Relationship Between Behavioral Aspects and Safety Culture in the Peninsular Malaysia Manufacturing Industry

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Abstract: Occupational Safety and Health (OSH) nowadays has been a much talked as a global issues.It is an important aspect in reducing risk and accidents in the workplace. The purpose of the study is to measure whether there is a significant relationship between the behavioral aspectsand the safety culture in the manufacturing industry in Peninsular Malaysia. The target respondents were the employees working in manufacturing industry in Peninsular Malaysia and quantitative method was applied. The data gathered from the survey were analyzed using IBM SPSS Statistics. This study showed management commitment, training and education, employees' involvement and motivation has positively and significantly related to safety culture. In addition, safety compliance has negatively significant relation to safety culture. Therefore, these findings may be useful to the top management to enhance their understanding of the importance of safety behavior and how it can influence the employees to have a better safety culture in the workplace. It also provides a foundation for future researchers to extend the study on safety behavior by covering a wider range of human factors and in different work settings.

Key words: Safety culture · Malaysian manufacturing industry · Occupational safety and health

INTRODUCTION

Occupational Safety and Health (OSH) nowadays has been a much talked as a global issues and considering as an important aspect in reducing risk at the workplace. This is due to the increasingnumber of accidents at the workplace which resulted from the rapid economic growth via industrialization.

Besides OSH, the term of 'safety culture' is also an important aspect in reducing risk and accident at the workplace [1]. The term safety culture was introduced by International Atomic Energy Agency (IAEA) due to the Chernobyl major accidents in 1986. It is part of a larger discursive practice shared by scholars and practitioners in the field of accident prevention [2].

According to International Labour Organization (ILO) [3], 6,300 people die every day as a result of occupational accidents or work-related diseases which contributed to morethan 2.3 million deaths per year. In Malaysia, although manufacturing sector contributes significantly to the national income, the existence of safety culture in this sector is still questionable [4]. As shown in Figure 1, manufacturing sector has the highest investigated of occupational accidents which include three categories; death, non-permanent disability and permanent disability [5].

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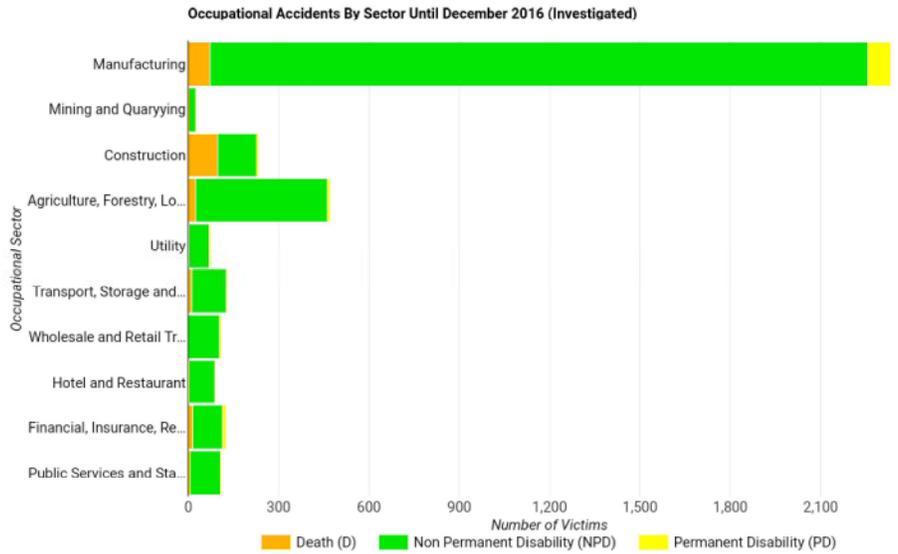
Fig. 1: Occupational accidents by sector until December 2016

Due to the statistics in Figure 1, concerned from all parties are needed urgently. Since manufacturing serves as one of the major contributors to the Malaysian economy, the growth of the manufacturing sector must also be in line with the awareness and compliance of the industry towards safety and health.

Currently, the policy in the manufacturing sectors in Malaysia not only covers technology, market access, productivity and financial components, but also consider numerous hazards in the working environment. Various occupational and health issues, such as exposure to the chemicals, lack of trained workers, and deficiency in enforcement must be manage appropriately in order to reduce accidents at the workplace.

