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SAFETY-SPECIFIC TRANSFORMATIONAL LEADERSHIP, SAFETY MANAGEMENT PRACTICES AND SAFETY MOTIVATION IN PETROLEUM INDUSTRY

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Abstract

This is a conceptual paper to study the effects of factors on safety motivation in companies from Chinese Petroleum Industry. As Petroleum Company belongs to high-risk organizations so the safety motivation from employees is very important for organizational safety programs and records as employees with high safety motivation tend to contribute more voluntary and extra efforts to workplace safety. An excellent safety record and performance could facilitate companies from Petroleum Industry to gain a good reputation and credible operation in the public, which could benefit the petroleum company in the long run. The study reviews literature on safety-specific transformational leadership, safety management practices and safety motivation in Chinese Petroleum Companies. This paper aims to analyse two variables, which are safety-specific transformational leadership and safety management practices on safety motivation. The variables outlined in this paper are analysed under the theoretical framework of leader member exchange (LMX) theory. This framework is suitable for this study as it helps researchers gain the understanding that how safety-specific transformational leadership and safety management practices influence safety motivation in the Chines Petroleum Companies. This study aims to examine the variables from both individual and organizational perspectives in order to gain a comprehensive picture of the variables that could influence safety motivation in companies from Chinese Petroleum Industry.

Keywords: Safety-specific Transformational Leadership, safety management practices, safety motivation.

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1. Introduction

The petroleum resources in China are concentrated in the eight basins, which are Bohai bay, Song Liao, Tarim, Ordos, Junggar, Pearl River Estuary, Qaidam and the East China Sea shelf with the recoverable resources of 17.2 billion tons, which accounts for 81.13% of the country total resources. In terms of geographic distribution, 76% of China's recoverable oil resources are distributed in plain, shallow sea, gobi and desert while 74 % of recoverable natural gas resources are distributed in shallow sea, desert, mountain, plain and gobi. Since the early 1950s, China has carried out oil and gas explosion in 82 major large and medium-sized sedimentary basins and discovered more than 500 oilfields (China Oil and Gas distribution gap, 2018). Petroleum industry is exposed to potential hazards and likely to occur fatal injuries, which needs to pay high attention on safety performance of employees and safety outcomes of organizations. Petroleum industry belongs to the top five high fatal injury rate industries among the other world industries (Fatal Injury Rates by Industry, 2017). Petroleum Company contains several major hazards related with human beings' health, safety and environment as operations are under the interactively complex and tightly coupled social-technical system (Vijalapura et al., , 2018). Petroleum Companies in China faces many fierce competitions such as extra-large state-owned Petroleum Company and large foreign-owned International Petroleum Company competition, which means an excellent safety records and a good reputation are extremely vital especially for domestic Petroleum Companies in China especially private companies. However limited research focus on employee safety motivation in Chinese Petroleum Companies, which is predicted by safety-specific transformational leadership and safety management practices from both individual and organizational perspective. This is due to the general idea that as long as employees comply with safety rules and procedures safety performance should be achieved actually safety program prompt and safety maintain by employees are needed also. Nevertheless, employees with more safety motivation will exert more voluntary efforts to promote safety programs insides the Company, which will bring more benefits to the Petroleum Company in the long run. This research aims to fill this gap and studies the safety motivation from both group and organizational perspectives in companies from Chinese Petroleum Industry.

This conceptual paper has a number of variables, which are safety-specific transformational leadership and safety management practices aims to examine if there exist relationships between these two variables and safety motivation of first line workers in the Chinese Petroleum Companies. This study is designed for Petroleum Companies to grasp the knowledge of how to motivate their employees from individual perspective and organizational perspectives in order to help gain the positive perceptions of employee, which benefits in achieving high safety records and low injury rates in Petroleum Industry. Hereby, the research framework for current study is discussed and proposed as below.

