SAFETY COMMUNICATION, SAFETY CULTURE, AND SAFETY LEADERSHIP ON SAFETY PARTICIPATION AMONG MANUFACTURING EMPLOYEES

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UNIVERSITI TEKNOLOGI MALAYSIA
SAFETY COMMUNICATION, SAFETY CULTURE, AND SAFETY LEADERSHIP ON SAFETY PARTICIPATION AMONG MANUFACTURING EMPLOYEES

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A thesis submitted in fulfilment of the requirements for the award of the degree of Doctor of Philosophy (Management)

Faculty of Management
Universiti Teknologi Malaysia

JULY 2018
Dedicated to:

My beloved parents Yeong Kim Won and Wong Chui Yau
My late grandfathers Yeong Sang and Wong Ah Kow
My grandmothers Lim Chew Ngo and Chin Siew Chin
   My one and only sister Yeong Sook Lie
   My parents-in-law Teo Ah Lek and Lim Choon Moi
   My dear husband Teo Jiunnjye
   My lovely and precious daughter Teo Jia Yinn
ACKNOWLEDGEMENT

“There is no royal road to learning.”

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ABSTRACT

In Malaysia, industrialization alongside with the proliferation of the population has resulted in an increase in occupational injuries at workplace. According to the latest statistics, the reported accidents stated that out of 10,000 employees, 99 employees have been involved in workplace accidents. An accident does not happen by chance as it is an interplay between several factors in an organization. Thus, employees’ safety participation is important to raise employees’ awareness for a safer workplace. This research aimed at examining the moderated mediation effect of safety leadership on the relationship between safety communication and safety participation through the safety culture among employees of Malaysian manufacturing companies. A total of 442 operators from electrical and electronic factories in Negeri Sembilan were chosen as respondents of the study. The variables were examined using the Safety Participation Scale, Safety Communication Scale, Safety Culture Scale, and Safety Leadership Scale. Data were analyzed using simple linear regression, multi-group confirmatory factor analysis (CFA), and path analysis using AMOS Structural Equation Modeling (SEM), while analytic approach to examine moderated mediation was conducted using Statistical Package of Social Science (SPSS) 18.0 software. The findings revealed that safety culture plays significant roles as mediator as well as safety leadership in the relationship between safety communication and safety participation. It was found that moderated mediation exists when safety leadership strengthened the relationship of safety communication and safety participation through safety culture. Several limitations of this study were noteworthy. Firstly, the feedbacks may be biased in self-reported questionnaire, which solely depends on respondents’ perceptions rather than direct observation to the phenomenon of interest. Secondly, the findings were not able to represent the different population as the results they only valid and reflect the characteristics of the targeted population which is Malaysian manufacturing employees. According to the findings, it is recommended that proactive safety communication, good safety leadership, and positive safety culture should be practiced in organizations. These increase employees’ willingness to participate in safety activities for ensuring safer workplace.
ABSTRAK

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LIST OF ABBREVIATIONS

AMOS - Analysis of Moment Structures
CEO - Chief Executive Officer
CFA - Confirmatory Factor Analysis
DOSM - Department of Statistic Malaysia
FMM - Federation Malaysian Manufacturer
GDP - Gross Domestic Product
LMX - Leader-Member Exchange Theory
MES - Multilinear Event Sequencing Model
OSHA - Occupational Safety and Health Act
OSH-MP - Occupational Safety and Health Master Plan
PPE - Personal Protective Equipment
RAND - Random
SCS - Safety Culture Scale
SCM - Swiss Cheese Model
SCT - Social Cognitive Theory
SLS - Safety Leadership Scale
SEM - Structural Equation Modeling
SOCSO - Social Security Organization
SPSS - Statistical Package for Social Science
TPB - Theory Planned Behavior
LIST OF SYMBOLS

\%
- Percentage

\alpha
- Coefficient Alpha

R^2
- Coefficient of Determination

\chi^2
- Chi-square

\chi^2 / df
- Normed Chi-square
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CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter discusses the background of the research regarding safety communication, safety culture and safety leadership on safety participation at the workplace. In addition, this chapter explains not only the problem statement, research questions and research objectives but also the purpose, scope and significance of the study. Thus, this research aims to further explore the effects of safety communication, safety culture and safety leadership on safety participation towards the employee of Malaysian manufacturing companies. The underlying assumption of the researcher is that the relationship between safety communication and safety participation could be mediated by safety culture which depends on safety leadership.

