

Transformational Leadership and Work Environment Effects on Employee Engagement and Customer Service Quality

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Abstract

This study examines the relationships between transformational leadership, work environment, and employee engagement and customer service quality at PT Anak Tuha Abadi, including the mediating role of employee engagement. A quantitative cross-sectional study was conducted with 73 employees selected through saturated sampling. Eligible respondents were permanent employees with at least one year of service who were willing to participate; inactive employees and those submitting incomplete questionnaires were excluded. Data were collected using a five-point Likert-scale questionnaire and analyzed using multiple linear regression, path analysis, and the Sobel test. Transformational leadership ($\beta = 0.303$, $p = 0.008$) and work environment ($\beta = 0.251$, $p = 0.028$) were positively associated with employee engagement. Transformational leadership ($\beta = 0.231$, $p = 0.044$), work environment ($\beta = 0.240$, $p = 0.034$), and employee engagement ($\beta = 0.232$, $p = 0.047$) also showed significant positive direct associations with customer service quality. However, the indirect effects through employee engagement were not statistically significant for transformational leadership (0.070, $Z = 1.629$) or work environment (0.058, $Z = 1.512$). These findings distinguish significant direct relationships from unsupported mediation effects. Although the variables were positively associated, the cross-sectional design and self-reported data do not establish causality. The study provides context-specific evidence that employee engagement does not necessarily constitute a significant mediating pathway between organizational factors and customer service quality.

Keywords: Customer Service Quality, Employee Engagement, Service Management, Transformational Leadership, Work Environment

1. INTRODUCTION

In an increasingly competitive business environment, the quality of human resources has become one of the key determinants of organizational sustainability and competitiveness, particularly for companies whose business activities involve direct interactions with customers. In service organizations and companies that rely heavily on customer interactions, service quality is determined not only by service procedures and systems but also by how employees perform their roles, respond to customer needs, and demonstrate engagement in their work (Agung, Wandebori, & Sirait, 2026). Research on employee engagement indicates that employee engagement is associated with an organization's ability to maintain productivity, commitment, and employee contributions toward the achievement of organizational goals. Islam, Furuoka, and Idris (2021), for example, found that transformational leadership is positively associated with employee engagement, particularly when employees face organizational changes. Judeh (2021) emphasized that a supportive work environment can enhance employee engagement because employees perceive that the organization provides conditions that enable them to perform their roles more effectively. Therefore, employee engagement is not merely an individual psychological condition but also represents a strategic resource that can determine the quality of employees' contributions to the organization (Mujahidah, Muzalifah, & Mubarak, 2026).

Employee engagement becomes increasingly important when employees are positioned in roles that involve direct interaction with customers. Employees who demonstrate high levels of vigor, dedication, and absorption are theoretically expected to possess greater energy and attentiveness in completing their work and dealing with service demands (Khairunnisa & Ananta, 2026). Empirical evidence from Kim and Seo (2021) indicates that job engagement is associated with the quality of services provided by service employees, while Qi, Wang, and Lindsey (2023) demonstrate that employee engagement can be associated with customer engagement through the quality of interactions

and relationships between employees and customers. Furthermore, [Rabiul, Promsivapallop, Islam, and Patwary \(2022\)](#), positioned work engagement as an important mechanism for explaining how managerial behavior can contribute to commitment to customer service quality. These findings demonstrate that customer service quality cannot be separated from the internal conditions of employees who provide such services.

In this context, transformational leadership represents a factor that, theoretically and empirically, has the potential to shape employee engagement. Transformational leadership is not merely oriented toward giving instructions but encourages employees through vision, inspiration, intellectual stimulation, role modeling, and consideration of individual needs ([Reddy, Srinivas, & Devi, 2026](#)). [Hayati \(2022\)](#) found that transformational leadership is associated with employee engagement in the context of banking in Indonesia, while [Santoso, Sulistyaningtyas, and Pratama \(2022\)](#) demonstrated that internal communication serves as an important mechanism through which transformational leaders strengthen employee engagement. The study further indicated that “transformational leaders play a critical role” in strengthening employee engagement when organizations face change-related challenges. [Bader, Gielnik, and Bledow \(2023\)](#) further strengthened this argument by demonstrating that experiences of transformational leadership behavior can fulfill employees' psychological needs, generate positive affect, and subsequently increase work engagement.

This relationship is becoming increasingly complex because the effectiveness of transformational leadership does not always operate directly. [Hasan, Ahmad, and Osman \(2023\)](#) found that work engagement serves as a mechanism linking transformational leadership to employee performance, while the work environment can strengthen this relationship. Furthermore, research on workplace digitalization indicates that transformational leadership and an innovative culture can influence employee engagement both directly and indirectly through workplace digitalization ([Hairudin, Oktaria, & Wenda, 2023](#)). In a broader context, [Abolnasser, Abdou, Hassan, and Salem \(2023\)](#) demonstrated that the relationships among transformational leadership, employee engagement, job satisfaction, and psychological well-being constitute an interconnected mechanism in hotel employees. These findings suggest that transformational leadership should be understood as an organizational factor that shapes employees' psychological conditions and behaviors, rather than merely as an administrative leadership style.

However, a research gap remains concerning the relationship between transformational leadership and employee engagement. Although most studies report a positive relationship, its strength and underlying mechanisms depend on the organizational context. [Islam et al. \(2021\)](#) found a positive relationship between transformational leadership and employee engagement, with valence and trust playing mediating roles. [Wang, Gao, Qin, and Zhou \(2025\)](#) also found that employee engagement contributes to explaining the effects of transformational leadership on affective commitment and performance. However, Van [Van and Hazée \(2024\)](#) presented a more critical finding. Based on 4,198 customer interactions involving 346 employees of a telecommunications operator, the relationship between employee engagement and customer evaluations could not be consistently replicated, under certain service failure conditions, high engagement was even associated with more negative evaluations. This finding is important because it indicates that employee engagement does not automatically guarantee better customer service quality. In other words, further research is needed to examine this relationship within different organizational and service contexts.

