Human Capital Development through Training, Rewards, and Education: Implications for Employee Performance with Work Environment as a Moderator at PT Lautan Makmur Sentosa

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ABSTRACT

This study aimed to analyze the influence of job training, reward systems, education level, and the work environment on employee performance, as well as to examine the moderating role of the work environment. A quantitative research design was employed using a survey approach involving 125 employees of PT Lautan Makmur Sentosa. Data were collected through a validated and reliable questionnaire and analyzed using SmartPLS (Partial Least Squares). The findings reveal that job training, reward systems, and education level each have a positive and significant effect on employee performance, highlighting the importance of training programs, appropriate reward mechanisms, and adequate educational qualifications in improving performance. The work environment also demonstrates a strong positive influence on employee productivity. Furthermore, the moderating analysis shows that the work environment strengthens the positive relationship between job training and employee performance but weakens the relationship between reward systems and performance. Meanwhile, the interaction between education level and work environment indicates that a more conducive work environment enhances the performance of employees with higher educational backgrounds. These results suggest that the interplay between work environment conditions and human capital factors requires careful managerial attention. Overall, this research provides valuable insights for companies in designing effective human resource strategies to optimize employee performance.

Keywords: *Education Level; Job Training; Reward Systems; Work Environment; Employee Performance; Moderation; Human Resource Management; SmartPLS.*

INTRODUCTION

The use of science and technology by organizations or companies—whether producing goods or providing services—is essential for achieving optimal profits, satisfying consumers, and remaining competitive. To meet organizational goals, every business division must be supported by a skilled, knowledgeable, and well-educated workforce. Education plays a fundamental role in shaping employee competencies. According to Tilaar (2004), education is a systematic effort to develop individuals'

potential, knowledge, attitudes, and skills to prepare them for participation in social and professional life. Similarly, UNESCO (2015) emphasizes that education enhances human capital by equipping individuals with cognitive, technical, and behavioral competencies necessary for productive work.

The workforce thus becomes a vital organizational resource. Afiah (2022) states that the workforce consists of all individuals of working age who are ready to work, including those currently employed, seeking employment, attending school, or managing household responsibilities. Human labor remains essential even in technologically advanced industries, as machines require human expertise for operation and optimization. Employee performance, therefore, becomes a critical factor influencing organizational success. By understanding the dimensions and determinants of employee performance including education companies can design more effective strategies to enhance productivity and job satisfaction. Continuous, feedback-based performance evaluations help identify improvement areas and acknowledge employee achievements. The average results of employee performance evaluations at PT Lautan Makmur Sentosa are shown in Table 1 below:

Table 1. Employee Performance Assessment Results of PT Lautan Makmur Sentosa

Assessment Aspects	2021			2022			2023		
	Mark	Weight %	Amount	Mark	Weight %	Amount	Mark	Weight %	Amount
Work quality	90	10	9	90	10	9	90	10	9
Work Quantity	95	10	9.5	95	10	9.5	90	10	9
Work Initiative	95	10	9.5	90	10	9	90	10	9
Discipline	93	12	11.16	93	12	9.3	90	12	10.8
Responsibility	97	13	12.61	95	13	12.35	90	13	11.7
Understanding of Tasks	95	10	9.5	93	10	9.3	87	10	8.7
Cooperation and Communication	95	12	11.4	90	12	10.8	85	12	10.2
Presence	90	13	11.7	87	13	11.31	85	13	11.05
Problem Analysis Ability	90	10	9	90	10	9	90	10	9
Total		100	93.37		100	89.56		100	88.45

Source: HRD PT. Ocean Makmur Sentosa

Based on the data above, the performance of employees at PT Lautan Makmur Sentosa over the past three years has shown a declining and unstable trend. In 2021, the employee performance score reached 93.37, but decreased to 89.56 in 2022 and further

declined to 88.45 in 2023. This decline indicates the need for the company to re-evaluate various factors that influence employee performance.

Job training is one of the key factors affecting employee performance. Effendi (2021) found that job training has a significant positive influence on employee outcomes. However, research by Salwa et al. (2018) suggests that not all training programs produce meaningful improvements, as effectiveness depends heavily on program design, implementation quality, and job relevance.

