

Training for Success: Enhancing Operators' Job Performance through Safety Training

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ABSTRACT

This study investigates the relationship between safety training effectiveness and job performance among operators at a manufacturing company located in southern Malaysia. The manufacturing sector continues to record a high number of occupational accidents, highlighting the need to evaluate how safety training effectiveness can enhance employee performance and reduce workplace risks. This study adopts a quantitative approach, using a structured self-administered questionnaire to collect data from 108 operators. The questionnaire measured two key variables including safety training effectiveness and job performance. The questionnaire assessed safety training effectiveness that consists of two dimensions including safety training and personal compliance. Besides, job performance was measured in three dimensions focusing on dimensions such as task performance, contextual performance, and counterproductive work behavior. The data were analyzed using descriptive and inferential statistics through Statistical Package for Social Science (SPSS). The findings revealed that both safety training effectiveness and job performance levels were at a high level among the respondents, and there is a significant positive relationship existing between these two studied variables. These results indicate that safety training effectiveness not only improves the employees' safety awareness and compliance but also enhances their overall job performance.

Keywords: Safety Training Effectiveness, Job Performance, Operators

INTRODUCTION

Safety training is considered part of human resource interventions to improve positive work performance such as avoiding the accidents, incidents, and near misses in the workplace (Bahari, 2011). According to Alnizari (2024), an effective safety training program can improve the employees' job performance by giving the employees the information and abilities that they need to execute their job safely and effectively. In addition to lower the risk of workplace accidents, an efficient safety training program can also boost the overall productivity of the company. (Alnizari, 2024). For example, a well-designed safety training program can significantly improve the employee job performance in the organization. (Mustapha et al., 2025). However, insufficient safety training for the employees and businesses' disregard for the workplace safety are frequently contributing to the factors to the rise in work-related injuries (Dodoo and Al-Samarraie, 2020). Thus, frequent industrial injuries and accidents will result in the employees' fatalities while also influencing the employees and organizational performance.

A successful safety training program increases job performance by providing the employees with the knowledge and skills that they require to perform their duties safely and efficiently (Ashour et al., 2018). This is because an effective safety training program not only lowers workplace accidents, but also boosts the overall productivity (Alnizari, 2024). According to Malaysia's Minister of Human Resources, there were 38,950 workplace accidents in 2024. This is a slight increase compared to the 317 fatalities recorded in 2022. Southern region of Malaysia had the highest number of injuries among all states in 2023, emphasizing the ongoing need to increase the workplace safety measures (Ministry of Economy, Department of Statistics Malaysia Official Portal). These safety gaps cause not only accidents and fatalities, but also lead to poor job performance. Similarly, there is a growing need to examine how safety training effectiveness influences the employees' job performance. However, the gaps may still exist in safety training design, delivery methods, or employee engagement, which could limit the overall impact on employees' job performance (Marcus et al., 2013). Therefore, investigating the safety training effectiveness in shaping the employees' job performance is essential to ensure that training initiatives truly contribute to both individual and organizational success.

According to Alnizari (2024), an effective safety training program improves the employees' job performance by equipping the employees with the knowledge and skills they need to do their job safely and efficiently. An effective safety training program not only reduces the likelihood of workplace accidents but also increases overall productivity (Dong, 2023). For example, a well-designed safety training program can significantly improve the employee's job performance. (Dong et al., 2004). It helps them understand the safety procedures in high-risk environments such as manufacturing companies (Ricci and Bracco, 2022). For this reason, many organizations view the safety education, safety training, and employee development as part of a strategy that can achieve a broader mission and vision of the organizations (Estudillo, 2025). This is because poor job performance can result from ineffective safety training, which negatively impacts the employees' ability to perform effectively in the workplace (Nuangjamnong, 2022). A study involving 458 junior non-commissioned officers (JNCOs) in the Malaysian Army found that both task contextual performance had a significant impact on overall job performance. According to their findings, 85.2% of the variance in job performance could be explained by these two factors, with task performance having a greater impact (Inderjit et al., 2021). Research on Malaysian SMEs showed that organizational factors such as lack of support, unethical climate, or perceived injustice were associated with higher incidences of counterproductive work behavior, which negatively impacted job performance (Veeriah et al., 2023).

