

Theorem Proposition on Personal Risk Awareness among Employees at MISC Berhad, Kuala Lumpur

Noraznira Abd Razak, Najihah Hanisah
Marmaya, Siti Nurul Aini Mohd Rodzi, Melissa
Wee, Aina Syafiqqa Abd Razak
Faculty of Business Management
Universiti Teknologi MARA
Cawangan Melaka, Kampus Bandaraya, Melaka
Malaysia
noraznira@melaka.uitm.edu.my

Noor Junaini Arwin Yaacob
Faculty of Business Management,
Universiti Teknologi MARA
Cawangan Pahang, Kampus Raub, Malaysia

Faizah Mashahadi
Faculty of Business Management,
Universiti Teknologi MARA
Cawangan Selangor, Kampus Puncak Alam
Malaysia

Abstract— Workplace safety is a personal risk where it will directly affect individuals. It can cause harm to individual's life which leads to loss and increases in expense, which in this study researchers focus specifically towards the employees. Workplace safety is related to industrial accident rates whereby employees might consider their work as safe since they tend to be in less accidents than employees who are prone to higher risk of such incidents. Employees with unsafe workplace have higher levels of job-related anxiety, stress and higher exposure to environmental hazards. The purpose of this study is to determine factors that influence levels of awareness towards personal risk among employees at MISC Berhad, Kuala Lumpur. Specifically in this study, researchers use job safety, co-worker safety and management, safety practices as factors that influence levels of awareness towards personal risk. Quantitative data were collected through valid survey questionnaires which were distributed to respondents from MISC Berhad. The results revealed on possible factors contributing towards the awareness of personal risk among MISC staff.

Keywords— *personal risk, awareness, risk management, workplace safety, hazards*

I. INTRODUCTION

The total number of employees' fatalities and injuries increase over the years. In Canada, 2008, the Association of Workers Compensation Boards of Canada estimated that there will be at least 3 occupational fatalities every day for the year 2008 and they also estimated that at least one employee out of 13,805 employees died from occupational injuries. In 2010, according to the "Number of Fatalities, by jurisdiction 1993 to 2010" statistics from the Association of Workers' Compensation Board of Canada, a total of 1014 workplace deaths were

recorded in Canada which the number increase by 939 deaths to compare from 2009.

Likewise in Malaysia, the number of fatalities due to occupational fatalities increases over the years too. Based from the Department of Occupational Safety and Health's (DOSH) statistics, for the year 2013, 191 deaths occupational fatalities was recorded, followed by 207 deaths in the year 2014, 214 deaths for the year 2015 and 152 deaths were recorded until September 2016 [1]. The purpose of this study is to determine factors that influence level of awareness towards personal risk among employees at MISC Berhad, Kuala Lumpur. There are several factors that influence the level of awareness towards personal risk. In this study, researcher used job safety, co-worker safety and management safety practices as factors that influence level of awareness towards personal risk. This study is also conducted to determine the relationship of the dependent variable with the independent variables, which is to determine the relationship between job safety, co-worker safety and management safety practices with awareness towards personal risk.

Workplace safety is about preventing injury and illness to employees in the workplace. It is about protecting the non-profit most valuable asset, which refers to the organization's employees[2]. By protecting the employees, this will reduce the amount of money paid out for health benefits, employees' compensation and the cost of wages or salaries for temporary or replacements. It also saves the cost of lost-work hours, time spend in orienting temporary help, programs and services that may suffer due to fewer service providers, stress on those providers who are picking up the absent workers' share or worse case, having to suspend or shut down a program due to lack of employees. However, the MISC's Fatality Rate (FAR) has

reached an alarming level with 8 fatalities till the end of August 2016. The FAR is at 3.37, far exceeding the industry average of 1.30. From the investigation conducted of the incidents, it is very clear that the incidents are avoidable if the safety standard and procedures are properly followed by the employees.

