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Evaluating the Effect of Safety Training on Safety Awareness among Retail Workers in Malaysia

[1]Syazwan Syah Zulkifly, [2]Nabilah Hanim Khusaini
[1, 2] (School of Business Management, Universiti Utara Malaysia, 06010 Sintok, Kedah, Malaysia)

ABSTRACT

Workplace safety is an indispensable aspect of employee well-being and organizational productivity, particularly in the retail industry where frontline workers often face an array of potential hazards including COVID-19. This paper primarily examines the role of safety training in affecting safety awareness among frontline retail industry workers in Malaysia. The study sample comprised 177 employees of a major retail chain, selected from the outlets situated in the northern region of Malaysia. Partial Least Squares Structural Equation Modelling (PLS-SEM) was employed for a thorough statistical analysis. The findings highlighted a significant effect of safety training on enhancing the safety awareness of these frontline workers. These results underscore the critical role of safety training programs in retail industry settings, and encourage additional research into ways to maximize the benefits of such initiatives. Moreover, these insights provide empirical reference to policymakers about safety training, and reinforcing the provision of training in OSHA 1994 and formulate programs to ensure employers fulfill their legal and ethical responsibilities. Furthermore, the insights derived from this study offer additional safety framework for retail businesses, thereby fostering a safer work environment for frontline staff in Malaysia and potentially worldwide."
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KEYWORDS - Occupational safety and health, safety awareness, safety training, retails, Malaysia.

1. INTRODUCTION

Safety awareness refers as the individual's intrinsic cognizance and vigilance towards issues related to safety within their workplace environment[1]. Safety awareness is pivotal in maintaining optimal safety performance [2], as it is also found to be the precursor to safety behavior [3] which directly correlates with the incidence of workplace accidents[4]–[6]. These findings is supported by a study in who also found that safety awareness influence safety behaviour in the Chinese construction industry [7]. Therefore, it is advocated that ensuring safety awareness among workers could foster safe working behaviour and furthermore decrease work-related accidents.

Workplace safety, particularly within the retail sector, has taken on heightened significance in Malaysia due to a confluence of factors. The retail industry forms an integral part of the nation's economy, employing a vast number of frontline workers. These individuals are often exposed to a range of potential occupational hazards, including physical, chemical, and biological [8]; necessitating robust safety measures and training protocols. Moreover, based on the statistics published by DOSH, a total of 107 accident cases were reported to happen in wholesale and retail sector in Malaysia for year 2022[9].

The urgency of ensuring safety in retail has been further accentuated by the global COVID-19 pandemic. Frontline retail workers are at heightened risk due to their frequent interaction with the public and the need to handle a myriad of products, potentially exposing them to the virus[10]. Moreover, the necessary measures to control the spread of the virus, including sanitization procedures, use of personal protective equipment, and social distancing guidelines, have added layers of complexity to the operational practices in retail environments.

Despite the clear mandate for employers' training responsibilities outlined in the Occupational Safety and Health Act 1994 (OSHA 1994) [11], there remains a lack of empirical evidence demonstrating the impact of safety training on enhancing safety awareness among retail employees in Malaysia.

Despite the influencing roles of safety awareness towards safety behaviour, studies determining the relationship of safety training and safety behaviour has been intensively performed [12]–[14]. Whereas, published studies determining the relationship between safety training and safety awareness are limitedly found. A study was conducted in selected Technical and Vocational Public Higher Institutions in Peninsula Malaysia, and the results revealed that safety training influence safety awareness of the teaching staff [15]. Besides, other studies were conducted at dissertation level which found the influence of safety training on safety awareness[16], [17]. Additionally, another master's dissertation determined that safety policy and safety training committed by the employers are the key factors towards the increasing the level of safety awareness among the workers [18].

From a theoretical standpoint, this study employs Cooper's Reciprocal Model, a comprehensive framework encompassing three interrelated elements essential to the successful cultivation of safety awareness. This model delineates the relationships among the individual, the work environment, and the organization at large.