Therefore, this study aims to examine (i) the level of safety training effectiveness (ii) the level of operators' job performance and (iii) the effect of safety training effectiveness on job performance among studied operators.

LITERATURE REVIEW

Safety Training: Measure What Matters

Safety training is the training to give the employees knowledge, skills, and technique for the safe performance of their occupations and to promote change in the employees' behavior and organizational performance about occupational safety and health (Medeiros et al., 2011). The safety training method should be tailored to the employees and consider their experience, skills, and knowledge (Bęś & Strzałkowski, 2024). Safety training and effective communication significantly reduce accidents and improve safety awareness among workers (Haslinda et al., 2016). According to Burke et al. (2006), the safety training effectiveness is defined as a training program that can improve employees' knowledge, attitudes, and behaviors toward workplace safety to reduce incidents and accidents in the place of work. Meanwhile, the safety training effectiveness is characterized by its ability to improve the safety knowledge levels among employees by promoting safe work behaviors to employees in the workplace (Ricci and Bracco, 2022).

The Kirkpatrick's Four-Level Model is a widely used framework for companies to evaluate the training programs (Reio et al., 2017). According to Reio et al. (2017), Kirkpatrick's Four-Level Model is one of the most famous and widely used evaluation models for training and development programs. According to Abdelhakim et al. (2018), the level 1 in Kirkpatrick's Four-Level Model is reaction, which measures

trainees' perceptions of a training programme. For example, the trainees' immediate reactions can be captured using end-of-course evaluation questionnaires to assess their perceived satisfaction and value of the training. Level 2 for the Kirkpatrick's Four-Level Model is learning. At this level, the participants change their attitudes, improve their knowledge, or increase their skills by attending a training programme (Kirkpatrick, 1998). Meanwhile, level 3 is the behaviour, which focuses on the behaviour change that has occurred since the participants attended a training programme (Kirkpatrick and Kirkpatrick, 2016). The last level is the result, which focuses on the organization's final training outcomes attributable to the participants attending the safety training programme. (Abdelhakim et al., 2018).

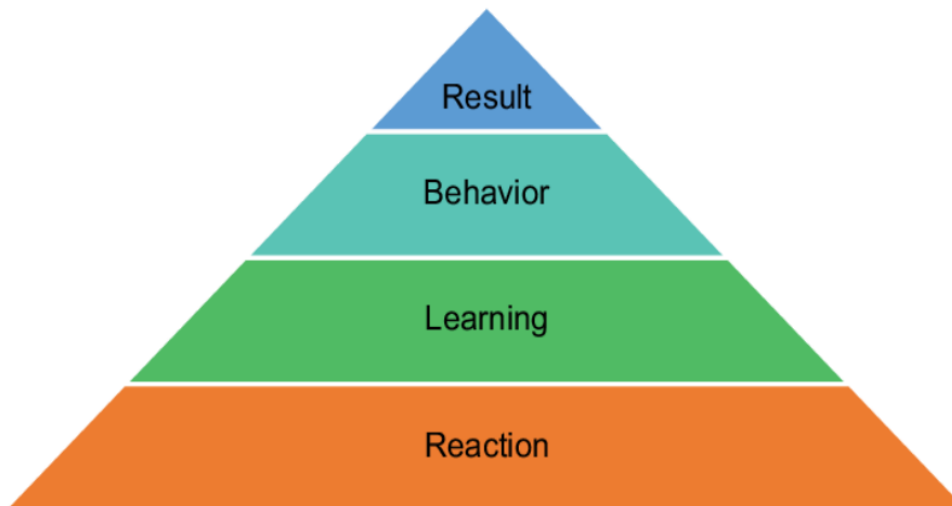


Figure 2.2: Different Levels of Kirkpatrick Pyramid (Source: Tahmasebi et al., 2020: 28)

Kirkpatrick's Four-Level Model of evaluation has 4 levels such as reaction, learning, behaviour, and result (Reio et al., 2017). For the Level 1, which is reaction, this level of evaluation considers whether the participants reacted favourably to the training or intervention (Rosmah and Arni, 2012). Level 2 in Kirkpatrick's Four-Level Model is learning, related to the learning outcomes of the training program or interventions (Reio et al., 2017). The participants acquired the intended knowledge, skills, or attitudes based on their participation in the training program. (Mwaruta et al., 2023). Moreover, the third level is behaviour, which considers the extent to which the participants altered their subsequent behaviour in other contexts after participating in the programs. The last level is the result, related to the organizational level and the longer-term outcomes anticipated (Rosmah and Arni, 2012).