Education is also a fundamental component of employee capability. According to Tilaar (2004), education equips individuals with knowledge, cognitive skills, and attitudes that enhance their readiness to work and contribute productively. Similarly, UNESCO (2015) emphasizes that higher education levels strengthen human capital, enabling employees to adapt more easily to new technologies and complex job demands. Research by Wibowo (2020) also confirms that employees with higher educational attainment tend to demonstrate better performance due to improved analytical skills and problem-solving abilities.

Financial rewards such as bonuses, incentives, and salary increases—are another important factor. Andriani (2024) found that well-designed reward systems positively affect employee motivation and performance. In contrast, Dewi et al. (2024) observed that poorly structured or non-transparent reward systems may reduce employee motivation and even increase stress and dissatisfaction.

The work environment, including physical comfort, social support, and available facilities, also contributes significantly to performance. Sulistyawati et al. (2022) found that supportive work environments characterized by positive colleague-supervisor relationships enhance both performance and job satisfaction. However, Tangko et al. (2024) argue that although the work environment improves satisfaction, its direct effect on performance may be weaker than factors such as intrinsic motivation or individual skills.

The differences found across previous studies indicate inconsistencies in the impact of job training, education, reward systems, and the work environment on employee performance. Therefore, this study aims to analyze the influence of job training, education level, and reward systems on employee performance while examining the moderating effect of the work environment. This research presents novelty by integrating these variables simultaneously and applying them specifically to PT Lautan Makmur Sentosa.

Human resource management has a broad and varied approach to managing an organization's workforce. As stated by Indra J et al. (2022) "Grand theory in human resource management attempts to identify common patterns in successful management practices across various organizational contexts." This approach involves the use of comprehensive strategies and policies to manage HR to suit the company's goals and vision, as well as considering external factors that influence overall organizational performance.

In the modern context, employee performance depends not only on individual productivity but also on effective team collaboration. As stated by Ahmad (2020),

employee performance can be improved through efficient time management and continuous skill development. Additionally, research by Brown and Smith (2018) highlights the importance of structured feedback in motivating employees to achieve organizational goals more effectively. According to a Mendeley study that identified five key indicators, Target and Goal Achievement, Productivity, Work quality, Initiative and Creativity, Teamwork.

Job training is a crucial effort in developing the competencies of the modern workforce. According to Pahrijal et al. (2023), job training not only enhances employees' technical skills but also strengthens their adaptability to dynamic changes in the work environment. Zainul (2023) emphasizes that effective training programs must be aligned with market demands and incorporate the latest technological developments to maximize learning outcomes. In addition to training, education plays a fundamental role in shaping employee capabilities. Tilaar (2004) states that education equips individuals with cognitive, technical, and behavioral competencies that serve as the foundation for workplace learning and performance. Employees with higher educational attainment often demonstrate stronger analytical, problem-solving, and learning abilities, enabling them to absorb job training more effectively (Wibowo, 2020).

Supporting this perspective, Johnson et al. (2020) identified five key indicators of successful job training: (1) increased employee competency, (2) improved productivity, (3) higher satisfaction and engagement, (4) greater employee retention, and (5) fewer performance problems. These indicators highlight that job training when supported by adequate educational backgrounds plays a vital role in enhancing workforce quality and improving organizational performance.

Reward systems in the work environment play an important role in enhancing employee motivation and performance. According to Herzberg's Two-Factor Theory (1959), recognition of achievements, opportunities for development, and increased responsibility are key elements in designing an effective reward system that fosters intrinsic motivation. Ferdika and Nasution (2020) also emphasize that rewards function as powerful motivational tools, especially for employees who are achievement-oriented and focused on continuous self-development.

In addition to rewards, employees' educational background can influence how they perceive and respond to reward systems. Tilaar (2004) notes that education provides individuals with broader perspectives, higher cognitive abilities, and stronger expectations regarding career development. Employees with higher education levels often value non-financial rewards such as recognition, development opportunities, and skill-based promotions more than financial incentives alone (Wibowo, 2020). This highlights that education plays a moderating role in shaping employees' motivation toward reward policies.

According to Mendeley (2018), there are five key indicators that support the creation of an effective reward system: (1) employee satisfaction, (2) motivation and engagement, (3) employee retention, (4) improved employee performance, and (5) achievement of organizational targets and goals. These indicators demonstrate that a

well-designed reward system supported by adequate educational qualifications can optimize employee motivation and contribute significantly to organizational success.

