



**THE EFFECT OF TRAINING EFFECTIVENESS ON EMPLOYEE
PERFORMANCE WITH MOTIVATION AS A MEDIATOR AT THE STATE
ASSETS AND AUCTION SERVICES OFFICE (KPKNL) IN MEDAN**

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Abstract

This study aims to analyze the effect of training effectiveness on employee performance with motivation as a mediating variable. The research method employs a quantitative approach, utilizing the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique. Data were obtained by distributing questionnaires to all 44 employees of KPKNL Medan and analyzed using SmartPLS with bootstrapping tests. The results showed that training effectiveness, as measured by the Kirkpatrick Model, had a positive and significant effect on employee performance ($\beta = 0.356$; $p < 0.001$) and on motivation based on Self-Determination Theory ($\beta = 0.843$; $p < 0.000$). Motivation was also shown to have a significant effect on performance ($\beta = 0.613$; $p < 0.000$) and mediated the relationship between training effectiveness and performance with a greater indirect effect ($\beta = 0.517$) than the direct effect. These findings confirm that motivation is an important mechanism that explains how effective training can have a real impact on performance improvement. This research provides theoretical contributions by integrating the Kirkpatrick model and Self-Determination Theory, as well as practical implications for management at KPKNL Medan in designing training programs that not only improve technical competence but also increase employee work motivation.

Keywords: Effectiveness of Training, Motivation, Employee Performance



INTRODUCTION

The State Assets and Auction Service Office (KPKNL) in Medan City, as a vertical unit of the Directorate General of State Assets (DJKN) of the Ministry of Finance, plays a crucial role in managing state assets and conducting transparent, accountable, and efficient auctions. The complexity of its duties requires employees to possess high levels of competence, adaptability, effective communication, and initiative (Sauerma & Isbahi, 2023; Supriyanto, & Sasongko, 2025). However, preliminary observations revealed that employee training has not had a significant impact on performance, with examples including late completion of administrative tasks, low initiative, and a lack of improvement in service excellence. These observations align with previous research suggesting that some KPKNL Medan employees exhibit low performance due to a lack of competency in completing tasks within their respective fields (Zulfikar, 2017), as well as an insufficient ability to handle complex tasks related to auctions (Nelfita & Saputra, 2025).

The Medan KPKNL (National Employee Protection Agency) has attempted to address this employee performance issue by continuously organizing various training and competency development programs. Ideally, effective training should improve knowledge, skills, and work attitudes, which directly contribute to performance. However, the Medan KPKNL demonstrated that training alone was insufficient to achieve optimal results. This suggests that other factors influence the relationship between training effectiveness and performance, one of which is adequate motivation. Self-Determination Theory states that motivation acts as a bridge connecting training with improved employee performance because it emphasizes autonomy, competence, and social engagement in building employee intrinsic motivation (Ryan & Deci, 2022).

Various previous studies have extensively used the Kirkpatrick model to measure training effectiveness, with indicators of reaction, learning, behavior, and outcomes (Aulia, 2020; Muqorobin et al., 2022; Susanty, 2022). This is also supported by literature mapping using Vosviewer software (see Figure 1), processed through the Scopus database, which shows that Kirkpatrick is the dominant model in training evaluation in various sectors, including the public sector. However, most research still focuses on training as the primary determinant of performance without elaborating on psychological factors, particularly motivation, which can be a crucial link between training effectiveness and improved employee performance.



is still relevant, especially in management science, in measuring the effectiveness of employee training. According to Kirkpatrick, every training program has the potential to be lost due to budget efficiency and is considered profitable (Kirkpatrick & Kirkpatrick, 2022). Therefore, training programs must provide strong evidence by providing final results and contributing to the achievement of the organization's mission because, according to them, training will be valuable only if what is learned is applied by employees in the workplace and contributes to the main results of their organization. For this reason, training needs to be measured for its effectiveness. Furthermore, Kirkpatrick provide four indicators for evaluating the effectiveness of training through four levels, starting from level 4:

- Level 4 (Results) : The level targeted as a result of training and accountability
- Level 3 (Behavior) : The degree to which trainees apply what they learn in training when they return to work
- Level 2 (Learning) : The level to which training participants gain knowledge, skills, improve attitudes, and self-confidence, as well as the expected commitment due to participating in the training.
- Level 1 (Reaction) : The degree to which participants who attended the training felt that the training was interesting, beneficial, and relevant to their work.

