



THE EFFECT OF HUMAN RESOURCE TRAINING AND TRANSFORMATIONAL LEADERSHIP ON EMPLOYEE PERFORMANCE THROUGH WORK MOTIVATION AT X AIRLINES IN TIMOR-LESTE

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ABSTRACT

Introduction: This study investigates the effects of human resource training and transformational leadership on employee performance, both directly and indirectly through work motivation, at X Airlines in Timor-Leste.

Methods: Using a quantitative cross-sectional design, data were collected from all active employees through a five-point Likert-scale questionnaire. The data were analyzed using regression-based path analysis, while the mediating effects were evaluated using the Sobel test.

Results: The findings demonstrate that human resource training and transformational leadership positively and significantly affect employee performance and work motivation. Work motivation also has a positive and significant effect on employee performance and partially mediates the effects of both human resource training and transformational leadership. These findings indicate that training and leadership improve performance not only by strengthening employees' competencies and work direction but also by fostering their motivation to perform. Transformational leadership has a stronger indirect contribution through work motivation, highlighting the important role of leaders in sustaining employee enthusiasm, commitment, and confidence. Therefore, X Airlines should align training programs with operational needs, strengthen inspirational and supportive leadership practices, and continuously foster employee motivation to improve performance.

INTRODUCTION

The aviation industry relies on competent, disciplined, and coordinated employees to maintain safety, comply with operational procedures, and provide reliable services. This requirement is particularly important in Timor-Leste, where the developing aviation sector still faces limitations in qualified personnel and technical capacity (Tatoli, 2023; International Civil Aviation Organization, 2025). X Airlines has responded by providing development opportunities for local pilots, aircraft mechanics, cabin crew, and other aviation personnel, including technical training in India and Singapore (Tatoli, 2025). However, training does not automatically improve performance unless it is relevant, properly designed, applicable to daily work, and supported by the organization (Noe, 2023).

Employee performance remains a concern at X Airlines. In 2025, the company recorded ten operational occurrences involving baggage handling, inflight-meal coordination, fuel calculations, boarding-pass scanning, safety-equipment checks, and passenger calculations. Most were associated with human factors, including inadequate work quality, weak task implementation, insufficient responsibility, low morale, and limited training (X Airlines, 2025). A preliminary survey of 30 employees also identified human resource training, transformational leadership, and work motivation as the main factors associated with suboptimal performance. Training was sometimes considered insufficiently relevant and burdensome, while high organizational expectations were not always accompanied by adequate guidance and support.

Relevant training can strengthen employee competence and confidence, while transformational leadership can encourage commitment through inspiration, intellectual stimulation, and individual support (Bass & Avolio, 1994). These factors may improve performance by strengthening work motivation. According to Herzberg, Mausner, and Snyderman (1959), motivation is influenced by intrinsic factors, such as achievement, recognition, and responsibility, as well as extrinsic factors, including organizational policies, supervision, salary, and working conditions. Previous studies have found that training, transformational leadership, and motivation are associated with employee performance (Agusta & Sutanto, 2013; Tucunan, Supartha, & Riana, 2014; Veliando & Yanuar, 2021). Similar relationships have also been reported in the aviation sector (Sulistiawati & Yudianto, 2022). However, findings regarding the mediating role of work motivation remain inconsistent (Irawan & Kristiawati, 2025; Kharis, 2015; Prayudi, 2020).

Previous studies have generally examined training and transformational leadership separately or outside the aviation sector. Research integrating both factors with work motivation remains limited, particularly in Timor-Leste's emerging airline industry. Accordingly, this study examines the role of work motivation in linking human resource training and transformational leadership with employee performance at X Airlines in Timor-Leste.

LITERATURE REVIEW

This literature review discusses the theoretical foundations of human resource training, transformational leadership, work motivation, and employee performance. It also presents relevant previous studies and develops the hypotheses used to examine the direct and indirect relationships among these variables. Human resource training and transformational leadership are positioned as independent variables, work motivation as a mediating variable, and employee performance as the dependent variable.