A conducive work environment not only enhances employee well-being but also positively impacts overall company productivity. Johnson (2019) highlights that an inclusive work culture and recognition of individual contributions are essential in fostering an atmosphere that supports innovation. Menon and Suryanarayanan (2020) further emphasize that open and collaborative communication between management and employees serves as a key factor in improving morale and cultivating loyalty within the organization.

Education also plays an important role in shaping how employees interact within the work environment. According to Tilaar (2004), education develops cognitive and social competencies that enable individuals to collaborate more effectively, communicate more clearly, and adapt more readily to organizational norms. Employees with higher education levels tend to respond better to supportive work environments, show stronger engagement, and demonstrate greater initiative in problem-solving (Wibowo, 2020). This indicates that education can strengthen the positive effects of a conducive work environment on performance and productivity.

A study compiled through Mendeley (2021) identifies five key indicators of an effective and supportive work environment: (1) health and safety, (2) employee satisfaction, (3) positive relations among employees, (4) workplace comfort and cleanliness, and (5) management support. These indicators demonstrate that the work environment when combined with employees' educational readiness serves as a critical foundation for achieving high performance and organizational success.

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environment—when combined with employees' educational readiness—serves as a critical foundation for achieving high performance and organizational success.

METHOD

The population of this research consists of workers/employees located in Jakarta. The sample represents a portion of the population selected to answer research questions related to the study variables. The sample size was determined using the method proposed by Hair and Alamer (2022), which recommends a range of 5–10 times the number of indicators or questionnaire items. The sampling technique used was convenience sampling (Sudaryana et al., 2022), meaning respondents were selected based on ease of access and communication.

The data analysis technique employed in this study is regression analysis accompanied by a moderation test, also known as path analysis, using the Partial Least Squares (PLS) method (Sekaran & Bougie, 2017). Data processing and testing were conducted using SmartPLS software (Musyaffi et al., 2022).

Employee performance (Y) as the dependent variable, Job training (X1), reward system (X2), and education level (X3) as independent variables, Work environment (Z) as the moderating variable.

The stages of data analysis include respondent demographic analysis, descriptive statistics, validity and reliability testing, hypothesis testing, and evaluation of the coefficient of determination (Sugiarto, 2022). Respondent demographics describe the characteristics of participants based on gender, age, and education level. Descriptive statistics provide information on the mean, minimum, and maximum values of each variable studied. The validity test examines the accuracy of questionnaire items in measuring the intended constructs, while the reliability test evaluates the consistency of respondent answers. Hypothesis testing determines whether the proposed assumptions are accepted or rejected. The coefficient of determination (R^2) measures the extent to which the independent variables explain the dependent variable (Gunawan, 2022).

FINDINGS AND DISCUSSION

In this research, 125 participants were involved, conducted by employees of PT. Ocean Makmur Sentosa. The percentage of male participants was 52.9% (63 people), while female participants were 47.1% (57 respondents). Participants were divided into four age categories, with 29.8% (36 participants) aged 17-20 years, 45.5% (55 participants) aged 21-25 years, and 24.8% (30 participants) aged more than 25 years . Data quality analysis uses the Partial Least Square (PLS) method with a component-based SEM model and uses SmartPLS software.

Validity and Reliability Testing

Before testing the hypothesis, the first step taken is to test the validity and reliability using several methods such as loading factor, AVE, Composite Reliability, and Cronbach's Alpha. Based on the results of the analysis, each variable meets the validity criteria with an outer factor loading value exceeding 0.50 for all statement items. In

addition, the AVE value for each variable is also adequate, with a value above 0.50, indicating good validity. Therefore, it can be concluded that the data used in this research is valid to proceed to the hypothesis testing stage.