In addition to transformational leadership, the work environment is an organizational factor that potentially determines employee engagement. The work environment encompasses the physical, social, psychological, and organizational conditions that shape employees' experiences while performing their jobs ([Kumalasari, Masthurah, Hairudin, Maryani, & Khoirina, 2026](#)). Empirical evidence from [Inggamara, Pierewan, and Ayryza \(2022\)](#), based on data from 43,850 respondents across various European countries, indicates that social support and supportive working conditions are positively associated with work engagement. Research on procedural justice climate demonstrates that

a work environment perceived as fair can enhance organizational identification, which subsequently relates to work engagement. This means that the work environment should not be understood solely in terms of physical facilities but also in terms of the quality of social relationships, psychological safety, fairness, support, and opportunities for participation.

Recent research increasingly demonstrates that the work environment is important in shaping employee engagement. [Simanjuntak, Suhud, and Susita \(2023\)](#) found that the work environment is positively associated with employee engagement and that job satisfaction can serve as a mechanism that strengthens this relationship. Research on sustainable work environments also indicates that the work environment can simultaneously influence work engagement, job satisfaction, and employee retention. Furthermore, recent research by [Rasool, Mohelska, Rehman, Raza, and Asghar \(2025\)](#) demonstrates that a supportive workplace environment is associated with employee engagement and employee outcomes through recognition, motivation, and career development. These findings indicate that companies need to create an environment that is not only physically comfortable but also supportive of employees' psychological and social needs.

The relationship between the work environment and employee engagement also demonstrates variations in findings and mechanisms. [Zhang, Han, Liang, Wang, Fan, Jia, and Jiang \(2025\)](#) found that organizational climate serves as a mechanism explaining the relationship between transformational leadership and work engagement among intensive care unit nurses. [Nurmeksela, Schavoronkoff, and Jokiniemi \(2025\)](#) also found a significant relationship between transformational leadership and work engagement among nurses, with a positive correlation between the two variables. However, research examining the relationship between the work environment and employee engagement among employees operating under new work arrangements indicates that environmental fit is an important aspect in determining how modern work arrangements influence engagement. Therefore, the work environment should be positioned as a strategic factor that can strengthen or weaken employee involvement in performing their work.

The literature also indicates that transformational leadership and the work environment should not be viewed as two entirely separate factors. [Santosa, Purwanto, Sumaryono, and Utomo \(2025\)](#) explicitly examined transformational leadership and the work environment jointly to explain employee engagement, with job satisfaction serving as a mediating variable. [Li, Ebabu, Yu, Yuan, Ning, and Xuanyi \(2025\)](#) integrated leadership, the work environment, and employee engagement within a single framework and demonstrated that engagement represents an important psychological mechanism linking organizational factors with employee outcomes. These findings strengthen the relevance of an integrative approach in the present study. Accordingly, employee engagement can be positioned as a mechanism that translates the quality of leadership and the work environment into work behaviors that are more strongly oriented toward achieving organizational outcomes.

The next issue concerns the translation of employee engagement into customer service quality. This relationship is not necessarily automatic because service delivery is a process influenced by employee capabilities, organizational support, working conditions, and the characteristics of the service situation. [Zheng and Sun \(2022\)](#) demonstrated that work engagement can serve as a mechanism explaining the relationship between organizational conditions and service quality among tourism workers. [Surya, Purwati, and Pamungkas \(2023\)](#) also found that work engagement has a positive effect on service quality and serves as an intervening variable in the relationship between competence, self-efficacy, and service quality. Thus, employee engagement has the potential to serve as a bridge between internal organizational conditions and customer experiences.

The relationship between employee engagement and service quality is further supported by more recent research. [Eshete and Kassahun \(2025\)](#) found that employee engagement mediates the effect of adaptive leadership on service quality in the healthcare sector. [Prosper, Matoka, and Ngirwa \(2025b\)](#) also demonstrated that work engagement serves as a mediator between the work environment and employee quality service delivery in public healthcare facilities. Similarly, research on work engagement and service quality through succession planning in rural healthcare facilities in Tanzania

indicates that employee engagement is one of the relevant factors in improving service quality. These findings further strengthen the argument that customer service quality should be analyzed not only from the customer's perspective but also from the perspective of the internal conditions of employees who interact directly with customers.

However, recent studies have revealed a nonlinear phenomenon. [Van and Hazée \(2024\)](#) found that employee engagement does not always result in better service evaluations, particularly when customer interactions end with service failure. This finding indicates that employee engagement is an important condition, but its effectiveness in producing service quality still requires support from leadership, the work environment, employee competence, service processes, and the organization's ability to manage customer interactions. Leadership literature also indicates that transformational leadership is one of the most extensively studied leadership styles in relation to work engagement, however, its effectiveness may depend on organizational characteristics and context. Therefore, there remains an opportunity to re-examine this relationship within the context of service companies characterized by specific customer profiles and work processes.

The empirical phenomenon at PT Anak Tuha Abadi demonstrates the urgency of this study. Based on company data processed by the researcher, the number of customers increased consistently during the 2021–2025 period, rising from 1,250 in 2021 to 2,050 in 2025. The number of customers increased by 14.4% in 2022, 13.3% in 2023, 13.9% in 2024, and 11.1% in 2025. This condition indicates positive growth in the customer base while simultaneously increasing the company's demand to maintain service quality. An increase in the number of customers means a higher volume of interactions, greater demand for rapid responses, accurate information, problem-solving capabilities, and service consistency. Thus, customer growth is not only an indicator of company development but also represents operational pressure that may affect employee engagement and service quality. The annual customer growth data of PT Anak Tuha Abadi for the 2021–2025 period are presented in Table 1.

Table 1. Customer data of PT Anak Tuha Abadi, 2021–2025

No	Year	Number of Customers	Percentage Increase (%)
1	2021	1,250 customers	–
2	2022	1,430 customers	14.4
3	2023	1,620 customers	13.3
4	2024	1,845 customers	13.9
5	2025	2,050 customers	11.1

The increase in the number of customers constitutes a phenomenon gap when compared with the service quality demands that the company must maintain. Based on preliminary observations and information available in the research draft, customer complaints regarding service, inconsistent employee responsiveness, and suboptimal work coordination are still present. As the number of customers increases, these conditions become increasingly important because inconsistent service quality may affect customer satisfaction, trust, and loyalty. In this context, [Qi et al. \(2023\)](#) demonstrated that the quality of employee–customer interactions represents an important mechanism linking employee engagement with customer engagement. Therefore, the increase in the number of customers at PT Anak Tuha Abadi needs to be accompanied by strengthening the company's internal capabilities, particularly through leadership and a work environment that can encourage employee engagement.