From Potential to Result: Understanding Job Performance

Job performance refers to an individual's total efficacy and efficiency in carrying out their job obligations, which results in the attainment of an organizational goal (Rothwell and Lindholm, 2019). Job performance also represents behavior that employees are involved in while at work that contributes to organizational target (Campbell, 1990). The components of the job performance are contextual performance, counterproductive work behaviour, and task performance (Platania et al., 2023). According to Medina-Garrido et al. (2023), the employees who perform well are more likely to be committed to the organization. This commitment is often shown by the company that it cares about the job performance of employees. When employees receive training from the company, they will improve their job performance, resulting in higher loyalty, lower turnover, and more willingness to work harder (Medina-Garrido et al., 2023).

According to Koopmans et al. (2011), this framework was developed to address the fragmented understanding of job performance across various behaviors such as task performance, contextual performance, and counterproductive work behavior. Koopmans et al. (2011) developed a comprehensive model of individual work performance, and this model has become a foundational framework for management, occupational health, and organizational psychology to address inconsistencies in measurement and application. (Pedro et al., 2019). According to Koopmans et al. (2011), this framework emphasizes that individual job performance is a multifaceted construct influenced by various behaviors and actions. For

example, there are three dimensions, such as task performance, contextual performance, and counterproductive work behavior that were included in this framework (Koopmans et al., 2011).