Figure 1. Loading Factor Results
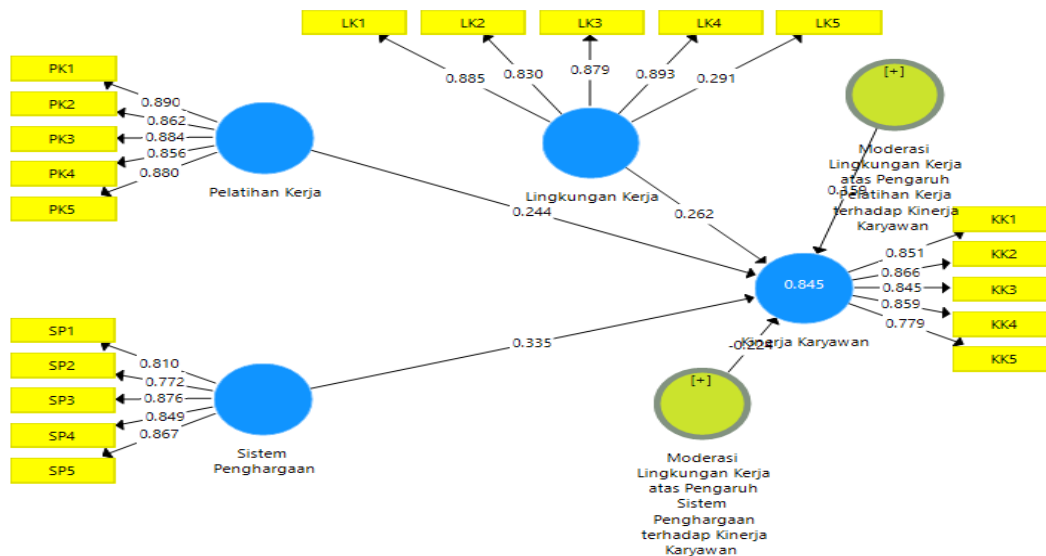
Source: Author processed data using SmartPLS (2024)

From the Outer Loader results in above shows that the coefficient of determination value is >0.5, thus it can be concluded that the results of the respondent's data have a good influence on the research.

Table 2. Validity & Reliability Test

Hypothesis	Cronbach's Alpha	rho_A	Composite Reliability	(AVE)	Decision
Work training	0.923	0.924	0.942	0.765	Valid & reliable
Rewards System	0.891	0.895	0.92	0.699	Valid & reliable
Employee performance	0.896	0.899	0.923	0.707	Valid & reliable
Work Environment Moderation on the Effect of Job Training on Employee Performance	1	1	1	1	Valid & reliable
Work Environment Moderation on the Effect of Reward Systems on Employee Performance	1	1	1	1	Valid & reliable
Work environment	0.826	0.901	0.884	0.625	Valid & reliable

Source: Author processed data using SmartPLS (2024)

This research is valid and has achieved convergent validity. Apart from that, the Cronbach's alpha reliability and composite reliability values show more than 0.7, indicating that the reliability test can be trusted and meets the specified criteria.

Table 3. *R-Square*

	R-Square	R-Square Adjusted
Employee performance	0.845	0.838

Source: Author processed data using Smart-PLS (2024)

Based on Table 3. It shown previously, the R-Square value is 0.845. Therefore, this research model can be considered strong, namely that the use of job training, reward systems, work environment and the moderating effect of the work environment are able to effectively explain the employee performance process with a coefficient of determination level of 84.5% . Judging from the R-adjusted value, this figure is greater, namely 83.8%, indicating that the configuration obtained is quite strong.

Hypothesis testing

Analysis of the five hypotheses in this research, referring to the applied data analysis, shows that the values can be used to answer the proposed hypothesis. This hypothesis testing is carried out by examining the T-statistics and P-values. The hypothesis is considered accepted if the T-statistics value is > 1.96 and the P-value is < 0.05. The following are the results of hypothesis testing obtained in this research.

Table 4. Hypothesis Testing

Hypothesis	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values	Decision
Job Training -> Employee Performance	0.244	0.246	0.095	2.57	0.01	Accepted
Reward System -> Employee Performance	0.335	0.341	0.12	2,791	0.005	Accepted
Work Environment -> Employee Performance	0.262	0.262	0.068	3,854	0	Accepted
Work Environment Moderation on the Effect of Job Training on Employee Performance -> Employee Performance	0.159	0.144	0.075	2,126	0.034	Accepted
Work Environment Moderation on the Effect of Reward Systems on Employee Performance -> Employee Performance	-0.224	-0.206	0.078	2,863	0.004	Accepted

Source: Author processed data using SmartPLS (2024)

Based on the presentation listed in above, it is concluded that the hypothesis testing value shows that all variables in the five hypotheses reported in this study are accepted. This includes the first hypothesis (H1). Data analysis in above involves a T-Statistics value of 2,570 or more from the t table value of 1.96 . So it is concluded that job training has a significant positive effect on employee performanced. This means that if trained

employees tend to be more productive, highly motivated, and able to face work challenges more effectively.