1.2 Background of Research

In Malaysia, industrialization along with growing populations has resulted in an increase in prevalence of occupational injuries (Arokiasamy and Krishnan, 1994; Rampal and Mohd Nizam, 2006). In Malaysia, however, the expectations of reducing the number of accidents has not been met after implementing multiple safety policies and prevention actions by the government (Nur Azlina et al., 2014). Social Security Organization of Malaysia (SOCSO) had announced the latest number of reported industrial accidents to be as many as 34,258 in 2015, observing only a slight decrease by 1,036 cases or 2.94 percent in comparison to 35,294 in 2014. Surprisingly, it has
been found that, in every 10,000 workers, 99 workers were involved in industrial accidents. The total benefit payment in 2015 has risen by RM197.09 million or 7.99 percent to RM2,665.16 million as compared to RM2,468.07 million in 2014.

Among these, the manufacturing industries in Malaysia have been reported to be the highest accident contributors in Malaysia with 15,153 cases in 2015 (Social Security Organization, 2015). Nonetheless, the Malaysian government has channelled tremendous efforts into reducing job-related accidents at the workplace. Chief among these is the enforcement of the Occupational Safety and Health Act (1994), also known as OSHA (1994), which has since become the standard for the employers and employees to comply and uphold. With the introduction of this law, more and more concern has been voiced by the employers, who are in the role of ensuring effective safety management and of boosting workforces’ safety awareness in the organization.

In this regard, the Malaysian government has demonstrated an aggressive attitude in minimizing fewer workplace accidents, as may be attested to by implementation of the Occupational Safety and Health Master Plan (OSH-MP 15). The plan has been proposed to strengthen workers’ safety attitude and to develop a safer working environment in Malaysia. Divided into three stages spanning 15 years from 2005 to 2020, it comprises the following: in the first five years, the government would emphasize on promoting safety and health ownership at the workplace; from 2010 to 2015, self-regulation was believed to have been achieved; while in the last five years, preventive culture would have been implanted in the workplace (Farouk et al., 2011). In brief, through the OSH-MP 15, the government has endeavoured to nurture and maintain a positive safety culture and to reduce accident rates in working environments (Masilamani, 2010). Although many efforts have been put either by the government or the organization, without active safety participation of the employees, all the hard works are not easy to success.

An accident does not happen by chance but is an interplay of several factors such as employees, devices, working practices and so on (Syed Mohamed and Ideris, 2012; López-Arquillos and Rubio-Romero, 2016). With various method to prevent accident, safety participation is widely recognized as one of the effective ways to prevent threatening activities at work. For many years, literature has pays attention on
Employee safety participation, which is believed to have a close association with workplace safety (Neal, 2000; Vinodkumar and Bhasi, 2010; Shuang et al., 2015; Jiang and Probst, 2016). Safety participation in general refers to employee’s voluntary participation in safety-related activities within the organization. This behavior is believed to foster a safer working environment, and therefore, many scholars are trying to investigate the factors to enhance safety participation of the workers, for instance by increasing safety obligations (Mullen et al., 2017), employee’s safety motivation and instil safety knowledge (Jiang and Probst, 2016). However, it is not an easy job to make sure the employee voluntarily participates in safety. In other words, to see the possible improvement of employee participation in safety-related activities, some efforts need to be performed by the management. One of the factors which is believed to enhance safety participation is effective safety communication at work.

