iCBST 2014 International Conference on Business, Science and Technology which will be held at Hatyai, Thailand on the 25th and 26th of April 2014.

Australian Journal of Basic and Applied Sciences, 8(5) Special 2014, Pages: 169-174

AENSI Journals

Australian Journal of Basic and Applied Sciences

ISSN:1991-8178

Journal home page: www.ajbasweb.com

The Relationship of Safety Communication, LMX and Safety Commitment: Conceptual Model

[1]A.R. Rafidah, [2]M.N.Shahrina, [3]S. Rohani and [4]A.M. Mumtaz

[1,2,3,4]*Department of Management and Humanities, Universiti Teknologi PETRONAS, Bandar Seri Iskandar, 31750 Tronoh, Perak, Malaysia.*

ARTICLE INFO

Article history:
Received 25 January 2014
Received in revised form 12 March 2014
Accepted 14 April 2014
Available online 25 April 2014

Keywords:
Communication, Safety Climate, Safety Communication, Leader-member Exchange, Safety Commitment

ABSTRACT

In critical safety organizations, communication plays a crucial role to ensure the safety performance. The implementation of safety activities in the Gas Processing Plants becomes a challenge due to the low quality of the interaction between management and subordinates, considered as one of the factors that contribute to the fatal incidents in the workplace. This conceptual paper discusses the relationship of safety communication, leader-member exchange (LMX) and employees' safety commitment in critical safety organizations. The main purpose of this study is to establish the relationship among the variables in order to enhance the concept by critically reviewing and examining the literature within safety context. From the extensive discussion it is found that safety communication, leader-member exchange and safety commitment are inter-related and play the important role in developing safety performance and safety culture in organizations. In future study, these three variables will be empirically investigated and discussed.

To Cite This Article: A.R. Rafidah, M.N.Shahrina, S. Rohani and A.M. Mumtaz., The Relationship of Safety Communication, LMX and Safety Commitment: Conceptual Model. ***Aust. J. Basic & Appl. Sci.,*** *8(5): 169-174, 2014*

INTRODUCTION

"Safety First" is the main sign that can be seen in critical safety organizations. This indicates that, safety is very important as it has always been a major issue in many critical safety organizations. Every year, reports show that thousands of employees die at workplace and millions suffer from occupational injuries and illnesses (Siu *et al*. 2004; Cigularov *et al*., 2010), in critical safety organizations such as manufacturing, construction, oil and gas, and mining (Al-haadir *et al*., 2013). For example, in United States, Oil and Gas workers are subject to some of the most hazardous industrial condition due to the serious injuries and fatalities occur too often from workplace accidents. It has also been reported that oil and gas accidents typically occur due to several reasons, mainly failure of proper communication (Settlements, 2013).

Malaysia is the second largest oil and natural gas producer in Southeast Asia, and the second largest exporter of liquefied natural gas globally. Oil and Gas is one of the 12 sectors of the economy that drive towards the attainment of high income in Malaysia. Malaysia's energy industry is a critical sector of growth for the entire economy and makes up about 20 percent of the total gross domestic product. However, this industry has also faced wide range of challenges. One of the major challenges is frequent occurrences of fatal incidents and accidents at the workplace. Recently, in May 2012, there was a big incident (i.e. explosion) at one of Oil and Gas companies in Malaysiathat caused death and several injuries of the workers.

Because of the emphasis and importance of safety in critical safety organizations like Oil and Gas, it is important to study the factors that influence the safety behaviour in the organization. The dimensions of safety climate, specifically safety communication and quality of the exchange relations between superiors and employees, often referred to as leader-member exchange (LMX) have been claimed as the most essential predictors of safety behaviour at workplace and have been gaining on increased attention in discussion of safety literature. Next section discusses the safety climate specifically safety communication followed by leader member exchange and its relationship with safety commitment.

