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IMPACT OF SAFETY MANAGEMENT PRACTICES
ENFORCEMENT TOWARD EMPLOYEE SAFETY IN
CONSTRUCTION INDUSTRY

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Abstract

Safety at work is one of the key issues in many organizations. This is because accidents and injuries in the workplace can cost the organization financially and non-financially. The objective of the paper is to identify the influences of management practice towards employee safety in the construction sector. Data were collected using survey method. Survey was conducted in a construction company in Johor. Stratified sampling techniques were use in order to collect the sample for this study. Data is analyzes using Partial Least Square (PLS) 3.0 and Structural Equation Model (SEM). The results indicates that, four items in management practice, which is reward, training, management commitment and communication and feedback could influence towards improving employee safety. The findings, could help the construction industry in reducing injury rates and increases their company productivity. However, there are still limitations in this study that need to be overcome. A comprehensive study must be done to study the unique needs of construction industry in dealing with safety management practice.

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1. Introduction

As Malaysia aspires to become a developed nation by 2020, reducing workplace accidents is one of the key employment concerns it aims to address. Preserving the safety, health, and welfare of people and protecting human and capital resources in the workplace are vital for a firm's success (Reynolds, 2011). Management practices involve decisions, actions and resource allocations to empower the professional services to meet the goals of the organization. According to Dorji and Hadikusumo (2006), the study on management practices that involves construction sector clarified that the safety strategy is a composed explanation about standards with objectives in which it can exhibit top managements dedication to ensure the safe working techniques and territory at the development destinations (Keng & Razak, 2014). Management practices have remained referred to as imperative parts of safety lists (Vredenburg, 2002). There are six management practices every now and again which are; incorporated into safety programs such as *rewards system, safety training, management commitment, communication and feedback, selection, and also worker participation* which contributed to a safe work situation among construction site workers (Vredenburg, 2002).

1.1. Reward system

A suitable and fine reward structure that concentrate on rewarding workers and their teams will help as a main pushing force for workers to have elevated performance for reason to finish up achieving the organizational goals and purposes (Njanja, 2013). Rewarding should not just be applied to individual workers within the organization but also to teams that perform excellently. Motivating forces for good behavior usually enhance the relationship between the workers and high management because workers feel that they are being appreciated for their endeavors and incredible work. This prompts expanded employee morale, better customer care and in addition expanded profitability (Njanja, 2013).

1.2. Safety training

Safety training is any attempt to enhance performance on task that is the responsibility. Training should be designed to accomplish the objectives of the organization, which in the meantime additionally to understand the targets of the individual worker (Mangkunegara, 2015). Tam and Ivan (2010) had identified safety training as one of the four most effective components of a safety programme. Organizations can improve workers safety behavior via keeping them aware of health and safety practices through seminars, workshops, training on the job among others (Mearns, Hope, Ford & Tetrick, 2010).

1.3. Management commitment

Management commitment is a specific and critical component of safety climate, which refers to workers' perceptions of the degree to which their managers value and support safe working and are dedicated to workers' safety. As mentioned, management commitment to safety predicts worker job-related safety behaviors and incidents/injuries (Beus, Payne, Bergman, & Arthur, 2010; Clarke, 2010).

1.4. Communication and feedback.

Bentley and Haslam (2001) has recognized that safety communication amongst managers and workers as one of five necessary management safety practices, which differentiated between high and low accident percentage postal workplaces. Stajkovic and Luthans (2003) also indicated that supervisory feedback and recognition were amongst the most powerful incentives influencing job performance.

Bhoganadam (2015), define *selection* as separating the aggregate occupation candidates into two classes as chose and not chose. Selection procedure will be protracted for extensive associations and will be more extensive for manufacturing organizations and it varies from one industry to other (Jha, Bhattacharyya & Gaiha, 2011). According to Seixas, Blecker, Camp, & Neitzel, (2008), companies also start to realize that the proper selection of employees can have any kind of effect through their employment execution.

1.5. Worker participation

Worker participation is a vital factor in the organization safety program used to reduce injuries and accidents (Vinodkumar & Bhasi, 2010). Worker participation is the extent employees could influence and control OHS management issues at the workplace (Masso, 2015).

