SAFETY COMPLIANCE AT THE WORKPLACE: EMPLOYEES AT MANUFACTURING SMALL AND MEDIUM ENTERPRISES (SMEs) IN KEDAH

AMNAH BINTI SHEIKH ABDUL TAWAB AL-IBYARI

MASTER OF HUMAN RESOURCE MANAGEMENT
UNIVERSITI UTARA MALAYSIA
November 2017

SAFETY COMPLIANCE AT THE WORKPLACE: EMPLOYEES AT MANUFACTURING SMALL AND MEDIUM ENTERPRISES (SMES) IN KEDAH

By

AMNAH BINTI SHEIKH ABDUL TAWAB AL-IBYARI

Thesis Submitted to
School of Business Management
Universiti Utara Malaysia
in Partial Fulfillment of the Requirement for the Degree of Master in Human Resource Management

Pusat Pengajian Pengurusan Perniagaan
SCHOOL OF BUSINESS MANAGEMENT

Universiti Utara Malaysia

PERAKUAN KERJA KERTAS PENYELIDIKAN
(Certification of Research Paper)

Saya, mengaku bertandatangan, memperakukan bahawa
(I, the undersigned, certified that)
AMNAH BINTI SHEIKH ABDUL TAWAB (815155)

Calon untuk Ijazah Sarjana
(Candidate for the degree of)
MASTER OF HUMAN RESOURCE MANAGEMENT

telah mengemukakan kertas penyelidikan yang bertajuk
(has presented his/her research paper of the following title)

SAFETY COMPLIANCE AT THE WORKPLACE: EMPLOYEES AT MANUFACTURING SMALL AND MEDIUM ENTERPRISES (SMEs) IN KEDAH

Seperti yang tercatat di muka surat tajuk dan kulit kertas penyelidikan
(as it appears on the title page and front cover of the research paper)

Bahawa kertas penyelidikan tersebut boleh diterima dari segi bentuk serta kandungan dan meliputi bidang ilmu dengan memuaskan.
(that the research paper acceptable in the form and content and that a satisfactory knowledge of the field is covered by the research paper).

Nama Penyelia : **PROF. MADYA DR. ABDUL HALIM BIN ABDUL MAJID**
(Name of 1st Supervisor)

Tandatangan :
(Signature)

Tarikh : **16 MEI 2017**
(Date)

PERMISSION TO USE

This thesis is presented to satisfy in part the requirements of a postgraduate degree from Universiti Utara Malaysia. I hereby concur with the fact that the University Library may disseminate this article for free viewing. Also, I agree that consent may be granted by my supervisors or in their absence, the Dean of School of Business Management for reproducing this article in any manner, completely or partially, for scholarly purposes. I comprehend that without my written consent, no copying, publication or use of this article or part thereof for monetary gain will not be permitted. Any scholarly use of any information in this article will require due recognition to be given to me as well as Universiti Utara Malaysia.

Requests for authorization to reproduce or make use of any material in this thesis, in whole or in part, should be addressed to:

School of Business Management
Universiti Utara Malaysia
06010 UUM Sintok
Kedah Darul Aman

ABSTRACT

In 2016, the Malaysian government launched a total of 150 small and medium enterprise (SME) development programs with a total funding of RM 5 billion to assist more than 580 000 SMEs and their employees. With respect to long-term prospects, the SME Master Plan 2012 – 2020, apart from being intended to transform SMEs so as to achieve a high income nation status by 2020, is aimed to identify and facilitate the implementation of immediate actions to reduce the occupational death rate to 4.36/100, 000 workers and accident rate to 2.53/1000 workers, as well as to increase the quality of work poisoning to 30 percent through the enhancement of safety compliance at SMEs. The purpose of this study is to examine the positive relationships between (1) safety rules and procedures, (2) safety participation, (3) communication, (4) safety training, (5) management commitment, (6) work environment, and safety compliance. A cross-sectional study was conducted. Data was gathered through a questionnaire distributed to workers of the manufacturing sector of SMEs (n = 124). Data analysis was done using SPSS version 20.0. This study applied factor analysis, descriptive statistics, reliability analysis and inferential analysis to examine the relationships among the variables. Multiple regression results showed that the significant variables related to safety compliance are communication, safety training, and work environment and accounted for 63.6% of the total variance. The theoretical and managerial implications of the findings are discussed and the results of this study can be utilized by manufacturing SMEs, government agencies, general community, stakeholders, national social partners, and the general public to increase the efficiency and productivity of SMEs as well as competitiveness between organizations and employees to adopt a better quality of life as per standard OSH practices and effective safety compliance.