This phenomenon also demonstrates that employee engagement represents a strategic point in connecting internal organizational factors with customer service quality. Employees with high levels of engagement are expected to demonstrate greater energy, dedication, and attention to their work, however, such engagement must be supported by leadership capable of providing direction, inspiration, support, and trust, as well as by a work environment that enables employees to work effectively. Research on employee engagement indicates that it represents a mechanism that can

explain the relationship between job resources and performance. [Lee and Jo \(2023\)](#), from the perspective of the Job Demands–Resources model, emphasized the importance of employee engagement as a mediator between job resources and performance outcomes. Meanwhile, recent research on transformational leadership indicates that leadership can shape work engagement through meaningful work and employee well-being.

The research gap lies in the limited contextual evidence on whether employee engagement statistically mediates the relationships between transformational leadership and work environment and customer service quality when both organizational factors are examined simultaneously. Although previous studies have investigated these variables and reported mediation in several service settings, the findings are not uniform, and evidence from Indonesian companies facing growing customer volumes alongside service consistency challenges remains limited within the literature reviewed for this study. Thus, the unresolved issue is not simply whether leadership and workplace conditions are associated with employee engagement, but whether employee engagement constitutes a statistically significant indirect pathway connecting these factors with customer service quality.

The novelty of this study lies in its integrated empirical examination of two direct pathways and two proposed indirect pathways within a single organizational context. Specifically, the study examines the relationships of transformational leadership and work environment with employee engagement, their direct relationships with customer service quality, and their indirect relationships with customer service quality through employee engagement. PT Anak Tuha Abadi offers a relevant setting because its increasing customer base and reported service coordination challenges make the distinction between direct relationships and mediation practically important. Therefore, this study provides context-specific evidence concerning whether employee engagement functions as a statistically supported mediating mechanism rather than assuming that mediation occurs simply because the individual relationships are significant.

Accordingly, this study examines the relationships among transformational leadership, work environment, employee engagement, and customer service quality at PT Anak Tuha Abadi. By distinguishing direct associations from indirect effects, this study seeks to clarify the extent to which employee engagement statistically accounts for the relationships between organizational factors and customer service quality. Given the cross-sectional design, the findings should be interpreted as statistical associations rather than definitive evidence of causality. The results are expected to contribute to the literature on employee engagement and service management, while providing context-specific insights for organizational practice.

2. LITERATURE REVIEW

2.1 The Effect of Transformational Leadership on Employee Engagement

The Job Demands-Resources (JD-R) model conceptualizes leadership as a job resource that supports employees in meeting work demands and sustaining their motivation. Transformational leaders provide vision, encouragement, intellectual stimulation, and individualized support, which can strengthen employees' perceptions of meaningful work and psychological empowerment ([Dewi & Nurmala, 2025](#)). These resources are expected to promote vigor, dedication, and absorption, the core dimensions of employee engagement. Empirical evidence supports this mechanism: transformational leadership has been associated with engagement through psychological empowerment and positive affect ([Bader et al., 2023](#); [Farzana & Charoensukmongkol, 2024](#)). [Asif, Shao, Sharif, and Akram \(2025\)](#) likewise identified interconnected psychological mechanisms linking transformational leadership and work engagement. Accordingly, transformational leadership is expected to be positively associated with employee engagement.

H₁: Transformational leadership has a positive and significant effect on employee engagement

2.2 The Effect of Work Environment on Employee Engagement

Within the JD-R framework, the work environment constitutes a job resource when it provides adequate facilities, safety, social support, and constructive interpersonal relationships. Such resources can reduce barriers to task completion and help employees maintain their energy and psychological involvement at work. A supportive environment may therefore facilitate employee engagement by meeting employees' practical and social needs. [Meidyntania and Frianto \(2024\)](#) found a positive and significant relationship between the work environment and employee engagement, while [Rasool et al. \(2025\)](#) highlighted the relevance of supportive workplace conditions to engagement and employee outcomes. Thus, a more supportive work environment is expected to be positively associated with employee engagement.

H₂: The work environment has a positive and significant effect on employee engagement

2.3 The Effect of Employee Engagement on Customer Service Quality

The JD-R model explains that job resources can support motivational states that are reflected in employees' work-related behavior. Engaged employees demonstrate greater vigor, dedication, and concentration, which may help them respond attentively to customer needs and maintain consistent service delivery. [Qi et al. \(2023\)](#) linked employee engagement with customer engagement through employee–customer interactions, while [Rabiul et al. \(2022\)](#) associated work engagement with commitment to service quality. However, [Vaerenbergh and Hazée \(2024\)](#) showed that engagement does not invariably produce favorable customer evaluations, particularly when service failures occur. Therefore, employee engagement is expected to be positively associated with customer service quality, although this relationship may depend on the service context.

H₃: Employee engagement positively and significantly affects customer service quality

2.4 The Effect of Transformational Leadership on Customer Service Quality through Employee Engagement

The JD-R model provides a theoretical basis for the proposed mediation by distinguishing job resources from the motivational states through which they may relate to work outcomes. Transformational leadership can provide direction, encouragement, and psychological support, which may strengthen employee engagement. Employees who are more engaged may devote greater energy and attention to customer interactions, creating a potential indirect relationship between leadership and service quality. [Eshete and Kassahun \(2025\)](#) reported a mediating role of employee engagement in the relationship between leadership and service quality, while [Mahmood, Zaman, and Chaman \(2024\)](#) identified organizational trust as another relevant pathway linking transformational leadership to service quality. These findings support the examination of whether employee engagement statistically mediates the relationship between transformational leadership and customer service quality.

