THE IMPACT OF SAFETY AWARENESS TO MODERATE THE RELATIONSHIP OF EMPLOYEE PARTICIPATION ON SAFETY PERFORMANCE AT PERODUA, RAWANG

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DEDICATION

To my beloved husband,

Hairul Akmal b. Mohd Halim

Thank you very much for the support, courage and love…

To my beloved family & family in law,

Thank you for the understanding and toleration..

And of course to the most important person in assisting me to accomplish this writing..

Dr. Shah Rollah b. Abd Wahab

Thank you for your continuous guidance and supervision.

This thesis writing is dedicated to all of you..

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ABSTRACT

In this era of globalization, rapid technological changes, ubiquitous competitions and changes in work nature have brought challenging changes to the working environment. As a result, these situations give a huge impact on safety towards workers; hence lead to safety performance concerns. The purpose of the research is to examine the impact of safety awareness to moderate the relationship of employee participation on safety performance at PERODUA, Rawang. In this study, the respondents were selected from production line of Body Assembly Department at PERODUA whereby 156 respondents were involved through systematic random sampling method. This study adapted the Safety Performance Scale (SPS) developed by Wu *et. al* (2008) in identifying the safety performance level, and a combination of instrument developed by Khairiah (2008) and Hayes *et al*. (1998) in determining the employee participation level. Safety awareness level in this study is measured using a sub-dimension of Safety Climate Questionnaire (SCQ) developed by Hao Lin *et al*. (2008). This study utilized quantitative method where the data were gathered through distributed questionnaires. Data were analyzed using Statistical Package for Social Science (SPSS) software version 18.0. Two types of technique analyses were employed in this study which are descriptive analysis (mean value, frequency of data and percentage) and inferential analysis (simple linear regression and hierarchical regression analysis). The findings revealed that the level of employee participation and safety performance in PERODUA were both high. Additionally, the findings demonstrated that the employee participation has a significant effect on safety performance in PERODUA. However, safety awareness did not significantly moderate the relationship between employee participation on safety performance but only acts as predictor.

ABSTRAK

Di era globalisasi kini, perubahan teknologi yang pesat, persaingan yang sengit serta perubahan dalam persekitaran kerja telah membawa kepada transformasi persekitaran kerja yang mencabar. Hasilnya, keadaan ini memberikan kesan yang besar terhadap keselamatan pekerja; oleh itu membawa kepada kebimbangan terhadap prestasi keselamatan. Tujuan kajian ini dijalankan adalah untuk mengkaji kesan kesedaran keselamatan dalam menyederhanakan hubungan diantara penglibatan pekerja terhadap prestasi keselamatan di PERODUA, Rawang. Dalam kajian ini, responden telah dipilih dari bahagian pengeluaran Jabatan Penyambungan Badan di PERODUA dimana seramai 156 responden telah terlibat melalui kaedah persampelan rawak bersistematik. Kajian ini mengadaptasi Skala Prestasi Keselamatan (SPS) yang dibangunkan oleh Wu *et. al* (2008) dalam mengenal pasti tahap prestasi keselamatan, dan gabungan instrumen yang dibangunkan oleh Khairiah (2008) dan Hayes *et al.* (1998) dalam menentukan tahap penglibatan pekerja. Tahap kesedaran keselamatan dalam kajian ini diukur dengan menggunakan sub-dimensi Soal Selidik Iklim Keselamatan (SCQ) yang dibangunkan oleh Hao Lin *et al.* (2008). Kajian ini menggunakan kaedah kuantitatif dimana data diperolehi daripada borang soal selidik yang diedarkan. Kesemua data dianalisis menggunakan perisian "*Statistical Package for Social Science*" (SPSS) versi 18.0. Dua jenis teknik analisis telah dijalankan di dalam kajian ini iaitu analisis deskriptif (min, kekerapan dan peratusan data) dan analisis inferensi (regresi linear mudah dan analisis regresi hierarki). Hasil kajian menunjukkan bahawa tahap penglibatan pekerja dan prestasi keselamatan di PERODUA adalah kedua-duanya tinggi. Selain itu, hasil kajian mendedahkan bahawa penglibatan pekerja telah memberikan kesan yang signifikan terhadap prestasi keselamatan di PERODUA. Walau bagaimanapun, kesedaran keselamatan tidak bertindak sebagai penyederhana kepada hubungan di antara penglibatan pekerja terhadap prestasi keselamatan tetapi hanya bertindak sebagai peramal.