Self-Determination Theory for Measuring Employee Motivation

This theory has been widely used, particularly in economics, to measure or predict self-motivation in every aspect. For example, (Azizah, 2023) studied industrial opportunities by utilizing used materials into new (recycled) products using self-determination theory, and found a significant effect. Then, Zulkarnaen & Ruli used self-determination theory to measure students' effectiveness in solving mathematical problems (Zulkarnaen & Ruli, 2023). Furthermore, research by Priyoaji attempted to explore the phenomenon of gifted underachiever students and their causal factors through the self-determination theory (Priyoaji, 2023). All three have proven that self-determination theory is a concept capable of explaining the picture of self-motivation in humans, which includes indicators of needs: first, autonomy or independence; second, competency or competence; and third, relatedness or connectedness based on SDT theory (Ryan & Deci, 2022).

The Concept of Employee Performance



Employee performance is a crucial aspect of an organization, reflecting the extent to which employees optimally carry out assigned tasks to achieve organizational goals. In English, performance refers to a person's actual results over a specific period, calculated based on the quality or quantity of achievement of targets, standards, and criteria established within an organization's work (Akmal & Masriah, 2024). Employee performance is also defined as the achievements of employees, both individually and as a team, based on their authority and responsibilities, aligned with organizational goals, and carried out effectively and efficiently (Yuniarti et al., 2021).

Understanding the meaning of employee performance and the reasons why it is necessary to assess it, Simamora (2015) explains performance indicators, including quantity (amount of work), quality of work, punctuality, employee creativity, and responsibility.

RESEARCH METHOD

This study uses a quantitative method with data collection techniques through questionnaires, observation, and documentation. The intended population is 44 employees of KPKNL Medan. With this number, this study does not use a sample. The analysis technique consists of a Data Validity Test using SPSS software and the Product-Moment Correlation formula, with the provision that the calculated r value must be greater than the r table. Then the data reliability test uses the Cronbach alpha technique with a value greater than 0.70 to be accepted (reliable) (Budistuti & Bandur, 2018). Then, because this study is to measure the effectiveness of training with the Kirkpatrick model and measure employee motivation with Self-Determination Theory and find out its effect on employee performance, both partially and simultaneously, the analysis technique used is Partial Least Squares Structural Equation Modeling (PLS-SEM). Hypothesis testing through t -statistics and probability values, namely with a statistical value for 5% alpha of 1.96.

RESULTS AND DISCUSSION

Data Validity and Reliability Test Results

Validity testing was conducted by correlating the answer scores for each question item with the total score of the variable. The correlation technique used was the Pearson product-moment correlation technique according to the ordinal data measurement scale. The number used as a comparison to determine whether an item is valid or not is greater than 0.2973 (r table for sample 44). Meanwhile,



the reliability test was used to determine the stability or consistency of the measurement results. A measuring instrument is said to be reliable if it is used repeatedly on one object and produces the same results. The reliability technique used was the reliability of consistency between items. The author used the Cronbach's alpha test, where it is said to be reliable if the Cronbach's alpha coefficient value is >0.7.

