

The Influences of Occupational Safety and Health Administrative (OSHA) Dimension Towards OSHA Awareness Among Employees

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Abstract

An increasing number of occupational accidents in various industries have motivated this study to be conducted particularly on investigating OSHA awareness among employees. The present study is concerned with the two main issues, 1) to determine the level of OSHA awareness among employees and 2) to ascertain the relationship between OSHA dimensions and OSHA awareness. Data was collected from 260 employees from a reputable Government Link Company (GLC) via questionnaire survey. Simple random sampling was utilized in selecting the sample. The overall findings of the study illustrates that the level of OSHA awareness among employees is at the sufficient level. The employees in this company are well aware as well as practicing safety procedures and practices. The study also indicates that there is a positive and significant relationship between the dimensions with OSHA awareness.

Keywords: Occupational Safety and Health Administrative, OSHA, Compliance Behaviour, Employee Awareness and Safety Awareness, OSHA dimension

Introduction

Occupational accidents occur every day and have become worst and known to be a major concern in every industry locally and globally. Till July 2017, it is reported that there were 2,430 occupational accidents occurred in various sectors in Malaysia (www.dosh.gov.my). These occupational accidents happened when workers were not concerned about their safety due to lack of knowledge. Moreover, the organizations particularly the management has taken minimal initiative to expose safety to their workers (Hassan, Azimah&Subramaniam, 2009). Nevertheless, several actions have been made to reduce the number of occupational accidents. Among others is creating awareness on Occupational Safety and Health Administration (OSHA) among employees.

OSHA awareness is the basis for Occupational Safety and Health Administration (OSHA) programs which aims to create awareness on safety issues among employees (Wolf et al, 2011). McCumber (2005) emphasizes that education, training and awareness on OSHA as the most prominent safety measures. The awareness will directly motivate the workers to acquire knowledge on OSHA, thus resulting in a greater understanding of their rights to have a safe and healthy work environment. Therefore, the study is focusing on equipment quality, OSHA training and work environment as a main dimension towards OSHA awareness.

By realizing the above scenario, the present study attempts to investigate the influence of OSHA dimension on OSHA awareness among employees. Pertaining to that, this study is concerned on two main issues: 1) to measure the level of OSHA awareness among employees, 2) to ascertain the relationship between OSHA dimensions on OSHA awareness among employees. The purpose of this study is to determine the influence of OSHA dimension towards OSHA awareness among employees at workplace. The main variables are equipment quality, OSHA training and work environment towards OSHA awareness.

Occupational Safety and Health Administrative Awareness

Innocent and John (2008) have defined the awareness from The Concise Oxford Dictionary as “aware” firstly as “conscious; not ignorant; having knowledge” or “well informed”. According to Concise Oxford Dictionary, knowledge is defined as “awareness or familiarity gained by experience”, “a person’s range of information” and “a theoretical or practical understanding of a subject. Likewise, Health and Safety (H&S) awareness can be defined as the state of having knowledge of the risks, hazards, and consequences associated with work place.

Whereas, Krause (1997) defined as an evidence of Health and Safety (H&S)-oriented artefacts, values, and assumptions indicates the adequacy of H&S implementation. Therefore, it can be argued that knowledge is also an indicator of

the level of awareness because artefacts, values, and assumptions are influenced by the knowledge that the organization and workers have of H&S.

According to Dodge et al., (2012) state that safety principles are necessary, but not sufficient to increase safety awareness among workers. Hence, workers must understand safety basics, as well as understand how to perform their various duties in a safe manner. For example, DOSH and SOCSO, incorporated with the employer, employee, as well as public involvement, should be continuously to increase the awareness on OSHA at work place. This is to ensure the quality of working life and survival of employer in occupational activities (Erikson & Hanson, 2006). In addition, OSH professionals also must have full understanding and awareness of all issues or potential hazards at work place.