H₄: Transformational leadership positively and significantly affects customer service quality through employee engagement

2.5 The Effect of Work Environment on Customer Service Quality through Employee Engagement

The JD-R model also explains how workplace resources may be associated with service outcomes through employees' motivation. Adequate facilities, workplace safety, supportive relationships, and effective communication can provide conditions that help employees remain engaged in their tasks. This engagement may, in turn, be associated with greater attentiveness, responsiveness, and consistency in customer services. [Prosper, Matoka, and Ngirwa \(2025a\)](#) reported a mediating role of work engagement in the relationship between work environment and employee service quality. [Rabiul, Promsivapallop, Islam, and Patwary \(2022\)](#) also linked engagement with commitment to service quality. Nevertheless, the proposed indirect relationship requires statistical testing because favorable workplace conditions do not necessarily translate into better service through engagement alone.

H₅: The work environment has a positive and significant effect on customer service quality through employee engagement

3. RESEARCH METHODOLOGY

This study employed a quantitative approach with an explanatory research design to examine the relationships among transformational leadership, work environment, employee engagement and customer service quality ([Creswell, 2022](#)). Transformational leadership and work environment were positioned as independent variables, employee engagement as an intervening variable, and customer service quality as the dependent variable of this study. This study adopted a cross-sectional design, with data collected during a single period through questionnaires administered to employees of PT Anak Tuha Abadi in Central Lampung Regency.

The population consisted of all 73 employees of PT Anak Tuha Abadi. Given the relatively small population size, the study employed a saturated sampling (total sampling) technique, whereby all members of the population were included as potential respondents. The eligibility criteria included permanent employment, a minimum of one year of service, and willingness to participate in the study. Employees who were inactive during data collection or who submitted incomplete questionnaires were considered ineligible for the final analysis. The final analytical dataset comprised 73 respondents, representing 100% of the target population. Accordingly, no questionnaires were excluded from the final dataset, and all 73 respondents were included in the statistical analysis. The final response rate was therefore 100%.

The research data consisted of primary and secondary data ([Creswell & Creswell, 2017](#)). Primary data were obtained through questionnaires and observations involving employees, while secondary data were obtained from the company documents and relevant literature. The questionnaire employed a five-point Likert scale ranging from strongly disagree to strongly agree. In addition to the questionnaire, observations were conducted to obtain information on working conditions, employee activities, and service processes. Documentation was also used as supporting data for the company profile, organizational structure, and number of employees.

The questionnaire was operationalized as a context-specific instrument for employees of PT Anak Tuha Abadi, with statements designed to represent the relevant dimensions of each construct in the company's organizational and service setting. The instruments should therefore be understood as operationalized measures based on established conceptual dimensions rather than assumed to be verbatim reproductions of a single published scale. The specific original sources of the individual items and the extent of any wording modifications should be documented in the instrument-development records to distinguish clearly between adopted and adapted items. All indicators were assessed using the same five-point Likert scale ([Robinson, 2023](#)). Instrument quality was subsequently evaluated through item-validity and internal-consistency reliability testing before the substantive statistical analyses were conducted.

An important measurement consideration is customer service quality. Although this construct represents the quality of services delivered to customers, it was assessed through employees' perceptions rather than direct evaluations by customers. Therefore, the measurement reflects employees' assessments of service delivery in relation to tangibles, reliability, responsiveness, assurance, and empathy, rather than customers' independently reported service experiences. This approach provides information about employees' perceptions of service quality within the organization, but it may not fully capture customer satisfaction, perceived service performance, or discrepancies between employees' and customers' evaluations. Accordingly, customer service quality is interpreted in this study as employee-perceived customer service quality, and this distinction is considered when interpreting these findings.

Data were analyzed quantitatively using SPSS ([Ghozali, 2021](#)). The analysis procedures included descriptive analysis, validity testing, reliability testing, and classical assumption tests,

consisting of normality, multicollinearity, and heteroscedasticity tests. Multiple linear regression analysis was used to examine the relationships of transformational leadership and work environment with employee engagement. Hypothesis testing was conducted using the *t*-test, F-test, and coefficient of determination (R^2) (Hair, Black, Babin, & Anderson, 2019). Subsequently, path analysis was employed to examine the direct and indirect relationships of transformational leadership and work environment with customer service quality through employee engagement as an intervening variable. The Sobel test was used to assess the statistical significance of the indirect effects.

Data processing was conducted through the stages of editing, coding, processing, cleaning, and tabulation (Sugiyono, 2023). Editing was performed to ensure the completeness of the respondents' answers. The coding process involved assigning codes to each response option. Processing consisted of entering the collected data into SPSS for analysis. Cleaning was performed to identify potential errors, inconsistencies, or incomplete data. Finally, tabulating involved presenting the processed data in tables to support the analysis and interpretation of the findings.

4. RESULTS AND DISCUSSION

4.1 Research Result

4.1.1 Respondent Characteristics

Table 2. Respondent characteristics

Characteristic	Dominant Category	n	%
Gender	Female	38	52.05
Age	23 years	28	38.36
Education	Senior High School	50	68.49
Length of Service	2 years	35	47.95
Total Respondents		73	100.00

This study involved 73 employees of PT Anak Tuha Abadi in the Central Lampung Regency. The respondents consisted of 35 males (47.95%) and 38 females (52.05%). In terms of age, the respondents were predominantly 23 years old, accounting for 28 employees (38.36%), while in terms of education, the majority had completed senior high school, accounting for 50 employees (68.49%). Regarding length of service, most respondents had worked for 1–2 years, totaling 63 employees (86.31%). These characteristics indicate that the respondents were predominantly employees of productive age with a secondary education background and relatively short work tenure. The demographic characteristics of the 73 respondents are presented in Table 2.

4.1.2 Descriptive Statistics

The descriptive statistical results indicated that transformational leadership, work environment, and employee engagement were categorized as very high, whereas customer service quality was categorized as high. The mean scores for transformational leadership, work environment, employee engagement, and customer service quality were 35.3151, 43.6575, 25.4247, and 40.3699, respectively. These findings provide an initial indication that employees' perceptions of leadership and the work environment were relatively positive and were accompanied by high levels of work engagement and good service quality. The descriptive statistics for each research variable, including the minimum, maximum, mean, standard deviation, and category, are presented in Table 3.