According to OSHA (Occupational Safety and Health Administration), work-related injury and illness prevention can be categorized into three (3) groups and they are engineering controls, administrative controls and personal protective equipments controls. Awareness is important to eliminate workplace injuries, illness and fatalities in the future to help improve health and safety outcomes towards employees. Thus, this research intends to investigate the level of awareness among employees towards personal risk at MISC Berhad. In order to investigate and understand better about awareness towards personal risk among employees at MISC Berhad, Kuala Lumpur and its relationship with job safety, co-worker safety and management safety practice. This research framework provides an understanding way whether independent variables which refers to job safety, co-worker safety and management safety has significant relationship with awareness towards personal risk among employees at MISC Berhad, Kuala Lumpur. The research framework of this study is adopted from combination of theory on safety awareness [3] and competency [4] altogether. Under the research model, job safety in this research focuses on the perception of employees towards their job such as safe and comfortable environment which influence the awareness towards personal risk. Moreover, for co-worker safety, in this research it focuses on the perception of employees towards co-workers' safety for example, whether the co-worker follows the safety rules and whether the co-worker cares about others' safety. On the other hand, management safety practice in this study focuses on the perception of employees towards safety practices provided by management such as safety training and safety inspections which also influence the awareness towards personal risk. Thus, it is hypothesized that;

H1: There is a positive relationship between job safety with awareness towards personal risk among employees

H2: There is a positive relationship between co-worker safety with awareness towards personal risk among employees

H3: There is a positive relationship between management safety practices with awareness towards personal risk among employees

II. RESEARCH METHODOLOGY

A. Participants

This research was conducted under non-contrived setting at MISC Berhad, Kuala Lumpur and the research population is based on the number of employees from all races and positions at MISC Berhad, Kuala Lumpur. For this research, the sample is 100 employees among MISC Berhad, Kuala Lumpur, however only 80 questionnaires were returned. The researcher uses convenience technique since the researcher is unable to distribute questionnaires to every employee at the department due to employee's pack schedules and tasks. Therefore, questionnaires are distributed to employees who are

conveniently available to answer the self-administered questionnaires.

A. Procedure

Structural Equation Modelling (SEM) is a statistical technique that simultaneously tests and estimates causal relationships between independent and dependent constructs. SEM is considered to be the second generation of multivariate analysis [5]. It is different from the first generation techniques, such as factor analysis and multiple regressions, as it allows researchers to consider the relationships among multiple independent and dependent constructs simultaneously. SEM offers a comprehensive and systematic analysis that helps researchers to answer a set of interrelated research questions [6].

Two major approaches to SEM are currently available for researchers: covariance-based SEM (CBSEM) and component-based approaches such as Partial Least Squares (PLS). SmartPLS V3 is used to perform data analyses in this research for several reasons. First, the focus of this study is to examine the impact of firm resources and enterprise risk management process on firm performance. PLS is used to maximise the explained variance in the dependent constructs and evaluate the data quality of the measurement model characteristics [7]. As stressed by [8], PLS is primarily intended for causal-predictive analysis. Given that the purpose of this study is to predict the significance of the relationships between job safety, co-worker safety and management safety practices towards awareness on personal risk, PLS is deemed appropriate.

III. FINDING AND DISCUSSION

From the sample, there are 25 male respondents with 31.2% while the remaining 68.8% represents 55 female respondents. In addition, there are only 5 respondents from the age of 18 to 25 with 6.3%, for the age 26 to 33 and above 50 it have the same value of 11.3%. There are 22 respondents age 44 to 41 with 27.5% and follows by respondents with age 42 to 49 with 43.8%. Furthermore, in terms of marital status mostly the respondents are married since there are 56 of them which represents 70%, follows by 20 single respondents with 25% and remaining 2.5% each for both widowed and divorced respondents. For working experience in MISC Berhad, 52 respondents have worked for MISC Berhad for more than 11

years which represent 65% then there are 19 respondents worked for MISC Berhad for 7 to 10 years with 23.8%. There are 5 respondents whom work for less than 3 years and lastly, only 4 respondents' works from 4 to 6 years at MISC Berhad, Kuala Lumpur.

Indicator Reliability of the measurement model is measured by examining the items loadings. Researchers propose that at least 50 percent of indicator variance should be explained by the latent variable they measure (Henseler et al., 2009). According to Chin (1998), indicator loadings should be significant at the 0.05 level and greater than 0.7.

TABLE I. ASSESSMENT ON REFLECTIVE MEASUREMENT MODEL

Latent Variable	Indicators	Outer Loadings	T-Value	Composite Reliability	Average Variance Extracted
job safety	b1	0.767	14.458**	0.913	0.639
	b2	0.829	19.311**		
	b3	0.685	9.426**		
	b4	0.903	41.490**		
	b5	0.815	12.772**		
	b6	0.781	10.486**		
co-worker safety	c1	0.806	13.064**	0.957	0.787
	c2	0.912	43.353**		
	c3	0.873	29.910**		
	c4	0.898	29.317**		
	c5	0.936	57.681**		
	c6	0.894	35.406**		
management safety practices	d1	0.896	38.921**	0.913	0.639
	d2	0.846	25.422**		
	d3	0.926	46.658**		
	d4	0.804	12.579**		
	d5	0.917	41.267**		
	d6	0.898	26.244**		
	d7	0.835	19.539**		
awareness on personal risk	e1	0.850	20.276**	0.958	0.767
	e2	0.906	41.108**		
	e3	0.858	30.316**		
	e4	0.895	32.019**		
	e5	0.707	7.632**		