2. Problem Statement

Nowadays, construction activities may lead to the development of a successful economic growth for our countries. However, almost every day, we could see that there is a lot of news and newspaper articles regarding the issue of accidents occurred in the construction industry (DOSH, 2015). The accidents also involved a high number of mortality among construction site workers. Rendering to Department of Occupational Safety and Health (DOSH, 2015) injury rates in construction sites sector is increasing every year.

The construction sector consumes familiar by way of a standout amongst the riskiest industries compared to many other industries in the world. Security at work is a multifaceted phenomenon and become a particular range of study. This remains because industrial safety consumes experienced vital changes over the previous time. Still, the construction sector remains remarkable by way of it remains to record a high percentage of accident associated casualties (Chong, 2014). Construction employees who put a great effort inside the construction site appears to face a bigger menace of death compared to other workforces in other manufacturing (Chong, 2014).

Besides, according to The SUNDAILY on 30 June 2015, as 3.021 of the 92.5% construction locations investigated by the Department of Occupational Safety and Health (DOSH) in this current year for the five months, ensured not consent with the authoritative rule sets. Inside the same time allotment, DOSH had dispensed 2.797 observes, 72 compounds then carried 63 cases to law court. Human Resources Minister Richard Riot Anak Jaem said that initial investigations showed there were various safety and security offences committed. The absence of a site security supervisor, inappropriate support structures and presumably there might be an issue as far as the amount of building materials utilized. Therefore, this study is conducted in order to identify which management practice variable could increases employee safety.

3. Research Questions

1. Which of the six variables in management practice could increase employee safety?

4. Purpose of the Study

The findings of this analysis resolve redound towards the benefit of the employee's effectiveness of management practices considering that management practices play an important role in employee safety at construction site today. This study will be a significant endeavor in promoting safe work environment in the workplace and safety of its employees. Management practices stands clear as the placement of an all-inclusive system that enhances the growth of an organization's knowledge. Besides, construction sector is a critical sector around the world, as far as its commitment to employment, regional and national economies. However, construction employee is prone to several types of injury inducing risks. Inadequate construction safety and related fatal and nonfatal industrial injuries consume been reported in numerous studies far and wide. The common construction death were caused by falls from height, being struck by moving automobiles or dropping objects (Lehtola, 2008). Therefore, with end goal toward reducing injuries rate, this study will likewise be helpful to the instructor in management practices when they utilize viable learning in their works on setting. Especially in various ideas identified with the utilization of powerful management practices in reducing employee injuries rate. Besides, when companies produce and present new thing, new process and/or new managerial practices, they require imaginative and innovative workers, who are adaptable, hazard taking and tolerant of instability in addition vagueness (Chen, Hogg & Smith, 2007).

5. Research Methods

This study is a quantitative study. A 5 Likert scale questionnaire ranging from 1-5, which is (1) strongly disagree (2) disagree (3) neutral (4) agree (5) strongly agree were used. The sample for this study is selected thru stratified sampling technique. The sampling frame for this study is comprises of employees working at the constructions sector in Johor, Malaysia. Namely (1) Global Earnest Sdn Bhd, (2) Laubros Holdings Sdn Bhd, (3) Pancaran Temasek Sdn Bhd, (4) Hafiz Rahman Constructin Sdn Bhd, (5) Infracorp Sdn Bhd and Maher Engineering Sdn Bhd. It is because of the highest rank of accident occur, based on statistics by Department of Safety and Health (Occupational Accidents Statistics by State, 2017). A total number of 345 questionnaire were distributed however only 245 were return. The dimension and sources of each item used are as in Tablae 1 below. Data were analyzes using IBM Statistical Packages for Social Science or known as SPSS (version 23), for descriptive analysis and Partial Least Square Structural Equation Model (PLS-SEM) version 3.0, to analyzes the validity and reliability of the instrument. Structural measurement were also assess in order to identify which variable could give more effect towards employee safety.