Table 3. Descriptive statistics of the variables

Variables	N	Minimum	Maximum	Mean	Std. Deviation	Category
Transformational Leadership	73	28.00	40.00	35.3151	3.04994	Very High
Work Environment	73	36.00	50.00	43.6575	3.09219	Very High
Employee Engagement	73	22.00	30.00	25.4247	1.87022	Very High
Customer Service Quality	73	33.00	50.00	40.3699	4.18498	High

4.1.3 Instrument Testing

The instrument testing results indicated that all 34 statement items were valid, with the

calculated *r*-values greater than the *r*-table value of 0.230 and a significance level of 0.000. The reliability results also demonstrated adequate internal consistency, with Cronbach's alpha values of 0.761 for transformational leadership, 0.722 for work environment, 0.712 for employee engagement, and 0.831 for customer service quality. Therefore, all research instruments met the validity and reliability criteria and were suitable for subsequent analysis. The results of the validity and reliability tests for all research instruments are presented in Table 4.

Table 4. Instrument validity and reliability

Variables	Number of Items	Range of Calculated <i>r</i>	Cronbach Alpha	Description
Transformational Leadership	8	0.475–0.692	0.761	Valid and reliable
Work Environment	10	0.404–0.739	0.722	Valid and reliable
Employee Engagement	6	0.413–0.745	0.712	Valid and reliable
Customer Service Quality	10	0.520–0.762	0.831	Valid and reliable

*Note: The reported *r*-table = 0.230. The manuscript reports the following: = 0.000 for all items, this should be presented as $p < 0.001$, rather than $p = 0.000$*

4.1.4 Classical Assumption Tests

The results of the classical assumption tests indicated that both regression models met the requirements for analysis. The Kolmogorov–Smirnov test produced a significance value of 0.200 for both models, indicating that the residuals were normally distributed. All tolerance values were above 0.10, and all VIF values were below 10, indicating the absence of multicollinearity. The Glejser test also showed that all significance values were above 0.05, indicating no evidence of heteroscedasticity. The results of the normality, multicollinearity, and heteroscedasticity tests for both the regression models are summarized in Table 5.

Table 5. Summary of classical assumption tests

Test	Model 1	Model 2	Conclusion
Normality (K-S Sig.)	0.200	0.200	Normal
Highest VIF	1.085	1.245	No multicollinearity
Lowest Glejser Sig.	0.359	0.412	No heteroscedasticity

4.1.5 Hypothesis Testing Results

Hypothesis testing was conducted using two regression models. Model 1 examined the effects of transformational leadership and work environment on employee engagement, while Model 2 examined the effects of transformational leadership, work environment, and employee engagement on customer service quality. Model 1 produced the Formula 1:

$$Y = 12.246 + 0.186X_1 + 0.152X_2 \quad (1)$$

Transformational leadership had a positive and significant effect on employee engagement ($\beta = 0.303$, $t = 2.717$, $p = 0.008$), as did the work environment ($\beta = 0.251$, $t = 2.246$, $p = 0.028$). Therefore, H_1 and H_2 were supported. The regression coefficients and significance levels for the effects of transformational leadership and work environment on employee engagement are presented in Table 6.

Table 6. Regression results of model 1: Employee engagement

Variables	B	Beta	<i>t</i>	Sig.	Decision
Transformational Leadership (X_1)	0.186	0.303	2.717	0.008	H_1 supported
Work Environment (X_2)	0.152	0.251	2.246	0.028	H_2 supported

Model statistics: $R^2 = 0.197$, $F = 8.591$, $p < 0.001$, $N = 73$. Note: B = unstandardized coefficient, β = standardized coefficient, SE = standard error, CI = confidence interval. SE and CI values are approximate reconstructions from rounded figures and are not directly reported SPSS output.

Simultaneously, transformational leadership and work environment had a significant effect on employee engagement ($F = 8.591$, $p < 0.001$). The R^2 value of 0.197 indicates that these two variables explain 19.7% of the variance in employee engagement, while the remaining 80.3% is explained by other factors outside the model. Model 2 produced the Formula 2:

$$Z = 1.806 + 0.317X_1 + 0.325X_2 + 0.519Y \quad (2)$$

The results showed that transformational leadership had a positive and significant effect on customer service quality ($\beta = 0.231$, $t = 2.056$; $p = 0.044$). The work environment also had a positive and significant effect ($\beta = 0.240$, $t = 2.168$, $p = 0.034$). Furthermore, employee engagement had a positive and significant effect on customer service quality ($\beta = 0.232$, $t = 2.023$, $p = 0.047$). Thus, all direct relationships examined in the model were statistically significant. The regression results for the effects of transformational leadership, work environment, and employee engagement on customer service quality are presented in Table 7.

Table 7. Regression results of model 2: Customer service quality

Variables	B	Beta	t	Sig.	Decision
Transformational Leadership (X_1)	0.317	0.231	2.056	0.044	Significant
Work Environment (X_2)	0.325	0.240	2.168	0.034	Significant
Employee Engagement (Y)	0.519	0.232	2.023	0.047	H_3 supported

Model statistics: $R^2 = 0.273$, $F = 8.636$, $p < 0.001$, $N = 73$. Note: The SE and CI values are approximate reconstructions from rounded coefficients and t -statistics. Confirm these values using the original SPSS coefficient table before publication.

The R^2 value indicates that transformational leadership, work environment, and employee engagement jointly explained 27.3% of the variance in the customer service quality. The remaining 72.7% were associated with factors outside the model. Because customer service quality was measured from employees' perspectives, this result should be interpreted as an association with employees' perceptions of service quality rather than direct evidence of customers' evaluations.

4.1.6 Mediation Analysis of Employee Engagement

The path analysis estimated a standardized coefficient of 0.303 for the relationship between transformational leadership and employee engagement and 0.231 for the direct relationship between transformational leadership and customer service quality. Work environment had a standardized coefficient of 0.251 for its relationship with employee engagement and 0.240 for its direct relationship with customer service quality. Employee engagement had a standardized coefficient of 0.232 for its relationship with customer service quality. The estimated indirect effects were approximately 0.070 for transformational leadership through employee engagement and 0.058 for the work environment through employee engagement. The corresponding total effects were approximately 0.301 and 0.298, respectively. These estimates describe the magnitude of the indirect pathways but do not, by themselves, establish whether the indirect effects are statistically significant. The estimated direct, indirect, and total effects of transformational leadership and work environment on customer service quality through employee engagement are summarized in Table 8.