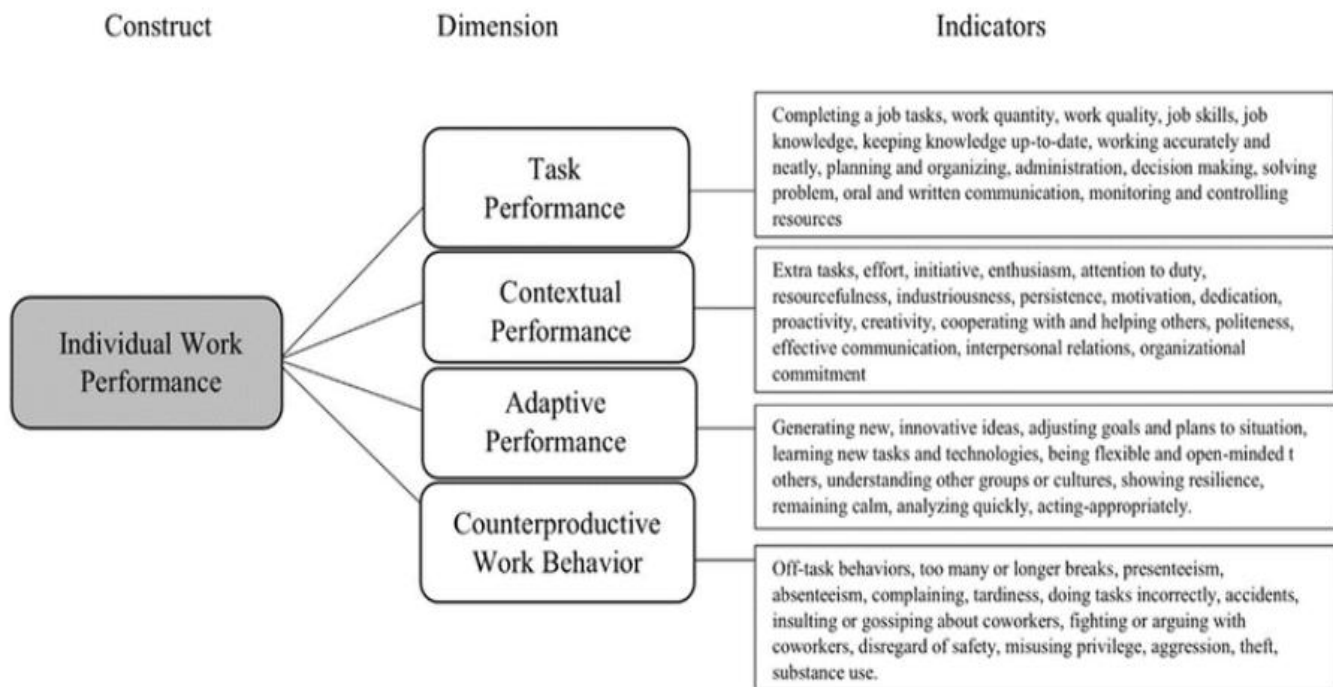


Figure 2: Heuristic Framework of Individual Work Performance (Source: Koopmans et al., 2011:863)

The dimension for the Heuristic Framework of Individual Work Performance included task performance, contextual performance, and counterproductive work behavior. These provide a structured approach to conceptualizing individual job performance to help the organizations design effective performance management systems (Koopmans et al, 2011). In addition, the framework can incorporate adaptive performance as a separate dimension, reflecting the importance of employees' ability to cope with and adapt to changes in the work environment, which is crucial to organizational resilience. The Heuristic Framework of the Individual Work Performance Model integrates positive (task performance and contextual performance) and negative (counterproductive work behavior) aspects. Thus, these dimensions of the Heuristic Framework of Individual Work Performance shows that good performance is not just about getting the job done efficiently, but also about contributing positively to the work environment and avoiding behaviors that may harm the company. Moreover, by including the adaptive performance as a potential dimension, the framework acknowledges the growing need for the employees to remain flexible and responsive to change. Overall, this framework offers the company a practical and evidence-based foundation for understanding and improving the employee performance, guiding them toward more focused training, fairer evaluations, and stronger workforce development strategies.

The Relationship Between Safety Training Effectiveness and Job Performance

Numerous empirical studies across various industries consistently demonstrate a strong and positive relationship between safety training effectiveness and job performance among the operators. Research by Bayram (2019) highlights that the safety training, competence development, and active employee participation in training programs significantly enhance the employees' capability to perform their tasks safely and efficiently. Similarly, Ricci et al. (2016) found that occupational health and safety (OSH) training contributes to positive outcomes for both employees and organizations by improving safety awareness and encouraging safer work practices. Additional evidence from Santi et al. in 2024 further supports this relationship, showing that the effective training is associated with the correct use of essential safety equipment such as Self-Contained Breathing Apparatus (SCBA) and PPE. These findings align with earlier research by Robson et al. (2012), which emphasized that integrating safety training with other interventions can enhance both safety outcomes and job performance.

Beyond training quality, personal compliance has also been identified as a key determinant of work performance, with Rosenfeld et al (2006) highlighting that adherence to safety procedures and safe work behavior is essential for achieving higher job performance levels. Collectively, these studies indicate that the well-designed and properly implemented safety training not only strengthens the employees' knowledge, skills, and safety awareness but also reduces human error and minimizes workplace incidents. Despite extensive global evidence, there remains a lack of focused research within Malaysia's manufacturing sector, particularly in southern Malaysia. Therefore, this study seeks to address this gap by examining how safety training effectiveness impacts job performance among operators at a manufacturing company located in southern Malaysia, providing valuable, context-specific insights to support safer, more productive workplaces. Thus, there is a distinct relationship between safety training effectiveness and job performance, which in turn contributes to the formation of the following hypothesis:

H1: There is a relationship between safety training effectiveness and job performance among operators at a manufacturing company located in southern Malaysia.