In terms of individual elements, the model stipulates the necessity for personal commitment, a high level of competence, a strong foundation of safety knowledge, dedication to the organization, and job satisfaction in executing tasks. The work elements encapsulate a secure and conducive working atmosphere, safe work procedures, a healthy environment, and the operation of an effective safety and health committee.

On the organizational front, the elements comprise management's commitment to safety (evidenced through safety policies), actions taken to foster a safety culture, bidirectional communication between management and employees (which includes the active function of a safety committee), sufficient resource allocation for improving safety and health levels, and organizational preparedness in the face of emergency events.

The successful integration of these three components can effectively guide and nurture safety awareness. Cooper's Reciprocal Model, as depicted in Fig. 1, offers a comprehensive overview of these interconnected elements.

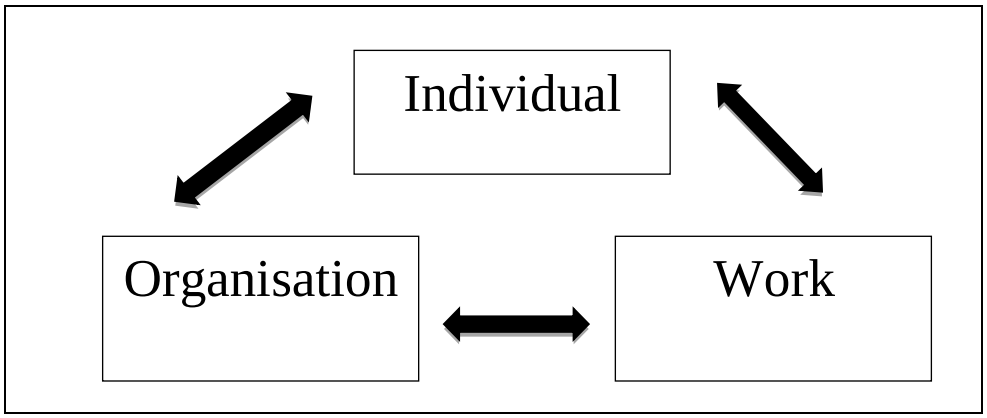

Figure 1: Cooper Reciprocal Model

2. METHOD

This study is a hypothesis testing quantitative research applying a cross-sectional design. A self-administered questionnaire and the items representing the independent and dependent variables were constructed based on previous researches. Subsequently, descriptive and inferential analyses were performed to determine the relationship between the independent variable and the dependent variable.

2.1 Research Framework

Research framework is a collection of interrelated concepts and shows the relations between the independent variables and the dependent variable [19]. Dependent variable, also known as outcome variable can be predicted and explained. This research framework is adapted from previous studies [3], [15].

Figure 2: Research Framework

As depicted in Fig. 2, 'safety training' was the independent variables whilst the dependent variable was safety awareness. Based on the research framework, the alternative hypotheses of the research have been developed as follows:

H_a: There is a significant effect of safety training on safety awareness among the frontline retail workers.

2.2 Sampling Design, Population & Sample Size

The population for this study comprised retail employees working across the various outlets of Retail Company X, located within the states of Perlis and Kedah. To ascertain the optimal sample size for this research, we employed the calculation methodology recommended by Tabachnick and Fidell[20]. The choice of this formula was driven by its straightforwardness and user-friendliness, thereby simplifying the researcher's task of retaining and applying the formula. Upon application of this formula, the study necessitated a minimum of 82 respondents for effective implementation. Remarkably, a total of 177 respondents participated, thereby enhancing the overall reliability and validity of the obtained results significantly [19].

2.3 Research Instrument

A self-administered questionnaire, encompassing items to gauge both the dependent and independent variables, was devised to function as the main research tool. All elements within this questionnaire were structured on a Likert scale, ranging from 1 (indicating strong disagreement) to 5 (representing strong agreement), a design adapted from previous studies [3], [12]. The questionnaire is segmented into three sections: A) Respondent Background, B) Safety Training, and C) Safety Awareness.