Keywords : *Small Medium Enterprise, safety compliance, safety rules and procedures, safety participation, communication, safety training, management commitment, work environment*

ABSTRAK

Dalam tahun 2016, Kerajaan Malaysia telah melancarkan 150 pelan program pembangunan dengan peruntukan sebanyak RM 5 billion untuk mencapai sasaran 580,000 Perusahaan Kecil dan Sederhana (PKS) serta pekerjanya. Kelihatannya dalam jangka masa panjang, melalui Pelan Induk Perusahaan Kecil Dan Sederhana (2012-2020), Perusahaan Kecil dan Sederhana bukan sahaja dijadikan sebagai platform untuk meningkatkan pendapatan rakyat Malaysia, sebaliknya pelan induk ini juga mengambil pendekatan pintas dalam perlaksanaan strategi yang efektif untuk mengurangkan kadar kematian di tempat kerja sebanyak 4.36/100,000 pekerja, kadar kemalangan kerja sebanyak 2.53/1000 pekerja dan seterusnya peningkatan sebanyak 30 peratus dalam kedudukan kualiti kerja dengan meningkatkan mutu amalan pematuhan keselamatan pada pekerja Perusahaan Kecil dan Sederhana. Tujuan kajian ini adalah untuk mengkaji hubungan positif antara prosedur dan peraturan keselamatan, penglibatan dalam keselamatan, komunikasi, latihan keselamatan, penglibatan pihak pengurusan dan keadaan persekitaran tempat kerja dengan pematuhan keselamatan dan kajian ini telah memilih kajian melalui keratan rentas. Data dikumpulkan melalui soal selidik daripada pekerja PKS (n=124). Data yang diperoleh dianalisis dengan menggunakan SPSS versi 20.0. Kajian ini telah menggunakan analisis faktor, statistik deskriptif, analisis kebolehpercayaan dan analisis jitu-untuk mengkaji hubung kait antara pemboleh ubah. Keputusan regresi menunjukkan bahawa hanya pemboleh ubah komunikasi, latihan keselamatan dan keadaan persekitaran tempat kerja yang signifikan dengan pematuhan keselamatan dan 63.6% menjelaskan jumlah keseluruhan varian. Teori dan implikasi pengurusan juga dibincangkan untuk memperkukuhkan hasil kajian. Semua maklumat yang diperoleh dijangka dapat dimanfaatkan oleh PKS terutamanya dalam sektor perkilangan supaya lebih efisien, berdaya saing sesama industri dan mempunyai kualiti hidup yang lebih baik melalui amalan pematuhan kepada keselamatan dan kesihatan di tempat kerja yang berkesan. Selain dari itu agensi kerajaan, organisasi awam dan swasta, masyarakat, pemegang saham dan semua PKS juga tidak terkecuali dari mendapat manafaatnya.

Katakunci : Perusahaan Kecil dan Sederhana, pematuhan keselamatan, garis panduan dan prosedur keselamatan, penglibatan dalam keselamatan, komunikasi, latihan keselamatan, komitmen pihak pengurusan, persekitaran tempat kerja

ACKNOWLEDGEMENT

"In the name of Allah, the Most Gracious and the Most Merciful"

All praises to Allah the Almighty for granting me the opportunity and ability to successfully complete this thesis. Also, I would like to express my heartfelt gratitude to the following people who have directly or indirectly helped and supported me in my quest to make this study a reality:

My lecturers

Associate Professor Dr. Abdul Halim Abdul Majid
Associate Professor Dr. Kamal Ab. Hamid
Associate Professor Dr. Norsiah Mat
Associate Professor Dr. Mohamad Yazam Sharif
Associate Professor Dr. Tan Fee Yean
Professor Dr. Khulida Kirana Yahya
Dr. Noraini Othman
Dr. Zurina Adnan
Dr. Hasannur Raihan Joader
Dr. Johanim Johari

My family members

My beloved mother, Khatijah Binti Lebai Said, thank you for your blessings.
My beloved husband, Alaudin Bin Shahidan, thank you for your patience and encouragement for me to believe in myself.

My supportive daughters and son

Nur Irdina Syamimi Binti Alaudin
Nur Aina Nabila Binti Alaudin
Nur Ellina Huda Binti Alaudin
Muhammad Alif Amsyar Bin Alaudin
Nur Sabrina Zahra Binti Alaudin
Thank you for helping me out with the household chores.

My brother

Brigadier General Datuk Mohd Nizam Bin Hj. Jaafar, for motivating me.

My sister

Nur Hafizah Binti Ishak for your invaluable contributions to this thesis.

My friends

Annuar, Beb, Cik Ta, Din, Fidt, Nur Ain, Nur Izzati, Su and Yong Salmah.
To all of you, thank you very much for the sharing of knowledge, commitment, kindness, moral support, understanding, patience, and love. May Allah bless all of us.

Ameen.