Communication is the way which people convey thoughts, express feelings and deliver information and knowledge (Cigularov et al., 2010). However, with the term “safety”, communication becomes a tool which could help employers manage safety issues in ensuring that members in an organization stay away from potential hazards and accidents (Alsamadani et al., 2012; Siew, 2015). To date, research has been conducted to investigate safety communication and its effects towards workplace safety (Kim et al., 2008; Lijie et al., 2012; Kaskutas et al., 2013; Siew, 2015). Safety communication is not merely a process of giving and receiving safety information at the workplace, it helps to influence employees’ behaviours and attitudes towards safety. Safety-relevant communication provides information and understandings associated with business’s operation to the members of the organization, which in turn helps them to know how to work safely (Vecchio-Sadus, 2007). Geller (2005)’s study claimed that, an organization’s safety status is determined by how safety is discussed and disseminated. The information of safety need to be understandable by everybody in the organization. It is evident that effective safety communication has been shown to affect specific employees’ behaviours, for example safety performance (Michael et al., 2006). However, miscommunication among the workers, especially between employee and the upper-level management, frequently occurs (Mullen et al., 2011), potentially due to the neglect of constructive safety communications at the workplace, implying the lack a good safety culture atmosphere in the organization (Conchie et al., 2013).
Likewise, safety culture has become prominent in the organizational systems of many high-risk industries such as aviation, nuclear plant operations, medicine, railway systems, and manufacturing industries (Reiman and Rollenhagen, 2014; Schöbel et al., 2017). Nowadays, the profound influences of safety culture (and the lack thereof) have been recognized as a major contributor to the workplace safety (Amirah et al., 2013; Machfudiyanto et al., 2017). An organization with positive safety culture is believed to be more responsive and sensitive to the danger signs and hence, those at the managerial level are more likely to cultivate positive safety culture in their organizations to minimize hazards which could inflict human casualties and property loss. Safety culture has been described as employee involvement, perceived risk and emergency response (Wu et al., 2010) and as a common set of values, behaviours and norms that affect safety performance (Adams, 2012). It is evident that the management has a core influence on safety culture which hinges upon the demonstration of a commitment to safety within the organization (Ek et al., 2007).

Another factor believed to contribute to workplace safety is the leaders or the management level. It is commonly believed that, the leader who can develop and demonstrate good safety leadership style helps to foster trust and good relationship between themselves and their followers regarding safety (Luria and Morag, 2012). Du and Sun (2012) have recognized that safety leadership is essential to the formation of workplace safety values that effectively reduces accidents at the workplace. Conversely, passive leadership will lead to potential negative outcomes associated with safety-related matters (Mullen et al, 2011). Effective safety leadership of safety leaders allowed them to establish safety guidelines and regulations, provide constructive response on safety issues, and possess a strong sense of responsibility towards their followers’ safety in the organization. Wu et al. (2010) highlighted that only effective safety leadership helps to encourage employees to participate in safety decision-making and become actively involved in safety activities in the organization. Among the aforementioned factors, this study focused on safety communication, safety culture, and safety leadership on safety participation among the employees in Malaysian manufacturing industries.
1.3 Problem Statement

The manufacturing sector is one of the main contributors to the Malaysian economy (Saad et al., 2012). According to the latest annual report of Bank Negara Malaysia, the share of manufacturing to the gross domestic product (GDP) was found to be 23% out of the total GDP of Malaysia in 2015. Due to the advancement and flourishing of the manufacturing industry in Malaysia, a large amount of labour is required in order to cope with the high demand of business and hence, the number of accidents has appeared to be on rise. According to the latest statistical report, reported accidents in the manufacturing industry accounted for 24.11 percent of the total number of accidents (Social Security Organization, 2015). A large body of existing empirical studies on workplace accident concentrated on the Malaysian manufacturing sector due to its hazardous job nature such as controlling heavy machinery, contact with chemicals and so on (Saad et al., 2012; Nur Azlina et al. 2014; Choon Hee, 2014; Hui Nee, 2014). In Malaysia, laws and regulations such as the Occupational Safety and Health Act 1994 (OSHA) have been enacted by the government to protect the rights and benefits of the workers in the manufacturing industry. The OSHA 1994 has replaced Factory and Machinery Act 1967 (FMA) which served to ensure that both manufacturers and employers take the initiative in reducing industry hazards (Choon Hee, 2014).

