Analysis of the Leadership Style of HSE Managers in Construction Project Organizations (Case Study of Contractors in Malang City)

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ABSTRACT

Continuous infrastructure development in Indonesia has become one of the factors increasing the role of the construction sector in the Indonesian economy. The construction sector's contribution to the Indonesian economy ranks sixth, at 9.88 percent of Indonesia's Gross Domestic Product (GDP) in the first quarter of 2024. The relatively high injury rate on construction projects is associated with construction workers facing ever-changing work environments, typically involving heavy machinery, working at heights, noise, and other serious hazards. To address these unique safety challenges, organizations must be able to quickly adapt to changes by effectively capturing, storing, and disseminating new strategies that prevent injuries. This can be achieved through the role of a leadership style that can exemplify the importance of occupational health and safety (HSE) management. Previous research results show that leaders who can implement leadership styles effectively and decisively enable workers to follow HSE procedures properly, thereby improving employee performance. In this research, questionnaires will be distributed to 3 contractor organizations in medium to large construction projects in Malang City. The scope of work analyzed is the leadership style. This research is a type of quantitative research. The visionary leadership style has a very high level of application, being the most dominant, followed by charismatic, transformational, and transactional leadership styles, which are applied at high levels, indicating that these leadership styles do not have a full influence.

Keywords: construction; HSE managers; leadership styles; organization; safety.

INTRODUCTION

Infrastructure development in Indonesia continuously contributes to the increasing role of the construction sector in the Indonesian economy. The construction sector's contribution to Indonesia's economy ranks sixth, accounting for 9.88 percent of Indonesia's Gross Domestic Product (GDP) in the first quarter of 2024. Construction is one of the most hazardous industries in practice (Sacks, 2009). This relatively high injury rate in construction projects is associated with workers facing constantly changing work environments, typically involving heavy machinery, working at heights, noise, and other serious hazards. To address these unique safety challenges, organizations must be able to quickly adapt to changes by effectively capturing, storing, and disseminating new strategies that prevent injuries. This can be achieved through leadership styles that exemplify the importance of Occupational Health and Safety (OHS) management (Wijaya Kevin, 2021).

In both general leadership literature and safety literature, the leadership style that has been most studied recently is charismatic leadership (Lowe, 1996). Charismatic leadership practices undoubtedly provide positive experiences for every manager in the history of their relationship with subordinates, as this practice represents a key paradigm of leadership, where leaders strive to serve their followers (Kumoro, 2020). Previous research (Wijaya Kevin, 2021) indicates that leaders who can effectively and decisively apply transactional leadership styles enable workers to adhere to occupational health and safety (OHS) procedures, thus improving employee performance. Furthermore, research by Yuzhong (2017) suggests that future safety climate interventions will be more effective if supervisors demonstrate transformational leadership, encouraging construction personnel to voice safety concerns without fear of retaliation and repeatedly reminding them about workplace safety. Sudiro (2004) explains that visionary leadership style significantly influences

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safety management. Safety leadership is the process of interaction between leaders and their followers to achieve organizational safety goals. Empirical research has demonstrated the importance of leadership in safety (Griffin and Hu, 2013). For instance, Fang et al. (2015) show that the root causes of accidents lie within top management in organizations.

This study aims to examine the leadership styles used in construction project organizations. The results discuss the importance of adopting effective leadership styles to assist contractor organizations in construction projects. The construction sector is continually evolving, given the unique challenges faced by construction projects. Therefore, this research will highlight the most dominant leadership styles within the object of study, specifically focusing on contractor organizations in construction projects.

Identification of Leadership Style

Leadership style is a leader who supervises the work of employees, so that organizational goals can be achieved with the behavior or style of a leader (Robbins and Coulter, 2010). Safety leadership emerged in the Occupational Health and Safety (OHS) literature as a key construct in construction safety management. Wong et al. (2017) concluded that HSE managers have a major influence on the safety performance of their employees. In this research, a literature study of previous research on leadership styles in construction project organizations will be conducted to find out the dimensions of leadership styles. The draft dimensions are summarized in Table 1. Leadership style is identified using 4 dimensions: Charismatic, Transactional, Transformational and Visionary leadership styles.