Table of Content

List of Tables

List of figure

List of Abbreviations

Abbreviation	Description of Abbreviation
SME	Small and Medium Enterprise
SOCSO	Social Security Organization
GDP	Gross Domestic Product
OSH	Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
DOSH	Department of Occupational and Safety Health
SMEWG	Small and Medium Enterprises Working Group
WEO	World Economic Outlook
DIPP	Department of Industrial Policy Promotion
OSH_MP15	Occupational Safety and Health Master Plan
EU	European Union
SCT	Social Cognitive Theory
SPSS	Statistical Package for Social Sciences
KMO	Kaiser-Mayer Olkin
VARIMAX	Varian Maximum

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The global economic activity is picking up in light of long-awaited recoveries in investments, manufacturing and trade (International Monetary Fund, 2017). The expected growth of the global economy is from 3.1 percent in 2016 to 3.5 percent in 2017 and 3.6 percent in 2018. According to (International Monetery Fund, 2016), as per the World Economic Organization WEO information released in January 2016, the global economic activity in 2015 remained subdued, but a growth of over 70 percent was seen in emerging markets and developing economies. Across the world, 95 percent of business companies are small and medium enterprises (SMEs), with the private sector accounting for approximately 60 percent of the total employment in such enterprises (Ayyagari, Demirguc-Kunt, & Maksimovic, 2011). Based on the 2016 European Commission report, SMEs are a backbone to the European Union EU28 economy simultaneously in 2015, circa 23 million SMEs generated €3.9 trillion in revenue and employed about 90 million people in the region. Approximately 80 percent of job opportunities in India came from SMEs. Also, the small medium business SMB Chamber of Commerce (a company in India) and Ministry of Micro, Small and Medium Enterprises reported that currently, the total number of SMEs in India is more than 48 million, which has created about 1.3 million job opportunities. In 2017, the Indian SME sector is likely to utilize both e-commerce and m-commerce to generate more revenue (Patil, 2016). In Malaysia, 362 099 businesses in the distributive sector were categorized as SMEs, which accounted

for 1.4 million employees, 1.0 million of whom are full-time employees receiving full pay (Department of Statistics Malaysia, 2015). All these overtly show that SMEs are essential all over the world, including Malaysia, in terms of human development, human resources, job opportunities, business development, business opportunities and national gross domestic products (GDP).

Under the SMEs Master Plan 2012 – 2020, the Malaysian government has taken measures to strengthen the role of SMEs in the growing global market by creating conducive business environments. The aim here is to increase their contribution to the national GDP to 41 percent and the exports to 23 percent by 2020 (SME Corp. Malaysia, 2012). The annual growth of the manufacturing sector was 4.3 percent in the first half 2016 and 4.1 percent by the end of 2016 (a 0.2 percent decrease) (SME Corp. Malaysia, 2016). Under the 2016 Malaysian Budget, RM 9.5 billion has been allocated to support the long-term development of SMEs. As such, SMEs in Malaysia are the main focus of this study because they play a vital role in the workforce and economic growth of the country. This is in spite of the fact that these SMEs are bound to face challenges pertaining to workplace environment and safety as well as workplace-related health issues, accidents, and injuries (including financial compensations for work-related injuries, diseases, and fatalities).

In 2015, the Malaysian Government allocated about RM 5 billion for 580 100 SMEs to increase their performance in the challenging economic environment. Part of the development programs included the improvement of safety and health standards through increased compliance to safety measures at their workplace (SME Corp. Malaysia, 2016).

Under the Occupational Safety and Health Master Plan 2015 (OSH-MP 15), the government will outline the strategies, visions and directions for improving the Occupational Safety and Health (OSH) circumstances at SME workplaces (Department of Occupational Safety and Health Malaysia, 2010a). Naturally, expanding companies tend to focus on income-generating efforts rather than internal development activities (Lien & Knudsen, 2012). Additionally, small enterprises frequently have a lack of knowledge regarding work-related hazards and safety regulations; hence most of them do not have formal systems for OSH management (Hasle & Limborg, 2006; MacEachen et al., 2010). In the EU28, even though SMEs represent 67 percent of businesses, their workers are more likely to be impacted by poor OSH (European Agency for Safety and Health at Work, 2015). Base on (European Union Occupational Safety & Health Administration, 2014) EU-OSHA report, SMEs accounted for 82 percent of work-related injuries in the European Union (EU) and from here, 90 percent of them occurred at the workplace. This scenario usually occurs in smaller firms whose total employee count is less than 20. They frequently experience a lack of necessary resources for occupational safety and health activities, which normally require external assistance (Cunningham & Sinclair, 2015). Previous studies have revealed that SMEs have a lower capacity to control and assess occupational risks compared to large companies (Beaver, 2003; Micheli & Cogno, 2010). Inefficiency in risk control is the reason behind the higher risk of injuries in smaller enterprises compared to the larger ones (Fabiano, Currò, & Pastorino, 2004; Mendeloff & Kagey, 1990; Steven, 1999; Suruda & Wallace, 1996). Malaysia is no stranger to this matter; the majority of SMEs have difficulties in complying with certain rules and regulations pertaining to OSH in light of poor

understanding of OSH standard practices and the high costs needed to comply with the said rules and regulations (SME Corp. Malaysia, 2012). In terms of intellectual property (IP), SMEs have limited internal capabilities to handle IP-related matters. To overcome this hurdle, the Department of OSH came up with the Small Medium Industry (SMI) Manufacturing Sector Strategic Plan 2016-2020 (Occupational Safety Health Master Plan,2020) to increase OSH standards and compliance levels in SMIs (including the manufacturing sector of SMEs) (Department of Occupational Safety and Health, 2016). The objectives of the OSH strategic planning model include promoting the adoption of effective preventive measures, encouraging OSH innovation, increasing the quantity and quality of OSH practitioners in SMIs, conducting OSH compliance studies, as well as increasing OSH knowledge and skills (Department of Occupational Safety and Health, 2016). This strategic plan is beneficial to the manufacturing company of SMEs to reduce their encumbrances on safety issues.