Equipment Quality

Equipment is referring to facilities provided at workplace. Referring to Regulation 66 (2)(b), (OSHA, 1994) prescribed that the requirements with respect to the design, construction; guarding, siting, installation, commissioning, examination, repair, maintenance, alteration, adjustment, dismantling, testing, marking or inspection of any plant; which will affect the working condition and productivity among employees at workplace. In addition, Jeffrey (1995) explained the importance of ergonomics at work place to ensure the suitability of tasks, working environment and tools to enhance the functional capacity of employee. It also can be maximizing the ability to perform task.

According to Rozlina et al., (2012), facilities provided were emphasized on ergonomic compliance towards equipment, control panel and personal protective equipment (PPE) at workplace. Nayanthara and Wimalaratne (2012) have mentioned ergonomic is concerned with reducing injuries and hazards at work place such as falling objects which can be avoided by wearing PPE. Some of the PPE that can be used during performing the task are helmet, safety boot, belts and many more.

Facing with new industry revolution 4.0, office equipment is the major concern to ease the job at workplace. Technology interface is another highly widespread characteristic for creative and innovative at the workplace (Young S. Lee, 2016). He also stated that another advanced equipment is technology for communication and effective decision-making is one of the core element of innovative work environments (Moultrie *et al.*, 2007)

OSHA Training

According to Occupational Safety and Health Act (514), section 15(c) has stated the general duty of employers and self-employed is to provide information, instruction training and supervision as is necessary to ensure its practicable on safety and health of the workers at workplace. Regulation 66(t) prescribes the requirements with respect to the instruction, training and supervision of persons at work; and regulation 66 (t) prescribes the requirements for employing a safety and health officer, the training required of a safety and health officer and the procedures for registration. It is necessary for the officer as they also need to conduct the training later.

Other important elements of training include developing the skills, knowledge, and attitudes in ensuring the employees be more competent in OSH aspects at the workplace (Hughes & Ferrett, 2015). Furthermore, a periodic training programs will be enhancing the knowledge and awareness of OSHA (Nayanthara & Wimalaratene, 2012).

There are many types of training to reduce workplace injuries such as face-to-face training, video and web-based training (Dunn, 2015) and educating on off-and on-jobsites (Jochen, Teizer, 2016). Besides that, Gustafan G. (2017), from National Institute of Environmental Health, has stated that there are many types of training programs on OSHA awareness, such as hazardous waste, environmental career, disaster preparedness training for the workers to improve safety and health at workplace.

Work Environment

Workplace safety should be taken seriously in any business organization irrespective of the number of employees you have. As an employer, it is a must to provide safety regulations, steps and procedures for the staff. Preventative measures against accidents and/or workplace-related deaths are key for fostering a healthy, safe work environment (simplifiedsafety.com, 2018).

According to Maine.gov, (2016), a safety and health management system, or safety program, can help to improve work environment. This will help to prevent injuries and illnesses at your workplace. To ensure a safe working environment, the participant must from all levels such as employee commitment, employer involvement. Besides that, there is a need for a system or process to identify and control hazards, comply with OSHA regulations, training program, respect, care, communication and continuous improvement to ensure the accomplishment of the implementation.

Hypotheses Development and Research Framework

The research model developed for this study is presented in Figure 1. Prior studies assert that several factors such as quality equipment, trainings and work environments are vital for OSHA awareness among the employees. Therefore, our research model posits that these factors will have a significant and positive effect on OSHA awareness among the employees. Prior studies suggest that training has a significant contribution to organizational adoption of OSS-related human rights and responsibilities (Hossain et al., 2012; Porter and Kramer, 2006). In the current context, an organization would try to associate the importance of OSH training influence on the OSHA awareness among the employees. Prior studies find that work environments play a significant role, for an organization would try to associate the importance of OSH training influence on the OSHA awareness among the employees, the impact of a peer-led participatory health and safety training program for Latino day laborers in construction (Quintin, Ochsner, Marshall, Kimmel, Martino, 2010).