Table 8. Direct and indirect effects

Path	Direct Effect	Indirect Effect	Total Effect
$X_1 \rightarrow Y \rightarrow Z$	0.231	0.070	0.301
$X_2 \rightarrow Y \rightarrow Z$	0.240	0.058	0.298

The original analysis used the Sobel test to assess indirect effects. The reported Sobel Z values were 1.629 for transformational leadership and 1.512 for work environment, both below the conventional absolute threshold of 1.96. Under this test, neither indirect effect was statistically significant, therefore, H_4 and H_5 were not supported by the reported Sobel results. However, the Sobel test relies on a normal approximation of the sampling distribution of the indirect effect. Because the indirect effect is the product of two path coefficients, its sampling distribution may not be normal, particularly in a relatively small sample. Therefore, a bootstrap procedure is recommended to provide a more robust assessment. The indirect effects should be re-estimated using resampling, preferably with at least 5,000 bootstrap samples, and reported with bootstrap standard error and 95% confidence interval. An indirect effect should be considered statistically significant at the 5% level when its bootstrap confidence interval does not include the value of zero.

The bootstrap results have not been calculated from the information currently reported in this manuscript. Consequently, the Sobel findings should be treated as the existing analysis, not as a substitute for the requested bootstrap analysis. The final mediation conclusions and decisions for H_4 and H_5 must be updated after the bootstrap confidence intervals have been obtained from the original respondent-level dataset. The overall results of hypothesis testing, including the estimated coefficients, statistical significance, and decisions for each hypothesis, are presented in Table 9.

Table 9. Hypothesis testing results

Hypothesis	Relationship	Coefficient	t/Z	Sig./Criterion	Decision
H_1	$X_1 \rightarrow Y$	0.303	2.717	$0.008 < 0.05$	Supported
H_2	$X_2 \rightarrow Y$	0.251	2.246	$0.028 < 0.05$	Supported
H_3	$Y \rightarrow Z$	0.232	2.023	$0.047 < 0.05$	Supported
H_4	$X_1 \rightarrow Y \rightarrow Z$	0.070	1.629	$Z < 1.96$	Not supported
H_5	$X_2 \rightarrow Y \rightarrow Z$	0.058	1.512	$Z < 1.96$	Not supported

4.2 Discussion

4.2.1 The Effect of Transformational Leadership on Employee Engagement

The results of the study show that transformational leadership has a positive and significant effect on employee engagement among the employees of PT Anak Tuha Abadi, with a regression coefficient of 0.186, $t = 2.717$, and a significance level of 0.008. The beta coefficient of 0.303 indicates that the stronger the practice of transformational leadership, the higher the employees' tendency to become engaged in their work. Descriptively, transformational leadership obtained a mean score of 35.3151, which fell into the very high category, while employee engagement had a mean score of 25.4247, which was also categorized as very high. These findings indicate that leadership practices involving direction, motivation, individualized attention, and support can create psychological conditions that encourage employees to devote their energy, attention, and dedication to their work. This finding is consistent with [Bader et al. \(2023\)](#) study, which demonstrated that transformational leadership behaviors can generate positive affective states that subsequently enhance work engagement. [Farzana and Charoensukmongkol \(2024\)](#) also found that transformational leadership influences employee engagement through psychological empowerment, while [Asif et al. \(2025\)](#) demonstrated that it enhances work engagement through interconnected psychological mechanisms.

These findings can be explained from the perspective of the Job Demands–resources (JD-R) model, which views leadership as a job resource that can help employees cope with work demands while simultaneously enhancing motivation. In the context of PT Anak Tuha Abadi, leaders function not only as providers of instructions but also as sources of support, motivation, communication, and

empowerment for employees. When employees receive support and attention, they are better able to understand their work objectives and perceive their contributions as meaningful to the organization. This pattern is consistent with the findings of [Santoso et al. \(2022\)](#), who demonstrated that transformational leadership can strengthen employee engagement through internal communication, enabling leaders to foster innovation, proactive actions, and employee involvement. Thus, the findings of this study demonstrate that transformational leadership is not merely a characteristic of leaders' behavior but also represents an organizational resource capable of transforming employees' work experiences into stronger engagement. From a practical perspective, these findings indicate that efforts to increase employee engagement at PT Anak Tuha Abadi should focus on strengthening transformational leadership behaviors, particularly through open communication, motivation, attention to individual needs, and opportunities for employees to express their ideas and solve problems creatively.

4.2.2 The Effect of Work Environment on Employee Engagement

The results of the study show that the work environment has a positive and significant effect on employee engagement, with a regression coefficient of 0.152, $t = 2.246$, and a significance level of 0.028. The beta coefficient of 0.251 indicates that improvements in the quality of the work environment are accompanied by increases in employee engagement. Descriptively, the work environment obtained a mean score of 43.6575 and was categorized as very high, while employee engagement obtained a mean score of 25.4247. These findings indicate that physical conditions, work facilities, relationships with supervisors, relationships among colleagues, as well as workplace safety and comfort constitute contextual factors that enable employees to maintain their energy and attention while performing their work. In other words, employee engagement is shaped not only by individual characteristics or leadership behavior but also by the quality of the environment in which work takes place.

These empirical findings are consistent with those of [Meidyntania and Frianto \(2024\)](#), who found that the work environment has a positive and significant effect on employee engagement. The findings are also supported by [Rasool et al. \(2025\)](#), who demonstrated the importance of a supportive work environment in fostering employee engagement and work outcomes. From the perspective of the JD-R model, a conducive work environment can be understood as a job resource because it provides physical and social conditions that help employees cope with work demands. When employees feel safe and comfortable, receive social support, and maintain positive working relationships, these resources can reduce psychological barriers and increase their willingness to devote energy to their work. This finding is also consistent with research on environmental fit, which positions the compatibility between work environment characteristics and employees' needs as an important factor in the development of work engagement. In the context of PT Anak Tuha Abadi, these findings imply that increasing employee engagement cannot be achieved solely through leadership programs; it also requires systematic management of the work environment. A comfortable and safe environment that supports communication and facilitates positive interpersonal relationships can provide better conditions for employees to concentrate on and complete their tasks.