Corresponding Author: Rafidah Binti Abdul Rashid, Department of Management and Humanities, UniversitiTeknologi PETRONAS.
E-mail: afyda283@gmail.com

Australian Journal of Basic and Applied Sciences, 8(5) Special 2014, Pages: 169-174

Literature Review:

Safety Climate:

Safety climate refers to employees' perceptions of the values, procedures, and policies that relate to safety within an organization, which also reflect to priority on safety as well as achieving company goals, such as productivity (Cigularov *et al*., 2013; Griffin & Neal, 2000; Zohar, 1980). Safety climate appears to be closer to operations, and is characterized by day-to-day perceptions towards the management, organizational policies, working environment and working practices (Yule, 2003). The concept of safety climate emerged from research on organizational climate and culture (i.e. Griffin & Hart, 2000; Pereira *et al*., 2011). The study of safety climate involves enquiring about the organizational climate, meaning that safety climate stems from the perceptions of organizational environment, or organizational climate. Consequently, it can be seen that safety climate definition is based on the climate definition, which refers to the aspects of the work environment that are consciously perceived by the members of the organization and climate term can elect description and perception at the individual, group or organizational level of analysis (Armstrong, 2003).

Safety climate measurement offers several benefits to both researchers and practitioners, especially in forecasting work injuries, safety attitudes, safety behaviours, safety compliance and safety performance (Cigularov *et al*., 2010; Fatimah & Clarke, 2013; Wu, Chen, & Li, 2008). Thus, safety climate becomes as a leading indicator of organizational safety in the critical safety organizations.Empirical research on safety climate has developed since it was introduced by Zohar in 1980 who had conducted the study in an Israeli manufacturing organization (Yule, 2003). Most studies appear to have focused on safety climate measurement issues and its predictive validity with regard to a diversity of safety outcomes in various contexts (i.e. across industries, organizations, countries and cultures) rather than focused on theoretical and conceptual issues (Zohar, 2010). Safety climate has largely been conceptualized and measured as a multidimensional construct. Various subscales were studied to assess different dimensions of safety climate depending on the objective and scope of the study. For instance, management commitment to safety, supervisor support, safety communication, work pressure, worker appreciation of risk, worker perception of safety rules and procedures, and safety competence (Fang *et al*., 2006; Seo *et al*., 2004). However, management and supervisor support for safety, work pressure, risk, safety systems, and safety rules and procedures have frequently been discussed in safety climate literature (e.g. Cigularov *et al*., 2013; Flin *et al*., 2001; Guldenmund, 2007; Mearns *et al*., 1998; Pereira *et al*., 2011).

Therefore, it can be concluded that there are multiple safety climate dimensions have been used over three decades of research. However, due to the various questionnaires, samples and methodologies were used by different researchers, it leads to the inconsistencies of the measurement and validation across safety climate dimensions (Glendon & Litherland, 2001; Fatimah & Clarke, 2013). For examples, Zohar (1980) found eight safety climate dimensions when measure the safety climate on production employees in 20 Israeli companies while, Brown and Holmes (1986) found only three safety climate factors within different cultures and also Debobbeleer and Beland (1991) who have duplicated Brown and Holmes (1986) findings on other industries (i.e. construction) found out only two factors that was supported (as cited in Glendon & Litherland (2001).

Safety Communication:

Safety communication refers to the process of the exchanging information about safety-related issues between two or more people in the workplace (Hoffmann & Stetzer, 1998; Siu *et al*., 2004). The purpose of this safety communication is to allow people, tasks, processes, and systems to interact purposely and cooperatively to achieve health, safety and environment (HSE) Objectives. The way people interact will determine either they be able to understand and participate in the process of safety or not (Vecchio-Sadus, 2007). Safety communication (an open, free-flowing exchange and frequent interaction about safety issues) significantly influenced accident attributions, employees' safety behaviour, safety commitment, and safety performance (Hoffmann & Stetzer, 1998; (Michael *et al*., 2006; Zohar, 1980; Vinodkumar & Bhasi, 2010). Therefore, it is important to look into this safety communication further in order to have better understanding of its relationship with other safety outcomes.

