

Transformational Leadership Strategies for Enhancing Field Team Engagement Through Education, Empowerment, and Reward-Recognition at PT Tekno Buana Globalindo

Indra Panggabean, Bobby Wiryawan Saputra

Institut Teknologi Harapan Bangsa, Indonesia

Email: mm-24073@students.ithb.ac.id, bobby@ithb.ac.id

ABSTRACT

In the rapidly evolving and highly competitive Oil & Gas Service sector, characterized by complex operations, stringent safety standards, and geographically dispersed field teams, maintaining high employee engagement is a critical challenge for organizational success. This research examines transformational leadership strategies for enhancing field team engagement at PT Tekno Buana Globalindo, a company operating in the Oil & Gas Service sector with a focus on clean water treatment and waste management. Field teams play a critical role in the company's operational success, yet they often face challenges such as limited training, ineffective communication, lack of decision-making autonomy, and insufficiently motivating reward systems. Using a quantitative approach with an associative-explanatory design, data were collected from 146 field team members through questionnaires and interviews. The analysis was conducted using Partial Least Squares-Structural Equation Modeling (PLS-SEM) to identify relationships between transformational leadership dimensions and employee engagement. The findings reveal that transformational leadership significantly influences employee engagement indirectly through three primary pathways: education, empowerment, and reward-recognition. Education emerged as the strongest driver, highlighting the importance of structured and context-relevant training in building skills and confidence. Empowerment, when implemented progressively and supported by adequate frameworks, was found to enhance autonomy and responsibility among employees, while recognition systems required contextual redesign to strengthen motivation and reduce turnover. The study provides theoretical contributions to the literature on transformational leadership in decentralized and high-risk industries, and practical insights for managers seeking to build adaptive, engaged, and sustainable field teams.*

Keywords: transformational leadership, employee engagement, education, empowerment, reward-recognition, Oil & Gas Service Company

INTRODUCTION

In the midst of the era of rapid digital transformation and increasingly fierce business competition, organizations are required to manage their human resources effectively (Calderón & Watanabe, 2023). Technological changes, efficiency needs, and increasing safety standards in the energy and technical services sectors have made employee engagement a determining factor for organizational success (Ahmed et al., 2021). In a global context, many studies show that employee engagement is positively associated with productivity, customer satisfaction, and organizational sustainability (Banks et al., 2021). This makes employee engagement a strategic issue across industries (Ahmad et al., 2023).

The Oil & Gas Service sector is known to have high complexity, ranging from operational risks, strict regulations, to the demands of technological adaptation (Park et al., 2024). Companies engaged in this field face challenges in managing field teams spread across various locations with risky working conditions. *PT Tekno Buana Globalindo* as a company engaged

in clean water treatment and waste management is one of the entities that faces these challenges (Martínez-Torres et al., 2023). Field teams play a crucial role in maintaining smooth operations, but are also vulnerable to communication problems, training limitations, and high turnover (Chen & Rebelo, 2023).

The results of *PT Tekno Buana Globalindo's* internal evaluation show that there are fundamental obstacles that affect employee engagement, including ineffective communication, limited technical training, a less motivating reward system, limited autonomy in decision-making, and high turnover rates (Chen et al., 2024). These factors have the potential to hinder the achievement of the company's strategic goals. If not addressed immediately, the risk of decreased performance, increased recruitment costs, and weakening morale will be even greater (Chen et al., 2022).

To answer these challenges, one of the approaches that is considered relevant is transformational leadership (Kim et al., 2023; Lin et al., 2022). This approach emphasizes the leader's ability to inspire, empower, and provide recognition to their team (Knight et al., 2022). Previous studies (Wang et al., 2021) show that transformational leadership is able to increase employee engagement, adaptability, and collaborative culture. However, research focusing on the oil and gas service sector in Southeast Asia remains limited. For instance, a study by Rahman (2023) in the Indonesian oil and gas sector found that transformational leadership had a limited direct effect on field employee engagement without mediation through structured training and safety compliance. Similarly, Ahmed, Rahim, & Yusuf (2021) highlighted that in high-risk environments like those in Malaysia's oil and gas fields, empowerment and context-specific reward systems were critical mediators for leadership to affect engagement.

In the context of *PT Tekno Buana Globalindo*, this leadership style is believed to strengthen the engagement of field teams facing high dynamics, provided it is supported by contextual mediators such as education and empowerment, as shown in regional studies (Chung et al., 2021).

This research focuses on three main pillars in transformational leadership, namely education, empowerment, and reward-recognition. Education is directed at improving technical and managerial competencies so that employees are ready to face complex situations in the field. Empowerment emphasizes increasing employee autonomy and responsibility in decision-making. Meanwhile, the right reward and recognition system will increase motivation, reduce turnover, and strengthen the sense of belonging to the organization. Although transformational leadership has been extensively researched, research that specifically highlights its application to field teams in the Oil & Gas Service sector is still limited (Rahmani & Rihan, 2022). The majority of previous studies focused on office employees or the manufacturing sector (Rahman, 2023). The novelty of this research lies in the contextual analysis of education, empowerment, and reward-recognition strategies in increasing the engagement of field teams operating in risk-filled, geographically dispersed, and dynamic environments (Ramírez & Schuster, 2023).