Compliance with safety measures is very important; all employers and employees need to work hand in glove to uphold safety at the workplace (Griffin & Neal, 2000). It is the responsibility of the employees to follow the safety procedures, rules and regulations laid down by the organization (Griffin & Neal, 2000; Inness, Barling, Turner & Stride, 2010). In Malaysia, the OSH Act 1994 (Act 514) has been enacted to protect the safety, health and welfare of workers from occupational hazards. However, the majority of SME employers and employees take lightly the compliance with the safety laws provided in the Act (OSH Act, 1994). The Department of OSH has undertaken several measures to protect the safety of workers by enforcing adherence to OSH guidelines and procedures

as outlined in laws like OSH Act 1994, Factories and Machinery Act 1967 (Revised 1974) (Act 139), Factories and Machinery Act (Amendment) 2006, OSH (Prohibition of Use of Substances) Order 1999, Factories and Machinery (Exemption of Certificate of Fitness for Hoisting Machine) Order 2015, Codes and Practice/ Guidelines, Chemical Management, Transportation and Industrial Hygiene (Department of Occupational Safety and Health, 2015). All SME workers in Malaysia are expected to be acquainted with and conform to the aforementioned rules and regulations as healthy lives are required in healthy businesses (Legg, Laird, Olsen & Hasle, 2014). To improve the awareness of the importance of OSH as well as instill a sense of responsibility regarding the same, the provision of compliance support to SMEs must taken into consideration. According to (National SME Development Council, 2012) SME manufacturing companies should support the Occupational Safety and Health Master Plan OSHMP 2020 to upgrade their OSH safety standards and safety administration systems (Department of Occupational Safety and Health, 2016).

1.2 Problem Statement

The main aim of Occupational Safety and Health Master Plan 2020 is to cultivate safe and healthy work cultures (Department of Occupational Safety and Health, 2016). In order to minimize the incidences of injuries, illnesses and deaths at the workplace, both employers and employees of Malaysian SMEs need to enhance their knowledge and fulfill their responsibilities with regards to OSH. If these become a reality, SMEs will undoubtedly see an increase in productivity and business performance. It is reported that manufacturing companies accounted for the highest number of cases of non-permanent

disabilities (605 cases) and permanent disabilities (40 cases) as compared to other sectors. State-wise, Kedah accounted for the highest number of disability cases (Department of Occupational Safety and Health, 2017), with the total number of accident benefit claims being 13 263 as of 31st December 2015 (Social Security Organization, 2015). Based on all these facts, Kedah appears to be a good place to conduct our research.

In 2015, the total number of reported industrial accidents in Malaysia was 32 258 and the industrial accident rate was 54 per 10 000 employees. Causes of the accidents include falling from height into pits holes, being struck by falling objects during handling, stepping on objects, striking against stationary objects, being caught in an object or between moving objects, over-exertion during lifting of objects, exposure to heat or cold, contact with hot or cold substances, contact with electric current, and so on (Social Security Organization, 2015). Some notable fatal accident cases reported in 2016 included a worker being hit by a forklift, another worker being electrocuted when the lorry when the lorry which he was driving touched the power lines, and yet another worker being hit by a shovel when he was sorting palm oil fruits (Department Occupational Safety Health, 2017). Accidents and injuries usually happen due to negligence in safety issues, especially non-compliance with safety regulations (Social Security Organization, 2015). Clarke (2006) reported the same findings, whereby many industries such as mining and transport fail to adhere to OSH regulations and do not take precautions against occupational hazards. Given that the above happenings are mostly seen in SMEs, the Occupational Safety and Health Master Plan OSHMP 2020 therefore

aims to promote safety cultures, improve competitiveness, prevent workplace accidents and injuries, encourage innovation, and developing safe work conditions (Department of Occupational Safety and Health, 2016).