In studying behaviorism towards safety [6] suggested that the development of a positive safety culture should be within the context of the organizational culture as a whole and not viewed as a separate entity. Therefore, the term of safety behavior should be clearly identified. In this study, the concept of safety behavior is to improve the behavior by improving the inner-self of the individuals, which needs effort and commitment from both of th employer and employees in this long-term process [7].

Therefore, in this paper, safety behavior is expressed in terms of management commitment, safety leadership, training and education, employees' involvement, motivation and safety compliance [8-11].

Since there is no accepted frameworkhas been established to analyze safety culture in Malaysian manufacturing industries, the findings will contribute to determine the relationship between safety behavior and safety culture which can uniformly understood and used by all parties to inculcate safety culture.

Hypotheses of the Study: Several hypotheses have been formulated to determine the relationship between the variables. The hypotheses tested were listed as follows:

H_1: There is a significant relationship between management commitment and safety culture

H_2: There is a significant relationship between safety leadership and safety culture

H_3: There is a significant relationship between training and education and safety culture

H_4: There is a significant relationship between employees' involvement and safety culture

H_5: There is a significant relationship between motivation and safety culture

H_6: There is a significant relationship between safety compliance and safety culture

MATERIALS AND METHODS

A questionnaire was designed to conduct the survey. The data collection was conducted through face-to-face and direct mail to randomly selected companies in Peninsular Malaysia. The respondents were production

employees from selected organizations, which only include first line supervisors or lower level management and operating employees. The middle level management and top management of production employees were not included since this questionnaire is not suitable for this category of employees. The six independent variables of safety behavioral aspects can be seen as underlying characteristics that are positively related to the development of a positive safety culture.

The population includes manufacturing organizations in Peninsular Malaysia that have 100 employees and above which listed in the FMM Directory 2011. According to the list produced by FMM [12], there are 1,080 registered manufacturing organizations from the whole of Peninsular Malaysia with 100 employees and above. This total number of organizations was classified into four zones – Eastern Zone (Terengganu, Kelantan and Pahang), Southern Zone (Johor, Melaka and Negeri Sembilan), Klang Valley Zone (Kuala Lumpur and Selangor) and Northern Zone (Perak, Perlis, Kedah and Penang).

According to Krejcie and Morgan [13], a sample size of 285 is adequate to represent the total population of 1,080. However, additional 20 percent of sample size was used to get a better response rate from the respondents. Therefore, the new total number of the sample size is S=342. The ratio of the population and the new sample size is shown in Table 1 below.

Table 1: Ratio of Population and New Sample

Cluster Zone	No. of Companies	Ratio of Sample (%)	No. of Sample
Eastern	38	3.52	12
Southern	292	27.04	92
Klang Valley	447	41.38	142
Northern	303	28.06	96
TOTAL	1080	100	342

Multiple regression analysis was used to predict the values of safety culture, as the dependent variable, based on the value of behavioral aspects, as the independent variables.

RESULTS AND DISCUSSIONS

Taking into accounts the above hypotheses, the general framework shown in Figure 2 has been obtained.

As indicated in the six hypotheses, six behavioral aspects were used in this study to test the hypothesis – management commitment, safety leadership, training and
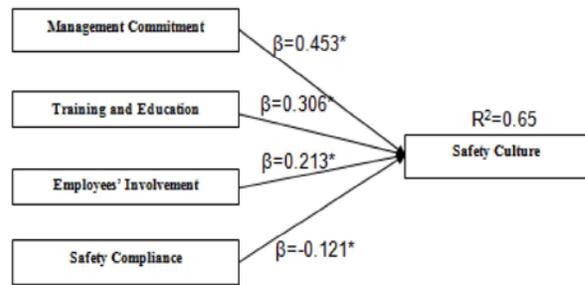

Fig. 2: Framework of Safety Culture

education, employees' involvement, motivation and safety compliance. These hypotheses were tested using multiple regression analysis. This study found that having a positive safety culture in the manufacturing industry is strongly influenced by thefourindependent variables – management commitment (β=0.453, p=0.000), training and education (β=0.306, p=0.000) and employees' involvement (β=0.213, p=0.001) and safety compliance (β=-0.121, p=0.041). However, two behavioral aspects – safety leadership and motivation – were rejected. There were no significant relationship between these variables and safety culture.As shown in Figure 2, the result of the R-square value was (0.650). The findings indicates that in respect of a positive safety culture in the manufacturing industry, 65 percent of variation in safety culture is explained by the variables of management commitment, training and education, employees' involvement and safety compliance.