1.1. Safety-Specific Transformational Leadership

Supervisors should offer supportive behaviours and deliver safety value, which can increase safety concerns of employees (Prussia et al., 2018). Transformational leadership includes four components, which are idealized influence, inspirational motivation, individual consideration, and intellectual stimulation could reflect the commitment and support of supervisors and safety-specific transformation leadership is identified as a special transformational leadership in safety area, which could create a safe working

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environment and increase the employee motivation to participate in safety promoting program (Shen et al., 2017). In fact, the original transformational leadership dimensions such as idealized influence refers to the degree to which employees regard their leaders as an example and follow their leaders' behaviour while inspirational motivation means that employees are encouraged to seek for something beyond their own objectives in an inspirational way. Moreover, intellectual stimulation involves inspiring employees to be innovative and creative and individualized consideration refers to the concern and respect from leaders on individual employees (Bono & Judge, 2004). Leaders with idealized influence focus on the long-run productivity instead of short-term profits. Leaders with high level of idealized influence could communicate safety as a core value through their own behaviour and commitments, which are critical for employee safety performance (Shen et al., 2017). Leaders who demonstrated inspirational motivation persuade their subordinates that they can achieve safety levels, which are previously considered unattainable now could be achieved in an inspirational way by using symbols and stories to state the mission (Toderi et al., 2016). Leaders with intellectual stimulation tend to encourage and challenge their subordinates to confront long-held assumptions and motivate subordinates to have an innovative way of thinking to improve and enhance occupational safety (Prussia et al., 2018). In addition, when transformational leadership is connected with safety-specific point the definition will be correspondently changed in order to meet the concept of workplace safety, which reflects that how leaders value and balance production targets and safety (Hansez & Chmiel, 2010). Safety commitment by the leaders in the workplace is very important to help employees gain the perception of management support, which in turn influence their safety motivation (Jiang & Probst, 2016). The commitment on safety from management plays an important role in the employee safety motivation and safety performance in the workplace (Hoffmeister et al., 2014). It is said that the competency and commitment of the supervisors are the driving factors to improve employee safety motivation and reduce the accident rate and compensation cost which could benefit both employees and organizations (Nicole et al., 2018). Hoffmeister et al. (2014) explored the four dimensions of transformational leadership on safety to predict the safety outcomes whereas got a conclusion that idealized influence from safety-specific transformational leadership dimensions has the strongest relationship with safety outcomes. In this degree, safety-specific transformational leadership will be more suitable to be adopted in the Petroleum Industry to examine the relationship with safety motivation.

1.2. Safety Management Practices

Safety management practices that are perceived by the employees are highly related with safety environment in the workplace. The role of organization is essential for workplace safety (Mearns et al., 2003). In this study, six dimensions of safety management practices adopted which are management commitment, safety training, employee involvement, safety communication and feedbacks, implementation of safety rules and safety procedures and safety promotion policies will be applied. Leaders with high-level management commitment focus on the long-run productivity instead of short-term profits. Perceived safety commitment from organization has an important influence on individual safety performance and organizational safety outcomes (Barling et al., 2002). In addition, management commitment refers to management has priority and efficient reaction for safety issues, corrective actions, safety meeting attendance, accident and near miss analysis and adequate personal protection equipments offer. Perceived management commitment from employees is highly significantly associated with safety performance in the