Table 01. Measurement variable

	Variable	Dimension	Sources
1	Management practice	(1) Reward (2) Training (3) Management commitment (4) Communication and feedback (5) Selection (6) Participation	Ostrom, Wilhelmsen, & Kaplan (1993)
2	Employee safety	Employee safety	

6. Findings

6.1. Respondent profile

Respondent profile can be divided into gender, age, level of education, how long they have been working with the company, job position and also monthly income level. For gender, from 245 respondent, 226 (92.990%) respondent are male and 19 (7.8%) respondent are female. In term of age, it could be divided into three groups, which is (1) under 21 <30 years with 41 respondent (35.9%), (2) 31 <40 years with 199 respondent (48.6%) and (3) 41 <50 years, with 38 respondent (15.5%). For level of education, highest number of respondent are respondent, is from respondent with SPM/STPM level with 142 respondent (58.0%) and least number of respondent are from respondent with degree level with 4 respondent (1.6%). As for duration working in the company, highest number of respondents were from staff with experience of working for 1 to 2 years with 83 respondents (33.9%) and the lowest number of respondent are for employee with less than a year with 35 (14.3%). In term of job position, from the total of 245 respondent, 220 respondent (89.80%) are holding a staff position in the company. Lastly for monthly income level, the highest number of respondents is with income below than RM1499 indicate with 153 respondents (62.4%). The second highest are respondent with level income RM1500 to RM2999 with 82 respondents (33.5%). The third highest are respondent with income level of RM3000 to RM4999 with 7 respondents (2.9%). Followed by respondent with income level of RM5000 to RM6999, with only 2 respondents (0.8%). Lastly, are respondents with the income level of RM7000 and above with 1 respondents (0.4%).

6.2. Measurement model

In order to test measurement model for this study, the construct validity is tested. It is important in order to ensure all measurement that were used are fit with the theories around which the test is design (Sekaran & Bougie, 2010). Two test were conducted which is (1) convergent validity and (2) discriminant validity.

6.2.1. Convergent validity

In assessing the convergent validity, there are three important criteria need to be analyses as suggested by (Hair, Black, Rabin & Anderson, 2010), which is (1) factor loading, (2) composite reliability (CR), and (3) average variance extracted (AVE). Table 02 below shows the result of the study, for factor loading two item were deleted, IR1 and IR4 due to loading lower than 0.6, which is as suggested by (Chin, 2010). For composite reliability, the result indicates that the value ranged from 0.818 and 0.911, which is higher that the recommended value of 0.7, by (Hair et al. 2010), thus, it means that all the constructs have high internal consistency and reliability. Next, in order to justify the construct for this study, the suggested

value for AVE are more than 0.5 (Barclay, Higgins, &Thompson, 1995)..The result showed that, all the value of each construct are exceed the suggested value with the value range from 0.624 to 0.775, it indicate that all the items that used in this study are contribute to each construct.

Table 02. Reliability and validity measures

Construct	Item	Loadings	CR	AVE
Reward	R1	0.884	0.818	0.602
	R2	0.719		
	R3	0.712		
Training	T1	0.716	0.859	0.671
	T2	0.815		
	T3	0.916		
Management commitment	MC1	0.883	0.831	0.624
	MC2	0.786		
	MC3	0.688		
Communication and feedback	CAF1	0.84	0.836	0.630
	CAF2	0.787		
	CAF3	0.751		
Selection	S1	0.804	0.846	0.646
	S2	0.796		
	S3	0.811		
Participation	P1	0.708	0.857	0.668
	P2	0.813		
	P3	0.918		
Employee safety	IR2	0.891	0.911	0.775
	IR3	0.839		
	IR5	0.908		

*Notes: IR1 and IR4 is deleted due to low loadings, AVE= Average Variances Extracted, CR= Composite reliability

6.2.2. Discriminant validity

Discriminant validity was conducted to verify that the developed scales measured different constructs (Garver & Mentzer, 1999). Fornell and Larcker’s (1981) criterion was used to determine the discriminant validity of the scales because it is a widely accepted criterion. They suggested that the square root of AVE of a construct and the correlations of the respective construct are compared against other latent variables. Bases from Table 03 below, it demonstrated that, the variable use in this study has an adequate discriminant validity.