Human Resource Training

Human resource training is a systematic and planned organizational effort to improve employees' knowledge, skills, abilities, and work-related behavior. Training is primarily directed toward helping employees perform their current jobs more effectively, while employee development is generally associated with preparing individuals for broader responsibilities in the future.

Noe (2023) defines training as a planned organizational effort to facilitate employees' learning of job-related competencies, including knowledge, skills, and behavior. Training is therefore not limited to the transfer of technical knowledge but also concerns the development of work behavior that supports organizational effectiveness. Dessler

(2020) similarly describes training as the process of teaching new or existing employees the basic skills required to perform their jobs.

Mondy and Martocchio (2020) explain that training is a central part of an organization's continuous effort to improve employee competence and organizational performance. Armstrong and Taylor (2020) further state that training is a systematic process for improving individual knowledge, skills, and abilities so that employees can work effectively and adapt to organizational requirements.

In this study, human resource training is measured through four dimensions based on Noe (2023): training relevance or needs assessment, training design quality, transfer of training, and organizational or managerial support. Training relevance refers to the extent to which training programs correspond with actual job requirements, employee needs, work-related problems, and organizational objectives. Training design quality concerns the clarity of training objectives, the comprehensibility of training materials, the suitability of training methods, and opportunities for practice.

Transfer of training reflects employees' ability to apply the knowledge and skills acquired during training to their daily work. Organizational or managerial support refers to the encouragement, resources, guidance, and workplace conditions provided by supervisors and the organization to support the implementation of training outcomes. Training is more likely to improve employee performance when it is relevant, properly designed, applicable to actual work, and supported by management.

Transformational Leadership

Transformational leadership is a leadership style that emphasizes the ability of leaders to influence, inspire, and develop employees so that they are willing to exceed personal interests for the achievement of organizational goals. Transformational leaders do not merely supervise task completion but also communicate a meaningful vision, encourage innovation, build commitment, and support individual development.

Bass and Avolio (1994) explain that transformational leadership consists of four main dimensions: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. Idealized influence refers to the leader's ability to become a respected and trusted role model. Leaders demonstrate integrity, consistency, and commitment so that employees are willing to follow their direction.

Inspirational motivation reflects the leader's ability to communicate a clear and meaningful vision, create optimism, and encourage employees to provide their best efforts. Intellectual stimulation refers to the leader's ability to encourage employees to think critically, challenge old assumptions, develop new ideas, and solve problems creatively. Individualized consideration concerns the leader's attention to the needs, potential, and development of each employee.

Burns (1978) states that transformational leadership occurs when leaders and followers help each other achieve higher levels of motivation and morality. Robbins and Judge (2019) describe transformational leaders as individuals who inspire followers to transcend their personal interests for the benefit of the organization. Northouse (2022) also emphasizes that transformational leadership is a relational process that increases motivation and morality among both leaders and followers.

In the context of the aviation industry, transformational leadership is particularly important because employees work under strict safety standards, operational pressures, and service demands. Leaders must therefore provide clear direction while maintaining employee confidence, commitment, and psychological readiness.

Work Motivation

Work motivation is the internal and external force that initiates, directs, and maintains employee behavior toward the achievement of work and organizational objectives. Motivation influences how much effort employees provide, the direction of their behavior, and how long they maintain their effort.

Robbins and Judge (2019) define motivation as a process that explains an individual's intensity, direction, and persistence in achieving a goal. Hasibuan (2020) explains that work motivation is the driving force that creates enthusiasm and encourages employees to cooperate, work effectively, and integrate their efforts to achieve

satisfaction. Mangkunegara (2017) also describes motivation as the energy that directs employees toward the achievement of organizational goals.

This study applies the two-factor theory developed by Herzberg, Mausner, and Snyderman (1959). The theory distinguishes between motivator factors and hygiene factors. Motivator factors are intrinsic aspects associated with the content of the job, including achievement, recognition, the work itself, responsibility, advancement, and personal growth. These factors may create satisfaction and encourage employees to perform better.

Hygiene factors are extrinsic aspects associated with the context of the job, including organizational policies, supervision, salary, interpersonal relationships, working conditions, job security, status, and the effect of work on personal life. Hygiene factors do not necessarily create strong motivation, but inadequate hygiene conditions may lead to dissatisfaction.