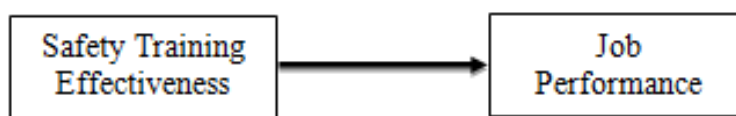


Figure 3: Conceptual Framework

RESEARCH METHODOLOGY

This study employed a quantitative correlational research design with a cross-sectional approach to examine the relationship between safety training effectiveness and job performance among 108 operators at a manufacturing company located in southern Malaysia. A simple random sampling technique was employed to obtain a sample size of 108, which aligns with the sample size recommendations of Krejcie and Morgan (1970). This approach ensured that each unit in the population had an equal probability of selection, thereby mitigating non-response bias. Data were collected through a structured questionnaire consisting of demographic information, an 11-item safety training effectiveness scale adapted from Muthu et al. (2018) measured on a 6-point Likert scale, and the 17-item Individual Work Performance Questionnaire (IWPQ) by Koopmans et al., rated on a 5-point Likert scale. A pilot test with 30 operators confirmed strong instrument reliability, with Cronbach's alpha values above 0.7. The collected data were analyzed using SPSS, where descriptive statistics summarized the variables and Pearson correlation analysis determined the strength and direction of the relationship between safety training effectiveness and job performance.

ANALYSES AND FINDINGS

Demographic Analysis

Regarding the demographic profile, the largest age group was 31-40 years, accounting for 35 workers (32.4%). This is followed by the employees aged 21-30 years, who make up 28 employees (25.9%). Meanwhile, 24 employees (22.2%) are aged 20 years and below. The 41-50 years group represents 18 workers (16.7%), while those aged 51 and above from the smallest category with 3 workers (2.8%). Subsequently, the job tenure analysis showed a workforce with many relatively new employees. 34.3% operators in the company have between one and three years of experience ($f=37$), while another 31.5% operators have been employed for less than one year ($f=34$). In contrast, 19.4% of respondents reported job tenure of 7 to 9 years ($f=21$), and 13% have worked between 4 to 6 years ($f=14$). Employees with more than 10 years of service account for only 1.9% of the total ($f=2$). In terms of gender, there is slightly more males in the workplace, making up 53.7% ($f=58$). While the female workers in the manufacturing company are only 46.3% ($f=50$). Next, Malays make up the largest group at 29.6% ($f=32$), closely followed by Chinese respondents at 28.7% ($f=31$). Indians account for 22.2% of the sample ($f=24$), while the remaining 19.4% fall into the "Others" category such as the workers come from Indonesia, Nepal and Bengal ($f=21$). As for

the qualification, the data shows that more than half of respondents (64.7%) have holding secondary school academic qualification and the remaining 18.6% possess post-secondary academic qualification.

Descriptive Analysis

Table 1: Findings on Descriptive Analysis for Safety Training Effectiveness and Job Performance

Variables	Dimensions	M	SD	Level
Safety Training Effectiveness	Safety Training (ST)	5.15	0.899	High
	Personal Compliance (PC)	5.21	0.944	High
	Overall	5.18	0.922	High
Job Performance	Task Performance (TP)	4.39	0.896	High
	Contextual Performance (CP)	4.94	0.748	High
	Counterproductive Work Behavior (CWB) (reversed score)	3.09	0.665	Moderate
	Overall	4.14	0.77	High

Note : M = Mean ; SD = Standard Deviation

Mean level (5 Likert Scale) = Low (M: 1.00 – 2.33), Moderate (M: 2.34 – 3.67), High (M: 3.68 – 5.00)

Mean level (6 Likert Scale) = Low (M: 1.00 – 3.00), Moderate (M: 3.01 – 5.00), High (M: 5.01 – 6.00)