To create safer and healthier workplace, Malaysian government has putting effort to increase worker’s safety awareness and therefore, various of safety-related campaign and programs such as safety awareness-rising campaign has been held (Zakaria et al., 2012). However, the government’s efforts do not appear to have reaped the benefit (Nur Azlina et al., 2014). Elevated numbers of occupational accidents have been found in statistical reports especially in the manufacturing industry. The number of industrial accident cases in manufacturing industries has demonstrated an increasing trend from 2011 to 2013; and slightly decrease from 2014 to 2015. Accordingly, the safety standards in the manufacturing industry may still be questionable (Choon Hee, 2014). In the pursuit among the industries to remain vibrant and competitive, the safety of workers has often overlooked by employers, and sometimes even by the employees themselves. Although Malaysian government has proposed good safety policies and enact safety law to the manufacturing industries, the lack of enforcement and
implementation of the authorities and the workers has weakened the commitment and awareness of safety at the workplace (Amall Raihan et al., 2017). Thence, little desire of employees to participate in safety activities could then promote the chance for them to involve in the injuries and accident at the workplace.

In addition, the denial of workers participation in safety activities such as safety decision making process is held to be one of the major causes of the safety-related problems, which are manifested daily in the work of the employees nowadays (Dubey, 2015). To create a safer workplace, strong employee safety participation is required (Neal, 2000; Griffin and Neal, 2000; Christian et al., 2009). However, employees without encouragement and motivation from the management is not likely to participate actively in safety-related activities. Safety activities such as safety meeting, safety decision making, and safety training are required high level of employee’s engagement and participation to maximize the efficiency. Low level of safety participation will bring several disadvantages to the employees themselves, and even to the entire organization (Subramaniam et al., 2016). For instance, the employees tend to not provide feedbacks of safety to the management level as they are not feel committed in safety issues. Besides, the employees do not understand the safety regulations and safety policies implementing at work as they are not involved in the safety meetings and decision-making process (Nielsen and Randall, 2012). In fact, low level of safety participation will affect business productivity and performance as the employees not feeling safe during their work (Khairiah, 2008). To overcome these problems, this study believed that the fluctuation of safety communication, safety culture, and safety leadership could affect employee’s safety participation in the organization.

Besides questioning the rising concern of safety participation in Malaysia manufacturing industries, another question elicited is the impact of safety communication on such accidents. Safety communications between all parties within an organization is essential for optimal safety performances. Therefore, safety communication breakdowns reduce the possibility of workers to take appropriate actions at critical moments and thereby compromise safety performance (Michael et al., 2006; Kines et al., 2010; Maxfield et al., 2011). According to Maxfield et al. (2011), communication breakdown can be categorized as honest mistakes and not
discussable. Honest mistakes include poor handwriting, confusing labels, difficult accents, and language barriers which put people in dangers will continues to lead to the occurrence of unsafe acts at the workplace (Alsamadani et al., 2012). Although evidence shows that communication breakdown directly affects the safety of the human beings (Lesch, 2005; Buckley, 2010; Donahue et al., 2012), still when employees feel that they are about to give negative safety feedbacks to the management, they tend to withdraw. Hence, there are persist a lack of safety communication at the workplace (Laughry, 2006; Kines et al., 2010). Besides, the impact of safety communication has been widely discussed in numerous studies (Parker et al., 2001; Hosseinian and Torghabeh, 2012; Fernández-Muñiz et al., 2012). Thus far, discussion on the impact of safety communication towards safety participation appears lacking. Thus, it is the researcher’s intention to empirically investigate the effect of safety communication on safety participation in Malaysian manufacturing industries.