^a. t-values > 1.645 (p < 0.05);

^b. t-values > 2.33 (p < 0.01) (one-tailed test)

It can be seen from table 1 that all the items have individual indicator reliability values that are much larger than the minimum acceptable level of 0.5 which demonstrated that reflective measurement model in this study has demonstrated satisfactory indicator reliability. All item loadings are greater than 0.50 and significant at the 0.01 level, indicating convergent validity at the indicator level. All AVE for each reflective construct have values that greater than 0.50, suggesting convergent validity at the construct level. All CR values that are greater than 0.70, indicate an acceptable reliability. Thus, the results indicate that the items used to represent the constructs have satisfactory internal consistency reliability.

TABLE II. DISCRIMINANT VALIDITY OF CONSTRUCTS

Latent variable	Awareness	Co-worker safety	Job safety	Mgt safety practices
Awareness	0.639	0.165	0.165	0.165
Co-worker safety	0.711	0.787	0.165	0.165
Job safety	0.738	0.781	0.913	0.165
Mgt safety practices	0.774	0.690	0.769	0.639

^c Diagonals (in bold) represent the average variance extracted while the other entries represent the squared correlations

The bolded elements in Table 2 represent the square roots of the AVE and non-bolded values represent the intercorrelation value between constructs. Based on table 2, all off-diagonal elements are lower than square roots of AVE (bolded on the diagonal). Hence, the result confirmed that the Fornell and Larcker's criterion is met, indicating the adequate discriminant validity for all of the reflective constructs. An additional analysis

is also included under SmartPLS latest version which is known as Heterotrait-Monotrait Ratio (HTMT). If the HTMT value is greater than 0.85 [9], then there is a problem in the discriminant validity. Table 3 shows the HTMT results indicate the value for each LVs significantly below 0.85, therefore, discriminant validity has been established.

TABLE III. TABLE 3 HETERO TRAIT-MONOTRAIT RATIO (HTMT)

Latent Variable	Awareness	Co-Worker Safety	Job Safety	Mgt Safety Practices
Awareness	0.846			
Co-Worker Safety	0.663	0.887		
Job Safety	0.663	0.714	0.799	
Mgt Safety Practices	0.729	0.660	0.715	0.876

The next step after validating the measurement models is to examine the structural model. The path coefficient (β) between the latent variables is an important criterion for assessing the predictive power of the structural model. The significance can be determined by employing re-sampling techniques, such as bootstrapping [10], which provides t-test results for all path coefficients. The values of path coefficients (β) and significance of the path (t-value) are shown in Table 4.

Hypothesis	Path coefficient	Standard error	T-value	Results
Co-worker safety -> awareness on personal risk	0.252	0.252	2.34*	Supported
Job safety -> awareness on personal risk	0.165	0.176	1.28	Not supported
Management safety practices -> awareness on personal risk	0.444	0.435	3.93**	Supported

TABLE IV. ASSESSMENT ON STRUCTURAL MODEL

^d Note: -t-values > 1.645 (p < 0.05); +-t-values > 2.33 (p < 0.01) (one-tailed test)

The path coefficient between co-worker safety, job safety and management safety practice towards personal risk awareness is comprised of mixed results, with co-worker safety has $\beta = 0.252$ and significant with t-value= 2.34 at p<0.01. Similarly, the path coefficient between management safety practices is also in a positive and significant manner with $\beta = 0.444$ and t-value = 3.93. As a result, hypothesis H2 and hypothesis H3 are supported. However, the path coefficient between job safety and awareness on personal risk is weak at $\beta = 0.165$ and t-value = 1.28. As a result, hypothesis H1 is not supported. Within the structural model, each path connecting two latent variables represented a hypothesis. Based on the analysis conducted on the structural model, it allows the researcher to confirm or disconfirm each hypothesis as well as understand the strength of the relationship between dependent and independent variables. Using the SmartPLS algorithm output, the relationships between independent and dependent variables were examined. From the analysis, supported hypotheses are significant at least at the level of 0.05 with t-value of >1.645, have expected sign directions (i.e., positive) and consist of a path coefficient value (β) ranging from 0.165 to 0.444. Figure 1 shows that job safety, co-worker safety,

management safety practices explains 60.1 % of the variance in awareness on personal risks, with $R^2 = 0.601$, which is considered as substantial. According to [11], R^2 values are substantial when the endogenous latent variables (LV) are explained by most of the exogenous LVs.