4.2.3 The Effect of Employee Engagement on Customer Service Quality

The results of the study show that employee engagement has a positive and significant effect on customer service quality, with a regression coefficient of 0.519, t -value of 2.023, and significance level of 0.047. The beta coefficient of 0.232 indicates that the higher the level of employees' engagement with their work, the better the resulting customer service quality is. This finding is consistent with the descriptive statistics, in which employee engagement had a mean score of 25.4247, and customer service quality had a mean score of 40.3699. Employees with high levels of enthusiasm, dedication, and engagement are more likely to pay attention to customer needs, maintain the quality of interactions, respond more effectively to customer requirements, and perform their duties with a greater sense of responsibility.

This relationship is supported by the study of [Qi et al. \(2023\)](#), who found that employee engagement in service contexts is associated with customer experiences through increased customer

perceived value and employee–customer rapport. Thus, employee engagement can be translated into more positive interaction experiences for customers. [Rabiul et al. \(2022\)](#) also demonstrated that work engagement plays an important role in developing commitment to customer service quality among employees who interact with customers. These findings strengthen the argument that service quality is determined not only by procedures, technology, or service standards, but also by the psychological conditions of the employees who carry out the service process. However, [Vaerenbergh and Hazée \(2024\)](#) provide a critical perspective by demonstrating that the relationship between work engagement and customer evaluations is not always linear and may be influenced by service failure conditions. In the context of PT Anak Tuha Abadi, this finding means that efforts to improve customer service quality need to consider how the company develops employees' engagement with their work rather than merely establishing service standards. Employees who feel strongly engaged with their work are more motivated to exert additional effort when interacting with customers, maintain communication quality, and address customer needs responsibly.

4.2.4 The Effect of Transformational Leadership on Customer Service Quality through Employee Engagement

Transformational leadership is expected to improve customer service quality through employee engagement. Leaders who provide inspiration, support, intellectual stimulation, and individualized consideration can create psychological conditions that increase employees' energy and dedication, this engagement is then expected to be translated into better service behaviors. The recent literature supports this mechanism. [Eshete and Kassahun \(2025\)](#), for example, found that employee engagement mediates the relationship between leadership and service quality, indicating that leadership can be translated into service quality through employee engagement. Research on frontline service employees has also demonstrated that transformational leadership can encourage both required and proactive service behaviors toward customers.

However, the findings of PT Anak Tuha Abadi provide a more specific perspective. Path analysis indicated that transformational leadership had a direct effect of 0.231 on customer service quality, whereas its indirect effect through employee engagement was only 0.070, with a total effect of 0.301. Although the indirect effect was positive, the Sobel test produced $Z = 1.629 < 1.96$, indicating that the mediating effect was not statistically significant. This finding differs from that of [Eshete and Kassahun \(2025\)](#), who found that employee engagement significantly translates leadership into service quality. This difference suggests that the mediation mechanism may depend on the organizational context, job characteristics, service type, and the strength of the relationship between employee engagement and service behavior.

These findings also contribute significantly to the interpretation of the study because they indicate that the effect of transformational leadership on customer service quality at PT Anak Tuha Abadi is more strongly demonstrated through the direct pathway than through a statistically significant mediation mechanism. Leadership may influence service quality through direction, supervision, communication, provision of service standards, and direct support for employees without relying entirely on increased employee engagement as a mediator. Research on frontline employee service behavior supports the possibility of such a direct pathway, as transformational leadership can be directly translated into customer-oriented service behaviors.

Although transformational leadership had a significant direct relationship with customer service quality, its indirect effect through employee engagement was not statistically significant. This result suggests that the presence of a direct relationship does not necessarily mean that employee engagement constitutes a significant mechanism through which leadership translates into service quality. In this study, the indirect effect was relatively small (0.070) compared with the direct effect (0.231). Although transformational leadership was positively associated with employee engagement, the strength of the subsequent relationship between employee engagement and customer service quality may not have been sufficient to produce a statistically significant indirect effect. This interpretation is consistent with the Sobel test result ($Z = 1.629$), however, the indirect effect should be reassessed using bootstrap confidence intervals before a definitive conclusion is drawn.

Substantively, transformational leadership may support customer service quality through pathways that do not depend entirely on employee engagement. For example, leaders may communicate service standards, clarify responsibilities, monitor service implementation, provide immediate feedback, and facilitate access to the resources needed to serve customers. These organizational practices may translate leadership behavior into service performance more directly. Therefore, employee engagement may be an important employee outcome without necessarily being the principal mechanism connecting transformational leadership to customer service quality in this particular organizational context. This interpretation does not contradict the findings of [Eshete and Kassahun \(2025\)](#), but suggests that the mediating role of employee engagement may vary across organizations depending on job characteristics, operational procedures, and the extent to which employees can translate their engagement into observable service behaviors.

4.2.5 The Effect of Work Environment on Customer Service Quality through Employee Engagement

Conceptually, the work environment can improve customer service quality through employee engagement because comfortable, safe, and supportive working conditions provide resources that enable employees to maintain their energy and concentration while performing service-related tasks. Recent literature supports this mechanism. [Prosper, Matoka, and Ngirwa \(2025b\)](#), for example, specifically found that work engagement mediates the relationship between work environment and employee service quality in public healthcare facilities. [Rasool, Mohelska, Rehman, Raza, and Asghar \(2025\)](#) demonstrated the importance of a supportive work environment in fostering employee engagement, and [Meidyntania and Frianto \(2024\)](#) found a positive effect of the work environment on employee engagement. Therefore, there is a strong theoretical basis for viewing employee engagement as a mechanism linking the work environment with service quality.