The purpose of this study is to analyze the influence of transformational leadership on the engagement of *PT Tekno Buana Globalindo's* field team. In particular, this study seeks to answer how proper training, effective empowerment, and meaningful reward systems can increase employee engagement. The urgency of this research lies in the company's need to reduce turnover rates, improve operational efficiency, and strengthen a collaborative work culture. Theoretically, this research is expected to enrich the literature on transformational

leadership by focusing on the context of field teams in the energy and environmental services sectors. Practically, the results of this research can be the basis for *PT Tekno Buana Globalindo* in designing a more adaptive and effective HR management strategy. Furthermore, the implications of this research are also beneficial for similar companies that face similar challenges, so that they can support organizational sustainability in the midst of the dynamics of the energy and technical services industries.

METHOD

This research was conducted at *PT Tekno Buana Globalindo*, a company operating in the Oil & Gas Service sector specializing in clean water treatment and waste management. The company has a wide operational scope across various regions in Indonesia, ranging from urban industrial areas to remote locations with high levels of complexity. The study focused on field teams directly involved in project operations, as they represent the frontline workforce responsible for technical implementation and are the ones who face operational challenges on-site.

This study applied a quantitative approach with an associative and explanatory research design. The quantitative approach was chosen to measure the relationships between variables systematically and numerically, while the associative design aimed to identify the relationship between transformational leadership and employee engagement. Meanwhile, the explanatory design was used to clarify the causal mechanisms, particularly how transformational leadership strategies—comprising education, empowerment, and reward-recognition—affect the level of engagement among field teams at *PT Tekno Buana Globalindo*.

The population of this study consisted of all field team members at *PT Tekno Buana Globalindo* who were directly involved in the operational activities of the company's projects. The sample was selected using a purposive sampling technique with the following criteria: (1) active employees in field teams, (2) minimum work tenure of six months, and (3) direct involvement in technical and operational activities. Referring to Hair et al. (2014), the minimum required sample size for Partial Least Squares Structural Equation Modeling (PLS-SEM) is 10 times the largest number of indicators in a latent variable. Accordingly, this study required at least 60 respondents.

The type of data used in this study was quantitative data, collected through a questionnaire using a five-point Likert scale. The statements in the questionnaire were designed to measure the indicators of the research variables, namely the dimensions of education, empowerment, and reward-recognition in transformational leadership, as well as employee engagement. In addition, an interview guide was employed as a supplementary instrument to strengthen the findings, provide contextual insights, and validate the questionnaire results.

The data sources consisted of both primary and secondary data. Primary data were obtained through the distribution of questionnaires, both online and offline, to selected respondents, as well as in-depth interviews with field team members. Secondary data were collected from the company's internal documents, including employee records, training reports, and performance management systems related to reward and recognition practices. Combining both types of data was intended to enhance the validity and reliability of the research findings.

Quantitative data from the questionnaires were analyzed using statistical techniques with PLS-SEM to examine the relationships among variables and their significance. Descriptive

analysis was used to illustrate respondent characteristics and the distribution of responses, while inferential analysis was applied to test the research hypotheses. Meanwhile, qualitative data from interviews were analyzed thematically to identify recurring patterns, key themes, and contextual insights that complemented the quantitative results. This combination of methods was expected to provide a comprehensive understanding of the influence of transformational leadership on the engagement of field teams.

RESULTS AND DISCUSSION

Respondent Description

This study involved 146 respondents who were active members of the field teams at PT Tekno Buana Globalindo, directly engaged in operational activities such as clean water treatment, waste management, and other technical tasks (Hildenbrand et al., 2023; Jensen et al., 2022; Khan et al., 2023; Kim & Park, 2020). Respondents were selected using purposive sampling with the main inclusion criterion of having at least six months of work experience, ensuring sufficient familiarity with the company's work culture and leadership practices. Data were collected through questionnaires distributed both online (electronic forms) and offline (printed forms) to reach respondents across diverse project sites in Indonesia, addressing internet access limitations in remote areas. The sample represented employees from various units and project locations, with diverse backgrounds in job roles and work assignments, thereby providing a comprehensive overview of field-level leadership practices and employee engagement related to education, empowerment, and reward-recognition within the company's operational context (Liu et al., 2023).

Analysis of Coefficient of Determination (R^2)

The coefficient of determination (R^2) represents the proportion of endogenous construct variance that can be explained by exogenous constructs in the model. The higher the R^2 value, the better the model's ability to explain the variable. The assessment categories used in this study refer to the classification from Hair et al. (2017), namely: weak (<0.3), medium ($0.3-0.6$), and strong (>0.6).

Construct Education showed the highest R^2 value, which was 0.622. This means that 62.2% variance in employee development and training can be explained by the Transformational Leadership variable. This value is in the medium to strong category, and is an indication that transformational leadership plays a central role in influencing the learning process in the workplace (Cruz et al., 2023; Fuentes & Mendoza, 2023; Franco & Mahapatra, 2022; Fuentes & Mendoza, 2023; González et al., 2022).