2.4 Pilot Test

In obtaining the content validity, the questionnaire's draft was distributed to experts of occupational safety and health and business management to be reviewed and commented. Their feedback and recommendations were incorporated to ensure that the tool accurately captures the essence of the constructs it is designed to measure. For the reliability of the questionnaire, a pilot study has been conducted involving 30 retail staff. The purposes of the pilot testing were to determine whether the questionnaire was reliable, clear and conveys the same meaning to all respondents; to determine whether the questionnaire items were properly designed and in the right sequence; to determine the length and time needed to complete the questionnaire; and to determine whether the language used was appropriate and acceptable by the respondents. The results of the pilot study are as follow:

Table 1: Reliability (Pilot) Study

Variables	Number of items	Cronbach's alpha
Safety Awareness	4	0.716
Safety Training	4	0.749

Based on alpha value determined, the instrument could be accepted as the value was greater than 0.6 [21]. Thus, it could be said that the instrument for this research is reliable and all of the items possessed internal consistency.

2.5 Data Analyses

The data collected for this research would then be analyse using the Partial Least Square-Structural Equation Model (PLS-SEM). In PLS-SEM, first, measurement model is tested to determine its construct and discriminant validity. Secondly, structural model was evaluated for hypothesis testing.

3. RESULTS AND DISCUSSIONS

This section presented the result of the study.

3.1 Test of Measurement Model

The first stage evaluated the reliability and validity of the measurement model, which involved assessing the individual item reliabilities, convergent validity, and discriminant validity. Individual item reliabilities were assessed by examining the outer loadings of the indicator variables. A commonly accepted threshold for outer loadings is 0.7, although items with loadings above 0.4 are also considered acceptable if they contribute to the composite reliability and average variance extracted (AVE) of the construct[22]. In addition, convergent validity, which is the degree to which multiple items to measure the same concept are in agreement, was checked through the composite reliability and AVE. Composite reliability values should ideally exceed 0.7, and AVE values should be greater than 0.5, for each construct [22]. By applying PLS Algorithms analysis, the AVE

for safety training did not meet the minimum criteria of 0.5. Henceforth, one of the items measuring safety training has been deleted. Subsequently, the measurement model was re-evaluated and the convergent validity results are portrayed as Table 2.

Table 2: Convergent Validity

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Safety Awareness	0.775	0.846	0.527
Safety Training	0.447	0.709	0.536

Furthermore, discriminant validity, which refers to the degree to which items differentiate among constructs or measure distinctly different concepts, was evaluated the heterotrait-monotrait ratio of correlations (HTMT). The HTMT ration values should be less than 0.9 [23]. The results are as illustrated in Table 3.

Table 3: Discriminant Validity (HTMT Ratio)

	Safety Awareness	Safety Training
Safety Awareness		
Safety Training	0.748	

In addition, the measurement model evaluation is also as depicted in Figure 2.

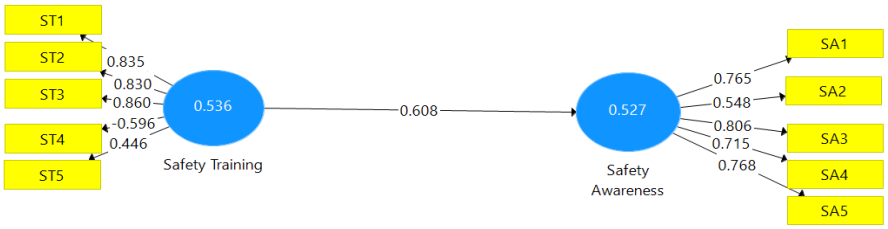

Figure 2. Measurement Model

3.2 Test of Structural Model (Hypothesis Testing)

The second stage involved assessing the structural model, which included examining the path coefficients, significance levels, f^2 and R^2 values. This helped determine the relationships between the constructs and the explained variance of the endogenous variables. First, the R^2 value is as summarized in Table 4.