In the context of PT Anak Tuha Abadi, the work environment had a direct effect of 0.240 on customer service quality and an indirect effect of 0.058 through employee engagement, resulting in a total effect of 0.298. Substantively, these findings indicate a pattern in which a better work environment can enhance employee engagement, which can subsequently support service quality. This finding is consistent with [Prosper, Matoka, and Ngirwa \(2025a\)](#), who identified a mediating mechanism of work engagement in the relationship between the work environment and service quality. This is also consistent with [Rabiul, Promsivapallop, Islam, and Patwary \(2022\)](#), who found that work engagement contributes to the development of commitment to customer service quality. Thus, both theoretically and in terms of the direction of the relationships, the research model supports the hypothesized mechanism.

However, the significance test provides a more cautious conclusion. The Sobel test produced $Z = 1.512 < 1.96$, indicating that the indirect effect of the work environment on customer service quality through employee engagement was not statistically significant. This means that although the paths from the work environment to customer service quality and from customer service quality to employee engagement were individually significant, the combination of these two paths was not sufficiently strong to establish a statistically significant mediating effect. This finding is noteworthy because it differs from that of [Rabiul et al. \(2022\)](#), who found evidence of mediation in the context of healthcare facilities. The difference in context may indicate that employee engagement does not automatically function as a significant mediating mechanism in every organization and type of service.

The nonsignificant indirect effect also indicates that a supportive work environment does not necessarily improve customer service quality through employee engagement alone. In this study, the indirect effect of the work environment on customer service quality was 0.058, which was smaller than the direct effect of 0.240. Although a favorable work environment was significantly associated with employee engagement, the resulting indirect pathway may have been too weak to establish a statistically significant mediation effect. The Sobel test result ($Z = 1.512$) is consistent with this interpretation; however, bootstrap confidence intervals are required to provide a more robust assessment of the indirect effect.

One possible explanation is that the work environment may influence service quality through operational conditions that enable employees to perform their tasks effectively, including the availability of adequate facilities, access to work-related information, coordination among colleagues, clear procedures, and timely, supervisory support. These conditions can facilitate service delivery directly, even when the additional contribution of employee engagement to the indirect path is limited. Thus, employee engagement may contribute to service quality without fully explaining how the work environment translates into service outcomes. This interpretation also helps explain why the present findings differ from those of ([Prosper et al., 2025a](#)) and [Rabiul et al. \(2022\)](#), whose studies reported a mediating role of work engagement in other organizational or service contexts. Differences in organizational arrangements, employee responsibilities, and service processes may affect the strength of mediation mechanisms. These possible explanations should be examined in future research rather than being treated as established characteristics of PT Anak Tuha Abadi.

5. CONCLUSIONS

5.1 Conclusion

This study examined the relationships between transformational leadership, work environment, employee engagement, and customer service quality at PT Anak Tuha Abadi, including the mediating role of employee engagement. The findings indicate that transformational leadership ($\beta = 0.303$, $p = 0.008$) and work environment ($\beta = 0.251$, $p = 0.028$) were positively and significantly associated with employee engagement. Both variables explained 19.7% of the variance in employee engagement, indicating their relevance in strengthening employee engagement within the organization.

The results also revealed significant positive relationships between transformational leadership and customer service quality ($\beta = 0.231$, $p = 0.044$), work environment and customer service quality ($\beta = 0.240$, $p = 0.034$), and employee engagement and customer service quality ($\beta = 0.232$, $p = 0.047$). The model explained 27.3% of the variance in customer service quality. These findings highlight the importance of effective leadership, supportive workplace conditions, and employee engagement in enhancing service quality within the organizational context.

The key contribution of this study is the finding that employee engagement did not significantly mediate the relationship between transformational leadership and customer service quality (indirect effect = 0.070, Sobel $Z = 1.629$) or between work environment and customer service quality (indirect effect = 0.058, Sobel $Z = 1.512$). Although both indirect effects were positive, neither reached the significance threshold of $Z = 1.96$. Therefore, the proposed mediating role of employee engagement was not statistically supported. Overall, the findings demonstrate that transformational leadership, work environment, and employee engagement are directly associated with customer service quality, while employee engagement does not significantly explain the indirect relationships between the organizational factors and service quality. This study contributes to organizational behavior and service management literature by distinguishing significant direct relationships from unsupported mediation pathways.

5.2 Research Limitations

This study has several limitations. First, it was conducted at a single company, PT Anak Tuha Abadi, involving 73 employees selected through saturated sampling, which limits statistical power and generalizability to other organizations and contexts. Second, its cross-sectional design identifies statistical relationships but cannot establish changes over time or definitive causal relationships. Third, employee self-reported questionnaires may introduce common method bias, while customer service quality was assessed from employees' perspectives rather than directly from customers. Finally, the Sobel test did not establish statistically significant mediation. Future studies should consider broader samples, longitudinal designs, customer-based service quality measures, and bootstrapping with confidence intervals to strengthen the assessment of indirect effects.

5.3 Suggestions and Directions for Future Research

Based on the findings and limitations, PT Anak Tuha Abadi should strengthen transformational leadership through open communication, inspirational motivation, individualized support, intellectual

stimulation, and employee involvement in problem-solving. Management should also improve the physical and psychosocial work environments by ensuring workplace safety, adequate facilities, supportive supervisory relationships, and positive coworker interactions. Employee engagement should be enhanced by fostering meaningful work, dedication, energy, and involvement. However, engagement should be supported by effective leadership, clear service standards, employee competence, coordination, and adequate operational resources to ensure consistent customer service quality. Future research should involve larger samples across multiple companies and service industries to improve generalizability and use longitudinal designs to examine changes over time. Additional variables, such as job satisfaction, organizational commitment, employee competence, organizational climate, digital capability, and customer satisfaction, may also be examined. Furthermore, customer-based measures and bootstrapping mediation analysis are recommended to strengthen the assessment of service quality and the indirect relationships among research variables.

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AUTHOR CONTRIBUTIONS

YP contributed to conceptualization, methodology, data collection, formal analysis, investigation, and preparation of the original manuscript draft. AS contributed to research supervision, methodology review, and critical revision of the manuscript. H was responsible for supervision, theoretical review, and critical manuscript revision. YCN contributed to data analysis, interpretation of the findings, and manuscript review, while M contributed to the literature review, manuscript writing, and editing. All authors participated in interpreting the results, critically reviewed and approved the final version of the manuscript, and agreed to be accountable for all aspects of the study.

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