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LIST OF ABBREVIATIONS

SPSS	-	Statistical Packages for Social Science
NIOSH	-	National Institute of Occupational Safety and Health
DOSH	-	Department of Occupational Safety and Health
ILO	-	International Labor Organization
SOSCO	-	Social Security Organization
PERODUA	-	Perusahan Otomobil Kedua Sdn. Bhd.
SPS	-	Safety Performance Scale
SCQ	-	Safety Climate Questionnaire

LIST OF SYMBOLS

%	-	Per cent
α	-	alpha
=	-	equal to
<	-	less than
>	-	more than

APPENDIXES

CHAPTER 1

INTRODUCTION

1.0 Chapter Overview

The purpose of this research is to study the safety performance in the manufacturing sector, specifically in the automotive industry. In this research, the impact of safety awareness will be examined as moderator to the relationship of employee participation on safety performance. This chapter discusses the background of the study, problem statement, research questions and purposes of conducting the research. In addition, the research objectives, conceptual framework, research scope, and significance of study will also be explained in detail. Finally, conceptual and operational definition of terms will be presented at the end of the chapter.

1.1 Background of Study

The promotion of occupational safety in Malaysia has begun since December 1, 1992 (NIOSH, 2004). The National Institute of Occupational Safety and Health (NIOSH) was launched after careful preparation and commitment from all parties to improve the safety and health of workers at the workplace in Malaysia. Moreover, NIOSH is identified as a critical catalyst in promoting occupational safety and also serve as the backbone in creating self-regulating safety culture in Malaysia (Adib, 2006). NIOSH was set up with a RM1 million launching grant from the government and a further RM50 million endowment fund (RM40 million from the Social Security Organization (SOCSO) of Malaysia and another RM10 million from the Malaysian government). This huge amount of investment highlights that this institution plays an important role in ensuring workplace safety practices through various types of interventions (NIOSH, 2004).

Besides NIOSH, there is a legislation known as the Occupational Safety and Health Act 1994 which provides the legislative framework to secure safety, health and welfare among Malaysian workforces (Occupational Safety And Health Act 1994, 2006). This act also exists to protect workers against risks to safety or health towards the activities of persons at work. The Occupational Safety and Health Act 1994 is enforced by the Department of Occupational Safety and Health (DOSH), under the Ministry of Human Resources Malaysia. Department of Occupational Safety and Health (DOSH) will ensure through enforcement and promotional works so that all workers always practice safe and health work culture, and always comply with existing legislation, guidelines and codes of practice. Moreover, DOSH will also formulate and review legislation, policies, guidelines and codes of practice pertaining to occupational safety, health and welfare as a basis in ensuring safety and health at work (Department of Occupational Safety and Health, 2006).

Similarly, both NIOSH and DOSH are existed to ensure and monitor hazardous working conditions that might put employees into jeopardy. However, Anderson (1998) argued that there are several other factors within the organization itself that may hinder from achieving or creating overall safety working conditions. These factors include the management lack of commitment and efforts in enforcing safety issues, such as priority to their workers, shortcomings of safety education among workers, complacent attitudes towards safety issues and also scarcity of significant resources to allocate safety instruments (Anderson, 1998).

Despite having NIOSH and DOSH to control and monitor workers' safety at the workplace, there is another organization which also plays a significant role in protecting workers – International Labor Organization (ILO). The ILO is the only tripartite and specialized agency of United Nation (UN), which is between the government, the employer and the representative of the worker (International Labor Organization, 2011). The ILO was created in 1919 after World War 1 ended and Malaysia has been a member of the ILO since 1957. The driving forces for its existence arose from considering the security, humanitarian, political and economic status of the workforce. Another driving force is the consideration that workers are exposed to exploitation in industrializing nation. For evidence, ILO estimates that almost 20.9 million forced labour worldwide had become a victims of exploitation in economic sectors due to lack of rights and unduly low wages (ILO, 2013); hence triggered ILO to protect worker worldwide.