Table 1 shows the analysis of safety training effectiveness and job performance among studied operators. As for safety training effectiveness, safety management practices are essential for ensuring a safe and healthy work environment, particularly in high-risk industries such as manufacturing. Evaluating these practices provides insight into the organization's ability to prioritize and maintain workplace safety. The overall mean score for safety training effectiveness with high perception across these two variables with mean score is 5.18, and standard deviation is 0.922. This data reflects a generally favorable level for the safety training effectiveness. It shows that respondents can effectively learn safety knowledge from the safety training. Personal compliance had the highest mean score level (M = 5.21, SD = 0.944), suggesting that employees focus on protecting themselves against the hazards when they are in the workplace. Safety training effectiveness also has a high mean score level (M = 5.15, SD = 0.899), indicating safety training effectiveness can influence the employees' working style when they complete their job scope in the workplace. The employees also have the awareness to ensure the workplace is always in the highest safety condition. Overall, the results show a positive view of safety training effectiveness with strong personal compliance. Therefore, these findings highlight that the employees possess a strong sense of safety awareness and are well-prepared to maintain a safe working environment in the company. Thus, continuous efforts to strengthen the safety training quality and sustain the employee's engagement in safety programs will further enhance the organization's overall safety performance.

Subsequently, job performance is a critical measure of how effectively an organization manages workplace safety, reflecting employee engagement, adherence to safety protocols, and proactive participation in safety initiatives. Based on Table 1, the overall mean score for job performance was 4.14, and SD= 0.770, recording the high level mean score for job performance. Task performance had the highest mean score (M = 4.39, SD = 0.896), indicating that employees are very skilled in performing their main duties. Contextual performance also had a strong result (M = 4.94, SD = 0.748), suggesting that workers actively contribute beyond their official tasks, such as assisting colleagues and supporting the workplace environment. In contrast, counterproductive work behavior was rated very low (M = 3.09, SD = 0.665), indicating that employees rarely engage in negative behaviors that might hurt performance. Overall, the results show a positive view of job performance, with strong effectiveness in task and contextual areas and minimal signs

of counterproductive actions. The results suggest that the company benefits from a motivated, responsible, and collaborative workforce that strives to maintain high performance standards.

Pearson Correlational Analysis

Table 2 shows the correlation analysis between safety training effectiveness and job performance at a manufacturing company located in southern Malaysia. The results reveal a statistically significant and positive relationship between safety training effectiveness and job performance ($r = .350^{**}$, $p = .001$). The correlation coefficient value ($r = 0.350$) indicates a moderate to strong connection, meaning that when safety training is implemented effectively, the employees generally show higher levels of job performance. The significance level of $p = .001$, strongly suggests that the observed correlation is not due to chance and thus H_1 is accepted. These safety training not only create a safer work environment to the employees but also encourage the employees to take an active role in safety initiatives and follow established procedures. Ultimately, the findings point out that ongoing safety training can significantly improve overall employees job performance.

Table 2: Coefficient Correlation between Safety Training Effectiveness and Job Performance

	r	Sig.	N	H¹
Safety Training Effectiveness and Job Performance	.350**	0.001	108	Accepted

**Correlation is significant at the 0.01 level

DISCUSSION AND RECOMMENDATION

Discussion of Findings

Level of Safety Training Effectiveness Among Operators at a Manufacturing Company in Southern Malaysia

The first objective of this study was to determine the level of safety training effectiveness among operators in a manufacturing company in southern Malaysia, assessed through a questionnaire covering two dimensions which was safety training and personal compliance. Overall, the findings showed that operators had a positive perception of safety training, viewing the sessions as well-structured, clearly organized, and effective in promoting a safe working environment, with the safety training dimension mean scores consistent with Santi et al. (2020), who emphasized the positive impact of effective training on safety behavior and compliance. Conversely, the personal compliance dimension yielded the highest mean score, suggesting that operators generally adhere to safety procedures and consistently apply them in their daily tasks. To enhance this overall mean score, the study suggests incorporating more practical, hands-on training and regular on-site coaching, supported by Shebab et al. (2021), who found such approaches effective in strengthening personal compliance and fostering a stronger safety culture in the workplace.

