A STUDY ON SAFETY CLIMATE AS A MODERATOR ON THE RELATIONSHIP BETWEEN TRANSFORMATIONAL LEADERSHIP AND SAFETY PERFORMANCE

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To my beloved mother,

Thank you for your unconditional love, patience, understanding, and the strength you gave me when I needed it the most.

To my beloved father,

Continuing half of the journey without you was a real struggle. Even you are no longer here with me, I hope that I will continue to make you proud. My prayer is always with you. Al-fatihah.

To my siblings,

Thank you for the love and support.

To my family members,

Thank you for everything.

To those who stand by my side during my ups and downs,

I cannot thank you enough for your love, understanding and continuous support.

I am truly blessed to have you along this journey.

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ABSTRACT

The purpose of this study is to identify the moderation effect of safety climate to relationship of transformational leadership and safety performance in an airline company in Kuala Lumpur. A total of 121 questionnaires received from engineers in maintenance department. Questionnaires distributed consist of four parts; Part A (Demography), Part B (Transformational Leadership), Section C (Safety Climate) and Section D (Safety Performance). The questionnaires used the instrument of Safety Performance Scale (SPS), Multilevel Leadership Scale (MLQ) and Safety Climate Scale (SCS). The data were analysed by using descriptive statistics (mean, average and percentage) and inferential statistics (simple regression and hierarchical regression). The findings revealed that the level of safety performance and transformational leadership in this airline company were at high level, while safety climate was at average level. The result explained that there was significant effect between transformational leadership and safety performance. However, the findings discovered that safety climate in this company did not moderate the relationship of transformational leadership and safety performance. Furthermore, in this study, theoretical and practical implications of the findings are discussed and suggestions were given to the future researchers and also to the organization for future improvement.

ABSTRAK

Kajian ini bertujuan untuk mengenalpasti pengaruh iklim keselamatan dalam menyederhanakan hubungan antara kepimpinan transformasional dan prestasi keselamatan di sebuah organisasi penerbangan di Kuala Lumpur. Sebanyak 121 soal selidik diterima daripada jurutera daripada penyelenggaraan. Soal selidik yang diedarkan terdiri daripada empat bahagian; Bahagian A (Demografi), Bahagian B (Kepimpinan Transformasional), Bahagian C (Iklim Keselamatan) dan Bahagian D (Prestasi Keselamatan). Borang soal selidik tersebut menggunakan instrumen *Multilevel Leadership Scale* (MLQ), *Safety Climate Scale* (SCS), dan *Safety Performance Scale* (SPS). Data yang dikumpul kemudian telah dianalisis dengan menggunakan statistik deskriptif (min, purata dan peratus) dan statistik inferensi (regresi mudah dan regresi berhirarki). Dapatan kajian menjelaskan kepimpinan transformasional dan prestasi keselamatan di organisasi penerbangan tersebut adalah tinggi. Dapatan kajian juga telah menunjukkan iklim keselamatan dalam organisasi ini tidak menyederhanakan hubungan antara kepimpinan transformasional dan prestasi keselamatan. Selain itu, kajian ini turut membincangkan implikasi dapatan kajian dari aspek teori dan praktikal serta mengemukakan beberapa cadangan untuk pengkaji akan datang dan juga pihak syarikat bagi penambahbaikan di masa akan datang.

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SOCSO	Social Security Organization
OSH-MP	Occupational Safety and Health Master Action Plan
DOSH	Department of Occupational Safety and Health
NPD	Non-permanent disability
PD	Permanent disability
MLQ	Multiple Leadership Questionnaire
SPS	Safety Performance Scale
OSH	Occupational Safety and Health
SCM	Swiss Cheese Model
PPE	Personal Protection Equipment
OSHA	Organizational Safety and Health Administration
LMX	Leader-Member Exchange
VDL	Vertical Dyad Linkage
SPSS	Statistical Package for Social Science
ANOVA	Analysis of variance
SAS	Statistical Analysis System
PASW	Predictive Analytics Software
AMOS	Analysis of Moment Structure
SEM	Structural Equation Modelling
SCO	Safety Critical Organizations
P-P	Probability Plots
VIF	Variance Inflation Factor
IBM	International Business Machine Corporation