In this study, work motivation is expected to function as a psychological mechanism through which training and transformational leadership influence employee performance. Relevant training may increase confidence, competence, and perceptions of organizational support, while transformational leadership may increase inspiration, recognition, commitment, and enthusiasm.

Employee Performance

Employee performance refers to the quality and quantity of work achieved by employees in carrying out their duties and responsibilities according to organizational standards. Performance reflects both the outcomes of work and the behavior demonstrated by employees during the completion of their responsibilities.

Mangkunegara (2017) defines employee performance as the quality and quantity of work achieved by an employee in performing assigned responsibilities. Mathis, Jackson, and Valentine (2019) explain that employee performance concerns what employees do or fail to do and how their behavior affects their contribution to the organization. Armstrong and Taylor (2020) state that performance represents work outcomes that are closely related to organizational objectives, customer satisfaction, and economic contribution.

In this study, employee performance is measured through four dimensions developed by Mangkunegara (2017): work quality, work quantity, task implementation, and responsibility. Work quality includes accuracy, neatness, and the standard of work outcomes. Work quantity refers to the volume of completed work, the number of outputs, and the achievement of work targets.

Task implementation concerns employees' ability to perform duties according to procedures, complete assignments on time, and solve work-related tasks effectively. Responsibility refers to commitment, discipline, and willingness to accept accountability for work outcomes. These dimensions are especially relevant in aviation because operational errors may affect service quality, costs, schedules, and passenger safety.

Previous Studies and Hypothesis Development

Previous studies have consistently indicated that employee training contributes to improved employee performance. Agusta and Sutanto (2013) found that training and work motivation had positive and significant effects on employee performance. Boe (2014), in a study conducted in Timor-Leste, also demonstrated that training programs and work motivation positively and significantly affected employee performance.

Andayani and Makian (2016), Rachmawati (2016), Maidarti (2022), Putri and Astuti (2022), Firmansyah and Aima (2020), and Hok (2014) similarly reported that training was associated with better employee performance. Training improves employees' knowledge, technical competence, procedural understanding, and readiness to handle work responsibilities. Employees who receive relevant and effective training are expected to make fewer errors, work more efficiently, and achieve higher performance.

Based on this theoretical and empirical evidence, the first hypothesis is formulated as follows:

H1: Human resource training has a positive effect on employee performance at X Airlines in Timor-Leste.

Transformational leadership is also expected to improve employee performance. Leaders who provide inspiration, communicate a clear vision, encourage creative thinking, and support employee development can strengthen

commitment and work involvement. Tucunan, Supartha, and Riana (2014) found that transformational leadership had a positive and significant effect on employee performance.

Prayudi (2020), Kharis (2015), Sylvia (2017), Baan (2024), Veliando and Yanuar (2021), and Supartini (2017) also reported positive relationships between transformational leadership and employee performance. In the aviation sector, Sulistiawati and Yudianto (2022) found that transformational leadership and work motivation positively and significantly affected airline employee performance.

Therefore, the second hypothesis is formulated as follows:

H2: Transformational leadership has a positive effect on employee performance at X Airlines in Timor-Leste.

Training may also increase employees' work motivation. Employees who receive appropriate training may feel more competent, confident, valued, and supported by the organization. Training can reduce uncertainty, clarify job responsibilities, and provide opportunities for advancement and personal development.

Noe (2023) explains that effective training should be connected with employees' job requirements and supported by the work environment. When employees can apply newly acquired knowledge and skills, they are more likely to experience satisfaction and become motivated to contribute more effectively.

Previous findings by Agusta and Sutanto (2013), Boe (2014), Andayani and Makian (2016), and Maidarti (2022) demonstrate that training and work motivation are closely related in explaining employee performance. Although several studies examined both variables as direct predictors of performance, their findings support the argument that training may create psychological and professional conditions that strengthen motivation.

Accordingly, the third hypothesis is formulated as follows:

H3: Human resource training has a positive effect on work motivation at X Airlines in Timor-Leste.