In the context of PT Tekno Buana Globalindo, which operates in the oil & gas sector with a high level of complexity and risk, these findings are very important. Improving the quality of education and training of field teams not only has an impact on technical competence, but also on mental readiness to face changes in procedures, technology, and challenges in the field. Transformational leadership has been shown to contribute significantly to the creation of a culture of continuous learning, which is the foundation for improved engagement and performance.

Furthermore, the Employee Engagement construct has an R^2 value of 0.542, which means that approximately 54.2% variance in employee engagement rates can be explained by the combination of the Education, Empowerment, Reward & Recognition, and Transformational

Leadership constructs. This value is categorized as moderate and shows that the model used in this study has a good ability to predict the level of employee engagement. It also indicates that a three-pillar-based approach—education, empowerment, and reward & recognition—underpinned by transformational leadership, has proven to be empirically relevant in the context of PT Tekno Buana Globalindo.

The R^2 values for the Empowerment and Reward & Recognition constructs are 0.409 and 0.374, respectively. Both of these values are in the weak–medium category, but still show that Transformational Leadership has a meaningful contribution to empowerment and reward systems in organizations. This strengthens the strategic role of transformational leaders in shaping a more open, collaborative, and appreciative work environment for individual contributions.

Overall, the results of the determination coefficient analysis show that the structural model built has predictive capabilities that are quite adequate for the key constructs in the study. These findings provide a solid basis for proceeding to the analysis of direct and indirect relationships between variables (path analysis), which will be discussed in the next subchapter.

Hypothesis Testing and Direct Path Analysis

Hypothesis testing was carried out to find out whether the relationships between constructs formulated in the conceptual model were statistically significant. This test was carried out based on the path coefficient, t-statistic, and p-value values, with the p-value significance criteria < 0.05 .

Table 1. Hypothesis Testing Results – Direct Effects

Hypothesis	Jalur	Path Coefficient	T-Statistic	P-Value	Status
H1	Transformational Leadership → Employee Engagement	0.165	1.608	0.108	Rejected
H2	Transformational Leadership → Education	0.789	17.208	0.000	Accepted
H3	Transformational Leadership → Empowerment	0.639	9.477	0.000	Accepted
H4	Transformational Leadership → Reward & Recognition	0.611	8.881	0.000	Accepted
H5	Education → Employee Engagement	0.443	3.914	0.000	Accepted
H6	Empowerment → Employee Engagement	0.265	2.654	0.008	Accepted
H7	Reward & Recognition → Employee Engagement	-0.071	0.782	0.434	Rejected

Source: Data processed with SmartPLS 4, 2024

Of the seven hypotheses tested, five of them were accepted because they had a $p < 0.05$, while the other two hypotheses were rejected because their p-values were above that threshold.

The most interesting and theoretically challenging finding is the rejection of the H1 hypothesis, which states that transformational leadership has a direct influence on employee engagement. The test results showed that despite the positive relationship direction, the value of the coefficient $\beta = 0.165$ and $p = 0.108$, so it was not statistically significant. This means that

in the context of PT Tekno Buana Globalindo, transformational leadership cannot directly increase employee engagement without going through other supporting mechanisms.

These findings have important implications for leadership practice in the field. In an organization with a wide geographic scope, technical type of work, and high operational risk such as PT Tekno Buana Globalindo, the inspirational and charismatic aspects of transformational leadership do not seem to be enough to drive direct engagement. This shows that leaders need to integrate their leadership style into tangible programs such as training, empowerment, and relevant rewards in order to have a positive effect on employee engagement.

In contrast, the relationship between Transformational Leadership and the three mediating variables—Education, Empowerment, and Reward & Recognition—showed significant and very high strength. The most dominant was the relationship between Transformational Leadership and Education with $\beta = 0.789$ and $p = 0.000$, suggesting that transformational leaders in these organizations consistently encourage a culture of learning. This is in accordance with the basic principles of transformational leadership, especially in the dimensions of intellectual stimulation and individualized consideration, which encourage leaders to continue to develop the potential of team members through continuous learning and approaches that suit the character of each individual.

In the context of the oil & gas industry such as PT Tekno Buana Globalindo, the need for continuous learning is very high, both to keep up with technological developments and to meet the requirements of safety and work quality regulations. Therefore, the role of transformational leaders is not only symbolic, but also strategic as the main driver of the culture of capacity building in the work environment.

Strong associations were also seen between Transformational Leadership and Empowerment ($\beta = 0.639$) and Reward & Recognition ($\beta = 0.611$), both of which were statistically significant. These findings show that leaders in these companies are able to create a work environment that encourages trust, delegation of authority, and fair rewarding, all of which are essential prerequisites for forming engaged, accountable, and productive field teams.

On the other hand, the relationship between Reward & Recognition and Employee Engagement (H7) was not significant ($\beta = -0.071$; $p = 0.434$). Despite the negative and weak direction of relationships, these findings signal that the current system of rewards and recognition is not effective enough in motivating employees to actively engage in their work. This can be due to employee perceptions that the reward system is unfair, non-transparent, or less relevant to the real contribution they make in the field.