CHAPTER 1

INTRODUCTION

1.1 Introduction

The purpose of this study is to investigate the role safety climate to moderate the relationship between transformational leadership and safety performance. This study will be conducted in an airline organization of Malaysia. Few sections are discussed in this chapter includes background of the study, problem statement, research questions and objectives and hypotheses of the study. This chapter will also discuss the conceptual framework, scope of study, significance of the study, the limitations, and finally the conceptual and operational definitions.

1.2 Background of the Study

Social Security Organisation (SOCSO) of Malaysia is committed in promoting awareness of occupational safety and health in order to improve the social wellbeing of the employees. The strategy of promoting awareness of occupational safety and health, is outlined in the SOCSO's Strategic Plan 2011-2015 through the Occupational Safety and Health Master Action Plan 2011-2015 (OSH-MP 2015). In 2014, 248 programmes have been implemented by SOCSO in ensuring the reduction of accidents in workplace (OSH-MP 15). Prevention of workplace accidents will be effective if employers and employees are aware of the importance of having a safe and healthy workplace and culture. Workplace safety has been a concern for an organization and employees for many decades.

There are many factors that can affect safety performance in an organization. Previous researches discovered that safety performance was correlated with factors including safety management commitment, interaction of employees and supervisors, and open communications on safety (Zimolong and Elke, 2006). Zohar (2000) stated that connections between safety climate and safety performance are implied even if they are not always stated explicitly. Hale (2000) described safety climate as the attitudes, beliefs, and perceptions shared by natural groups as defining norms and values, which determine how they react in relation to risks and risk control systems. Safety climate is also one of the factors that contributes to improvement of safety performance in organization (Cheyne *et. al*., 1999).

Even though technical solutions have provided great gains in reducing incidents and accidents rate (Australian Transport Safety Bureau, 2004), but in many cases, these gains have plateaued and new methods are needed to improve the safety performance in the organization. Marsh *et. al*. (1995) identified management commitment as one of the vital factors in workplace safety. Management commitment to safety indicates the extent to which the organization’s top management demonstrates positive and supportive safety attitudes towards their employees’ safety

(Hsu *et. al*., 2008). Yule *et. al.*, (2006) stated that employees' perception of dedicated management's action to safety had resulted in accident reduction. Previous studies indicated that leadership fully influenced safety performance and suggest that leadership models such as transformational leadership behaviours in managers and supervisors (Barling *et. al*, 2002; Zohar, 2003; Keeloway *et. al*., 2006).

Künzle *et. al*. (2010) stated that leadership has a vital importance in occupational safety. Barlow and Iverson (2005) have suggested that there may be beneficial effects of different leadership styles and orientations with occupational and organizational safety performance. There are positive connections between leadership and employee, unit and organizational safety records (Hofmann and Morgeson, 1999; Zohar, 2002a). These findings suggest that leadership styles particularly oriented towards safety, promoting change, exemplary safety role modelling, and a positive leader-member exchange are crucial in improving safety outcome in the organization. Leadership behaviour is one of the factors for success of safety performance in organization (Künzle *et. al*, 2010). Supervisors play an important role in ensuring the safety in the workplace and employees adhere to safety rules and procedure when the employees perceived that their supervisor was fair (Yule *et. al*., 2006; Yang *et. al*. (2009).

According to Crocker (1995), employees tend to work more safely under a supervision of a supervisor who respects their subordinates and their contribution. The employees will work more safely when their supervisor regards safety is equally important as production (Samra *et. al*., 2009). Based on a study conducted by Sawacha *et. al.* (1999), the authors stated that employees' expectation of their supervisor's safety attitude was relatively high. The employees see their supervisor's attitude towards safety as an influence upon their behaviour on workplace. Transformational leadership is a leadership style which concern for employees' welfare and effective in dealing with safety performance (Bass and Avolio, 1997; Flin and Yule, ,2004). Transformational leader behaviours are directed towards inspiring and motivating the employees to improve occupational safety performance (Reid *et. al*., 2008).