Table 1. Identification of leadership style dimensions

Leadership Style	Explanation	References
Charismatic	Employees are motivated by leadership that has vision, personal risk-taking, sensitivity to the environment, and employees.	Robbin 2006; Asbari, 2021
Transactional	Employees view leaders more in terms of contingent rewards, active management by exception, and passive management by exception.	Yukl 2009; Bass 1990; Kevin 2021
Transformational	Employees are more aware of leaders who possess charisma, inspirational motivation, intellectual stimulation, and consideration	Yukl 2009; Rahmadin 2010; Robin 2010
Visionary	Visionary leadership employs shared inspiration, which includes self-confidence, self-awareness, empathy, and motivation	Goleman 2017; Renouw 2023

Previous literature argues that charismatic leaders are good at emphasizing the connection between effort and important values, expressing confidence in subordinates' abilities, and communicating high performance expectations by gaining the trust and respect of their followers (Banks et al., 2017). Transactional leadership style plays an active role in strategic leadership for organizational effectiveness. In today's organizations, transactional leadership is universal compared to other supportive leadership behaviors (Waldman et al., 2001). Theoretically, the impact of transformational leadership is achieved by encouraging transformation and inspiring employees to perform and achieve beyond expectations by aligning their personal goals with organizational goals (Avolio et al., 2009). Bass 1990 showed that Visionary leadership style in which leaders paint a compelling picture of the future, energize teams and encourage innovation.

Many industry players/stakeholders are involved in safety issues in construction, and effective collaboration of stakeholders can contribute to ensuring construction safety performance. Organizational commitment to safety within each stakeholder has a significant impact in fostering a positive OHS culture (Ng and Tang, 2001). Chan et al. (2004) Sinelnikov (2015) showed that safety

leadership potentially enables OHS indicator leadership, and pointed out that it is easier to take preventive actions through leading indicators when leading indicators receive more attention in management coordination and collaboration. To manage the challenges facing the construction sector, leaders need to develop their leadership competencies and soft skills. This enables them to adopt new work practices and ensure the successful implementation of construction projects.

RESEARCH METHODS

Respondents and Data Analysis

Research to determine the leadership style of HSE managers in construction project organizations by distributing questionnaires. The questionnaire includes an introduction, an explanation of the objectives, and forms to be filled out, as well as a privacy guarantee for respondents to support the accuracy of the information. The structure of the questionnaire is divided into two parts: (i) General information about the respondents, (ii) Assessment of leadership style according to specified indicators. This research distributed 2 questionnaires (eligible among employees in the project organization) to 3 medium to large-scale construction project organizations in Malang City, Indonesia. Forty-one respondents decided to join, consisting of construction project contractors. This research was chosen in Malang City because the construction development in Malang City is increasing. This type of research is quantitative research. Quantitative research is research that uses measurements, calculations, formulas, and numerical data certainty in planning, processes, hypothesis building, techniques, data analysis, and concluding (Musianto, 2002). According to (Moh Kasiram, 2009), quantitative research is a process of discovering knowledge that uses numerical data as a tool for data analysis. The questionnaire was distributed directly using Google Forms. Respondents were asked to provide their level of agreement with each statement in the questionnaire, using a Likert scale ranging from Strongly Agree (weight = 5), Agree (weight = 4), Quite Agree (weight = 3), Disagree (weight = 2), and Strongly Disagree (weight = 1). Data were obtained from three construction project organizations. The data obtained from the questionnaire results were then processed with the help of Excel and SPSS software. Then validity and reliability evaluations were carried out. Afterword, a radar/spider chart was used to visualize the most dominant leadership style in this research object.