Transformational leadership is theoretically associated with higher employee motivation. Inspirational leaders communicate meaningful organizational goals, recognize employees' contributions, encourage new ideas, and provide individual attention. These behaviors may increase employees' confidence, optimism, and willingness to perform beyond minimum job requirements.

Kharis (2015) found that transformational leadership significantly affected work motivation. Tucunan, Supartha, and Riana (2014) also reported a positive and significant effect of transformational leadership on employee motivation. Similar findings were reported by Veliando and Yanuar (2021) and Setiawan, Herlambang, and Sanosra (2024).

Based on these findings, the fourth hypothesis is formulated as follows:

H4: Transformational leadership has a positive effect on work motivation at X Airlines in Timor-Leste.

Work motivation is expected to improve employee performance because motivated employees tend to demonstrate greater effort, persistence, responsibility, and commitment. Herzberg, Mausner, and Snyderman (1959) explain that achievement, recognition, responsibility, advancement, and supportive working conditions influence employees' attitudes toward their work.

Agusta and Sutanto (2013), Imran (2013), Boe (2014), Maidarti (2022), and Irawan and Kristiawati (2025) found that work motivation significantly influenced employee performance. In addition, Prayudi (2020), Kharis (2015), Tucunan, Supartha, and Riana (2014), and Sulistiawati and Yudianto (2022) demonstrated that motivated employees tend to achieve better performance.

Therefore, the fifth hypothesis is formulated as follows:

H5: Work motivation has a positive effect on employee performance at X Airlines in Timor-Leste.

Human resource training may influence employee performance indirectly through work motivation. Training improves competence and work readiness, while the perception of receiving organizational support may encourage employees to demonstrate greater commitment and effort. When employees become more motivated after participating in relevant training, the increased motivation may lead to higher performance.

Irawan and Kristiawati (2025) examined work motivation as a mediating variable in the relationship between training and employee performance. Their study found that training and motivation significantly affected performance, although the indirect effect through motivation was not significant. This result demonstrates that the mediating role of motivation may vary depending on organizational context.

Other studies, including Agusta and Sutanto (2013), Boe (2014), and Maidarti (2022), indicate that training and motivation jointly contribute to performance. In the context of X Airlines, relevant training is expected to increase confidence and competence, which subsequently strengthens work motivation and employee performance.

The sixth hypothesis is therefore formulated as follows:

H6: Work motivation mediates the effect of human resource training on employee performance at X Airlines in Timor-Leste.

Transformational leadership may also influence employee performance through work motivation. Leaders who communicate an inspiring vision, recognize employee achievements, stimulate new ideas, and provide individualized support may create stronger motivation. Motivated employees subsequently demonstrate higher discipline, commitment, and performance.

Prayudi (2020) found that work motivation mediated the effect of transformational leadership on employee performance. Kharis (2015) and Tucunan, Supartha, and Riana (2014) also found significant indirect effects of transformational leadership on performance through motivation. Veliando and Yanuar (2021) further demonstrated that motivation mediated the positive relationship between transformational leadership and employee performance. However, Setiawan, Herlambang, and Sanosra (2024) found that although transformational leadership significantly affected motivation, the mediating effect of motivation on performance was not significant. These different findings indicate the need for further examination in the context of an airline operating in Timor-Leste.

Accordingly, the seventh hypothesis is formulated as follows:

H7: Work motivation mediates the effect of transformational leadership on employee performance at X Airlines in Timor-Leste.

RESEARCH METHODS

This study employed a quantitative approach using descriptive and verificative research methods. The research was conducted at X Airlines in Timor-Leste during the 2026 research period. A cross-sectional survey design was applied because the data were collected from respondents at one particular period without providing any experimental treatment. The descriptive method was used to describe the conditions of human resource training, transformational leadership, work motivation, and employee performance, while the verificative method was used to statistically examine the relationships among these variables (Sekaran, 2003; Veronica et al., 2022).