Management commitment, training and education and employees' involvement have a positive relationship with safety culture. This finding indicates that the organizations that highly emphasize safety culture will be concerned about these three aspects in respect of safety. This is because failure to manage any of these variables appropriately will affect the safety culture in the organization due to the result of the R square showing that 65 percent of the variation in safety culture was affected by these three variables. The result proves that when the top management gives their attention and commitment to safety, the employees will have good attitude towards safety in conducting their work tasks. Conversely, if the management does not give a commitment to workplace safety, employees will be less safety conscious and willing to take more risks to complete the work.

Furthermore, training and education also affect the variation of safety culture in the organization. Better

enhancement programs provided for the employees regarding safety and health in the workplace will have a good impact on the safety and health in the workplace. This is important to increase employeesskills and knowledge and as an effort to increase their awareness about safety and health in the workplace after working for several years.

The involvement of employees in giving suggestions on safety and health also has an impact on the safety culture in the workplace. In certain cases, employees who are highly motivated towards safety and health will give better opinions and suggestions for the sake of themselves and other employees. They will know what is better in their daily tasks. Therefore, the management needs to actively encourage employees' suggestions, opinions and comments to increase safety and health in the workplace. This is because the results show that if the employees' involvement in safety and health is low, this will affect the development of the safety culture in the workplace.

Although safety compliance indicates a negative relationship with safety culture (β=-0.121), this result does not mean that a workplace that has a positive safety culture will not have a level of compliance with safety legislation and procedure. However, the result shows that top management with a positive safety culture in the workplace do not have to spend so much time stressing the compliance level among employees since their workers will have a good attitude concerning compliance. They will follow the rules and procedures of conducting their work tasks with less supervisor monitoring.

In addition, most researchers agree that safety leadership is an important behavioral aspect in developing safety culture in the workplace. Conversely, the results of this paper are not consistent with the results of previous studies. Safety leadership is not significant towards safety culture. Although most of the studies abroad show the importance of safety leadership in developing safety culture, it was different in Malaysia. This study shows that leaders do not play their role in promoting safety and health in the workplace. Therefore, safety leadership was excluded in the model of safety culture in the manufacturing industry.

Additionally, motivation also has no significant relationship with safety culture. In this study, motivation refers to the rewards, acknowledgement and recognition from the employers to their employees to motivate them in respect of the safety culture. Nevertheless, the motivation factors are important in making sure that employees comply with the legislation and safety policies and procedures.

In conclusions, the findings provide a significant contribution to the academicians and top managements in manufacturing industry in managing safety behavior. These findings may be useful to the top management to enhance their understanding of the importance of safety behavior and how it can influence the employees to have a better safety culture in the workplace. This research also provides a foundation for future researchers to extend the study on safety behavior by covering a wider range of human factors and in different work settings.

Since human capital is an important asset to the organizations, employers' have a responsibility to ensure the employees engage and commit to safety. Therefore, it is important to the employers to have a clear understanding of the best strategy to encourage their employees. As the management commitment is one of the important factors in developing a positive safety culture in the workplace, the best strategy designed by the employers showed that the commitment by management has a positive safety culture in the organization.

Furthermore, this research is crucial for the improvement of safety behavior. The focus should be on improving management commitment, training and education and employees' involvement in the workplace to enhance employees' commitment towards safety and health in the workplace. Good legislation and procedure cannot be neglected since compliance will guide the managers and employees in having a better safety culture in the workplace.

Finally, yet importantly, the findings and conclusion of this research will give future direction to academicians, the manufacturing industry and government agencies to plan and implement how to improve the behavioral aspect, safety policy and procedure in the workplace and also for amending the Acts for a better future for employees' safety, health and welfare in the workplace.

ACKNOWLEDGEMENT

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