One of the ILO's strategies in Malaysia is to focus on building up the capacity of social partners (workers' and employers' organizations) to embrace an understanding of their rights pertaining to implications and benefits of adopting international labor standards. Some of the improvements in which remain relevant today are the protection of workers against injury arising out of his employment, provision for injury and regulation of maximum working day and week (International Labor Organization, 2013). Thus, under the ILO, all workers are protected in term of their safety or welfare importance. As such, ILO has brought substantial impacts in

protecting employees especially in this current challenging working environment and enhances the safety remarks in our society today.

Today 20th Century is an era of rapid development of sciences and technology in industries (Saxena *et al.,* 2005). Thus, a comprehensive literature review was conducted to study the scenario and current trend of safety performance in order to investigate whether safety at the workplace is carefully manage as it should since any new technology introduced in industries lead to a new safety performance concerns (Wilson-Donnelly *et al,* 2005). Generally, the need for measuring safety performance was stipulated in many previous research studies (for example, Mearns *et al.,* 2003; Wakefield and Cashin, 2010; You-Jun, 2010; Sawacha *et al.,* 1999, Tharaldsen *et al.,* 2010; Beriha *et al.,* 2010; Aksorn and Hadikusumo, 2008). However, most of the studies showed that there was no standard measurement to evaluate the safety performance level at workplace.

Therefore, in the light of social and economic costs resulting from workplace accidents, it is crucial for researcher to investigate how safety matter being conducted at the workplace to measure the safety performance level. The safety matter should be studied in a broad ways towards employer and employee itself. Blair and Geller (2000) stressed that the employer is the one who should be responsible in undertaking accident prevention strategies and providing safe working condition. Some of the responsibilities include the arrangement of the machinery and equipment, the system of work as well as the entire layout building.

Nonetheless, Versen (1983) asserted that employee participation in safety matters combining with the employer is more beneficial in bringing better and safer working environment. In a similar vein, Garrett and Perry (1996) revealed that employee participation has been found to be a key component in a successful injury prevention program. As evidence, this injury prevention program has dramatically reduced lost-time injury cases only within one year of implementation. Hence, the main focus in this study is to identify the level of safety performance and the level of

employee participation on safety at one automotive manufacturing company – PERODUA.

Besides employee participation on safety performance, workers' safety awareness should also be put into consideration in coping safety issues (Ozsahin, 2006). Safety awareness refers to actions of being aware of any situations, circumstances, or practices that may cause unsafe working conditions. Emmelhainz and Adams (1999) found evidence that many firms do not have sufficient and adequate workplace codes of conduct to protect employees' rights on safety. Thus, it is not surprising to note that there are still a lot of accidents reported in the workplace because of the low level of awareness even safety has been massively discussed in the literature (International Atomic Energy, 2005). Therefore, this study also looks upon safety awareness impacts as moderating factor between the employee participation on safety performance.

1.2 Problem Statement

In this era of globalization, rapid technological changes, ubiquitous competitions and changes in work nature have brought challenging changes to the working environment. If the organization cannot cope with these changes, it will eventually expose workers into unforeseen workplace hazards. Clearly, the cost of workplace injuries in Malaysia is increasing at an alarming rate, and accident occurrences have grown steadily over the last several years. According to the Department of Occupational Safety and Health (DOSH), from 2007 to 2009, accidents at workplaces have resulted in 5 116 deaths cases in Malaysia (DOSH, 2010). In average, seven workplace accidents happened daily.

Meanwhile, the number of accidents reported by the Social Security Organization (SOSCO) is more surprising. In 2005, there were 61 182 number of accidents recorded. The number starts to steadily decrease to 58 321 in 1996, 56 337

in 2007 and 54 113 in 2008, but it rose back to 55 186 in 2008 (SOCSO, 2009). Looking at the fluctuating number of accidents, it is becoming increasingly difficult to ignore preventive strategies on safety matters as it may give serious problems to organizations. All of these numbers depicted to us that the recent safety performance level is not at the desired performance, as safety measures may have probably not been conducted in the best manner. This is a big reason for researcher to research on safety performance – the reasons behind accidents that keep on recurring.

Generally, this research will be conducted in the manufacturing sector, and specifically in the automotive industry. The reason for choosing the manufacturing sector is because an accident data obtained by the Social Security Organization (SOCSO) statistics reported that the manufacturing industries contributed to the highest fatality rate, in comparison to other major economic sectors with a number of 17 206 accidents (SOCSO, 2009). In light of this significant figure, it is apparent that the industry has a challenging task to reduce the escalating manufacturing site accidents in order to provide safer and promote better working conditions for the workers.