Meanwhile, another concern about safety culture has driven to the question of what effects of it there are on workplace safety especially regarding safety participation in Malaysian manufacturing industries. One of the limitations of safety culture is that its very concept is difficult to explain (Guldenmund, 2000; Wiegmann et al., 2004; Wu et al., 2010; Wang and Liu, 2012). Workers appear to have limited knowledge towards safety culture because “culture” cannot be explicitly explained. Thus, workers do not know the proper ways to foster safety culture at the workplace (Edwards et al., 2013). In addition, non-compliance to the Occupational Safety and Health Act (OSHA)’s requirements by the management has highlighted the lack of safety culture such as less commitment of management in safety, lack of identification of hazards, lack of safety program in the workplace (Ghahramani, 2017), which then culminates in high occupational accidents at the workplace (Hui Nee, 2014). Therefore, the lack of safety culture has become one of the contributors to high accident rates in Malaysian manufacturing industries (Amirah et al., 2013). Besides, the role and impacts of safety culture at the workplace are well-researched (Filho et al., 2010; Chen et al., 2012; Biggs et al., 2013; Boughaba et al., 2014), for instance the effects of safety culture on safety management (Ek et al., 2014) and safety performance (Clarke, 2006; Feng et al., 2013). By enhancing the level of safety culture, employer and employee are more likely to demonstrate positive attitudes in safety. This evidence showing that,
the role of safety culture is distinct to manipulate safety condition at the workplace. It is believed that, high level of safety culture could affect the relationship of safety communication and safety participation. When the level of safety communication increase, the workers are more likely to create positive safety culture at work, which then influence the worker’s willingness to participate in safety activities in the organization. Therefore, this research assigns safety culture as the mediator and will further discuss its effects on safety communication and safety participation especially towards the employee of Malaysian manufacturing industries.

Leaders of organizations nowadays have realized the importance of leadership to safety. However, they failed to take into consideration the better way of practicing safety leadership. According to Kelloway et al. (2005), abusive and passive leadership is the example of poor leadership manner. These leaders usually fail not only to provide safety messages but also to direct their followers to perform safely (Kelloway et al., 2005). The active involvement of leaders is indubitably essential to the safety-related problems (Anderson, 2006), as attested to by the emphasis in the literature on the crucial role of leaders and the importance of leadership characteristics on safety (Mullen et al., 2001; Conchie et al., 2013; Conchie et al., 2011; Wu et al., 2008a; Wu et al., 2008b; Wu et al., 2008c). The lack of safety leadership will lead to low commitment of top-level management in safety issues (Wu, 2005). Undeniably, adequate leadership style demonstrated by leaders has declined. It has been found that most leaders fail to persuade and influence the followers regarding workplace safety (Wu et al., 2010). Workers are commonly expected by their leaders to be highly productive rather than to be proactively aware of potential hazards at the workplace (Skeepers and Mbohwa, 2015). Besides, leaders appear to place their emphasis on profits, given the considerable investment and commitment in the business (Antonsen, 2009). However, they do not realize that occupational safety is a prerequisite as a part of productivity and profitability (Flin and Yule, 2004). In view of this, researches had strongly recommended that safety leadership needs to be discussed further in future studies (Langerman, 2011; Luria and Morag, 2012; Martínez-Córcoles, 2013). It is believed that, when safety leadership vary significantly, the degree of safety communication influence safety culture could be altered. When workers perceive a high level of safety leadership, they are more likely to create positive safety culture in the organization. As safety leadership is believed to strengthen the relationship
between safety communication and safety culture, it will be allocated as moderator whose impacts on safety culture towards safety communications are to be elucidated.

1.4 Research Question

1. Does safety communication affect safety participation among Malaysian manufacturing employee?
2. Does safety communication affect safety culture among Malaysian manufacturing employee?
3. Does safety culture affect safety participation among Malaysian manufacturing employee?
4. Does the effect of safety culture mediate the relationship between safety communication and safety participation among Malaysian manufacturing employee?
5. Does the effect of safety leadership moderate the relationship between safety communication and safety culture among Malaysian manufacturing employee?
6. Does the effect of safety culture that depends on safety leadership mediate the relationship between safety communication and safety participation among Malaysian manufacturing employee?