1.3 Problem Statement

Workplace accident became worst and known to be a major concerned to the organizations around the globe. Occupational accidents pose a serious risk to employees, companies, and to the society as a whole. Fatalities, physical and mental injuries, employee absence, and legal action are only a subset of the consequences of occupational accidents. Safety at workplace needs to be seriously addressed and promptly monitored. Despite the obvious necessity to reduce accidents at work, occupational accidents still happen quite frequently. According to Social Security Organization (SOCSO) 2014 Annual Report, the total payment for Temporary Disablement Benefit increased by RM16.51 million to RM166.78 million in 2014. The amount increased 10.99% compared to RM150.27 million in 2013. The amount continue to increase in the following year. In 2015 Annual Report, SOCSO reported the total payment for Temporary Disablement Benefit increased by RM11.08 million or 6.64% to RM177.86 million, compared with RM166.78 million in 2014.

The expenditure for Permanent Disablement Benefit in 2013 is RM392.77 million and increased by RM55.74 million to RM448.51 million in 2014. In 2015, the amount increased by RM22.09 million or 4.93% to RM470.60 million compared to 2014. At the same time, the cumulative number of Permanent Disablement Benefit recipients also increased to 36,530 persons in 2014 as compared to 35,049 persons the previous year. Report from Department of Occupational Safety and Health (DOSH) indicated that the national occupational accident rate per 1,000 workers for 2014 is 3.10 and 2.81 in 2015. The occupational fatality rate (per 100, 000 workers) increases from 4.21 in 2014 to 4.84 in 2015. Until May 2016, the occupational accidents statistic shows that there are 97 deaths, 1571 non-permanent disability (NPD) and 61 cases of permanent disability (PD). These figures indicate the poor safety performance in organizations. Putting the brake on the rising number of accidents in workplace needs more efforts and in-depth understanding on the factors that influence the safety performance in an organization.

In the context of safety, leading indicators are measures that allow an organization to predict specific outcomes. By assessing leading indicators organization should be able to identify risk in safety, thus enabling early intervention of safety in order to prevent injuries (Joseph, 2010). Lack of attention given to safety performance is one of the factors of the rising occupational accidents (Jiang *et. al*., 2010). Despite decades of technological advances in safety systems and equipment, the decreasing return of such investment indicates the need for increased effort to understand the human contribution to accidents (Clarke, 2010). Human factors contributed to 80 – 90% of all industrial accidents as people neglected the procedure in doing their job (Fleming and Lardner, 1999).

According to Groom (2006), the organization that able to measure occupational safety related outcomes but lacks of leader who are able to encourage the employees to work safely, the vision of improving safety performance cannot be realized. It is argued whether the leadership style of supervisors can affect the safety performance of the organization. (Walumbwa *et. al*.,2004; Avolio *et. al*., 2004; Murphy, 2003). Leadership behaviours have been associated with safety-related variables in a number of studies (Clarke, 2013; Cronchie and Donald, 2009; Kelloway *et. al*., 2006; Groom, 2006; Zohar, 2002; Zacharatos *et. al*., 2005; Sivanathan *et. al*., 2005; Griffin and Neal, 2000; Barling *et.al*., 2002). Without good leadership, an organization will have no vision of where the company is aiming to get to, the priorities are not clear versus other business objectives, and people are confused and receive mixed message about safety (Bryden, 2002).