Table 2. Variable Validity Test

Variables	Indicator	R-Count	R-Table	Description
Training Effectiveness (X)				
	Reaction	0,738	0,297	Valid
	Learning	0,582	0,297	Valid
	Behavior	0,892	0,297	Valid
	Results	0,937	0,297	Valid
Employee Motivation (Z)				
	Autonomy	0,926	0,297	Valid
	Competence	0,835	0,297	Valid
	Social Relatedness	0,869	0,297	Valid
Employee Performance (Y)				
	Quantity	0,933	0,297	Valid
	Quality	0,875	0,297	Valid
	Timeliness	0,941	0,297	Valid
	Creativity	0,878	0,297	Valid
	Responsibility	0,798	0,297	Valid

Table 3. Reliability Test

Variables	Cronbach's Alpha Value	Description
Training Effectiveness	0,962	Reliable
Employee Motivation	0,960	Reliable
Employee Performance	0,968	Reliable

The results of the validity and reliability tests showed that the data were valid and reliable. Because the calculated r value for all variables was greater than

0.297, it was considered valid. Meanwhile, the Cronbach's alpha value was greater than 0.7, thus declaring it reliable.

The Results of Structural Equation Modeling Partial Least Square Analysis

This study aims to examine the effect of training effectiveness on employee performance, with motivation as the mediator, at the Medan KPKNL (National Service Office for Public Works and Public Housing). Data were processed using structural equation modeling with the alternative partial least squares method using the smartPLS 4 application.

In structural equation modeling, two types of models are formed: a measurement model and a structural model. The measurement model explains the proportion of variance in each manifest variable (indicator) that can be explained by the latent variable. Through the measurement model, it is possible to determine which indicator is more dominant in the formation of the latent variable. After the measurement model for each latent variable is described, the structural model is then elaborated, examining the influence of each independent latent variable (exogenous latent variable) on the dependent latent variable (endogenous latent variable).

Based on the partial least squares estimation method, a full model path diagram was obtained using the PLS algorithm and bootstrapping estimation, as shown in the following figure.