1.5 Research Objectives

1. To identify the effect of safety communication on safety participation among Malaysian manufacturing employee.
2. To identify the effect of safety communication on safety culture among Malaysian manufacturing employee.
3. To identify the effect of safety culture on safety participation among Malaysian manufacturing employee.
4. To identify the effect of safety culture to mediate the relationship between safety communication and safety participation among Malaysian manufacturing employee.

5. To identify the effect of safety leadership to moderate the relationship between safety communication and safety culture among Malaysian manufacturing employee.

6. To identify the effect of safety culture that depends on safety leadership to mediate the relationship between safety communication and safety participation among Malaysian manufacturing employee.

1.6 Hypotheses of Research

H1. There is an effect of safety communication on safety participation.
H2. There is an effect of safety communication on safety culture.
H3. There is an effect of safety culture on safety participation.
H4. Safety culture mediates the relationship between safety communication and safety participation.
H5. Safety leadership moderates the relationship between safety communication and safety culture.
H6. Safety culture that depends on safety leadership mediates the relationship of safety communication and safety participation.

1.7 Scope of Study

This research focuses on manufacturing industries in Negeri Sembilan, Malaysia; which the number of accident of that state has marked as the highest among other industries in released statistical report. Manufacturing companies, or to be more specific, electrical and electronic companies which had registered with Federation of Malaysian Manufacturers (FMM) constitute the targeted population this research. Front-line operators from the targeted companies are chosen randomly as respondents,
to whom is distributed an established questionnaire which is used as the measurement tool for four variables i.e. safety communication, safety culture, safety leadership and safety participation. A six-item safety communication scale originally developed by Hofmann and Stetzer (1998) is used to measure safety communication. Measurement of safety participation is adapted from Arfena Deah et al., (2014)’s safety participation scale, which consists of twelve items. Safety culture is measured by using the Safety Culture Scale (Wu et al., 2010) consisting of three dimensions i.e. employee involvement, perceived risk and emergency response. Meanwhile, safety leadership is gauged using the Safety Leadership Scale developed by Wu et al. (2008b) which assesses three dimensions: safety coaching, safety caring, and safety controlling. Each item in this questionnaire is measured by using a self-administered five-point Likert scale ranging from 1 (very small extent) to 5 (very great extent).

1.8 Significance of Study

The significance of this study can be explained from three aspects: the theoretical contribution to the body knowledge of safety, the methodology used herein and the impact of the findings towards the employees of Malaysian manufacturing industry. Based on Christian et al. (2009)’s meta-analysis of workplace safety, most of the previous studies has focused on the relationship between safety knowledge and safety motivation on safety participation. Present study aims to expand the previous research by investigating the effect of safety communication, safety culture, as well as safety leadership on safety participation. In addition to emphasize the relationship between safety communication and safety participation, present study intent to makes theoretical and empirical contribution to the safety literature by exploring moderated mediation effect of safety leadership in the relation of safety communication and safety participation, through safety culture. The findings of this study are believed to bring significant impacts to manufacturing employees in Malaysia which highlighting several significant factors in enhancing safety participation at the workplace. The researcher is intent to examine and explain such complex relationship, aims to contribute to the body knowledge of safety with the empirical findings at the end of this research.
In terms of analysis method, moderated mediation analysis will be performed in this study. The moderated mediation effect or so-called conditional indirect effect has rarely been addressed in most of the existing studies (Preacher et al., 2007). However, this method has been acknowledged as a useful technique in many study areas and settings (Afthanorhan et al., 2014b) to further investigate the complicated relationship among the variables. Preacher et al. (2007) have claimed that moderated mediation occurs when the strength of the mediating effect depends on the intensity of other variables. In consistent to present study, the researcher aims to examine the complex relationship between safety communication, safety culture, safety leadership, and safety participation. By further explore to the role of safety culture and safety leadership, which will be allocated as mediator and moderator based on literature review in later chapter, moderated mediation relationship will be analyzed in present study. Hence by the end of this research, it is likely to enhance and encourage the using of moderated mediation analysis in safety-related discipline, especially in the context of Malaysian manufacturing industries for future studies.