This study involved four variables. Human resource training was positioned as the first independent variable (X_1) and was measured through training relevance or needs assessment, training design quality, transfer of training, and organizational or managerial support (Noe, 2023). Transformational leadership was positioned as the second independent variable (X_2) and was measured through idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Bass & Avolio, 1994). Work motivation was used as the mediating variable (M) and was measured through motivator and hygiene factors (Herzberg, Mausner, & Snyderman, 1959). Employee performance was positioned as the dependent variable (Y) and was measured through work quality, work quantity, task implementation, and responsibility (Mangkunegara, 2017).

The population consisted of all 97 active employees of X Airlines in Timor-Leste. Because the population was relatively small and all members could be reached, this study applied saturated sampling or census sampling, in which all members of the population were selected as respondents (Sugiyono, 2013). Therefore, the total sample consisted of 97 respondents from the company's operational and administrative functions.

Primary data were collected using a structured questionnaire containing 59 closed-ended statements. Human resource training was measured using 20 statements, transformational leadership using 12 statements, work motivation using 15 statements, and employee performance using 12 statements. Each statement was measured using a five-point Likert scale ranging from 1, representing strongly disagree, to 5, representing strongly agree. Secondary data were obtained from company documents, scientific books, journal articles, and previous research related to the variables examined. The research instrument was tested for validity using the Pearson Product-Moment correlation. An item was considered valid when its calculated correlation coefficient was greater than the critical correlation value at a

significance level of 0.05. Reliability was examined using Cronbach's Alpha, and a variable was considered reliable when the Cronbach's Alpha value was at least 0.60 (Sekaran, 2003).

The data were analyzed using IBM SPSS Statistics version 26. Descriptive analysis was performed by calculating the frequency, percentage, total score, and mean score of the respondents' answers. Before conducting hypothesis testing, the regression models were evaluated using normality, multicollinearity, and heteroscedasticity tests. Normality was tested using the one-sample Kolmogorov–Smirnov test. Multicollinearity was assessed using tolerance and variance inflation factor values, while heteroscedasticity was examined using a scatterplot of the regression residuals.

Regression-based path analysis was used to examine the direct and indirect effects among the variables. Path analysis is an extension of multiple regression analysis used to estimate theoretically specified causal relationships among variables (Sekaran, 2003). The first structural equation, which examined the effects of human resource training and transformational leadership on work motivation, was formulated as follows:

- $M = \alpha_1 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon_1$ (1)

The second structural equation, which examined the effects of human resource training, transformational leadership, and work motivation on employee performance, was formulated as follows:

- $Y = \alpha_2 + \beta_3 X_1 + \beta_4 X_2 + \beta_5 M + \varepsilon_2$ (2)

In these equations, X_1 represents human resource training, X_2 represents transformational leadership, M represents work motivation, Y represents employee performance, α represents the constant, β represents the regression or path coefficient, and ε represents the residual error.

The indirect effect of human resource training on employee performance through work motivation was calculated using the following equation:

- $IE_1 = \beta_1 \times \beta_5$ (3)

The indirect effect of transformational leadership on employee performance through work motivation was calculated using the following equation:

- $IE_2 = \beta_2 \times \beta_5$ (4)

The significance of the indirect effects was tested using the Sobel test, which determines whether the mediating effect of a variable is statistically significant (Sobel, 1982). The Sobel test was calculated using the following equation:

- $Z = (a \times b) / \sqrt{[(b^2 \times S_a^2) + (a^2 \times S_b^2)]}$ (5)

In this equation, a represents the regression coefficient of the independent variable on work motivation, b represents the regression coefficient of work motivation on employee performance, S_a represents the standard error of coefficient a , and S_b represents the standard error of coefficient b . A mediating effect was considered statistically significant when the absolute Sobel Z -value was greater than 1.96 at a significance level of 0.05 (Sobel, 1982).

The partial effects of the independent variables were tested using the t -test, while the simultaneous effect was tested using the F -test. The hypotheses were supported when the significance value was less than 0.05. The coefficient of determination was used to determine the proportion of variation in employee performance explained by human resource training, transformational leadership, and work motivation.

RESULT AND ANALYSIS

The data were collected from all 97 active employees of X Airlines in Timor-Leste. All distributed questionnaires were completed and included in the analysis. The results are presented sequentially, beginning with respondent characteristics and instrument testing, followed by descriptive analysis, classical assumption testing, path analysis, mediation testing, and discussion of the hypotheses.

