee Performance.
3. Work Effectiveness (Z) has a positive and significant effect on Employee Performance (Y).The coefficient value is 0.362, with a T-statistic of 1.840 and a P-value of 0.033. Since the P-value is <0.05, this hypothesis is accepted. This means that higher work effectiveness leads to higher employee performance.
4. Competence (X1) has a positive and significant effect on Employee Performance (Y). The coefficient value is 0.532, the T-statistic is 2.588, and the P-value is 0.005. Since the P-value is <0.05, this hypothesis is accepted. This indicates that better competencies significantly improve employee performance.
5. Training (X2) has a negative and insignificant effect on Employee Performance (Y).The results show a coefficient value of -0.063, a T-statistic of 0.283, and a P-value of 0.389. Since the P-value is >0.05, this hypothesis is rejected. Thus, training has not significantly impacted employee performance.

Conclusion

1. Moderation Effect 1 has a negative and significant effect on Employee Performance. This shows that the interaction of moderating variable 1 can significantly weaken the relationship between the independent variable and employee performance.
2. Moderation Effect 2 has a positive but not significant effect on Employee Performance.This means that the interaction of moderating variables 2 is not strong enough to influence employee performance, so it does not have a significant influence in the model.
3. Work Effectiveness has a positive and significant effect on Employee Performance. This shows that the higher the work effectiveness, the better the overall employee performance.
4. Competence has a positive and significant effect on employee performance. In other words, increasing employee competency will directly improve their performance significantly.
5. Training has a negative and insignificant effect on employee performance. This indicates that existing training programs have not been able to provide a real impact on improving employee performance.

Suggestion

1. Improving Work Effectiveness: Organizations are advised to continuously improve employee effectiveness by clarifying job descriptions, balancing workloads, and providing adequate work tools. High work effectiveness has been shown to significantly improve performance.

2. Strengthening Employee Competence: Management needs to invest in employee competency development, whether through technical training, leadership training, or technology-based continuous learning. High competency has been proven to be a critical factor in driving optimal performance.
3. Training Program Evaluation: Although training has been provided, research results indicate a negative and insignificant impact on performance. Therefore, a comprehensive evaluation of existing training programs is necessary to ensure that the training materials, methods, and timing truly align with job requirements.
4. Managing Moderating Factors: The first moderating effect has been shown to significantly reduce performance. Therefore, management needs to be aware of internal factors that can disrupt the relationship between key variables and employee performance outcomes, such as work stress, role conflict, or work culture incompatibility.
5. Optimizing the Second Moderating Variable: Although it showed a positive influence, the second moderating effect was not significant. This means that organizations need to further optimize their functions to truly strengthen the relationship between factors such as training, competence, and work effectiveness on performance.

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