Overall, this direct path analysis indicates that transformational leadership strategies in new organizations will be effective in increasing employee engagement if implemented through strengthening education, empowerment, and rewarding aspects. In other words, leaders need to turn transformational vision into real action in the form of structured HR development programs in order to truly encourage high work engagement in the field.

Paradoxical Analysis of Reward & Recognition

One of the most striking and contradictory findings in this study is the negative relationship between Reward & Recognition and Employee Engagement, with a path coefficient value of $\beta = -0.071$ and $p\text{-value} = 0.434$. Although statistically insignificant, the negative direction of the relationship provides an important signal of potential dysfunction in

the reward and recognition system implemented at PT Tekno Buana Globalindo. These findings contradict initial assumptions in the conceptual model, where Reward & Recognition is positioned as one of the key strategies in increasing field team engagement.

Theoretically, this phenomenon can be explained from several organizational psychology perspectives. One of them is the "over justification effect" proposed by Deci. In this theory, it is explained that giving extrinsic rewards to activities that were previously carried out on the basis of intrinsic motivation can lead to a decrease in internal motivation. In the context of PT Tekno Buana Globalindo, field teams who naturally have an interest in and commitment to their technical tasks can feel lost in meaning when awards are given in a manipulative, excessive, or irrelevant way to the essence of their work. As a result, rewards are seen as a form of control, rather than a form of appreciation, which has the potential to lower their emotional and cognitive engagement with work.

A second approach that can be used to explain these findings is the equity theory developed by Adams. This theory highlights the importance of the perception of justice in the compensation and reward system. When employees feel that the awards are not commensurate with their contributions—either because they are inconsistent across locations, not transparent, or too formal—then there can be a sense of dissatisfaction, demotivation, and even cynicism towards the organization. In this model, fairness is not only objective, but is strongly influenced by employees' perceptions of the social and structural environment in which they work.

Furthermore, from a contextual point of view, there are a number of operational conditions at PT Tekno Buana Globalindo that may exacerbate the negative perception of the Reward & Recognition system. First, the geographical distribution of field teams spread across various locations with very diverse project conditions, opens up space for non-uniform reward implementation. This can cause some teams to feel less cared for or treated unfairly than other teams in different locations.

Second, the heavy, dynamic, and risky nature of fieldwork often makes conventional award systems—such as charters, certificates, or formal appreciation—irrelevant. In situations like these, field employees may value tangible forms of support more such as: adequate work facilities, enhanced safety protections, flexible working hours, or health and family coverage. In other words, the practicality and direct usefulness of the reward is more important than the symbolism of the reward.

Third, organizational culture can also influence the perception of awards. If the work culture tends to emphasize technical results, project completion, and efficiency, then the form of reward that is ceremonial or not directly related to the work output will be considered meaningless. This is in line with the literature that states that engagement will increase if rewards are felt to be personal, fair, relevant, and timely.

Thus, although Reward & Recognition is conceptually an important part of human resource management strategies, the findings in this study show that the form, manner and context of reward are highly determinative of its effectiveness. For PT Tekno Buana Globalindo, improvements to the award system need to be focused on aspects of perception, relevance, and fairness in implementation, so that it can really have a positive impact on the engagement of the field team.

Education as a Dominant Mediator

Mediation analysis was conducted to evaluate the role of intervening variables in bridging the relationship between Transformational Leadership and Employee Engagement. In this study, there were three mediation variables tested: Education, Empowerment, and Reward & Recognition.

Table 2. Mediation Test Results – Indirect Effects

Mediation Hypothesis	Jalur	Path Coefficient	T-Statistic	P-Value	Status
H8	TL → Education → Employee Engagement	0.349	3.775	0.000	Accepted
H9	TL → Empowerment → Employee Engagement	0.170	2.652	0.008	Accepted
H10	TL → Reward Recognition → EE	-0.043	0.764	0.445	Rejected

Source: Data processed with SmartPLS 4, 2024

From the test results in Table 2, it can be concluded that Education is the strongest and most significant mediator, with a path coefficient value of 0.349 and a p-value of 0.000. This means that the influence of Transformational Leadership on Employee Engagement is indirectly stronger and more significant if mediated through the improvement of the Education aspect. These findings are the most important outcome of this study because they show that transformational leadership strategies will be more impactful when implemented through structured and comprehensive education and training programs.

From the point of view of human capital theory, education and training not only improve technical skills, but also give a positive signal to employees that the organization is investing in their long-term development. This kind of message forms a reciprocal psychological connection between the organization and the individual, which then reinforces their commitment and involvement in the work. In many cases, employees will show higher engagement when they feel treated as an asset, rather than just a resource.

Contextually, the dominance of Education mediation is also very relevant in the work environment of PT Tekno Buana Globalindo which operates in the oil & gas sector, where technological complexity, risk levels, and competency demands are very high. The field team at this company is not only required to complete the task, but also has to understand the ever-evolving safety systems, equipment, and protocols. Continuous learning is an absolute necessity. So it is not surprising that a structured and targeted educational program is able to create confidence and competence that are the basis for the emergence of natural work involvement.