Effective safety communication, according to Vecchio-Sadus (2007) should include: "[a] clear communication and open discussion regarding safety issues with all employees from different levels within one or more organizations, [b] encouraging safe behaviour by providing feedback and [c] implementing a lesson-learned programme for safety". Besides, effective communication mechanisms are crucial to engage employees in safety activities, to gain cooperation and support, and to maintain a positive culture (Cigularov *et al*.,, 2010). As a result, clear and constructive safety communication can improve the safety knowledge and give better understanding which can lessen risk behaviour as well as enhancing safe work practices.Researchers (Alsamadani *et al*., 2013; Vecchio-sadus, 2007) stated that safety communication can be modelled as either formal or informal communication, and also comes in numerous types such as policies and procedures, incident reports, workplace inductions and performance statistics. Formal safety communication included any sharing of safety knowledge that occurs through channels that are pre-established specifically for safety-related work such

as formal communication from upper management (i.e. weekly meeting), formal written communication (i.e. poster, signage and notice board), toolbox talks (i.e. briefing about the instructions and rules before doing the task or job), and training (i.e. for the new workers as to ensure they know and understand the workplace environment and how to handle the problem that related to safety works). There is also an informal communication among employees which is ad hoc communication (Alsamadani *et al*., 2013).

In addition, most studies had investigated and explored the safety communication between supervisor and subordinates as both of them have showed that they are the people that always involve in this kind of interaction almost every time. Besides that, researchers have used several approaches in an endeavour to clarify the relationships between communication and safety-related issues (Michael et.al, 2006). For instance, Kines *et al*. (2010) showed that the foremen and subordinates daily verbal exchange is significantly increases in employees' safety performance and the physical safety level of the work site. In another study, Vinodkumar &Bhasi (2010) reported that safety communication and feedback is positively related to safety knowledge, meanwhile indirectly related to safety compliance. In addition, Hassan *et al*. (2009) also indicated that communication and feedback is significantly related to injury rates (i.e. negative relationship). In contrast, communication of safety issues between supervisor and workers has little direct effect on the worker's safety related event (Michael *et al*., 2006). Meanwhile Siu *et al*. (2004) argued that communication was significantly not related to safety performance.

Communication is as a medium which leaders and subordinates form, nurture, and sustain useful exchanges. The high-quality of exchanges advocated in LMX theory is an inextricably bound to effective communication. Effective leadership occur when the communication of leaders and followers is characterized by mutual trust, respect, and commitment (Northouse, 2010).

Leader Member Exchange:

Leader-member exchange (LMX) refers to the quality of the exchange relationship that exists between superiors/supervisors and subordinates (Graen & Uhl-Bien, 1995). In other words, LMX theory viewed leadership as a dyadic process that is centred on the interactions between leaders and followers. The LMX theory was proposed first by Graen and Dansereau (1975), states that leaders and followers form and develop their relationship through a series of interactions including observations, tryouts and conversation throughout a time period (Graen & Scandura, 1987).

In the early studies of exchange theory (i.e. vertical dyad linkage), researchers focused on the nature of the vertical linkages leaders formed with each of their followers. However, recent studies have focus on how the quality of the leader-member exchange related to positive leader, members, groups and organizational outcomes (Graen & Uhl-Bien, 1995). In a high quality, leaders and workers are engaging in a highly interactive exchange process that should encourage a more positive and open environment (Northouse, 2010). Besides, under high quality of LMX, employees will engage in both in-role and extra role behaviours that are perceived as desired by superiors and the organization (Michael *et al*., 2006; Northouse, 2010). Researchers (Harris *et al*., 2009) also argued that employees who develop high-quality leader-member relationships will get advantage which including increase job-related communication, full access to supervisors, preferential treatment and performance related feedback. In contrast, employees who have low quality of LMX will have limited trust and support from supervisor.

Past research has indicated that LMX has a positive relationship with several important outcomes such as job satisfaction, communication satisfaction, organizational commitment, safety commitment and accidents, and work performance (Ang *et al*., 2005; Hofmann *et al*., 2003; Kee *et al*., 2004). In addition to this, researchers also revealed that high-quality leader-member exchanges generates greater work commitment, better job attitudes, high work performance and reduce employee turnover (Graen & Uhl-Bien, 1995; Northouse, 2010). Specifically, the LMX has a relationship with safety commitment and accident (Michael et.al., 2006) and safety performance (Zohar & Luria, 2003).

Safety Commitment:

Safety commitment refers to "an individual identification with and involvement in safety activities, characterized by a strong acceptance of and belief in the organizations safety goals and a willingness to exert effort to improve safety in the workplace" (Cooper, 1995 pp. 2). Numerous studies on safety had discussed about the safety commitment in the workplace(Vinodkumar & Bhasi, 2010; Wu *et al*., 2008). According to Rosli *et al*. (2010) employees' safety commitment is reflected to employees' attitudes and behaviours. Safety commitment is vital as "the intensity of this commitment tends to determine both an individual's acceptance of company safety initiatives and their personal approach towards safety in the workplace" (Cooper et.al. 1995 pp. 2). In addition, Rosli *et al* (2010) argued that the employees who have high level of safety commitment are able to identify the hazard at the workplace; always comply with safety rules and procedures, and willing to involve in safety activities.