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workplace. Employee prefers to conduct more voluntary behaviour and probability to participate in safety-related exchange or activities that are motivated by norm of reciprocity if their managers concern and value safety and make their commitment to safety (Subramaniam et al., 2016). Moreover, safety training in safety management practices could facilitate safety programs and prevent potential hazards as comprehensive, effective and adequate safety training must be provided to new employees and other employees on a regular base in the organization to help employees gain certain knowledge. Safety training often includes safety hazard assessment, safety issue identification and emergency handle. Employee involvement refers to individuals or groups are involved in the upward communication and decision-making process flow within the organization, which offers employees a chance to make suggestions and express opinions for further improvements and final decision (Vinodkumar & Bhasi, 2010). Vredenburgh (2002) mentioned that safety promotion and reward system under the safety management practices could improve individual safety motivation and safety promotion policies, which could be measured by regarding safety conduct as an evaluating factor for promotion and rewards, hazard report encouragement, safety week celebration arrangement, healthy competition on safety issue and a welcome attitude from supervisors who report safety issues. Keffane (2015) adopted six-safety management practices (management commitment, employee involvement, safety training, safety communication and feedbacks, implementation of safety rules and safety procedures and safety promotion policies) to predict safety performance mediated by safety knowledge and safety motivation for the road safety. With the conclusion that safety training and safety promotion policy are positively related with safety motivation while management commitment and safety communication and feedback are positively correlated with safety knowledge, among them safety feedback is identified as most important safety management factor to predict the safety performance in the road practices. In this degree, safety management practices will be more suitable to be adopted in the Petroleum Industry to examine the relationship with safety motivation.

1.3. Safety Motivation

Motivated employee is ready to contribute more extra efforts for workplace safety. Safety motivation is an important factor for enhancing and improving safety performance so in the petroleum organizations under the high-hazard environment safety improvement and safety management constitute an essential part for the organizations (Griffin & Neal, 2000). Jiang and Probst (2016) stated that safety motivation was positively correlated with safety programs prompt mediated by transformational leadership, which indicated that safety motivation offers the potential for employees to take participate in safety programs. Safety motivation requires more voluntary and more willingness from employees to contribute to safety issues and safety programs in the workplace (Tay et al., 2017). Khaleghinejad and Ziaaldini (2015) pointed out that safety motivation and safety knowledge have a mediating role in the relationship between safety climate and safety performance, which could be an important factor to enhance and improve safety performance. In this study, the relationship between safety-specific transformational leadership, safety management practices and safety motivation will be examined. Griffin and Neal (2000) prompted that knowledge and motivation about safety are positively related with individual safety performance, which also have a mediating influence on the relationship between safety climate and individual safety performance. Hedlund et al. (2016) indicated that safety motivation is vital to enhance individual safety performance in the workplace. Bunner et al. (2018) stated that safety motivation had a direct positive

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relationship with safety performance. In this degree, safety motivation will be more suitable to be adopted in the petroleum industry. This section will explore the two variables, which are safety-specific transformational leadership and safety management practices and examine their influence on safety motivation of employees in Chinese Petroleum Companies.

1.4. Leaders-Member Exchange as Theoretical Background

Hofmann and Morgeson (1999) established link between leader-member exchange (LMX) and perceived organizational support (POS) with safety-related outcomes: safety communication, safety commitment and accidents, which concluded that LMX was significantly related with safety communication, safety commitment and accidents. LMX theory has widely been adopted to gain an insight on the job performance, work commitment, safety behavior, job satisfaction and turnover intentions (Mariani et al., 2017). Leader-member exchange (LMX) was explored to describe the quality of relationship between subordinates and leaders in the organizations. The commitment of management in this study identified under the leader-member exchange (LMX) theory is safety-specific transformation leadership, which includes idealized influence, individual consideration, intellectual stimulation and inspirational motivation. In this study management commitment under the leader-member exchange (LMX) theory result in implicit safety obligation then potential for safety motivation, which in turn benefits the leaders and the organizations in the long run. Michael et al. (2006) pointed out that under the high-quality relationship of leaders and members both in-role and extra-role behaviors will be conducted by employees within the leader and organizational expectation. Zhou and Jiang (2015) mentioned that high quality LMX could stimulate stronger motivation from employees as reciprocity, which may result in more in-role and extra-role behavior. Moreover, Mariani et al. (2017) conducted a study between safety climate and safety performance mediated by safety knowledge and safety motivation and moderated by LMX, which concluded that high-quality LMX is correlated with positive safety performance and citizenship behaviour engagement by employees in the workplace. The present study is conducted through the LMX theory to gain a better understanding for the interactions between supervisors and subordinates as safety motivation will help employees react to positive social interaction with management when a sense of respect, concern, trust and admiration is gained. Therefore, LMX is regarded as theoretical background for current study.