When safety is disregarded by the supervisor, an unsafe behaviour will increase an affect safety performance in the organization (Zohar and Luria, 2004; Zohar, 2002). As observed by Stone *et. al*. (2004), transformational leaders can exert a very powerful influence over followers who trust and respect their leaders. This becomes a setback where some leaders may possess narcissistic characteristic and have tendencies to manipulate the followers. Some followers may have dependant characters and form strong and unfortunate bonds to their leaders and the leaders tend to use their charisma in oppressive and unjust ways (Rosenthal and Pittinsky, 2006;

Sankowsky, 1995). This will cause problems in safety where the leaders prioritize production over safety, which, in turn, will increase workplace accidents (Clarke, 2006a).

Safety climate is one of the leading indicators to assess safety performance in the organization and influence safety-related outcome (Yule *et. al.* ,2006). Perceptions of poor workplace safety climate and unhealthy work environment can contribute to increased workplace accidents (Neal & Griffin, 2004; Vredenburgh, 2002). Negative safety climate is when the environment of the workplace does not signal a strong commitment to safety (Hofmann *et. al*.,2003). It would be expected that negative perceptions of the work environment would lead negative safety climate and this will affect safety performance. Thus, perceived safety climate will predict occupational accidents (Clarke, 2010). Hofmann *et. al*., (2003) investigated the moderating effect of safety climate; under conditions of lower rated safety climate, leader-employee relationship will produce weaker safety citizenship which will give negative impact on safety performance in the organization.

SOCSO reported increased number of accidents in supporting services to air transport industry for three consequence year. The total accidents reported in 2013 is 84. The number increased to 91 accidents in 2014. The accidents reported in 2015 is the highest, with 101 cases, increased 11% from previous year . Numerous accidents occurred because of human errors. As the tasks involving safety are performed by human, tendency of errors will somehow happen. The rising numbers need more attention on the causes and the prevention strategies to ensure the safety in the airline company.

1.4 Research Questions

1.4.1 What is the level of safety performance in the organization based on respondents' perception?

1.4.2 What is the level of transformational leadership of respondents' immediate supervisor?

1.4.3 What is the level of safety climate in the organization based on respondents' perception?

1.4.4 Does transformational leadership affect safety performance in the organization?

1.4.5 Does the effect of safety climate moderate the relationship of transformational leadership on safety performance in the organization?

1.5 Purpose of Study

This study is designed to investigate the degree and strength of any association between transformational leadership and safety performance. This study also seeks to uncover the effect of safety climate to moderate the relationship of transformational leadership and safety performance at one of airline companies in Malaysia.

1.6 Research Objectives

1.6.1 To examine the level of safety performance in the organization.

1.6.2 To identify the level of transformational leadership of respondents' immediate supervisor.

1.6.3 To measure the level of safety climate in the organization.

1.6.4 To examine the effect of transformational leadership on safety performance in the organization.

1.6.5 To determine the effect of safety climate to moderate the relationship between transformational leadership and safety performance in the organization.

1.7 Hypotheses of the Research

Hyphothesis 1 (H_1)

There is a significant effect between transformational leadership and safety performance.

Hyphothesis 2 (H_2)

Safety climate moderates the relationship between transformational leadership and safety performance.

1.8 Conceptual Framework

Figure 1.1 explains the framework of the research. Safety performance is the dependent variable while transformational is the independent variable in the research. Safety climate acts as moderator that would affect the relationship of transformational leadership and safety performance. Level of transformational leadership is expected to have direct effect on the level of safety performance. Safety climate is a factor that assists the transformational leadership to reach the desired level of safety performance.