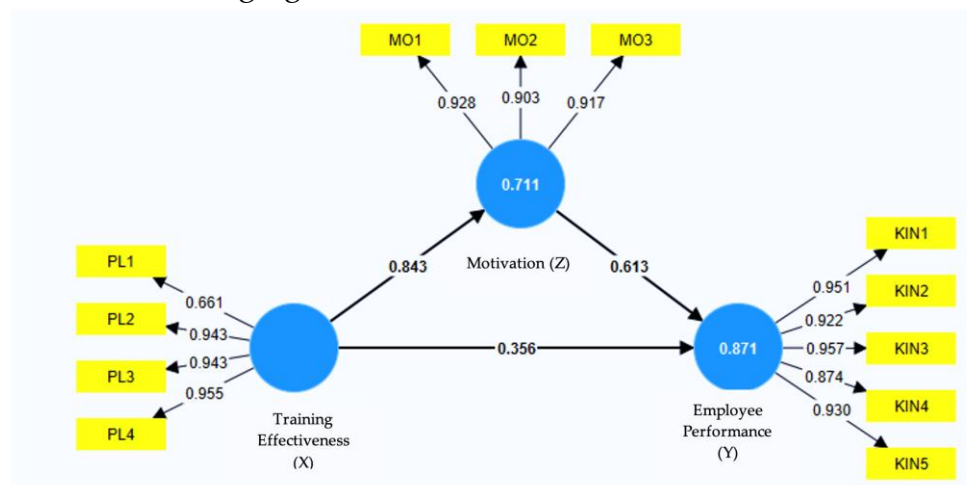


Figure 2.
Full Structural Model (PLS Algorithm)
Source: SmartPLS Output Results

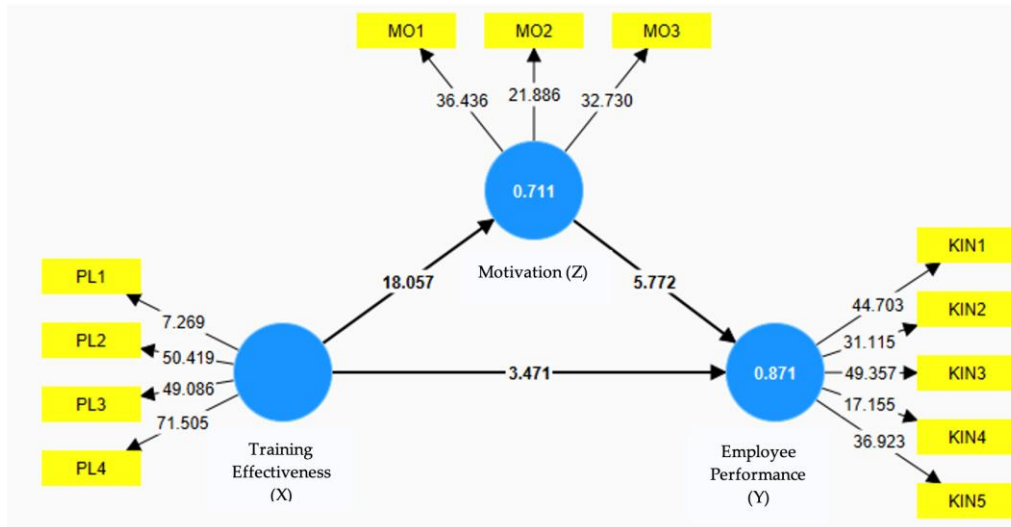


Figure 3.
Full Structural Model (Bootstrapping)
Source: SmartPLS Output Results

The loading factors shown in the PLS algorithm output image above can be used to determine the validity of each indicator and test the reliability of the construct of the studied variables. An indicator is considered valid if its loading factor is greater than 0.50. The following presents the measurement model for each variable used in this study.

1. Measurement Model (Outer Model)

A measurement model is a model that connects latent variables with manifest variables. In this study, there are three latent variables with a total of 11 manifest variables (indicators). Evaluation of the measurement model (outer model) includes checking individual convergent validity (seen from the outer loadings), average variance extracted (AVE), discriminant validity, and composite reliability.

a) Convergent Validity

Convergent validity of a measurement model with reflective indicators is assessed based on the correlation between item scores and construct scores. If the loading factor meets the convergent validity requirement, with a value greater than 0.5, all indicators are valid as measuring instruments for their respective variables. In addition to factor loading values, convergent validity can also be assessed from the Average Variance Extracted (AVE) value. AVE is considered



valid if it has a value greater than 0.5. The following are the results of the convergent validity test for each research variable.

Table 4. Convergent Validity Test

Variables	Indicator	Loading Factor	t-Stat	Description
Training Effectiveness	Reaction	0,661	7,269	Valid
	Learning	0,943	50,419	Valid
	Behavior	0,943	49,086	Valid
	Results	0,955	71,505	Valid
Motivation	Autonomy	0,928	36,436	Valid
	Competence	0,903	21,886	Valid
	Social Relatedness	0,917	32,730	Valid
Performance	Quantity	0,951	44,703	Valid
	Quality	0,922	31,115	Valid
	Timeliness	0,957	49,357	Valid
	Creativity	0,874	17,155	Valid
	Responsibility	0,930	36,923	Valid

Based on the summary of the processing results presented in the table above, it can be seen that all indicators have factor loadings greater than 0.5. This means that all indicators have a good level of validity in measuring their respective latent variables.

In addition to examining factor loadings, convergent validity was tested by examining the Average Variance Extracted (AVE) values. Based on the test results, the AVE values for each latent variable were above 0.5, indicating that more than 50% of the indicator's variance can be explained by each construct. Therefore, it can be concluded that the model has good convergent validity, as shown in the following table.

Table 5. AVE (Average Variance Extracted)

Construct	Average Variance Extracted (AVE) > 0,5	Description
Training Effectiveness	0,782	Valid
Motivation	0,839	Valid
Performance	0,860	Valid



b) Discriminant Validity

Discriminant validity testing can be seen from the cross-loading value, where each indicator measuring a construct must have a higher correlation than the other constructs. Therefore, the cross-loading value is considered valid if the indicator has a dominant influence on the measured latent variable. In addition to the cross-loading test, discriminant validity can also be tested using the Fornell-Larcker criterion, which states that if the square root of the AVE value is higher than the correlation between the other constructs, it can be concluded that the construct has a good level of discriminant validity.