Prior studies from Environment Agency have indicated that the majority of SMEs face a lot of barriers in complying with safety measures. These barriers include shortfalls in terms of money, time, experience, access to information, business support, knowledge about safety, and interest. Furthermore, most SMEs tend to focus on business survival rather than compliance with safety regulations. This is why the majority of SMEs have poor awareness of the relevant regulations. (Environment Agency, 2000; Gerstenfeld & Roberts, 2000; Groundwork Foundation, 1995; Hutchinson & Chaston,1995; Petts, 2000; Petts, Herd, Gerrard, & Horne, 1999). Another study has revealed that fear of punishment for poor OSH performance is a commonly-seen behavior of SMEs. This is in spite of the fact that SMEs frequently lack resources, expertise, commitment, and perceived financial benefit as compared to large business (Diugwu, 2011). In addition, a study conducted at petrochemical processing areas in Malaysia revealed that management commitment, employee involvement, safety communication, as well as effective safety training and feedback are the factors which contribute to the safety compliance (Fernando, Zailani, & Janbi, 2008). To become more resilient in the global market, SME entrepreneurs have to change their mindset, attitude and behavior towards the importance of adhering to safety regulations at the workplace, apart from transcending all hurdles in stimulating the growth of SMEs, (Department of Occupational Safety and Health, 2017). Factors such as safe operating procedures are an important part in the exercise to increase

the safety compliance. A violation of this factor results in workplace injuries at SMEs (Department of Occupational Safety and Health, 2015). The Department of OSH, which is under the Ministry of Human Resources, is responsible for enacting, managing, and enforcing the legislation related to this matter. The incident report by Company (2012) about the Second Penang Bridge ramp collapse, which left one foreign worker dead, stated that apart from the individual's carelessness, this incident can be attributed to negligence by the contractor. In another case which occurred in September 2015, a man fell from height at a construction site in Penang (Bernama, 2013; Department of Occupational Safety and Health, 2015). Both cases demonstrated technical negligence whereby the management has failed to adequately supply personal protective equipment (PPE) to all their employees, particularly to workers who really need these. Jiang, Yu and Li (2010) reported that the behavior of an individual can result in the violation of safety standards. Another study noted that the managerial factors which contribute to poor adherence to safety regulations are poor knowledge of safe work practices and a lack of awareness of enforcement and preventive services (Frick, 2011).

An empirical study reported that employees generally respond well to the efforts in improving adherence to safe work practices as well as further assignments to safety-related activities if the managers and supervisors show their commitment to promote safety at the workplace (DeJoy, Della, Vandenberg, & Wilson, 2010). In September 2012, a company director was fined RM 20 000 in light of his failure to provide a safe environment for construction groundwork, resulting in the collapse of a tower crane and the death of one man (Company, 2012). In September 2014, Hang Tuan Sawmill was

charged under Section 5(2) due to failure to report an accident at the workplace (Department of Occupational Safety and Health, 2014). These cases show that communications in code and practice play an important role in improving the safety compliance. The reason why the said compliance is poorer at SMEs is because their lines of communication are undersized and their configuration simple; they are always being pressured by large industries and the market to formalize their management structure as per the OSH requirements, which will grant them access to internal and external safety assistance and health expertise (Baldock, James, Smallbone, & Vickers, 2006; Cagno, Micheli, & Perotti, 2011; Hale & Borys, 2012; Hasle, Kines, & Andersen, 2009; Hasle & Limborg, 2006).

All SMEs have their own unique system to reflect the way by which they do business, control workplace hazards, as well as manage the safety and health of their employees at their respective workplaces. The objectives of the OSH Act 1994 (Occupational Safety and Health Act 1994) are (1) to secure the safety, health and welfare of persons at work against risk, (2) to shelter the persons at their place of work other than the persons at work against risk, (3) to promote an occupational environment for persons at work which is adapted to their physiological needs, and (4) to provide leeway whereby the associated OSH legislation may be progressively replaced by a system of regulations and permitted industry codes of practice (Occupational Safety and Health Act, 1994; Department of Occupational Safety and Health, 2010b).

As mentioned, most workplace accidents and injuries at SMEs in Malaysia SMEs can be attributed to the failure to follow safe operating procedures (Department of Occupational

Safety and Health, 2015). Empirical studies have shown that SME characteristics such as lack of resources, money, knowledge, and information about safety make it very difficult for them to create, manage, and maintain safety and health at the workplace (Hasle & Limborg, 2006; Legg, Olsen, Laird, & Hasle, 2014; Mayhew, 1999; Okun, Lentz, Schulte & Stayner, 2001; Steven, 1999; Walters, 2006). Evidently, the reasons for poor safety compliance at SMEs are the size of the companies and the level of awareness of safety among the workers (Unnikrishnan, Iqbal, Singh, & Nimkar, 2015). Hence, this study is done in the context of Malaysian SMEs in the state of Kedah to demonstrate that critical and existing factors – such as safety rules and procedures, safety participation, communications, safety training, management commitment and work environment – still have a positive impact on safety compliance.

1.3 Research Questions

The study aims to answer the following research questions:

i. Is there a positive relationship between safety rules/ procedures and safety compliance?
ii. Is there a positive relationship between safety participation and safety compliance?
iii. Is there a positive relationship between communication and safety compliance?
iv. Is there a positive relationship between safety training and safety compliance?
v. Is there a positive relationship between management commitment and safety compliance?
vi. Is there a positive relationship between work environment and safety compliance?