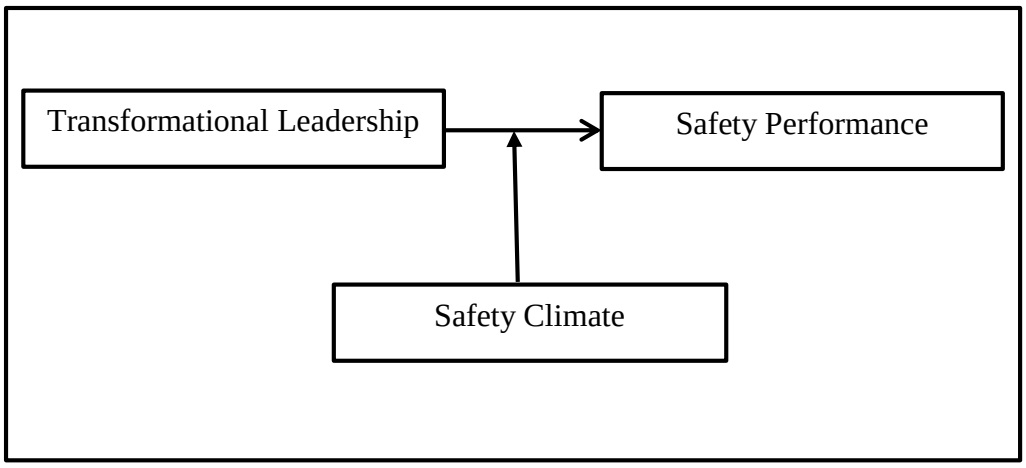

Figure 1.1: Conceptual Framework

1.9 Scope of the Study

This study was conducted among the employees of an airline organization in Malaysia. Specifically, the sample of 136 from 210 employees of maintenance department were involved in this study. Transformational leadership is the dependent

variable of this study. Transformational leadership refers to leaders who possess leadership traits that able to inspire and motivate their followers to achieve extraordinary outcomes, followers' satisfaction and commitment to the group and organization. Multiple Leadership Questionnaire (MLQ) by Bass (1985) was used to measure the transformational leadership traits of the respondents' leaders. It comprises of four dimensions namely intellectual stimulation, individualized consideration, idealized influence, and inspirational motivation.

Safety climate is the moderator in this study and it refers to the perception of the employees towards the overall safety practices in the organization. Safety Climate Scale used for this study is adopted from Lin *et. al* (2008) which comprises of seven dimensions: safety awareness and competency, safety communication, organizational environment, management support, risk judgment , safety precautions and safety training. Safety performance is the dependent variable in this study which refers to performance in an organization's safety management. Safety performance in this organization will be measured using Safety Performance Scale by Wu *et. al*. (2008). It consists of six dimensions with total 39 items: safety organization and management, safety equipment and measures, accident statistics, accident investigations, safety training practice and safety training evaluation.

Questionnaires were distributed to the respondents to obtain the information needed for the study. The population was divided to four working shifts. The researcher distribute the questionnaire based on convenience sampling method. The researcher distributed the equal amount of questionnaire to each shift. The questionnaires were distributed to the employees who are readily available at the time when the questionnaire distributed.

1.10 Significance of the Study

The findings of this study should make contribution to theoretical and practical aspects. It intends to enrich the recent ideas and provides understanding on transformational leadership, safety performance and safety climate. Empirical findings from previous studies will be discussed in this study which will provide detailed knowledge whether transformational leadership directly affect safety performance in an organization and how safety climate play role as moderator on this relationship**.** As discussed earlier, transformational leadership has been often been cited as playing critical role in safety performance (Cooper, 2001; Geller, 2000; Grubbs, 1999). Hence, it is crucial to examine how the transformational leaders influence the safety at workplace. This is to provide the organization the better understanding of transformational leadership style and how it benefits the safety performance in the organization.

This study also provides significant contributions to organization on evaluating safety performance in the organization. This knowledge will enable the organization to take needed action to ensure the safety in workplace. Another significant aspect of this study is the evidence on the effect of safety climate to moderate the relationship of transformational leadership and safety performance. The safety climate assessment will enable the organization to reflect on how to improve problematic areas in their workplace. Organization can enhance their understanding of employees' perception on safety to improve safety in the workplace. This study also should expand the knowledge of the employer regarding the importance of employee perceptions as an effective measurement tool to improve the safety in the organization.