The following are the results of the discriminant validity test for the research variables using the cross-loading test.

Table 6. Cross Loading Test

Variables	Indicator	Training	Motivation	Performance
Training Effectiveness	Reaction	0.661	0.420	0.434
	Learning	0.943	0.802	0.815
	Behavior	0.943	0.809	0.860
	Results	0.955	0.854	0.878
Motivation	Autonomy	0.718	0.928	0.811
	Competence	0.762	0.903	0.869
	Social Relatedness	0.833	0.917	0.829
Performance	Quantity	0.804	0.849	0.951
	Quality	0.780	0.810	0.922
	Timeliness	0.829	0.817	0.957
	Creativity	0.799	0.823	0.874
	Responsibility	0.833	0.927	0.930

The table above shows that all indicators have a higher correlation with their respective latent variables, thus concluding that the model has good discriminant validity. In addition to cross-loading, discriminant validity can also be tested using the Fornell-Lacker criterion.

Table 7. Fornell Lacker Criterion Testing

	Performance	Motivation	Training Effectiveness
Performance	0,927		
Motivation	0,913	0,916	
Training Effectiveness	0,873	0,843	0,884

Note: The values marked in bold are the AVE root values



From the table above, it can be seen that the AVE root value of each latent variable is higher than the correlation value between the variable and other variables, so it can be concluded that the model has good discriminant validity.

c) Reliability Testing

Construct reliability was evaluated using composite reliability and Cronbach's alpha. Each construct was considered reliable if its composite reliability was greater than 0.70 and Cronbach's alpha was greater than 0.6. The following are the results of the reliability test for each variable using the composite reliability and Cronbach's alpha tests.

Table 8.
Reliability Test

	Cronbach's Alpha	Composite Reliability
Training Effectiveness	0,903	0,934
Motivation	0,904	0,940
Performance	0,959	0,968

Based on the results in the table above, it can be seen that each construct has a composite reliability (CR) value greater than 0.7, reinforced by a Cronbach's alpha (CA) value greater than 0.6, thus being reliable. This indicates that all indicators are consistent in measuring their respective constructs.

2. Structural Model Testing (Inner Model)

A structural model is a model that connects exogenous latent variables with endogenous latent variables or the relationship between endogenous variables and other endogenous variables. Based on the results of the PLS Algorithm test in the figure above, the path coefficients of the equation model are as follows:

MO = 0,843*PL (1)

KN = 0,356*PL + 0,613*MO (2)

Keterangan:

KN = Employee Performance

PL = Training Effectiveness

MO = Employee Motivation

The first equation shows that employee motivation (MO) is positively and significantly influenced by training effectiveness (PL), with a path coefficient of 0.843. This coefficient indicates that every one-unit increase in training effectiveness will result in a 0.843-unit increase in employee motivation. This



highlights that effective training can be a powerful driver of increased employee motivation.

Meanwhile, the second equation explains that employee performance (KN) is influenced by two variables. First, there is a direct positive effect of training effectiveness (PL) on employee performance, with a path coefficient of 0.356. Second, employee motivation (MO) also has a direct and stronger positive effect on employee performance, with a path coefficient of 0.613. Thus, while training can directly improve performance, the impact is much greater when the training first increases employee motivation.

Overall, this model underscores the importance of training effectiveness as a fundamental factor that not only directly improves employee performance but also indirectly through increased employee motivation.

a) R-Square Test (Coefficient of Determination)

The R-square value can be used to determine the extent of variability in endogenous variables that can be explained by exogenous variables. The following are the R-squared values obtained for each endogenous variable.

Table 9.