Respondent Characteristics

The respondents consisted of employees from operational and administrative functions. As presented in Table 1, most respondents were male, accounting for 67.01% of the sample. The respondents were predominantly Millennials, representing 51.55%, followed by Generation Z at 30.93%. Regarding educational attainment, most respondents held a bachelor's degree, accounting for 53.61% of the total sample.

Table 1
Respondent Characteristics

No.	Characteristic	Category	Frequency	Percentage (%)
1	Gender	Male	65	67.01
		Female	32	32.99
2	Age Group	Generation Z	30	30.93
		Millennial	50	51.55
		Generation X	17	17.52
		High School	18	18.56
3	Education	Diploma	15	15.46
		Bachelor's Degree	52	53.61
		Master's Degree	12	12.37

Source: Primary Data Processed, 2026

The dominance of Millennials and Generation Z indicates that X Airlines has a relatively young and productive workforce. This workforce profile may support rapid learning and adaptation to technological and operational changes. However, younger employees also require structured training, clear career development, and supportive leadership to maintain motivation and operational discipline.

Instrument Validity and Reliability

The validity test demonstrated that all 59 questionnaire items had item-total correlation coefficients exceeding the stated critical value. Therefore, all items measuring human resource training, transformational leadership, work motivation, and employee performance were retained for further analysis.

Reliability was examined using Cronbach's Alpha. As shown in Table 2, the coefficients ranged from 0.883 to 0.924, exceeding the minimum acceptable value of 0.60. These results demonstrate that all research instruments had strong internal consistency and were suitable for statistical analysis.

Table 2
Reliability Test Results

No.	Variable	Number of Items	Cronbach's Alpha	Result
1	Human Resource Training	20	0.924	Reliable
2	Transformational Leadership	12	0.883	Reliable
3	Work Motivation	15	0.92	Reliable
4	Employee Performance	12	0.901	Reliable

Source: Primary Data Processed, 2026

The high reliability coefficients indicate that the items within each construct consistently measured the same underlying concept. Thus, the instrument provided an adequate empirical basis for the descriptive and verificative analyses.

Descriptive Analysis

Respondent Characteristics

The study involved 97 employees from operational and administrative functions. The respondents were predominantly male (67.01%), Millennials (51.55%), and bachelor's degree holders (53.61%).

Instrument Validity and Reliability

All 59 questionnaire items met the validity criterion and were retained for analysis. Cronbach's Alpha values ranged from 0.883 to 0.924, exceeding the minimum threshold of 0.60 and confirming the reliability of all research instruments.

Descriptive Analysis

The descriptive results and the lowest-rated indicators for each variable are summarized in Table 1.

Table 1
Summary of Descriptive Results

Variable	Achievement (%)	Category	Lowest-Rated Indicator	Score (%)
Human Resource Training	70.07	Effective	Comprehensibility of training materials	59.79
Transformational Leadership	70.91	Effective	Leader's ability to generate enthusiasm under pressure	66.19
Work Motivation	68.1	High	Fairness of organizational policies and administration	65.77
Employee Performance	70.84	High	Commitment and dedication to flight operations	68.25

Source: Primary Data Processed, 2026.

Overall, human resource training and transformational leadership were perceived as effective, while work motivation and employee performance were classified as high. Nevertheless, the lowest-rated indicators reveal the need to simplify training materials, strengthen leadership during high-pressure situations, improve the fairness of organizational policies, and reinforce employee commitment to flight operations.

Classical Assumption Test

The normality test was conducted using the one-sample Kolmogorov–Smirnov test. The result produced an asymptotic significance value of 0.200 and a Monte Carlo significance value of 0.551. Both values exceeded 0.05, indicating that the regression residuals were normally distributed.

The multicollinearity test showed that all tolerance values were above 0.10 and all variance inflation factor values were below 10. Therefore, no serious multicollinearity was detected among human resource training, transformational leadership, and work motivation. The scatterplot also showed that the residual points were distributed randomly above and below zero without forming a specific pattern. Accordingly, the regression model did not indicate heteroscedasticity and was considered suitable for path analysis.