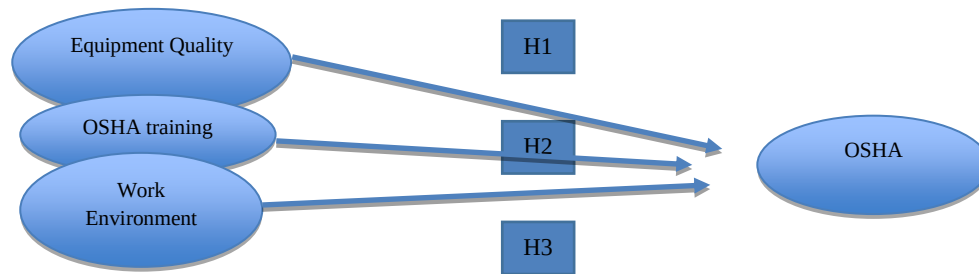


Figure 1: Proposed Research Framework

Research Methodology

Instruments

In order to ensure the respondents had a solid understanding of the response statements, the questionnaires were prepared in dual languages: English and Malay. The questionnaire was divided into three sections: Section A – Demographic details, Section B - Independent Variables and Section C – OSHA Awareness. This study used 5-point Likert Scales to measure independent variables and dependent variable.

Data Collection

Using sample random sampling technique, the questionnaire was distributed to 260 employees. Female were more (141) than male (119). Most of the respondents aged below 40 years old (193) with less than 10 years of experience (165) in the organization. Moreover, the largest professional categories in the sample were Assistant manager (170), Executive (47), manager (36) and others (7).

Analysis and Findings

This study used IBM SPSS 23.0 for descriptive statistics and assessment of common method bias (CMB). In this study, data is found to be normally distributed. SmartPLS 2.0 was then to model the relationship between

the variables (Ringle, 2005). Bootstrapping with 500 samples was performed to obtain the statistical significance of path coefficient using a t-test (Hair, 2013).

Harman's single-factor test was conducted to assess CMB. CMB is defined as "variance that is attributable to the measurement method rather than to the constructs the measure represents" (Podsakof et al., 2003, pp. 289) and could be problematic.

Measurement Model

Measurement model was tested to validate constructs reliability (i.e. composite reliability must greater than 0.7) and discriminant validity (i.e. AVE greater than 0.5 and square root of AVE greater than each correlation coefficient). This study also looked at the respective loadings in bold and cross loadings from Table I to assess if there were problems with any particular variable indicators. We used a cut-off value of 0.7 or higher for loadings to be considered significant (Hair et al., 2013).

Table 1: Cross Loading

Items	Equipment Quality	Work Environment	OSHA Training	OSHA Awareness
B11_EQ	0.729	0.639	0.374	0.440
B12_EQ	0.840	0.597	0.329	0.456
B13_EQ	0.813	0.565	0.281	0.480
B14_EQ	0.658	0.376	0.342	0.441
B15_EQ	0.608	0.383	0.389	0.358
B16_EQ	0.679	0.478	0.257	0.426
B1_E	0.598	0.833	0.350	0.452
B2_E	0.585	0.838	0.295	0.421
B3_E	0.622	0.868	0.334	0.449
B4_E	0.496	0.713	0.277	0.367
B5_E	0.440	0.656	0.327	0.305
B6_T	0.345	0.414	0.608	0.303
B8_T	0.347	0.310	0.824	0.360
B9_T	0.343	0.265	0.837	0.422
B10_T	0.388	0.315	0.863	0.451
C1	0.512	0.369	0.421	0.798
C2	0.487	0.392	0.331	0.786

C8	0.379	0.394	0.370	0.685
C9	0.464	0.432	0.396	0.809

As shown in Table 2, the composite reliabilities for each construct ranged from 0.854 to 0.889, which exceeded the recommended value of 0.7. Meanwhile, the AVE for each construct ranged between 0.527 until 0.624, which is greater than 0.5; thus, the cut-off values ensured that at least 50% or more of the variances in the construct were explained by the set of indicators. The collected data had been verified for its reliability by calculating the Cronbach's Alpha (CA). The resulting value ranged from 0.771 to 0.843, which is acceptable. The results of the measurement model showed that all the seven constructs were valid measures based on their parameter estimates and statistical significance.