Table 4: R^2 and f^2

	R Square	***f* Square**
Safety Training -> Safety Awareness	0.369	0.586

In the current study, the structural model analysis using Partial Least Squares Structural Equation Modeling (PLS-SEM) yielded an R-squared (R^2) value of 0.369. This implies that approximately 36.9% of the variance in the dependent variable, safety awareness, is explained by the independent variable, safety training. While this value may not appear particularly high, it is essential to consider the context and the complexity of human behavior and perceptions. In social sciences research, an R^2 value in this range is fairly common and can be considered moderately explanatory.

In addition to the R^2 value, the effect size (f^2) was calculated to determine the magnitude of the observed relationship. The resulting f^2 value was 0.586. According to Cohen's guidelines [24], an f^2 value of 0.02 is considered a small effect, 0.15 represents a medium effect, and 0.35 constitutes a large effect. Thus, the obtained f^2 value of 0.586 suggests a large effect size, indicating that safety training has a substantial impact on safety awareness among the frontline workers of the retail company under study.

These findings underscore the significance of safety training in enhancing safety awareness, thus contributing to the broader understanding of occupational safety in the retail sector. The demonstrated effect size can offer valuable insights for policymakers and company management in shaping effective safety training strategies.

Table 5: Path Coefficient

	β	T Statistics	P Values
Safety Training -> Safety Awareness	0.608	13.331	**0.000**

Table 5 presents the results of the structural model analysis, specifically focusing on the path coefficient between safety training (the independent variable) and safety awareness (the dependent variable). The path coefficient, represented by β, is 0.608. This value can be interpreted as the strength of the relationship between safety training and safety awareness. A path coefficient of 0.608 suggests a strong, positive relationship, indicating that an increase in safety training is associated with a substantial increase in safety awareness[25].

The T-statistics value, which is used to determine the significance of the path coefficient, is 13.331. A rule of thumb in social science research is that a T-statistics value above 1.96 (at the 5% significance level) or above 2.58 (at the 1% significance level) is considered significant. Therefore, a T-statistics value of 13.331 is highly significant, suggesting that the observed relationship between safety training and safety awareness is not due to random chance.

The P value is another measure of statistical significance. When P value less than 0.05, it is generally considered significant. In this study, the P value is 0.000, which is far below the 0.05 threshold. This implies a strong degree of confidence in the observed relationship between safety training and safety awareness, reaffirming that this relationship is statistically significant [21]. Henceforth, this results also supported the hypothesis of this study.

Taken together, these results provide robust evidence that safety training has a statistically significant and substantial positive effect on safety awareness among the frontline workers of the retail company under study.

This study sheds light on the consequential relationship between safety training and safety awareness among frontline retail workers. The statistical analyses reveal a robust and positive correlation between these two variables, as evidenced by a path coefficient of 0.608. This result amplifies the role of structured safety training in fostering heightened safety awareness, corroborating the extensive body of literature underscoring the importance of training in cultivating a robust safety culture, especially in industries with a high rate of employee turnover and diverse risk levels like retail.

The statistical significance of this relationship is evident with a substantial t-statistics value of 13.331 and a p-value of 0.000. This significance attests to the notion that safety training investment is not just a matter of regulatory compliance but yields tangible benefits in enhancing frontline worker's safety awareness. This underscores the importance of aligning safety training with regulatory requirements and organisational goals to leverage its benefits fully.

The large effect size of 0.586 further cements the practical implications of these findings, demonstrating that safety training can affect a substantial enhancement in safety awareness. This outcome can guide policymakers and employers in appreciating the efficacy of safety training, indicating that diligent investment in this area can potentially yield a safer working environment, better regulatory compliance, and overall enhancement of the occupational safety culture.