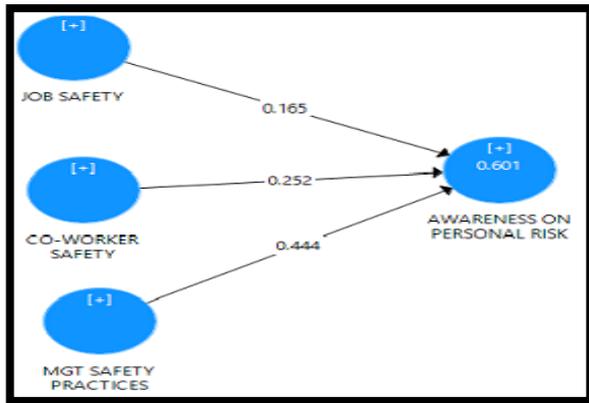


Fig. 1. Figure 1 Assessment on the R^2

Predictive Relevance (Q^2) of structural models can be evaluated using the Stone-Geisser test [12] [13], which tests the model's ability to predict [14]. the predictive relevance

(Q^2) of ERM has a value of 0.383 which is more than >0 . It indicates that the model has a medium predictive relevance for this construct. The results of the path coefficient between the constructs and the predictive relevance (Q^2) in the structural model LVs demonstrate the predictive power of the structural model.

IV. CONCLUSION AND RECOMMENDATION

Based on the findings, it shows that job safety factor does not influence the awareness of employees towards personal risk at MISC Berhad, Kuala Lumpur. According to [15], the influence of job safety at workplace decreases over time as the progress of a job or project coming to an end. Thus, that might lead to the weak relationship between job safety and personal risk awareness as the personal attachment is not there. On the other hand, co-worker has a significant relationship with awareness among employees towards personal risk. This is because employees' safety behaviour is very sensitive towards the influence of co-worker instead of personal characteristics [16]. Management safety practices have a significant relationship with awareness towards personal risk which proved that appropriate management safety practices can lead to a good safety performance and helps to avoid safety issues at workplace [17].

Hence, it is recommended that improvements crucially needed to ensure the safety of employees at MISC Berhad, Kuala Lumpur. Firstly, organization should reward employees for safe behaviour, this is because reward is an easy way to encourage workplace safety and by giving out small rewards to employees who follow safety policies keeps them engaged which can make a big difference in reducing workplace injuries. Recognition and reward for a job well done fulfil a basic human need for acknowledgement and affirmation. Then, when organization recognized employees' contribution, employees will engage at a

higher level and will contribute more in improving workplace safety. Next, employees need to keep the workplace clean.

A messy workplace can lead to unnecessary accidents. The employee needs to make sure boxes are stacked properly and spills are cleaned quickly.

For example, based from researcher observation, employees at MISC Berhad are too dependable on the cleaners to clean up the workplace, so instead of waiting for cleaners to clean up the place, employees should take the initiative to clean the mess first hand before the mess can cause injuries. Besides that, employees are encouraged to take stretch breaks where employees should spend at least five (5) minutes stretching to ease muscle tense and loosen stiff joints. This can improve workplace efficiency and able to reduce the potential repetitive motion injuries such as eye strain and back ache.

Co-workers have a great influence in workplace safety, so in order to improve workplace safety co-worker should keep an open dialogue. Employees are closer to other employees to compare to supervisors, so employees tend to talk more to other employees regarding safety and health concerns. Co-workers can also report hazards right away when they identify potential hazards that employees may not noticed. Employees should appoint safety captain in the department so he or she can communicate and take actions regarding safety and health concerns. For example, organization should make sure that there will be at least one (1) employee in charge in managing safety in each level of the building. In addition, organization should have regular meetings to discuss regarding workplace safety. Regular meetings on safety rules and the preventions can keep workplace safe where employees can take immediate actions when an accident occurs. For example, MISC Berhad only held safety discussion when accidents occurred at the workplace, the organization should held safety discussion on a regular basis since risk changes overtime and some rules are no longer compatible and new rules need to be implemented to prevent further injuries at workplace.

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