1.4 Research Objectives

The main objectives of this research are to examine and investigate the contributory factors to poor safety compliance as well as to identify the increment in workplace accidents and injuries at SMEs. Other objectives include:

i. To examine the positive relationship between safety rules/ procedures and safety compliance.
ii. To examine the positive relationship between safety participation and safety compliance.
iii. To examine the positive relationship between communication and safety compliance.
iv. To examine the positive relationship between safety training and safety compliance.
v. To examine the positive relationship between management commitment and safety compliance
vi. To examine the positive relationship between work environment and safety compliance.

1.5 Scope of the Study

This research focuses on the workers of the manufacturing sector of SMEs at the state of Kedah, Malaysia. Under the Kedah Master Plan 2013 – 2018, the state government led by Dato' Seri Mukhriz Mahathir launched the Kedah Economic Transformation Program to diversify the economic sector, which are involved especially SMEs in manufacturing (Kedah, 2013). Kedah has about 17 364 active employers and 235 233 employees. In the area of Alor Setar, the total numbers of active employers and employees are 8 190 and 97 052 respectively (Social Security Organization, 2015). As of December 2015, manufacturing companies accounted for most of the occupational accidents in Malaysia, with Kedah having the highest number cases of non-permanent and permanent disabilities among the 14 states in the country (Department of Occupational Safety and Health, 2015). So, manufacturing SMEs in Kedah must enhance their capability to stay

strong in the emerging market by improving safety compliance at their workplaces. To make this mission a success, factors such as safety rules and procedures, safety participation by workers, and good communication skills regarding safety issues are necessary. Other factors chosen in this study – safety training, management commitment and work environment – which are also big issues faced by manufacturing SMEs in Kedah, are also important to augment their awareness, competence and knowledge regarding safety and health issues. The unit of analysis in this study is all the manufacturing SME workers in Kedah. This is to identify the way by which the 6 aforementioned factors affect the safety compliance at SMEs.

1.6 Significance of the Study

This study substantiates previous literature on the relationship between safety rules and procedures, safety participation, communications, safety training, management commitment, work environment, and safety compliance. Additionally, it also helps in the understanding of the way by which the theory of reasoned action and social cognitive theory link the independent and dependent variables of this study. The findings may reveal useful information to SME workers and hence, contribute to increased safety compliance. The findings also enhance the validity and justification of the factors which influence safety compliance. From the results, it is clear that SMEs must take appropriate and practical actions to improve the safety rules and procedures, encourage employees' safety participation, improve communication channels, provide effective safety training, improve management commitment, and establish better work environments so as to make safe behavior a norm at the workplace.

Besides that, the findings may help the SMEs employers and employees who involved in this study acknowledge which factors give the big impact influencing safety compliance. Therefore, introduce and recommended strategic interventions to improve the poor safety compliance dilemma. Furthermore the SMEs organization and companies can endeavor to build up the safety compliance culture and behavior at their workplace. This study will provide a basis for the execution of more studies in the future related to inculcate safety compliance at the workplace.

1.7 Definition of Key Terms

Table 1.1
Definition of Variables In This study

TERM	DEFINITION
Safety Compliance	Is the way by which individual employees enhance their behavior towards safety and health (Vinodkumar & Bhasi, 2010)
Safety Rules and Procedures	Is a factor which can be explained with reference to the way workers respect their work environment (Glendon & Litherland, 2001)
Safety Participation	Is the employees' involvement and voluntary participation in safety-related activities with the intention of contributing to the development of a supportive and safe work environment (Griffin & Neal, 2000)

Communication	Entails effective conveying of the visions and values of an organization from the leaders to the employees. This is vital in the understanding of the goals and means of the organization (Ismail, Torrance & Abdul Majid, 2007)
Safety Training	Generally refers to the measures taken by the management to equip new employees with the skills needed to handle emergency situations, apart from discussion of safety issues, encouragement to participate in training programs and assessment of hazards (Vinodkumar & Bhasi, 2011)
Management Commitment	Is the perception of the employees with regards to the amount of emphasis placed by the management of an organization on safety, rather than the structural elements of safety (Vinodkumar & Bhasi, 2011)
Work Environment	Refers to the collective effort of the employees at the workplace to achieve the objective of the organization (Awan & Tahir, 2015)

1.8 Organization of the Thesis

Five chapters are present in this thesis.

The background of the study and the problem statement were presented in chapter one. It also outlined the questions, objectives, scope and significance of this research, apart from providing the definitions of the key terms (or variables).

Chapter two initially provides a more detailed description of the research scope. Then, the outcomes of the literature review with respect to the dependent and independent variables are expounded. The behavioral theories related to this study are also included at the end of the chapter.

The next chapter discusses the research framework, proposal and design, apart from the operational definitions of the variables and the methods of measuring them. The procedure of the research – which includes questionnaire-designing, data collection, pilot study, sampling methods and techniques of data analysis – are elucidated here as well.