The findings of this study will redound to the benefit of Malaysian manufacturing industries considering that safety participation plays an important role in workplace safety which probably involved monetary and life loss. Thus, manufacturing companies which emphasize safety participation of employee will more likely to having a safer working environment. As far as we know, most of the business are profit-oriented, safety interventions that helps to create safer workplace which might increase the cost are usually not welcoming by the management. Therefore, participation of employees in safety-related activities seems to become a fairly low-cost method to achieve such objective. Lastly, this research endeavours to promote safety communication at work especially for the preponderance of Malaysian manufacturing employees. This study will also be beneficial to workers and the management to promote safety communications to increase safety participation at the workplace. By understanding the importance of safety communication, positive safety culture, and adequate safety leadership at the managerial level, employees are assured of a safer working environment which then enhance the performance and productivity.
1.9 Conceptual and Operational Definition

1.9.1 Workplace Safety

Workplace safety is referred to as the combined results of several factors namely human behavior, organizational factors (such as supervision, work conditions and processes, planning and organizational learning), and latent conditions such as the absence or dysfunctional nature of physical and functional barriers to prevent accidents, lack of resources to mitigate or neutralize threats or precarious system conditions that make which highly sensitive and unstable (Hollnagel, 1999; Hollnagel, 2004). According to Ibrahim et al. (2012), a safer workplace should not only include safe premises and safety regulation enforcement but also provide appropriate safety training. In this study, workplace safety is referred to as a working environment in which all the workforces channel their efforts into mitigating perceived risk and hazardous activities.

1.9.2 Safety Participation

Safety participation refers to employee’s intended participation in safety-related activities which contribute to the development of a safer working environment Griffin and Neal (2000). Besides, safety participation has been described as a behavior for create safety-supportive working environment by Griffin and Hu (2013). In this study, safety participation refers to employee participation in safety-related activities in the organization. Measurement of safety participation will be adapted from Arfena Deah et al. (2014)’s safety participation scale.
1.9.3 Safety Communication

Safety communication refers to how well safety issues are communicated in the working environment (Brondino et al., 2012). Communications has been defined by Guo and Sanchez (2009) as the conveyance of information for it to be understood by everyone. In this study, safety communication refers to the vertical communication (downward and upward) about safety-related issues in the workplace, as will be measured by using the Safety Communication Questionnaire by Hofmann and Stetzer (1998), which elucidates the employees’ perceptions of the communication on safety-related issues in their organization.

1.9.4 Safety Culture

Relihan et al. (2009:433) defined safety culture as “the product of individual and groups values, attitudes, perceptions, competencies and patterns of behavior that determine the commitment to, and the style and proficiency of, an organization’s health and safety management”. According to Wu et al. (2010), safety culture refers to employees’ vision of safety conditions which affect safety outcomes. As in consistent with Wu et al. (2010)’s view, in this study, safety culture refers to the employees’ perception of safety condition at the workplace; which then affecting organizational safety effectiveness. In this study, safety culture refers to employee involvement, perceive risk, and emergency response which will be measured using Safety Culture Scale by Wu et al. (2010).

1.9.5 Safety Leadership

Safety leadership has been defined as the channel through which leaders influence their followers to achieve safety goals based on organizational and individual factors by Wu (2005). According to Hoffmeister et al. (2014), such leadership refers to the way in which supervisor’s influence and promotes safety to their followers at
the workplace. Meanwhile, safety leader refers to leaders who engage in safety-related matter with enthusiasm and inspiration and fully concentrate on supervising their followers (Conchie et al., 2013). In this study, safety leadership can be defined as the interaction between leaders and followers in which the former influence the latter to achieve safety goals in organization. Safety leadership will be measured using the Safety Leadership Scale (SLS) developed by Wu et al. (2008b) which include dimensions such as safety coaching, safety caring, and safety controlling.
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