Furthermore, the dominance of Education as a mediator also reflects a paradigm shift in work motivation in the technical industry sector. Today, the modern workforce, especially those working in a technology and knowledge-based work environment, increasingly shows a preference for growth and learning opportunities over financial incentives or formal forms of empowerment. This is in line with the Self-Determination Theory (SDT) framework put forward by Deci & Ryan, where the psychological need for competence is one of the main drivers of intrinsic motivation and work engagement (Kumar & Singh, 2021).

While Empowerment has also been shown to be a significant mediator ($\beta = 0.170$; $p = 0.008$), its contribution is still smaller than that of Education. This means that, while empowerment is important, capacity building through education remains the most effective path in translating transformational leadership values into real engagement on the ground.

In contrast, Reward & Recognition again showed negative and insignificant results in the mediation pathway ($\beta = -0.043$; $p = 0.445$). This confirms that the reward system in its current form has not succeeded in playing the role of a link between leadership style and work engagement.

Overall, these results reinforce the conclusion that education and training are crucial points in transformational leadership strategies to build field employee engagement. Efforts to expand and deepen educational programs based on real needs in the field will have a much greater impact than the approach of symbolic awards or structural empowerment alone..

Empowerment as a Secondary Mediator

In the mediation model tested, Empowerment showed a statistically significant but medium-scale mediation effect, with a path coefficient value of 0.170 and a p-value of 0.008. Although the contribution is smaller than that of Education, these results still show that Empowerment plays an important role as a secondary mediator in bridging the influence of Transformational Leadership on Employee Engagement in the work environment of PT Tekno Buana Globalindo (Mushtaq et al., 2023).

Empowerment in this context serves as a mechanism that allows field team members to feel in control, responsibility, and space to take the initiative in completing their work. Transformational leaders give teams the confidence to make decisions within certain limits, solve problems, and manage operational resources independently (Meyers & Lee, 2024). This process fosters a sense of belonging to the task and increases emotional and psychological attachment to work (Liu & Fernandez, 2024).

However, the lower level of effectiveness of empowerment compared to education can be explained by the characteristics of fieldwork in the highly technical, complex, and high-risk oil & gas industry. In the field, many critical decisions must follow strict safety protocols, so the space for autonomous decision-making can be very limited. Thus, the form of empowerment provided is not necessarily in the form of complete freedom, but rather technical authority in determining the best working methods, control over resources to obtain the tools and materials needed, and ownership of problem-solving ownership in operational scenarios that are in accordance with safe limits.

On the other hand, despite limited autonomy space, the psychological impact of empowerment remains significant (Northouse, 2018). When employees are trusted to take responsibility for certain decisions, even within a limited scope, they feel more valued and more involved (Pang & Harper, 2022). This is in line with the psychological empowerment framework developed by Spreitzer, which includes four main dimensions: meaning (meaning of work), competence (ability to complete tasks), self-determination (autonomy in implementation), and impact (influence on work results and organization). These four dimensions together form a healthy and productive perception of empowerment (Prasad et al., 2021).

In the context of PT Tekno Buana Globalindo, the effective implementation of empowerment requires a balance between providing autonomy and enforcing operational and safety standards. This means that leaders are not only required to delegate authority, but also must build a work system that allows employees to play an active role without violating the limits of safety and consistency of work processes. Thus, empowerment is a strategy that not

only increases engagement, but also strengthens the accountability and resilience of field teams in facing daily operational challenges (Peterson & Kaur, 2023).

With these results, it can be concluded that empowerment remains an important pathway in translating transformational leadership values into increased work engagement. Although not a dominant mediator like education, the existence of empowerment in the mediation model shows that structured, relevant, and safe empowerment remains a key factor in building an adaptive, responsible, and performance-oriented organization that is sustainable.

4.3.6 Analysis of Effect Size and Practical Significance

The effect size analysis provides important insights into the practical significance of the relationships between variables in the research model, complementing the results of the statistical significance (p-value) discussed earlier. In the PLS-SEM approach, the f^2 (effect size) value is used to assess the extent to which an exogenous variable makes a substantive contribution to the endogenous variable. The interpretation generally refers to the classification from Cohen, namely: $f^2 \geq 0.02$ (small), $f^2 \geq 0.15$ (medium), and $f^2 \geq 0.35$ (large).

Transformational Leadership has a very large effect size on Education, with an f^2 value of 1,646. This value far exceeds the 0.35 threshold set for the "large" category, even at a very strong level. Practically, these findings confirm that strengthening transformational leadership styles has a very significant impact on improving the quality of education and training programs at PT Tekno Buana Globalindo.

The implications of these findings are particularly important in a managerial context. This means that investment in leadership development, especially at the supervisor and field manager levels, will be very effective in encouraging the creation of a more targeted, relevant, and impactful learning culture and educational programs. In practice, this can be realized through leadership training, internal coaching, or a transformational leadership-based competency development system.

In addition, the relationship between Transformational Leadership and Empowerment ($f^2 = 0.691$) and Reward & Recognition ($f^2 = 0.596$) also showed a large effect size. This indicates that transformational leadership not only impacts the educational aspect, but also on the employee empowerment structure as well as the reward system in the work environment. In other words, Transformational Leadership serves as a key lever in encouraging improvements in the three pillars of engagement proposed in this study: education, empowerment, and reward-recognition.