Chapter four concerns the results and discussion with regards to the demographic data, factor analysis as well as hypothesis tests. Meanwhile, the final chapter highlights the main findings of this research apart from describing the study implications, constraints and recommendations

1.9 Conclusion

An introduction to the study – which included the study background, issues, problems, questions, goals and significance – has been provided in this chapter. The next chapter gives the findings of the literature review.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter includes the literature review of the independent and dependent variables, as well as information on the scope of this study, i.e. workplace environment of the manufacturing sector of small and medium enterprises (SMEs). After that, the hypotheses is proposed, the research framework outlined, and the conclusion stated.

2.2 Research Scope – Workplace Conditions at Small and Medium Enterprises (SMEs)

Workplaces are sites at which employers provide work for their employees, and cover a wide range of settings which include offices, manufacturing facilities or factories, farms, stores, outdoors, or any location and place at which work can be performed (OSHA, 1994). Mayhew (1999) considered "the workplace" as a site which provides a conducive environment for working and fostering relationships, in addition to sharing meanings, ideas, behaviors and attitudes. Traditionally, the organization and structure of SMEs were relatively simple; the managing director also acted as a financial manager in most cases and a human resource manager in some. In small organizations like SMEs, the recruitment of new workers incurs significant additional costs. This is a reason SME workers are normally assigned extra responsibilities. The management committees of SMEs spend only a small amount of time on safety issues – a phenomenon which is also commonplace in the United Kingdom (Vassie, Tomàs, & Oliver, 2000). On 1st January

2014, the newly-issued Bank Negara (Central Bank of Malaysia) Guidelines outlined the definition of SME as shown in Table 2.1 below:

Table 2.1
The new definition of SME

Sector	Previous SME Definition	New SME Definition
Manufacturing	□ Annual sales turnover of less than RM 25 million □ Less than 150 workers	□ Annual sales turnover of less than RM 50 million □ Less than 200 workers
Services	□ Annual sales not exceeding RM 5 million □ Not more than 50 workers	□ Annual sales not exceeding RM 20 million □ Not more than 75 workers

Source: Bank Negara Malaysia, 2013

The new definition of SME is used in this study, i.e. the annual sales turnover is less than RM 50 million and there are no more than 200 workers per company. This definition give better avenues for the government to take necessary actions and create a level playing field for all SMEs in Malaysia by means of regulatory reforms, administrative reviews, investment in human resources, provision of business development services, enabling good access to financial support and promotion of technological transfer.

Safety compliance at the SME workplace is an area of interest for researchers like Vinodkumar and Bhasi (2010), Neal and Griffin (2006) and Inness et al. (2010) as there has been mushrooming of emerging markets in the past few years in light of global

economic growth. The key contributory factor to economic growth is the rapid growth of SMEs; these companies also express an ability to thrive during periods of economic turbulence (Parker, Storey & Witteloostuijn, 2010). As per the data from the 2016 SME Annual Report, the total number of SME employees in Malaysia is 6.6 million, and at the end of 2015, 698 713 workers were involved in the manufacturing sector (SME Corp. Malaysia, 2016). In 2015, manufacturing companies accounted for a 46 deaths, 1 906 non-permanent disability cases, and 89 permanent disability cases. In Kedah, the number of cases in each of the aforementioned categories is 2, 89, and 5 respectively (Department of Occupational Safety and Health, 2015).

Based on the data, SMEs should be made to be resilient and world-class competitors in a rapidly-globalizing world. In the process, safety performance is a means for the industries to become top-notch. The growth of new technologies and innovations allows SMEs to design high-quality products as well as process and increase supply chains (Didonet & Díaz, 2012). These factors make SMEs very valuable to the Malaysian economy and human resources. However, to maintain positive growth and competitiveness in the global market, SMEs should improve their safety compliance. This can be achieved by increasing management commitment, encouraging safety participation, providing effective training and education about safety, having good communications regarding safety issues, improving safety rules and procedures, as well as creating a rehabilitative work environment (Zin & Ismail, 2012).

2.3 Review of the Literature

2.3.1 Safety Compliance

The dependent variable of this study is safety compliance, and this section will review all the literatures regarding the same. It is defined differently by different researchers, but the majority of them have one thing in common: to increase safety levels. Griffin and Neal (2000) defined safety compliance as carrying out a job in a safe manner by involving adherence to safety procedures. Other definitions for the term include (1) the behaviors that are demonstrated when engaging with the core safety task, such as compliance with safety rules and regulations of the organization by following safety procedures (Inness et al., 2010; Neal & Griffin, 2006), (2) the actions undertaken by the employees to increase their personal safety and health (Vinodkumar & Bhasi, 2010), (3) the core safety activities which comply with the rules and are verified to be interrelated with the safety climate (Mearns, Hope, Ford & Tetrick, 2010), and (4) the behaviors which are oriented towards adhering to safety procedures and performing the work tasks as required (Smith & DeJoy, 2014). Regulatory bodies and/ or companies implement safety rules and procedures as a means to increase safety compliance (Dov, 2008). For example, at off-shore oil and gas industries, safety compliance is an absolute necessity as accidents at such places have been attributed to a lack of compliance with the safety regulations (Hopkins, 2011).