R-Square Test Results

	R-square	R-square adjusted
Performance	0,871	0,865
Motivation	0,711	0,704

For the Motivation variable, the R-square value is 0.711. This means that 71.1% of the variability in Motivation can be explained by the exogenous variables (in this case, Training Effectiveness) in the model. The remaining 28.9% is explained by other factors outside the model.

Furthermore, for the Performance variable, the R-square value is 0.871. This figure indicates that 87.1% of the variability in Performance can be explained by the exogenous variables (Training Effectiveness and Motivation) in the model. This value is very high, indicating that the model has excellent predictive power in explaining the Performance variable.

Overall, the R-square test results indicate that the constructed model is very good at explaining variation in both endogenous variables, with stronger predictive ability for the Performance variable compared to the Motivation variable. The adjusted R-square values (0.704 and 0.865) provide more conservative and accurate estimates considering the number of independent variables in the model.



b) Hypothesis Testing

After testing the measurement model and structural model, we can proceed to hypothesis testing to answer the research questions. The following are the results of the bootstrapping test based on the PLS output in this study.

Table 10.
Bootstrapping Test Results (t-statistics)

	Original sample (O)	T statistics (O/STDEV)	P values
X → Y (1)	0,356	3,471	0,001
X → Z (2)	0,843	18,057	0,000
Z → Y (3)	0,613	5,772	0,000
X → Z → Y (4)	0,517	5,403	0,000

The Influence of Training Effectiveness on the Performance of KPKNL Medan Employees

Based on the results of statistical testing, it was found that the effectiveness of training using the Kirkpatrick model had a positive and significant influence on the performance of KPKNL Medan employees with a path coefficient value of 0.356 ($t = 3.47$; $p = 0.001$). This finding confirms that the more effective a training program, the greater its contribution to improving employee performance. This result is very relevant to the training evaluation model according to Kirkpatrick (1959; 1996; 2006). His theory has provided a four-level framework as an indicator in assessing training effectiveness. This model emphasizes that every outcome of training held by an organization must be evaluated regarding the level of direct reaction, knowledge acquisition, and also behavioral changes, as well as the results for the organization itself. Each level has helped explain why effective training can contribute directly to improved performance.

The Kirkpatrick model demonstrates a hierarchical relationship. It has consistently shown that positive reactions to training (at level 1) significantly influence learning outcomes (level 2), which in turn lead to employee behavioral changes (level 3), and ultimately improve employee and organizational performance (level 4) (Asghar et al., 2022; Bahl et al., 2024; Faisal-E-Alam & Islam, 2025). This hierarchical relationship underscores the importance of each level in training.

Empirical studies have reinforced the findings regarding the effectiveness of Kirkpatrick's training model on employee performance. This is evident not only at the national level but also internationally and in various scientific fields. As in the banking sector in Bangladesh and India, using the Kirkpatrick model to



evaluate training programs resulted in employee reactions with increased knowledge and skills, and this had an impact on work performance and organizational results (Bahl et al., 2024; Faisal-E-Alam et al., 2025; Faisal-E-Alam & Islam, 2025).

The Influence of Training Effectiveness on the Motivation of KPKNL Medan Employees

The statistical analysis showed that training effectiveness had a positive and significant impact on employee motivation, with a path coefficient of 0.843 and a t-statistic of 18.057 ($p < 0.001$). This value indicates that a well-designed and effective training program not only improves knowledge and skills but also substantially boosts motivation in carrying out work.

These results align with findings (Susanty, 2022), which state that the effectiveness of Kirkpatrick-based training can positively impact employee motivation through levels of reaction and learning. Previous research (Savul et al., 2021) also found that participant satisfaction with the quality of training delivery increases their drive to apply the knowledge received.

The PLS analysis suggests that training effectiveness has a strong direct impact on employee motivation. This means that when training is perceived as effective, such as by relevant material, appropriate methods, competent instructors, and an appropriate duration, motivation can increase substantially. However, this contribution only accounts for 71.1%, with the remainder explained by factors outside the model.