RESULT AND DISCUSSION

The results of this study indicate that out of 41 questionnaires distributed to construction project organizations in Malang City, there were 34 male respondents, representing 82.93%, and 7 female respondents, representing 17.07%. The qualifications of each respondent are as follows: 3 Project Managers, 3 Site Managers, 3 HSE Managers, 3 Assistant Site Managers, 1 Site Engineer, 3 Civil and Estimator Staff, 1 Cost Control, 4 Quality Control Inspectors, 3 Quantity Surveyors, 1 Assistant Quantity Surveyor, 1 Quality Manager, 1 Quality Assistant Manager, 3 HSE Officers, 3 Site Supervisors, 1 Project Administration, 1 Engineering Staff, 1 Technical Operations Manager, 1 Commercial Staff, 1 Assistant Commercial Staff, 1 Finance Staff, and 3 Drafters.

Validity and Reliability Testing

Before managing the data, validity and reliability tests are necessary to determine whether the data is valid and reliable. The validity test is conducted using Pearson correlation by finding the strength of the relationship of each variable. Meanwhile, the reliability test measures the consistency and stability of respondents' answers to the questions in the questionnaire. The testing is done by calculating the alpha value using Cronbach's formula. The results of the validity and reliability tests can be seen in **Table 2** below.

Table 2. Results of Validity Testing

Indikacor	Calculated r	Critical r	Description
LC1	0,916	0,380	Valid
LC2	0,903	0,381	Valid
LC3	0,884	0,382	Valid
LC4	0,902	0,383	Valid

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Indicator	Calculated r	Critical r	Description
LTF1	0,930	0,384	Valid
LTF2	0,953	0,385	Valid
LTF3	0,929	0,386	Valid
LTF4	0,930	0,387	Valid
LTS1	0,882	0,388	Valid
LTS2	0,918	0,389	Valid
LTS3	0,922	0,390	Valid
LV1	0,885	0,391	Valid
LV2	0,911	0,392	Valid
LV3	0,878	0,393	Valid
LV4	0,906	0,394	Valid

The validity test conducted, as shown in Table 2, indicates that all indicators are valid. Therefore, all indicators can be used in data processing.

Table 3. Results of Reliability Testing

Indicator	Cronbach Alpha	Description
LC	0.922	Reliable
LTS	0.951	Reliable
LTF	0.891	Reliable
LKV	0.916	Reliable

The reliability test conducted, as shown in Table 3, indicates that all indicators are reliable, with the test criteria stating that the Cronbach's Alpha coefficient is ≥ 0.6.

The Investigation of Leadership Styles

The dominant leadership style is assessed based on the results of indicators that represent leadership practices in construction project organizations. These indicators include charismatic leadership, transactional leadership, transformational leadership, and visionary leadership. The average values for each indicator will be grouped into four classes: where 1-1,8 is Level 1 (very low), an average of 1,8-2,6 is Level 2 (low), an average of 2,6-3,4 is Level 3 (moderate), an average of 3,4-4,2 is Level 4 (high), and an average of 4,2-5 is Level 5 (very high) (Ridwan, 2013). The results of the leadership style study in construction project organizations will be presented in Table 4.

Table 4. Types of Leadership Styles in Construction Project Organizations

Leadership Style	*Mean*	SD	95% *Confidence Interval*		Dominant Average	Implementation Level
			Lower	*Upper*		
LC1	3.73	1.03	3.41	4.06	3.66	High
LC2	3.59	1.02	3.26	3.91		
LC3	3.63	1.07	3.30	3.97		
LC4	3.68	0.96	3.38	3.99		
LTF1	3.71	0.79	3.39	4.02	3.73	High
LTF2	3.73	0.92	3.44	4.02		
LTF3	3.56	0.77	3.25	3.87		
LTF4	3.90	0.88	3.61	4.19		

Leadership Style	*Mean*	SD	95% *Confidence Interval*		Dominant Average	Implementation Level
			Lower	*Upper*		
LTS1	3.54	1.00	3.22	3.85	3.61	High
LTS2	3.71	0.96	3.41	4.01		
LTS3	3.59	1.12	3.23	3.94		
LV1	3.98	1.01	3.73	4.23	4.20	Very High
LV2	4.29	0.92	3.81	4.39		
LV3	4.29	0.98	3.86	4.34		
LV4	4.24	0.92	3.87	4.42		

The results of the analysis in Table 4 show the types of leadership styles in construction project organizations. Charismatic, transformational, and transactional leadership styles are applied at a high level, indicating that these leadership styles do not fully influence the organization. Meanwhile, the visionary leadership style is applied at a very high level. This indicates that the visionary leadership style is the most implemented in construction project organizations in Malang City. The Confidence Interval (CI) was conducted to determine the interval results with a 95% confidence level, indicating that the population value will lie within the confidence range (Solih, 2015). The visualization of the dominant leadership styles in construction project organizations will be described in Figure 1.