On the other hand, the effect size values in the Education $\rightarrow$ Employee Engagement ($f^2 = 0.138$) and Empowerment $\rightarrow$ Employee Engagement ($f^2 = 0.080$) pathways were in the small to medium category. This means that although this relationship is statistically significant, the practical impact is not very large if applied partially. In other words, improving training or empowerment programs alone, without the integration of other strategies, may not be strong enough to drastically increase field team engagement.

These findings indicate that a holistic and sustainable approach is needed to significantly drive employee engagement. Education and empowerment-based strategies remain important, but they need to be combined with other interventions such as job redesign, communication improvement, team strengthening, and the creation of a more meaningful reward system.

Thus, effect size analysis not only shows the strength of relationships, but also directs strategic priorities for management. In the context of PT Tekno Buana Globalindo, the main

focus should be directed to strengthening Transformational Leadership as the main driver of improvement in strategic areas that contribute to field team engagement.

Comprehensive Discussion: Transformational Leadership Strategies in Increasing Field Team Engagement

1. Reconfiguration of the Theoretical Model of Transformational Leadership

The results of this study lead to the need for a fundamental reconfiguration in understanding how transformational leadership strategies work in increasing field team engagement, especially in technical industry sectors such as oil & gas. The rejection of the hypothesis of direct influence between Transformational Leadership and Employee Engagement (H1), but with strong support for the effect of mediation through Education and Empowerment, indicates that transformational leadership within PT Tekno Buana Globalindo does not function as a direct trigger for employee involvement, but as a system enabler that creates working conditions that allow engagement to occur.

This means that, in this context, transformational leadership does not work through personal appeal or inspiration alone, but through concrete, structured actions, such as providing relevant training, opening up decision-making space, and creating a work environment conducive to professional growth. In other words, the effectiveness of transformational leadership is determined more by its ability to create an ecosystem that supports employee engagement, rather than simply building emotional connections or providing verbal motivation.

In industries such as clean water treatment and waste management that PT Tekno Buana Globalindo's focus on, the complex, risky, and procedure-based nature of the work, makes the demands on leadership very specific and contextual. Field teams need not only inspiration, but also real support that is relevant to day-to-day operational challenges. Therefore, a successful leadership approach is not only symbolic, but one that is able to implement policies that touch on the technical and practical aspects of employee work.

These findings also highlight the strategic role of transformational leadership as a system architect, not just a charismatic figure. Effective leaders are those who can build an ongoing training system, provide measurable trust and responsibility to the team, and create meaningful and relevant patterns of recognition for field workers. This reflects a paradigm shift from "people-centric" to "system-centric" leadership, where a leader's success is determined by his or her ability to form and maintain a managerial infrastructure that supports human resource growth.

The implications of these findings are profound for leadership development programs in the technical industry. Organizations need to adapt leadership training designs to real-world operational conditions on the ground, including developing competencies in training system planning, empowerment strategies, and equitable and impactful reward management. It is not enough for leaders to understand transformational leadership theory conceptually, but must be able to operationalize it into the form of real policies, procedures, and facilities that can be felt directly by the team in the field.

Therefore, transformational leadership strategies applied to increase engagement cannot rely on an emotional approach alone. The primary focus should be shifted to building work systems and processes that consistently support continuous learning, structured empowerment, and meaningful rewards. Transformational leaders in the context of industries such as PT Tekno

Buana Globalindo are required to transform from inspirers to facilitators—from motivators to architects of systems that encourage sustainable engagement and growth of the field workforce.

2. Education as the Main Pathway: Implications for Human Capital Development

The dominance of the Education variable as the strongest mediator in this research model, with a path coefficient value of 0.349, reveals a fundamental shift in the paradigm of work motivation, especially in the technical industry. These findings are particularly significant in the context of PT Tekno Buana Globalindo, which operates in highly specialized fields, such as clean water treatment and waste management in the oil & gas industry, which demand continuous adaptability to technological developments and constant regulatory changes.

It is important to understand that education in this context is not limited to traditional training. In contrast, education includes a comprehensive approach to human capital development, which includes: improving technical skills, updating occupational safety standards, improving problem-solving capacity, and adaptive learning skills to deal with unexpected situations in the field. In the operational reality of PT Tekno Buana Globalindo, where the field team is faced with the use of advanced equipment and complex work procedures, only through systematic and structured education can they develop the practical competencies and confidence needed to carry out their duties optimally.

The effectiveness of Education as a mediator also reflects the changing expectations of the modern workforce, especially in the technical sector. In an environment that increasingly demands new skills, the guarantee of career sustainability becomes highly dependent on the individual's ability to continue learning and developing. In this context, educational opportunities are seen by many field team members not as just training, but as an investment in their career continuity and professional development. This indirectly increases commitment and engagement to the organization.

From the perspective of social exchange theory, employee engagement grows as a form of reciprocity for the attention and investment that the organization gives them. When the organization clearly shows a commitment to employee development through substantial educational programs, employees respond with increased loyalty and work involvement as a form of appreciation and reciprocation for such positive treatment.