The Influence of Employee Motivation on the Performance of KPKNL Medan Employees

The analysis results show that the motivation variable has a positive and significant effect on the performance of KPKNL Medan employees, with a path coefficient of 0.613. This value indicates that when KPKNL employees are highly motivated, their performance improves. Therefore, motivation acts as an internal driver, motivating employees to feel enthusiastic, focused, and responsible in carrying out their work.

This finding is consistent with real-world observations. Employees with strong intrinsic motivation tend to demonstrate high levels of initiative, complete tasks within deadlines, and provide better service to the public. Conversely, employees with low motivation tend to work merely to fulfill formal obligations without making any effort to improve their performance. This confirms that motivation is a determining psychological factor in the process of applying competencies acquired through training to daily work practices.



This finding is relevant to work motivation theory based on Self-Determination Theory, which asserts that fulfilling psychological needs such as autonomy, competence, and social engagement can motivate employees to perform better (Ryan & Deci, 2022). Previous research also shows that employees with higher intrinsic motivation exhibit increased productivity and service quality (Irmawati et al., 2017). Similarly, (Susanty, 2022) also demonstrated that motivation is a key variable that bridges the gap between training and performance, as motivated employees more easily internalize training outcomes into their work.

The Influence of Training Effectiveness on the Performance of KPKNL Medan Employees Through Employee Motivation

The results of the PLS analysis indicate that training effectiveness significantly influences employee performance, both directly (path coefficient = 0.356) and indirectly through employee motivation (path coefficient = $0.843 \times 0.613 = 0.517$). The indirect effect (0.517) is greater than the direct effect (0.356). This value indicates that motivation plays a strong mediating role in influencing training effectiveness on employee performance at the Medan KPKNL. This condition means that effective training does not necessarily improve employee performance if it does not also increase motivation. Employees who have acquired new skills through training, but still lack sufficient intrinsic or extrinsic motivation, will tend to be less than optimal in applying the training results in their work. Conversely, if training can foster self-confidence, provide meaningful learning experiences, and increase employee commitment, then the growing motivation will become a driving force for employees to produce better performance.

These findings align with previous research that assessed motivation as a key variable in bridging training effectiveness and influencing employee performance improvement, particularly in government (Susanty, 2022). Similarly, research (Aulia, 2020) indicates that training focused solely on technical skill transfer is insufficient to boost performance without motivational reinforcement. Based on the theoretical context, these results are consistent with Self-Determination Theory, which explains that intrinsic motivation based on autonomy, competence, and social engagement are key factors in determining how training outcomes are internalized in work behavior ((Ryan & Deci, 2022).



CONCLUSION

Referring to the research results and discussion conducted in the previous chapter, the following conclusions can be drawn:

1. Training effectiveness has a positive and significant partial effect on employee performance at the Medan KPKNL. The analysis shows a positive and significant direct effect of training on performance. This confirms that the organization's investment in providing employee training is not in vain, as it directly contributes to improved work performance. Effective training will successfully equip employees with the skills and knowledge needed to work more effectively, efficiently, and productively.
2. Training effectiveness has a positive and significant partial effect on employee motivation at the Medan KPKNL. This underscores the important role of training not only as a means of transferring knowledge but also as a psychological tool that can increase employee confidence, competence, and work enthusiasm. When employees feel empowered through training, their motivation to perform better increases.
3. Employee motivation has a positive and significant partial effect on employee performance at the Medan KPKNL. This demonstrates that motivation is a key factor driving work performance. The higher an employee's motivation, the greater their commitment and effort in completing tasks, which ultimately impacts improved performance.
4. Training effectiveness has a positive and significant impact on KPKNL Medan employee performance through motivation as a mediating variable. This finding highlights that the impact of training is maximized when the program successfully increases employee motivation, which then encourages them to apply new knowledge and skills more optimally. In other words, motivation is a crucial bridge connecting training to superior performance outcomes.

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