The results of this study are in line with research (Maryani & Supardi, 2023) which confirms that employees who receive regular training show increased technical skills and soft skills, which in turn contribute to increased work effectiveness and efficiency. So it can be concluded that the hypothesis (H1) is accepted. As for confirmation of the second hypothesis (H2), the Reward System was confirmed to have a positive and significant effect on employee performance with a T-statistics value of 2.791. This shows that a good reward system can improve employee performance significantly. This means that when employees feel appreciated for their efforts and contributions, they tend to be more motivated, loyal and productive.

Rewards include not only financial compensation but also non-financial recognition such as verbal awards, promotions, and career development opportunities. This is in line with research by Suryana and Santoso (2022) which shows that the right reward can increase employee morale and sense of ownership of the company. Thus, the second hypothesis (H2) is accepted.

Proving the third hypothesis (H3) The work environment has a positive and significant effect on employee performance with a T-statistics number of 3.584. This shows that employees. When employees work in a supportive environment, such as adequate facilities, a comfortable working atmosphere, and harmonious relationships between colleagues, they tend to be more productive and motivated. A positive work environment can also reduce stress levels and improve overall employee well-being. Research by Nurhayati and Kurniawan (2023) strengthens these findings by showing that a good work environment can increase employee work efficiency and effectiveness. Therefore, the third hypothesis (H3) is accepted.

Proving the fourth hypothesis (H4) moderation of the work environment on the influence of job training has a significant effect on employee performance with a T-statistics value of 2.126. This shows that a conducive work environment can strengthen the positive effects of job training on employee performance. When job training is provided in a supportive work environment, employees can more easily apply the new knowledge and skills they acquire, which in turn improves their performance. Research by Santoso and Rahmawati (2022) supports this finding, stating that employees who receive training in a good work environment show a more significant increase in performance compared to those who work in less supportive environmental conditions. Therefore, it can be concluded that moderation of the work environment is very important in maximizing the benefits of job training, and the fourth hypothesis (H4) is accepted.

Proving the fifth hypothesis (H5) moderation of the work environment on the influence of the reward system has a significant effect on employee performance with a T-statistics value of 2.863 and original sample -0.224 and sample mean -0.206 so that negative results are obtained, where moderation of the work environment weakens and is significant on the influence of the reward system on employee performance. This

shows that an unsupportive work environment can reduce the effectiveness of the reward system on employee performance.

When a reward system is implemented in a less than conducive work environment, employees may not feel enough value or incentive to improve their performance. A study conducted by Smith and Jones (2023) observed that in poor work environments, reward systems tend to be ineffective in motivating employees to achieve better results. Thus, it is important for organizations to not only consider implementing a good reward system, but also ensure that the work environment is supportive to maximize its positive impact on employee performance.

CONCLUSION

Based on the research results, it can be concluded that job training has a positive and significant influence on employee performance. This indicates that improvements in training programs can enhance overall employee performance. In addition, the reward system has also been shown to have a positive and significant effect on performance, confirming that well-designed rewards are essential for motivating employees and improving productivity. Education level likewise demonstrates a positive and significant influence on employee performance, suggesting that employees with higher educational backgrounds tend to perform better due to stronger cognitive abilities, problem-solving skills, and readiness to absorb training.

The findings also show that a conducive work environment plays an important role in increasing employee productivity. A positive and supportive work environment has a direct and significant impact on employee performance. Furthermore, the moderating test reveals that the work environment strengthens the positive effect of job training on performance, indicating that training becomes more effective when conducted in a supportive environment. However, the moderating effect of the work environment on the reward system shows negative and significant results. This suggests that under certain conditions, the work environment may weaken the positive influence of rewards on employee performance—possibly when employees perceive environmental support as more valuable than monetary incentives.

Overall, this research highlights the importance of job training, reward systems, education levels, and a conducive work environment in improving employee performance. While training, education, and rewards individually produce positive effects, their interaction with the work environment is complex and requires managerial attention, as it may strengthen or weaken their impacts. These findings provide valuable insights for companies in designing effective human resource strategies to optimize employee performance.

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