Empirical findings of this study will make significant contribution to practical safety situation in the respective airline organization. The findings of this study is hoped to be useful reference regarding transformational leadership, safety performance and safety climate to other future researchers. The study of safety climate as a moderator on the relationship of transformational leadership and safety

performance should contribute to more insights on the importance and functions of safety climate. Researcher also provide recommendations which perhaps may assist the organization to improve the working conditions and environment as well as avoid unwanted workplace accidents from happening.

1.11 Limitations of the Study

This study will be conducted among the employees in maintenance department of an airline company in Malaysia. It has few potential limitations. The result of the study cannot be generalized to all the airline companies since this study only covers one particular airline organization. However, the findings can be used as a guideline for other airline organization.. It is possible that perceptions of respondents on transformational leadership, safety performance and safety climate in other locations may be different. This will allow comparison across different locations for future study. Even though the only method used to measure the respondents' perception is by using questionnaires, but this method is an effective method to obtain information and date needed from respondents.

Due to time constrains, the researcher employs cross sectional study where data is collected just one time in order to answer the research questions. This will allow the researcher to compare and analyse few variables at the same time. Cross sectional study is a method which is quick, easy and cheap to perform. Since the data will be collected only once, it is less time-consuming and inexpensive. The researcher will not require a lot of time to obtain the data needed and this method is not costly to perform.

1.12 Conceptual and Operational Definitions

1.12.1 Safety Performance

According to Wu (2001), safety performance is the overall performance of an organization's safety management system in safety operation. Safety performance is a subset of the overall performance of an organization (Wu, 2008). It is defined as the activities which management carries out to ensure safety in the workplace (Wu *et. al.*, 2009). In this study, safety performance is defined as the quality of work which able to maintain the safe workplace for the employees and decreasing the number of accidents and injuries which leads to good safety record. It will be measured from the six dimensions of Safety Performance Scale (SPS) by Wu *et. al.* (2008); safety organization and management, safety equipment and measures, accident statistics, accident investigations, safety training practice and safety training evaluation.

1.12.2 Transformational Leadership

According to Bass (1985) , transformational leadership allowed employees to realize the task of the significance, to motivate subordinates high-level needs, build the atmosphere of mutual trust, encourage subordinates work for the benefit of the organization to sacrifice their own interests, and achieve more than originally expected result. Burns (2012) believed that transforming leadership was a process of enhancing maturity and motivating level between leaders and subordinates. In this study, transformational leadership refers to four dimensions; idealized influence, inspirational motivation, intellectual stimulation and individualized consideration.. Transformational leaders demonstrate idealized influence when they act as role models for their followers.

The leaders are admired, respected, and trusted by their followers. Transformational leaders use inspirational motivation when they inspire their followers by to perform beyond expectation and help their followers to see their jobs as more meaningful and worthwhile. Next is intellectual stimulation which refers to the leaders' ability to increase their followers' innovation and creativity by getting them to question assumptions and see problems from new perspectives and approaches. And the last is individualized consideration that refers to leaders act as coaches and mentors to their followers by recognizing that individuals differ in their abilities as well as in their needs for growth and achievement. All dimensions are measured using MLQ by Bass (1985).

1.12.3 Safety Climate

Safety climate is the employee perceptions of overall safety at their workplace, which specifically defined as employees' perception of the management's commitment to safety (Christian *et. al*., 2009; Zohar, 1980). According to Wu *et. al*., 2008), safety climate is employees' imaging of safety conditions in the workplace; which then affect organizational safety activities and safety results. It refers to shared perception of the employees about the safety of their work environment, and provides a background of how daily tasks are performed (Hahn and Murphy, 2008). Safety climate is also defined as "the shared perceptions with regard to safety policies, procedures, and practices" (Zohar, 2003, p.125). In this study, safety climate refers to the perception of the employees towards safety in the organization includes safety awareness and competency, safety communication, organizational environment, management support, risk judgment, safety precautions and safety training.

All these dimensions of safety climate are measured using Safety Climate Scale (Lin *et. al.,* 2008).

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