Hypothesis Testing

The direct relationships among the variables were examined through two structural regression equations. The first equation tested the effects of human resource training and transformational leadership on work motivation. The second

equation tested the effects of human resource training, transformational leadership, and work motivation on employee performance.

Table 4
Results of Direct Effect Testing

Hypothesis	Relationship	B	Standard Error	Standardized Beta	t-value	p-value	Decision
H1	Human Resource Training → Employee Performance	0.156	0.051	0.233	3.064	0.003	Supported
H2	Transformational Leadership → Employee Performance	0.28	0.082	0.264	3.422	0.001	Supported
H3	Human Resource Training → Work Motivation	0.312	0.072	0.366	4.305	<0.001	Supported
H4	Transformational Leadership → Work Motivation	0.538	0.114	0.4	4.704	<0.001	Supported
H5	Work Motivation → Employee Performance	0.359	0.066	0.454	5.407	<0.001	Supported

Source: Primary Data Processed, 2026

The first structural relationship can be expressed as follows:

$$M = \alpha_1 + 0.312X_1 + 0.538X_2 + \varepsilon_1$$

The second structural relationship can be expressed as follows:

$$Y = \alpha_2 + 0.156X_1 + 0.280X_2 + 0.359M + \varepsilon_2$$

Path analysis supported all five direct-effect hypotheses. Human resource training positively affected employee performance ($B = 0.156$, $p = 0.003$) and work motivation ($B = 0.312$, $p < 0.001$). Transformational leadership also positively affected employee performance ($B = 0.280$, $p = 0.001$) and work motivation ($B = 0.538$, $p < 0.001$). Furthermore, work motivation positively affected employee performance ($B = 0.359$, $p < 0.001$) and had the largest standardized coefficient ($\beta = 0.454$), making it the strongest direct predictor of performance. Transformational leadership had a greater effect on work motivation than human resource training.

These results indicate that relevant and applicable training strengthens employee competence, readiness, confidence, and motivation (Noe, 2023; Agusta & Sutanto, 2013; Boe, 2014; Maidarti, 2022). Transformational leadership improves motivation and performance by providing vision, recognition, mentoring, and individual support (Kharis, 2015; Tucunan, Supartha, & Riana, 2014; Veliando & Yanuar, 2021). The dominant role of work motivation is consistent with Herzberg's two-factor theory and highlights the importance of integrating effective training, supportive leadership, and motivational practices in airline operations (Herzberg, Mausner, & Snyderman, 1959; Sulistiawati & Yudianto, 2022).

Simultaneous Effect and Coefficient of Determination

The simultaneous test produced an F-value of 46.193 and a significance value below 0.001. Therefore, human resource training, transformational leadership, and work motivation simultaneously had a significant effect on employee performance.

Table 5
Model Fit and Coefficient of Determination

R	R Square	Adjusted R Square	Standard Error of the Estimate	F-value	p-value
0.774	0.598	0.585	4.799	46.193	<0.001

Source: Primary Data Processed, 2026

The R Square value of 0.598 indicates that human resource training, transformational leadership, and work motivation jointly explained 59.8% of the variation in employee performance. The remaining 40.2% was explained by other factors outside the model, potentially including compensation, organizational culture, workload, occupational stress, career opportunities, and physical working conditions.

The correlation coefficient of 0.774 demonstrates a strong simultaneous relationship among the predictor variables and employee performance. Thus, employee performance at X Airlines cannot be strengthened through a single intervention. Training, leadership practices, and employee motivation need to be managed as an integrated human resource system.

Mediation Analysis

The indirect effects were examined using the Sobel test. The results are presented in Table 6.

Table 6
Results of Mediation Testing

Hypothesis	Indirect Relationship	Indirect Effect	Sobel Z-value	Critical Value	Mediation Type	Decision
H6	Human Resource Training → Work Motivation → Employee Performance	0.112	3.389	1.96	Partial Mediation	Supported
H7	Transformational Leadership → Work Motivation → Employee Performance	0.193	3.564	1.96	Partial Mediation	Supported

Source: Primary Data Processed, 2026

The indirect effect of human resource training on employee performance through work motivation was calculated as follows:

$$\text{Indirect Effect} = 0.312 \times 0.359 = 0.112$$

The Sobel Z-value was 3.389, which exceeded the critical value of 1.96. Therefore, H6 was supported. Work motivation significantly mediated the effect of human resource training on employee performance. Since the direct effect of training on performance remained significant after work motivation was included in the model, the mediation was classified as partial mediation.