Interestingly, the results of this study also show that Education is more effective than traditional motivational approaches, such as reward systems. These findings confirm that in a knowledge- and skill-based work environment, self-development opportunities have a higher intrinsic value than extrinsic rewards. Education offers long-term benefits that are not only relevant to current job tasks, but also impact long-term personal and professional growth. This creates a deeper sense of accomplishment and satisfaction, when compared to short-term rewards or other forms of formal recognition.

Overall, these results suggest that in order to increase field team engagement on a sustainable basis, transformational leadership development strategies should be directed to prioritizing education as the primary platform for the development of work engagement. Organizations need to design training programs that not only meet technical needs, but also develop critical thinking capacity, independent learning skills, and readiness to face change. By making education a strategic investment in human capital development, PT Tekno Buana

Globalindo can build a more competent, resilient, and fully involved workforce in the company's operational mission.

3. Reward & Recognition Dysfunction: A Critical Analysis of Implementation Failures

The negative findings on the relationship between Reward & Recognition and Employee Engagement (with a path coefficient value of -0.071) were one of the most worrying results in the study. Although not statistically significant, the direction of the negative relationship consistently provides a strong indication of systemic problems in the design, implementation, and perception of the award and recognition system currently implemented at PT Tekno Buana Globalindo. These findings demand in-depth critical examination, particularly in the context of transformational leadership strategies oriented towards increasing field team engagement.

From a psychological point of view, especially through the framework of the over justification effect introduced by Deci, a poorly designed reward system can actually weaken the intrinsic motivation that employees naturally have, especially those who do have a high dedication to their field of work. In technical industries such as oil & gas, field teams are generally driven by a sense of professional pride, technical mastery, and responsibility for safety and environmental protection. When the external reward system is over-applied or perceived as a control tool, psychological reactance will arise which actually decreases employee engagement and commitment to their work.

This condition is exacerbated by the geographic dispersion of PT Tekno Buana Globalindo's field team spread across various project locations. This situation practically makes it difficult to implement a uniform, accurate, and timely reward system. Inconsistent implementation, delays in awarding, or even the perception of favoritism in the distribution of awards can cause a very damaging feeling of inequity, especially in a collective and socially close field work environment.

Furthermore, cultural misalignment may also be another cause. An awarding system designed with an office-based recognition model—such as a charter, annual award, or formal ceremony—is often inconsistent with the values and preferences of field teams that prioritize practical support, direct feedback, and peer recognition over ceremonial, delayed forms of symbolic recognition. In the context of the field, speed and precision of recognition are much more valued than formalities.

In addition, there are fundamental issues related to timing and relevance in the implementation of rewards & recognition. Highly demanding and time-sensitive field operations require an appreciation system that is direct, contextual, and integrated with the dynamics of daily work. Awards that are given too long after an important event have occurred will lose their meaning, and may even be considered insincere. In this context, effective recognition must occur in real-time or close to contribution time, and must feel meaningful to the team—both emotionally and functionally.

Thus, the reward & recognition dysfunction revealed in this study is not only a matter of ineffectiveness of the system, but also reflects a mismatch between the design of the reward system and the job characteristics, work culture, and psychological expectations of field employees. A system that is too centralized, slow, and uncontextual will only widen the gap between the organization and the implementation team on the ground.

As part of the transformational leadership strategy, it is necessary to carry out a complete rethinking of the reward & recognition approach at PT Tekno Buana Globalindo. Awards must be more concrete, adaptive, and relevant to real working conditions. For example, recognition in the form of better work facilities, incentives that are immediately felt, or even work flexibility can be a much more meaningful form of appreciation than formal awards that are symbolic.

4. Empowerment in the Context of High-Risk Operations

The results of significant but medium-scale empowerment mediation ($\beta = 0.170$) in this study reflect the complexity of implementing empowerment strategies in high-risk technical work environments, such as those carried out by PT Tekno Buana Globalindo. In sectors such as oil & gas, where work involves a high potential hazard, the implementation of empowerment cannot be done freely, but must consider a careful balance between granting autonomy and adherence to safety protocols and non-negotiable operational standards.

In the framework of psychological empowerment developed by Spreitzer, there are four main dimensions: meaning, competence, self-determination, and impact. Among these four dimensions, meaning becomes particularly relevant for field teams working in environmentally sensitive operations, such as waste management and clean water treatment. Field workers can find deep meaning in understanding that their work has a direct contribution to environmental protection and public safety. This understanding strengthens a sense of purpose and fosters emotional engagement with the organization.

The competence dimension of empowerment also needs to be continuously supported through ongoing technical training and certification programs, designed to equip field teams with the knowledge and skills needed to address complex operational challenges. In an ever-changing and highly rigorous work environment, self-confidence is the main foundation of sustainable work engagement.

Meanwhile, the self-determination dimension faces its own challenges in a highly regulated industry. Many important operational decisions must remain within the strict corridors of safety protocols and regulatory compliance. Therefore, empowerment in this context cannot be interpreted as full freedom to make decisions, but rather as the provision of autonomy in the implementation of operational tasks within predetermined limits. Effective empowerment strategies in this context are more focused on providing technical authority to solve field problems, make decisions about resource allocation, and encourage innovation in operational efficiency—all within the framework of full compliance with safety and environmental standards.