Apart from that, compensation claimed to the Social Security Organization (SOSCO) increased by 19.1 per cent to RM1.549 billion last year (Maznah, 2011). Maznah added that many workers especially in manufacturing sectors were not concerned on their safety despite various campaigns being carried out by the ministry. Vredenburgh (2002) claimed that employee participation towards safety reliably predicts injury rates of worker and contributes to safe work environments. In return, safe working environment is believed may produce a productive workforce. Lowe (2003) asserted that great assets for a company are motivated, committed and healthy employees which will bring out competitive advantages to the company, as a result of having safe working conditions reciprocally.

Therefore, the first objective in this study is to identify the level of employee participation based on the respondents' perceptions through a combination of adapted questionnaire developed by Khairiah (2008) and Hayes *et al*. (1998). The

level of employee participation in this study looks into three dimensions which are the employee's own perception on safety participation, the perception of coworkers' safety participation and the perception of supervisor's safety participation.

The second objective in this study is to identify the level of safety performance based on the respondents' perceptions through adapted Safety Performance Scale (SPS) developed by Wu *et al*. (2008). This instrument covers a wide scope of safety performance assessment which includes six dimensions namely (1) safety organization and management, (2) safety equipment and measures, (3) accident statistics, (4) safety training evaluation, (5) accident investigations and (6) safety training practice. Sequence from that, researcher has outlined the third objective which is to examine the effect of employee participation on safety performance, which both based on the respondents' perceptions.

Besides that, William (2001) believes that another main reason for accidents to happen at work is complacency. People think that accidents will not happen to them. In other words, people are not aware about dangers that may occur to them. Thus, safety awareness is a crucial issue in order to ensure that all employees stay vigilant and are on the lookout for possible dangers (William, 2011). Humaidan (2011) reported that a large number of accidents happened as a result of the lack of awareness on safety in the workplace. Hence, employees should always be informed about safety to increase their awareness at work. This is the practical way to create a safer workplace besides being self-conscious on the importance of safety to avoid any detrimental events (Mohanty, 2010). In respect to this, the final objective in this study is to examine the impact of safety awareness to moderate the relationship of employee participation on safety performance based on the respondents' perceptions in PERODUA.

In this research, a well-known automotive manufacturing firm has been selected namely Perusahan Otomobil Kedua Sdn. Bhd. (PERODUA) which is located at Rawang, Selangor. In Malaysia, the automotive industry can be considered as one of the most lucrative industries in the manufacturing sector. This is because,

in comparison to other industries in the manufacturing sector in Malaysia, the automotive industry has been earmarked to accelerate the process of industrialization of Malaysia towards being a developed nation by 2020 (Iswalah, 2002). Moreover, the automobile industry is often viewed as the delegation of modern industry due to its prominence (Law, 1991). Fascinatingly, PERODUA is the first car manufacturer in Malaysia to receive the prestigious ISO 9002 and ISO 9001 certification awarded by the Vehicle Certification Agency (VCA) from the United Kingdom (Iswalah, 2002).

Therefore, it is apparent that why researcher need to expand the research on manufacturing sector (specifically in the automotive industry) as this may depict the latest picture of current safety performance practices. Moreover, Leman *et al*. (2010) exposed that manufacturing sector has a high potential to develop Malaysia's economy and growth. Hence, this study is keen to investigate the impact of safety awareness to moderate the relationship of employee participation on safety performance.

1.3 Research Questions

1.3.1 What is the level of employee participation based on the respondents' perceptions in PERODUA?

1.3.2 What is the level of safety performance based on the respondents' perceptions in PERODUA?

1.3.3 Does employee participation affect safety performance, based on the respondents' perceptions in PERODUA?

1.3.4 Does the impact of safety awareness moderate the relationship of employee participation on safety performance, based on the respondents' perceptions in PERODUA?

1.4 Research Purpose

The purpose of the research is to examine the impact of safety awareness to moderate the relationship of employee participation on safety performance at PERODUA.