Figure 1. The Results of Overall Leadership Styles in Construction Project Organizations.

Figure 1 shows the overall results of the leadership style analysis in medium to large-scale construction project organizations in Malang City. The framework tendency indicates that visionary leadership has the strongest average value of 4.20, followed by transformational leadership with an average of 3.73, then charismatic leadership with an average value of 3.66, and transactional leadership with an average value of 3.61. Visionary leadership implies broad and mature insight, thus considered capable of forecasting the future. This means that visionary leadership can formulate a good vision and mission for the organization or company in the future and can act and behave proactively. Visionary leadership is the ability of leaders who are confident, self-aware, empathetic, and capable of motivating their workers (Goleman, 2007).

Studies on charismatic leadership emphasize the behavioral dimensions of charismatic leadership styles, which include having a strategic vision and articulation skills, sensitivity to the environment, and sensitivity to members' needs. These have been found to have a significant and positive impact on coordinated team work (Emre, 2018). The results of this study align with the dimensions of charismatic leadership in this research, with high implementation. Most previous studies show a positive relationship between leadership and safety, focusing on transformational leadership. Transformational leadership consists of four components: individualized consideration (showing

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interest in each individual as a person), idealized influence (acting as a role model that employees want to follow), inspirational motivation (communicating meaning and inspiration through attractive goals and visions), and intellectual stimulation (challenging and encouraging creativity and learning) (Bass and Riggio, 2006). Then, Kevin (2021) asserts that transactional leadership positively influences OHS management with contingent rewards, active management by exception, and passive management by exception. Colette (2013) shows that visionary leadership has a positive effect on organizational effectiveness and is consistent with the findings of this current study.

Certain leadership styles are highly effective for engineering companies, particularly those involved in complex and high-risk projects. This trend is likely to continue, especially as the engineering industry adopts new technologies and faces challenges (Salitha, 2024). Weak leadership creates a poor working environment, leading to decreased morale, ineffective communication, and significant project delays (Karthikeyan, 2017). Therefore, effective leaders in construction organizations must leverage a deep understanding of the technical aspects of their field, possess a clear vision for the organization's future, and demonstrate the ability to communicate effectively, make informed decisions, motivate and inspire their teams, and embrace change (Ghorbani, 2023).

CONCLUSION

This study examines the leadership style of HSE managers in contractor organizations involved in construction projects in Malang City. The results indicate that charismatic, transformational, and transactional leadership styles are applied at a high level, suggesting that these styles do not fully influence outcomes. In contrast, the visionary leadership style is implemented at a very high level, indicating that visionary leadership is the most dominant style applied in construction project organizations in Malang City as the research object. The dominant leadership style in contractor organizations shares similarities with those in the United States. However, the dominance of visionary leadership differs in the same country, namely in Surabaya, where transactional and transformational leadership styles prevail. To gain broader insights, future studies should explore and analyze leadership and safety coordination among various stakeholders, including internal stakeholders. Internal stakeholders refer to groups or individuals working within an organization or project (Beringer et al., 2013), such as owners, contractors, supervisors, and designers. A limitation of this study is that the research population only includes construction project organizations in Malang City. Future research should test the research model with a larger sample size collected from various locations to further examine the external validity of the findings. Recommendations for future research include expanding the study population to cover a wider area, such as East Java. The contribution of this research is to provide new insights into how different leadership styles of HSE (Health, Safety, and Environment) managers affect the efficiency and effectiveness of safety implementation in construction projects. This research can identify the most effective leadership style in the specific context of Malang city, which may have unique cultural and industry characteristics.

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