This finding indicates that training improves performance through two mechanisms. First, training directly improves employee knowledge and work-related capabilities. Second, training indirectly improves performance by increasing confidence, perceptions of organizational support, and motivation. The result differs from Irawan and Kristiawati (2025), who found that work motivation did not significantly mediate the effect of training on performance. This difference suggests that the effectiveness of mediation depends on the relevance of training, organizational context, participant characteristics, and employees' opportunities to apply training outcomes.

The indirect effect of transformational leadership on employee performance through work motivation was calculated as follows:

$$\text{Indirect Effect} = 0.538 \times 0.359 = 0.193$$

The Sobel Z-value was 3.564, exceeding the critical value of 1.96. Accordingly, H7 was supported. Work motivation significantly mediated the effect of transformational leadership on employee performance. Because the direct effect of transformational leadership remained significant, this relationship was also categorized as partial mediation.

The result is consistent with Prayudi (2020), Kharis (2015), Tucunan, Supartha, and Riana (2014), and Veliando and Yanuar (2021), who found that transformational leadership affected performance through employee motivation. However, it differs from Setiawan, Herlambang, and Sanosra (2024), who found no significant mediating effect. At X Airlines, leadership appears to influence performance not only by giving direct instructions and operational direction but also by shaping employees' willingness, enthusiasm, and commitment to perform their responsibilities.

The indirect effect of transformational leadership through work motivation was greater than the indirect effect of human resource training, with coefficients of 0.193 and 0.112, respectively. This difference indicates that transformational leadership was more strongly translated into employee performance through psychological motivation. Leaders therefore play an important role in ensuring that employees understand the organizational vision, feel recognized, receive support under pressure, and remain motivated to apply their competencies.

Figure 1 **Path Analysis Results**

- Human Resource Training (X_1) → Work Motivation (M): $\beta = 0.366$
- Transformational Leadership (X_2) → Work Motivation (M): $\beta = 0.400$
- Human Resource Training (X_1) → Employee Performance (Y): $\beta = 0.233$
- Transformational Leadership (X_2) → Employee Performance (Y): $\beta = 0.264$
- Work Motivation (M) → Employee Performance (Y): $\beta = 0.454$

Source: Primary Data Processed, 2026

Overall, the findings demonstrate that all seven hypotheses were supported. Human resource training and transformational leadership directly improved employee performance and also strengthened performance indirectly through work motivation. Work motivation emerged as the strongest direct predictor of employee performance. Therefore, improving employee performance at X Airlines requires relevant and applicable training, leadership that remains inspirational and supportive under operational pressure, fair organizational policies, and continuous reinforcement of employees' motivation and commitment.

CONCLUSION

Human resource training and transformational leadership positively influence work motivation and employee performance at X Airlines in Timor-Leste. Work motivation also improves employee performance and partially mediates the effects of both training and transformational leadership. Its mediating role is stronger in the relationship between transformational leadership and employee performance, indicating that supportive and inspirational leadership improves performance by strengthening employee enthusiasm, confidence, and commitment. These findings confirm that training, leadership, and motivation should be managed as an integrated system for improving employee performance.

X Airlines should align training with actual operational needs and provide clear, practical, and accessible materials supported by simulations and post-training assistance. Training schedules should also consider operational workloads. Leadership development should focus on inspirational communication, constructive feedback, recognition, coaching, and the ability to maintain employee motivation during high-pressure situations. Management

should also improve the transparency and fairness of policies concerning workloads, performance evaluation, rewards, and career development to strengthen employee commitment to flight operations.

Future studies may examine other factors affecting employee performance, such as organizational culture, compensation, workload, occupational stress, and employee engagement, using broader samples or longitudinal research designs.

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