Figure 3 depicted the Structural Model Evaluation.

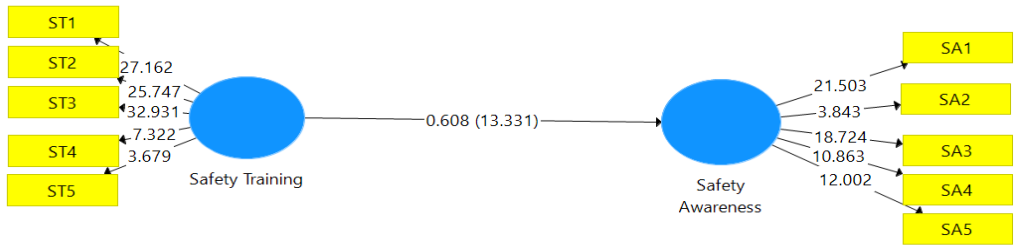

Figure 3. Structural Model

3.3 Respondents' Demographic Profiles

Table 6 provides a demographic breakdown of the survey participants.

In the age category, the most substantial segment of respondents (81 or 45.8%) is within the 25-29 years old range. The second significant age group is those between 19-24 years old, with 64 respondents or 36.2% of the sample. The smallest group consists of those above 30 years old, represented by 32 respondents or 18.1% of the total sample.

Gender distribution reveals a higher representation of males, with 106 respondents (59.9%), compared to females who count 71 respondents (40.1%).

Regarding marital status, single respondents form the majority, with 108 or 61.0%. Those who are married constitute the next significant group, accounting for 64 respondents or 36.2% of the total. Only a minor segment of the sample, represented by 5 respondents (2.8%), identified as either divorced or widowed.

As for education level, the SPM holders form the majority with 102 respondents (57.6%). This is followed by diploma holders with 30 respondents or 16.0%, and degree holders and above with 22 respondents or 12.4%. The STPM/Matriculation completed respondents accounted for 9.6% (17 respondents), and a small segment of respondents (6 or 3.5%) was classified under 'others' in the education level.

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Table 6: Demographics Background of Respondents

		Frequencies	Percentage
Age	19-24 Years Old	64	36.2
	25-29 Years Old	81	45.8
	Above 30 Years Old	32	18.1
Gender	Male	106	59.9
	Female	71	40.1
Marital Status	Single	108	61.0
	Married	64	36.2
	Divorced/Widowed	5	2.8
Education	SPM	102	57.6
	STPM/Matriculation	17	9.6
	Diploma	30	16.0
	Degree and above	22	12.4
	Others	6	3.5

4. CONCLUSION

This study brings to the fore the significant impact of safety training on enhancing safety awareness among frontline retail workers. The empirical results, backed by robust statistical analyses, underscore the importance of well-structured and relevant safety training as a key catalyst in developing a heightened safety culture in retail environments.

The research indicates that safety training is not just a regulatory requirement but serves as a practical tool for improving safety awareness, emphasizing that investment in this area can yield a safer working environment and better regulatory compliance. The large effect size further reinforces the practical implications, indicating that a conscientious approach to safety training can lead to substantial improvements in safety awareness.

In light of these findings, businesses, particularly those in the retail sector, are encouraged to invest further in comprehensive and ongoing safety training programs. Policymakers should also take note of these results to bolster the emphasis on safety training in regulatory frameworks. This will ultimately lead to safer workplaces and improved compliance with occupational safety standards, significantly contributing to the broader goal of ensuring employee safety and wellbeing.

While this research offers significant insights, it also highlights potential avenues for future research. For instance, exploring how factors such as worker demographics, organizational culture, or the nature of the retail environment influence the effectiveness of safety training could yield more nuanced understanding.

In conclusion, this study underscores the need for, and benefits of, safety training in the retail sector - a crucial finding that has far-reaching implications for business practices, policy-making, and the broader discourse on occupational safety and health.

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