Table 03. Fornell and Larcker

	#1	#2	#3	#4	#5	#6	#7
#1 reward	0.776						
#2 training	0.564	0.819					
#3 management commitment	0.718	0.440	0.790				
#4 communication and feedback	0.250	0.259	0.100	0.794			
#5 selection	0.631	0.804	0.455	0.169	0.853		
#6 participation	0.563	0.817	0.440	0.258	0.851	0.998	
#7 employee safety	0.786	0.548	0.599	0.473	0.409	0.546	0.880

*Notes: all of the diagonal (bolded) are square root of the AVE while the off diagonal are the correlations

6.3. Structural measurement model

After the measurements were tested for validity, the structural model as provided in Figure 1, which represented the relations among the constructs assumed in the theoretical model.

According to Huang, Wang, Wu, & Wang (2013), the result for path coefficient symbolise the strength and direction of the relationship between the variables, where when the path is positive, it will indicates a positive result and when it is negative, it indicates a negatives influence/direction between the variable.

Table 04 below, represent the path coefficient result for the study variable. In order to answer the research objective, it could be concluded that the management practice variable, which is reward, training, management commitment and communication and feedback would give a positive influences towards employee safety. However the variables that could contributes more towards employee safety are the training, with beta value 0.890.

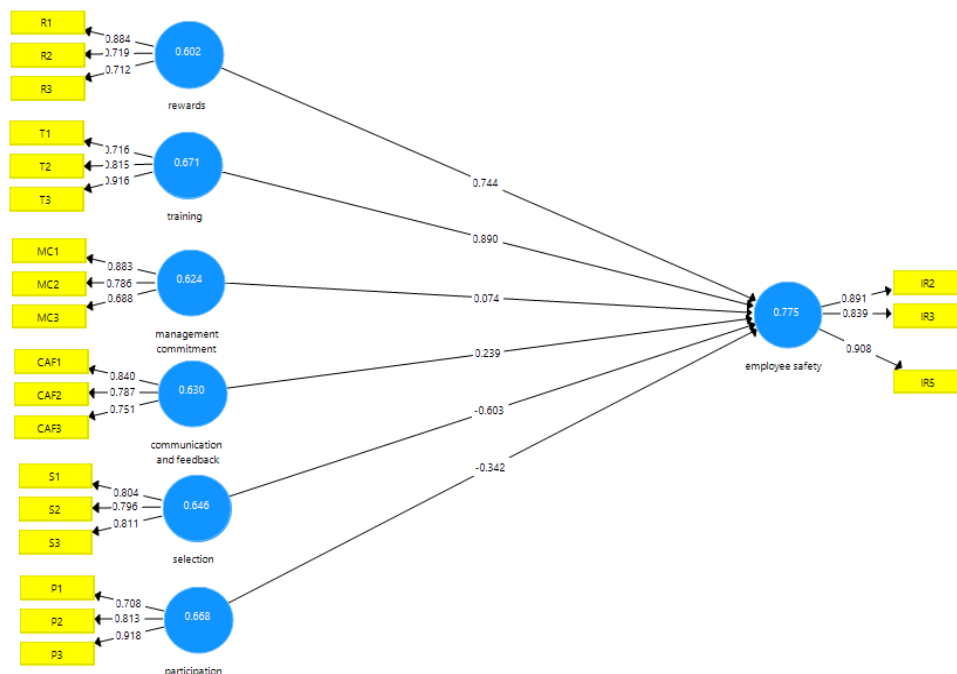


Figure 01. path coefficient

Table 04. Path coefficient

Construct	Path coefficient number
Reward	0.744
Training	0.890
Management commitment	0.074
Communication and feedback	0.239
Selection	-0.603
Participation	-0.342

7. Conclusion

This research are focusing on identifying which variables in management practice could contribute more towards employee safety. Based from the findings, the result indicates that reward, training,

management commitment and communication and feedback would give a positive influences towards employee safety. The result from the convergent and discriminant validity shows that, the study is reliable and valid. Management practices are vital to prevent accidents at workplace as it is a method to manage and reduce the work environment accidents (Díaz-Cabrera, 2007). Essentially, a few researchers had established about management rehearse. According to Ali, Azimah and Subramaniam (2009), has also stated that management rehearses are an important factor of the organizations as it is a successful part in reducing workplace injuries (Khdair, 2011). It is hope this study could contribute towards improving employee safety in the construction company as it could help in reducing the number of employee injury rates

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