1.5 Research Objectives

There are four objectives outlined in this study. The objectives are :

1. to identify the respondent's perceptions on the level of employee participation in PERODUA.
2. to identify the respondent's perceptions on the level of safety performance in PERODUA.
3. to examine the respondent's perceptions on the effect of employee participation on safety performance in PERODUA.
4. to examine the impact of safety awareness to moderate the relationship of employee participation on safety performance, based on the respondents' perceptions in PERODUA.

1.6 Hypotheses

1.6.1 Hypothesis 1 (H_1):

There is a significant effect of employee participation on safety performance.

1.6.2 Hypothesis 2 (H_2):

Safety awareness significantly moderates the relationship of employee participation on safety performance.

1.7 Conceptual Framework

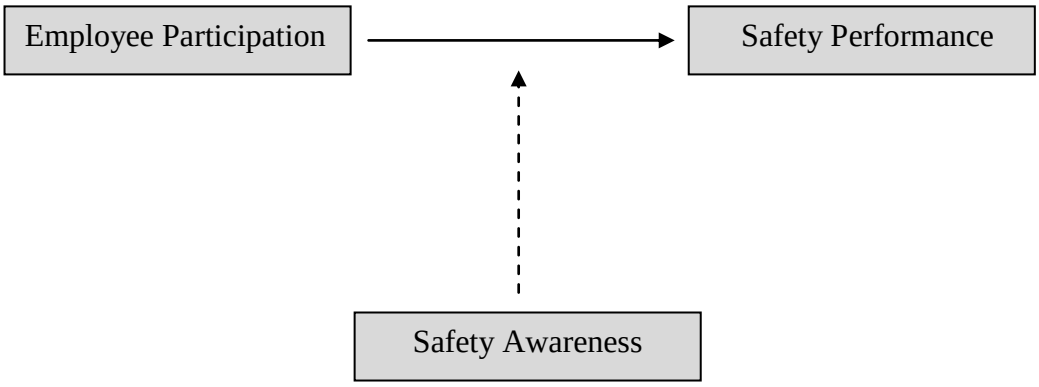

Figure 1.1 : Research Framework

This conceptual framework explains the impacts of safety awareness in moderating the relationship between employee participation and safety performance. Based on the conceptual framework, employee participation is an independent variable while safety performance is a dependent variable. Hence, safety awareness is a moderator which could influence the relationship between the independent variable (employee participation) and the dependent variable (safety performance).

The participation of employees is believed to affect the safety performance level. In other words, the level of safety performance may become higher or lower as the level of employee participation increased or decreased. Here, safety awareness

acts as a moderator to assist employee participation to increase safety performance. If the employees realize about the importance of safety at work, they may contribute to safety performance activities. Otherwise, the employee will tend to disregard the safety issues if the awareness does not come at the first place.

1.8 Scope of study

Generally, this research is about safety in the automotive industry. This research is carried out in PERODUA, one of the automotive companies located at Rawang, Selangor. In this research, safety performance will be the main focus besides employee participation and their awareness on regards to safety. The respondents in this research are production workers in the body assembly division. Questionnaires will be used as the instrument to collect information through systematic random sampling method.

1.9 Significance of Study

In this study, the researcher attempts to provide a research framework model pertaining to the impact of safety awareness to moderate the relationship of employee participation on safety performance. This study also intends to benefit the organization, enhance the safety literature as well as provide an opportunity to call for future research.

1.9.1 Organization

To evaluate safety performance, the industry usually relies on the reported number of injury data gathered. The amount of injuries usually determines the level of safety performance in an organization (Rose, 1990). However, through this

research, safety performance will be assessed together with the level of employee participation and safety awareness among them. The researcher will also provide a general set of recommendations which perhaps may assist organization to improve working conditions as well as avoid any unwanted incidences from happening which can be detrimental to the company well-being.

1.9.2 Safety Literature

Although there are numbers of research pertaining to safety, the findings of this study also mean to enrich the recent ideas and practices about safety at the workplace, especially concerning safety performance in the automotive industry. The findings also seek a place of being an informative and useful reference regarding safety to other future researchers.

1.9.3 Future Research

So far, the accident rates of automotive industry are still at a situation of concern. This research may suggest a call for making comparison to safety performance measurement among several automotive companies in Malaysia or international, to see the difference in findings. In addition, qualitative instruments, such as interviews and observations may perhaps be held in the future to dig deeper into safety performance issues.