Then, we proceeded to test the discriminant validity by examining the squared correlations between the measures of potentially overlapping constructs. The results (Table 2) show that all diagonal values in bold were higher than the values in its row and column, indicating adequate discriminant validity; this meant no overlapping construct existed.

Table 2: Construct and Reliability Validity

	Composite Reliability	Cronbach's Alpha	AVE	R2	Equipment Quality	OSHA Awareness	OSHA Training	Work Environment
Equipment Quality	0.868	0.816	0.527		0.726			
OSHA Awareness	0.854	0.771	0.595	0.432	0.600	0.771		
OSHA Training	0.867	0.793	0.624		0.449	0.493	0.790	
Work Environment	0.889	0.843	0.618		0.704	0.513	0.401	0.786
	Note: Diagonal elements in the correlation of constructs matrix are the square root of average variance extracted (AVE). For adequate discriminant validity, diagonal should greater than corresponding off-diagonal elements.							

Structural Model

To evaluate the structural model's predictive power, we calculate R2 for employee's OSHA awareness. Bootstrapping technique was used to calculate path estimate and t-statistics for the hypothesized relationship. The research hypotheses raised in previous sections are proven in a statistically significant way. R2 value of

the research model is 43.2 percent (Table 2) of variance in OSHA awareness was explained by Equipment Quality (EQ) and OSHA Training (OT) are found to have significant influence on OSHA awareness ($EQ: \beta = 0.386, t\text{-value} = 5.012^{**}$; $OT: \beta = 0.265, t\text{-value} = 4.144^{**}$). Thus, H1 and H2 were accepted. Meanwhile, Work Environment (WE) did not significantly influence OSHA awareness ($WE: \beta = 0.135, t\text{-value} = 1.627$). Thus, H3 was rejected in this study. The result also showed that EQ ($\beta = 0.386$) was the most influential predictor compared to other OSHA dimensions.

Table 3: Statistical comparisons of path coefficients

Hypotheses	Path Direction	Standard Path Coefficient	Standard Error	t-value	Result
H1	Equipment Quality --> OSHA Awareness	<i>0.386</i>	0.077	<i>5.012**</i>	<i>Supported</i>
H2	OSHA Training --> OSHA Awareness	<i>0.265</i>	0.064	<i>4.144**</i>	<i>Supported</i>
H3	Work Environment --> OSHA Awareness	0.135	0.083	1.627	Not Supported

Note: Bold and italic value represent the standard path coefficient is significant for the model. (Significance level of two tailed: t-value => 1.96, *p-value <0.05; t-value => 2.58, **p-value<0.01)

Discussion & Conclusion

OSHA awareness is essential because the program can help to disseminate information on safety issues and this will ensure that workers are able to protect themselves (Wolf et al, 2011). Moreover, awareness is also the most relevant topic to introduce to your staff at the workplace before continuing to the next level. This level is to ensure staff is aware of the basic concepts of safety in an organization. Referring to the above study, the result indicates that equipment quality is the most important element for them to understand because they need to use it to support their daily job. Thus, applying ergonomics in the workplace is necessary as it will help to reduce the possibility of accidents that causes injury or illness. Meanwhile, the training and work environment also contribute to employee's OSHA

awareness. The employees felt very much concerned on facilities provided to them to do their work such as ergonomic design, physical work, and an adequate furniture. Whereas, OSHA training would be essential for the employees especially on the awareness program and continuous improvement. Work environment will help employees stay happy working in the organization.

Previous studies focused on the safety issues but not about health and environmental issues. Therefore, this study recommends further research in two areas (health and environmental issues) for further improvement. Besides that, there are many factors that may lead to injury or hazard at the workplace. Instead of OSHA variables, other elements such as management review, planning, monitoring also very important for researchers to look into it.

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