Level of Job Performance among Operators at a Manufacturing Company in Southern Malaysia

The second objective of this study was to identify the level of job performance among operators at a manufacturing company located in southern Malaysia. The second objective assessed across three key dimensions which were task performance, contextual performance, and counterproductive work behavior. The overall findings showed a high mean score for job performance, indicating that the operators generally carried out their duties effectively and met the organizational expectations and requirements. Task performance recorded a high mean score, demonstrating that the operators performed their core responsibilities well, a result supported by Chu et al. (2024), who noted that strong task performance could contribute to a better organizational outcomes, and by Ohemeng et al. (2021), who highlighted the positive influence of company could support on the employees' task performance. Contextual performance also achieved a high mean score, suggesting that the operators frequently engaged in positive behaviors beyond

their formal job roles, such as cooperation and creativity, which would help to maintain an efficient and supportive workplace. This is consistent with Meyers et al. (2020), who found that the organizational encouragement of the employee could enhance the engagement and contextual performance in the workplace. Conversely, the counterproductive work behavior scored low, indicating that the negative behaviors such as gossiping, disruptive actions, or spreading harmful information were uncommon among the operators in the workplace. These may align with Lee (2022) and Wax et al. (2022), who discussed the harmful impact of such behaviors on the organizational reputation and cohesion. Overall, the high job performance levels suggested that the operators were effectively fulfilling their responsibilities, supporting workplace functioning, and avoiding harmful behaviors to sustain and further enhance performance.

Relationship Between Safety Training Effectiveness and Job Performance Among Operators at a Manufacturing Company in Southern Malaysia

The findings of this study showed a significant positive relationship between safety training effectiveness and job performance among the operators in a manufacturing company in A manufacturing company located the southern region of Malaysia, indicating that the employees performed better when they received an effective and well-structured safety training. This result was consistent with the previous research by Bes and Strzalkowski (2024), Noor Arzahan et al. (2022), and Vinodkumar and Bhasi (2010), all of whom highlighted that the safety training enhanced the safety culture, strengthened the employees' knowledge, and promoted responsible work behaviors that can improve both task and contextual performance. However, the study also noted that the counterproductive work behaviors still existed and might have hindered the full impact of the safety training. These behaviors could have arisen from some factors such as fatigue, time pressure, or lack of supervision and had the potential to reduce the morale and overall performance, as supported by Yiwen and Hahn (2021). Therefore, while the safety training contributed significantly to better job performance, continuous monitoring and targeted interventions were necessary to minimize the counterproductive behaviors and sustain a positive and productive work environment.

RECOMMENDATION AND LIMITATION

Based on the findings of this research, several recommendations were proposed to help the company strengthen its safety training program and ensure that the operators were better equipped to work safely and efficiently. For example, the study suggested that the company conduct regular safety training needs assessments, as incidents often occurred when the employees were unsure of proper procedures or unaware of updated guidelines; identifying these gaps allowed the development of training modules that were more relevant to daily tasks. It was also recommended that the company incorporate more interactive and practical training methods to enhance engagement and improve the knowledge retention, along with providing some clear multilingual training materials to reduce the misinterpretation. Additionally, the study emphasized the need to increase the frequency of refresher sessions because the safety training was not a one-time event; short and regular activities like toolbox talks or quarterly briefings helped reinforce essential procedures, update the employees on recent incidents, and strengthen overall safety awareness to reduce the accidents caused by oversight or complacency.

CONCLUSION

In conclusion, this study examined the relationship between safety training effectiveness and job performance among the operators in a manufacturing company in A manufacturing company located the southern region of Malaysia, focusing on how structured safety training initiatives can influence the workplace behavior and performance outcomes. Chapter 1 outlined the study's background and objectives, which included identifying the levels of safety training effectiveness and job performance, as well as determining the relationship between them. Chapter 2 provided the theoretical foundation, drawing on Kirkpatrick's Four-Level Model to evaluate the training effectiveness and the Individual Work Performance Model by Koopmans et al. (2011) to conceptualize job performance, both of which helped explain how safety training impacts the operators' behavior and competencies. Chapter 3 detailed the quantitative research methodology, including the use of structured questionnaires, sampling procedures, and statistical

analyses such as descriptive statistics and correlation analysis. Chapter 4 presented the findings, showing that the operators perceived the safety training as effective, reported high levels of job performance, and demonstrated a significant positive correlation between the two variables. Finally, Chapter 5 offered practical recommendations, emphasizing the need for more comprehensive and interactive training programs, systematic post-training evaluation, and future research using longitudinal designs to assess long-term effects of safety training across various industrial settings.

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