The impact dimension in empowerment is also very important to be improved. One way to reinforce this dimension is to provide field teams with a clear understanding of how their contributions affect the overall success of the organization, as well as its impact on the environment and customer satisfaction. Regular and concrete feedback, such as operational performance reports, achievement of environmental targets, or improved process efficiency, can help field workers see tangible results from their efforts. This plays a big role in fostering a sense of impact that strengthens overall work engagement.

Thus, empowerment in the context of PT Tekno Buana Globalindo cannot be applied in a general form, but must be adjusted to the operational reality faced. An effective empowerment strategy not only provides room for action, but also strengthens technical capacity, provides

clarity of roles, and ensures that each individual understands the importance of their contribution to the larger system. This will create a critical yet supportive work environment, where employees feel valued, trusted, and fully engaged in the organization's goals.

5. Implementation of Integrated Strategies: Synthesis for Practical Applications

Based on a comprehensive analysis of the research results, transformational leadership strategies to increase employee engagement of field teams at PT Tekno Buana Globalindo require an integrated and contextual approach. This approach needs to place education as the main mechanism, empowerment as a supporting strategy, and a complete overhaul of the reward & recognition system to align with the values of the field team and the operational reality in the field.

An integrated implementation strategy must begin with the systematic development of transformational leadership capabilities, especially at the supervisor and field manager levels. The main focus should be on the two most effective dimensions in promoting education, namely intellectual stimulation and individualized consideration. Leadership development programs are not enough to be theoretical only, but must be oriented towards practical skills, such as identifying training needs, designing relevant learning experiences, and creating a work environment that supports professional development on an ongoing basis.

Furthermore, education implementation strategies need to be designed comprehensively and in accordance with the context of the field. The educational program includes not only technical skills improvement, but also adaptive resilience training, problem-solving skills, and cross-functional learning that enable field teams to survive and thrive in a dynamic work environment. The blended learning approach—which combines formal training, on-the-job mentoring, and peer learning networking—is particularly important to implement, especially given the geographic spread of work teams.

The implementation of empowerment must be carried out with careful calibration to balance work autonomy with compliance with safety requirements. This can be achieved through a structured decision-making framework, where the boundaries of authority are clearly defined, but still allow for employees to use self-assessment in a safe scope. A progressive enablement model—which provides gradual accountability as competence and consistency with safety standards increases—can build field team confidence, without sacrificing operational integrity.

Most crucially, the rewards & recognition system requires a complete overhaul to ensure alignment with values, professional aspirations, and working conditions of the field team. The focus of awarding needs to shift from a formal and ceremonial approach to a more concrete and meaningful form. This includes tangible operational support (e.g., the availability of quality work tools), direct feedback from superiors and colleagues, team-based recognition, as well as career development opportunities relevant to professional aspirations in the technical field. The successful implementation of this integrated strategy is highly dependent on the long-term commitment of the organization's leadership, adequate allocation of resources to support learning and empowerment infrastructure, and ongoing monitoring and evaluation mechanisms. This process should involve feedback from field teams as the primary target of the strategy, so that implementation remains relevant, responsive, and has a real impact on improving engagement and performance. Overall, the harmonious integration of leadership development,

continuing education, structured empowerment, and an adaptive reward system will create a highly competitive, safe, and humane field work environment—aligned with PT Tekno Buana Globalindo's long-term vision of building operational excellence based on human resource quality.

CONCLUSION

Based on data analysis using the PLS-SEM method on 146 respondents from the *PT Tekno Buana Globalindo* field team, it was concluded that transformational leadership did not have a significant direct effect on employee engagement. However, the influence was strongly mediated through education (as the primary mediator with $\beta = 0.349$, $p = 0.000$) and empowerment (as a secondary mediator with $\beta = 0.170$, $p = 0.008$), while the reward & recognition system showed a negative relationship and was ineffective ($\beta = -0.071$, $p = 0.434$). This indicates the need for fundamental improvements to the reward system to be more contextual and relevant to field conditions. As such, the employee engagement enhancement strategy should focus on integrating transformational leadership with the strengthening of structured education and empowerment systems, as well as the transformation of a more tangible and feedback-based reward system, to create an adaptive, safe, and sustainable work environment in the Oil & Gas Service sector.

Based on the research findings, it is recommended that companies develop transformational leadership training programs that are contextual to field conditions, with an emphasis on intellectual stimulation and individual consideration. Furthermore, companies need to build a structured and relevant education and training system, focusing not only on technical skills but also on adaptive and problem-solving capabilities, as well as implementing blended learning that suits operational conditions. Empowerment strategies should be progressively designed with a multi-level decision framework and additional training so that field workers have the competence and confidence to make operational decisions safely. The reward and recognition system needs to be thoroughly overhauled by prioritizing more contextual, fast, and tangible forms of reward, such as logistical support, direct recognition from superiors, or career development opportunities based on real contributions, while involving field teams in their design. Finally, companies should build a feedback-based evaluation and improvement cycle through internal surveys, dialogue forums, and two-way reporting platforms to ensure that the strategies in place remain adaptive to the dynamics of field needs.

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