Safety behaviour refers to how the workers comply to the rules and procedures (Hsu *et al*., 2008). Employees can perform safe and unsafe act when they carry out their work. Behaviour of the employees in the work environment is necessary in order to reduce or increase the safety-related issues. Several studies emphasize that safety climate and safety behaviour has positive relationship (Mohamed, 2002; Neal *et al*., 2000; Neal & Griffin, 2006). In addition, safety behaviour, according to Neal and Griffin (2006) has two components: safety compliance and safety participation. Safety compliance is described as the core safety activities which need to be carried out by employees to preserve workplace safety, such as follow safety policies and procedures by wearing personal protective equipment (Neal & Griffin, 2006). According to Dekker (2005) and Hopkins (2011), the main contributor to the accident in the workplace is lack of compliance with rules and procedures (cited in Dahl, 2013).

As a part of safety behaviours, safety compliance also becomes a determinant to safety commitment (Rosli *et al*., 2010). Previous research studies have found that safety compliance has several relationships with other variables such as safety climate (i.e. management commitment to safety, safety system, and safety communication), safety attitudes, leadership and management practices (Clarke, 2006; Vinodkumar &Bhasi, 2010). For example, safety communication has a relationship with safety compliance (Griffin & Neal, 2000; Parker *et al*., 2001) and supervisor leadership style has positive associate with safety compliance (Flin & Yule, 2004). Safety participation is describe as employees that willing to involve in voluntary safety activities such as attending safety meetings, promotes safety and its principles, and helping co-workers. However, scholars asserted that safety participation might be not directly contribute to workplace safety, but assist in developing and creating positive climate that maintain safety (Griffin & Neal, 2000; Saeed *et al*. 2013).

Conceptual Framework:

Based on the above discussion a conceptual framework is proposed. It is conceptualized that safety communication and leader-member exchange will predict safety commitment (in terms of safety compliance and safety participation). Figure 1 shows the proposed conceptual framework of the study.

Safety Commitment:

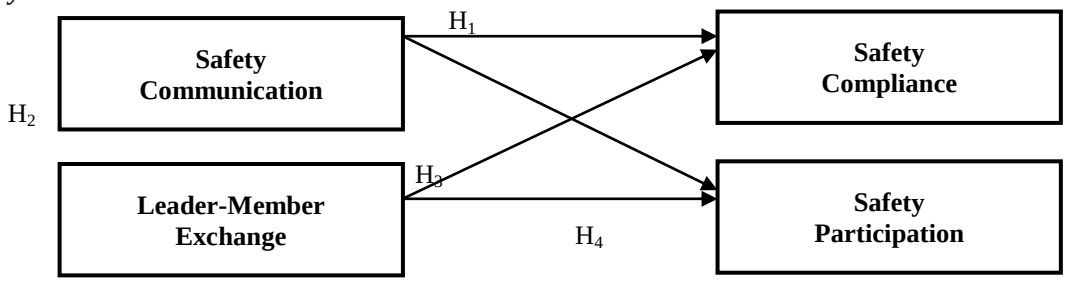

Fig. 1: Conceptual Framework of the study

Based on the above framework, four hypotheses are proposed to be tested in future research.

H_1. There is a positive relationship between safety communication and safety compliance
H_2. There is a positive relationship between safety communication and safety participation
H_3. There is a positive relationship between leader-member exchange and safety compliance.
H_4. There is a positive relationship between leader-member exchange and safety participation.

Conclusion:

This conceptual paper emphasizes the linkages between safety communication, leader-member exchange and safety commitment. The present study extends Michael *et al*. (2006) model by integrating safety commitment as a potential dependent variable of safety communication and LMX. Additionally, it bridges the gap and enhances the empirical literature by integrating safety communication, LMX and safety commitment in a single model. It is hence imperative that future researchers validate the proposed conceptual framework in the safety critical organizations, particularly in oil and gas setting.

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