1.10 Limitation

This study is only conducted at one automotive company. To get the current view on safety performance in a manufacturing sector, a research on several established and well-known automotive companies need to be conducted. In addition, only production workers in the body assembly division are involved in this study. Workers in other production departments are excluded because of the

inevitable time constraint and the complexity to get huge amount of respondents within a short period of time.

Besides, the findings of the research may differ from previous study as the place, target, amount of respondents and time are different. Therefore, the findings cannot be generalized to other automotive companies as this study was only held at PERODUA. Moreover, only the quantitative instrument which is questionnaires being used in this research; thus, the finding relies solely on quantitative data.

1.11 Conceptual and Operational Definition of terms

1.11.1 Conceptual Definition of terms

1.11.1.1 Safety Performance

Safety performance refers to any work-related injury or illness that must be recorded if it results because of one or more of the following: death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, loss of consciousness, or a significant injury or illness diagnosed by a physician or other licensed health care professional (Occupational Safety and Health Administration (OSHA), 2011).

Brown (1996) posited that if the companies cannot accurately measure safety performance, they may not be able to manage the workplace effectively and efficiently. Brown continued that the true safety performance can be found in what people do at work, how people do the work, and the impacts it has on the people in which the practices are aimed at. Therefore, safety performance must continuously report changes in safety level and concentrates on measuring safe behaviors instead of unsafe ones (Tarrants, 1980). This is because, safe behaviors prevent accidents

while unsafe ones cause accidents to happen. Both safety behaviors and attitudes may eventually lead to safety performance (Zohar, 2000).

1.11.1.2 Safety Awareness

According to Barrett *et al.* (2005), safety awareness refers to an action of being aware of any safety issues, and of potential hazards that may harm workers in the workplace. Communicating information related to safety may increase safety awareness among the workers in the workplace (Stellman, 1998). Safety education, communication and promotion are some of the area which can produce safety awareness and safety behaviors, which in turn can improve the organizational safety and workers' well-being (Stellman, 1998).

1.11.1.3 Employee Participation

Versen (1983) defines employee participations in safety practices as mutual cooperation between employers and employees in developing and maintaining safety at the workplace. This may help in solving daily practical problems in more appropriate manners. Emphasis on the safety by employers or employees is one of the factors which can affect the rates of accidences and sickness in the workplace (United States Government Accountability Office, 2005). Therefore, employee participations on safety performance practices may significantly reduce injury rates in an organization (Hasan Ali *et al.*, 2009). This is because workers, supervisors as well as safety experts are the people who solve safety problems every day which make them able to influence decisions regarding safety (Stellman, 1998).

1.11.2 Operational Definition of terms

1.11.2.1 Safety Performance

In this research, safety performance refers to the level of safety practices at the workplace. The level of safety performance is based on the respondents' perceptions in the company, in this study – PERODUA. A high level of safety performance in an organization is believed to provide better and safer working conditions to workers. In this study, safety performance will be measured by using adapted version of questionnaire namely Safety Performance Scale (SPS) developed by Wu *et al.* (2008). This instrument covers a wide scope of safety performance assessment which includes six dimensions; (1) safety organization and management, (2) safety equipment and measures, (3) accident statistics, (4) safety training evaluation, (5) accident investigations and (6) safety training practice.

1.11.2.2 Safety Awareness

In this research, safety awareness refers to an employee's consciousness about the importance of safety issues and safety intervention promoted by the organization. Workers must pay an important respect for safety awareness as this may prevent them from being involved in workplace accidents, or at least reduce the accident rates. In this study, safety awareness plays a moderating role between employee participation on safety performance. Safety awareness will be measured using a sub-dimension in Safety Climate Questionnaire by Hao Lin *et al*. (2008). There are 5 items which load on safety awareness and competency dimension.

1.11.2.3 Employee Participation

In this research, employee participation refers to the process of employee involvement in making decisions regarding safety and the authority given to them in making safety decisions. There are different types of works performed and

workplace surroundings which may expose workers into hazardous situations. Thus, employee participation is a part of an empowerment process over safety precaution at the workplace. The level of employee participation in this study is based on the respondents' perceptions and only looks into three perceptions which are (1) employee's own perception on safety participation, (2) perception of coworkers' safety participation and (3) perception of supervisor's safety participation. All of these perceptions will be measured by using a combination of adapted questionnaire developed by Khairiah (2008) and Hayes *et al*. (1998).

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