1.5. Hypothesis and Research Framework

H1: Safety-specific transformational leadership (idealized influence, inspirational motivation, intellectual stimulation, individualized consideration) is positively related with safety motivation.

H2: Safety management practices (management commitment, safety training, employee's involvement, safety communication and feedbacks, implementation of safety rules and safety procedures, safety promotion policies) are positively related with safety motivation.

Based on literature review and the gap identification the research framework for this conceptual paper is summarized as below (Figure 01):

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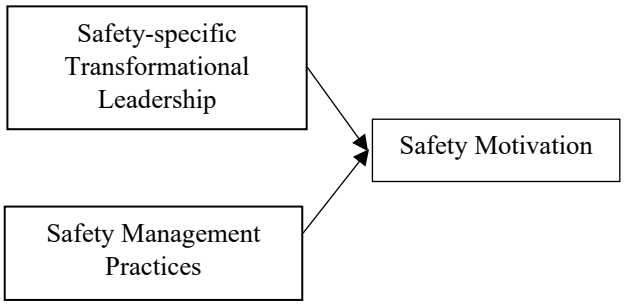

Figure 01. Research Framework

2. Problem Statement

Petroleum Company is the pillar of industrial development and economic growth to a country, however there are many challenges existing as the nature of petroleum products and raw materials. Petroleum Company has an interactively complex and tightly coupled social-technical system and potential hazards sometimes happen, which means material substances, processes and toxic environment have a potential threat to health and well-being of workers in Petroleum Company (Vijalapura et al., 2018). The first problem to be addressed in this research is that some employees tend to have lower safety motivation because of their negative perceptions of their leaders and organizational commitments. The commitments from leaders and organizations have a big influence on safety motivation of employee as the perception of employee on their management and organizational commitment decide employee actions and performance. However sometimes leaders make less commitment to the workplace safety and organizational safety management system is not sufficient which will cause negative perception of employees and low-level safety motivation (Fruhen et al., 2019). It is well-known that Petroleum Company belongs to the high-risk organizations so safety motivation from employees is very important as it could lead to higher safety records and lower injury rates. A possible reason of safety motivation from employees is especially important in these high-risk organizations is due to the potential hazards and nature of the organizations (Kulkarni, 2017). As long as accidents or incidents happen, the direct cost and indirect cost will be very large which will bring a bad influence on company such as compensation, penalty, new employee recruitment, new training fees, production delay, public reputation and so on (Sokolov & Giniatullin, 2015). No matter direct cost or indirect cost the organization will take a lot of energy and time which not only harms the employee but also the organization themselves. Employees with higher safety motivation is more likely to achieve high safety performance, which will make organizations keep high safety records and low injury rates (Hedlund et al., 2016). In the long run, this kind of Petroleum Company will gain more recognition and trust from the public which could increase the profits of the company. The procedure to deal with accidents and the cost of compensation for injured workers are very troubled which will take a lot of energy, time and money to deal with. The reason why a successful and responsible company always regard safety as equal as productivity or even the higher priority as they know the cost of failing to obey safety procedure is far more higher than safety production. Moreover, the cost of maintaining auxiliary units and equipments such as underground and above ground boreholes, drilling machine, transportation fee and new equipment purchase fee and power offer is also included as maintenance cost (Sokolov & Giniatullin, 2015). Workers'

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poor safety performance could result in high potential of accidents and induce high cost for manufacturer. Therefore, production should never be at the cost of people's life and must have the red line awareness of safety and environmental protection, safety production regulation and the responsibility system for environmental protection for Group Company or wholly owned subsidiaries directly under the controlling enterprises and institutions (Shen et al., 2017). Safety maintain needs to be emphasized by both leaders and employee as a highly valued and prioritized target (Michael et al., 2006). Employees with high-level safety motivation are willing to put more efforts to find effective ways and solutions that could reduce workplace accidents and incidents and prompt safety programs.

3. Research Questions

Therefore, the research questions for this paper are as below:

- What variables affect the safety motivation of employees in companies from Chinese Petroleum Industry?
- Which variable has the strongest influence on safety motivation of employees in companies from Chinese Petroleum Industry?

4. Purpose of the Study

This conceptual paper intends to identify and understand the two variables (safety-specific transformational leadership and safety management practices) that affect the safety motivation in Chinese Petroleum Companies through a quantitative research analysis approach. This study also aims to identify which variable (safety-specific transformational leadership or safety management practices) has the strongest influence on safety motivation in companies from Chinese Petroleum Industry.

5. Research Methods

5.1. Data collection method

Several Chinese Petroleum Companies were contacted through mobile phone and website e-mail. Among these Petroleum Companies, two of them agreed us to conduct questionnaire survey at its workplace. Support letters from HR departments in these two Petroleum Companies were gained at first. A formal cover letter, which described the confidentiality and anonymity of respondents was sent to each respondent before filling up the questionnaire. As the original questionnaire is in English language back-to-back translation method is adopted in order to make sure no ambiguity exists between original one and translated one. Due to the nature of tight work schedule of first line workers the translated questionnaire try to be made as pain as possible for easy understanding. Judgement sampling, which contains non-probability sampling and purposive sampling is adopted. Respondents are selected randomly and only full-time Chinese first line workers are targeted in these two Petroleum Companies.

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5.2. Sample size

In order to calculate the minimum sample size G* power 3.1 software was adopted with the settings: f^2=0.15 (medium), α=0.05 with the number of predictors two. The minimum sample size in this study calculated by G*power 3.1 software is 68.

5.3. Unit of analysis

The target respondents in this study are the first line workers in Chinese Petroleum Companies as they directly deal with the daily oil operation and production. First line workers in Petroleum Companies are more likely to be exposed to harsh and toxic environment with potential hazards. So, the full-time Chinese first line workers in Petroleum Companies are targeted in this study.

5.4. Measurement of variables

This questionnaire is self-administered and consists of two sections. The first section is about demographic information of respondents. Section B is about constructs items. Safety-specific transformational leadership comprises of 10 items adapted from Toderi et al. (2016) while safety management practices consists of 35 items adopted from Vinodkumar and Bhasi (2010). Safety motivation consists of six items adopted from Griffin and Neal (2000). Respondents were invited to answer the questionnaire on 5-point Likert scale from 1=strongly disagree to 5=strongly agree.

5.5. Data analysis

PLS-SEM (partial least squares structural equation modelling) would be adopted to examine the hypothesis and regression in this study, which is implemented by Smart PLS-SEM 3.2 version software. In PLS-SEM, both the measurement model and structural model analysis need to be assed.

6. Findings

No finding and conclusion are drawn as this is only a conceptual paper prior research study is performed.

7. Conclusion

In this conceptual paper the problem statement, purpose of the study, research questions, significance of the research, LMX theory, literature review, proposition and research framework are discussed. Two variables (safety-specific transformational leadership and safety management practices) are also identified to examine the relationship between safety-specific transformational leadership, safety management practices and safety motivation in Chinese Petroleum Companies. Petroleum industry belongs to the high-risk industry and potential hazards exist. Once the accidents happen, the loss will be large no matter from well-being of employee but also the economic loss occur. Safety motivation from employee plays a vital role in ensuring the safety operation of Petroleum Companies and safety records remain, which could benefit Petroleum Company in the long run. Safety motivation could facilitate employees to gain voluntary and more willingness to contribute to safety issues and safety programs in the workplace. Employees who have a high level of motivation are likely to conduct safety performance and put more extra

efforts to promote safety program in the workplace as well. This could help Petroleum Company gain more recognition and trust from the public, which could increase the profits of the company because of excellent safety records and low injury rates.

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