Ghedini (2014) mentioned that factors such as management commitment contribute to safety compliance. The main preventive measures against occupational accidents are the adoption of safe work practices and participation in safety and health-related activities.

Besides, all employees have to be responsible for safety problems at the workplace, the solution of which are (1) to comply with the regulations on hazard control, (2) to participate in training sessions on safety regulation and emergency procedures, (3) having effective two-way communications to encourage safe work cultures and well-being, (4) improving the safety system continuously by analyzing, reviewing, evaluating and investigating the consequences of hazards (i.e. accidents and injuries) and safety at the workplace. Compliance reflects the level of comprehension of safety which is modifiable according to the financial conditions, rather than the need for a fixed blueprint (Maslen & Ransan-cooper, 2017). Safety compliance is very important for both workers and organizations because it can attract the best employees, maintain the product quality and business reputation, reduce turnover, reduce training and medical costs, increase productivity, minimize absenteeism and retain skillful workers (Ghedini, 2014). It is very crucial for employers to understand the regulations in the OSHA and comply with them because doing so can avoid them from being blacklisted and paying stiff penalties.

Safety compliance is important for organizations such as SMEs in light of the disconcerting number of accidents and injuries at the workplace. In Malaysia, the number of industry accidents reported in 2015 was 34 258 and that for commuting accidents was 28 579 (SOCSO, 2015). Based on accident investigation reports from various industries, it can be concluded that the lack of safety compliance is the usual cause of accidents at the workplace (Dekker, 2005; Hopkins, 2011). Safety compliance in a company requires adherence to statutory or regulatory safety measures devised by the heads of safety, who are responsible for coming up with guidelines and policies to be

followed by their colleagues (Pilbeam, Doherty, Davidson, & Denyer, 2016). The said compliance is an aggregate of the safety compliance of individuals in an organization via the authority of the leaders as well as the designated practices. In light of the fact that each employee has a different level of innate drive to adhere with the safety requirements, the onus is on the safety heads to tailor their approaches accordingly to promote individual as well as organizational safety compliance.

2.3.2 Safety Rules and Procedures and Safety Compliance

The condition in which workers respect their work environment is explained and referred to as safety rules and procedures (Glendon & Litherland, 2001). As mentioned, the lack of compliance with safety rules and procedures is current conclusion of accident investigation reports across different industries (Dekker, 2005; Hopkins, 2011). It is very important for the workers to always adhere to the rules and procedures to maintain safety at work. A procedure violation, or breach of regulation, occurs when workers operate hazardous machinery without referring to the operating instructions even though these are is available. A study conducted on the mining industry in Australia outlined the reasons behind the workers' non-compliance with the safety rules and procedures. 18% reported the presence of too many rules for them to remember, 16% reported that the rules are complicated, 12% reported that there were no clearly-written rules, and 10% reported that the rules were poorly outline and contained errors (Laurence, 2005). Another study noted similar results; whereby confusion of the safety rules can lead to their violation (Elling, 1987).

A case study on the knowledge of workers' at a petroleum factory regarding safety rules and procedures reported that in order to make safety rules and procedures user-friendly, their content must be simple and easily understandable. The high priority assigned to this knowledge showed that such rules and procedures are not only a bureaucratic necessity, but are an important element in the organization as well (Dahl & Olsen, 2013). Generally the safety compliance among SMEs workers can be increased from the top-down (i.e. the management). The same study stated that involvement of the leaders is very important to create a conducive work climate and stimulate the workers to adhere to the safety rules and procedures. Another study found that safety rules and procedures significantly and positively influenced safety compliance (Zin & Ismail, 2012). Other researchers who obtained similar results are (1) Vinodkumar and Bhasi (2010) in their study titled "safety management practice and safety behavior: assessing the mediating role of safety knowledge and motivation, accident analysis and prevention", (2) Vinodkumar and Bhasi (2011) in their study on the impact of management system certification on safety management, (3) Boughaba, Hassane, and Roukia (2014) who conducted an assessment of safety cultures at petrochemical plants in Algeria, and (4) Glendon and Litherland (2001) who studied on safety climate factors, group differences and safety behaviors in road construction.

A principal reason for low safety compliance in a company may be the non-application of the rules and procedures by the employees (Hu, Griffin, & Bertuleit, 2016). As such, it is highly crucial for the company to maintain the practicality of the safety rules and communicate the significance of the same to the workers. Support from the company in

terms of safety will allow the employees to appreciate the need for safety rules and procedures, hence increasing safety compliance (Hu et al., 2016). In a company, a safety head is responsible for drawing up guidelines and procedures to be followed by the employees so as to comply with safety requirements as per the law (Pilbeam, Doherty, Davidson, & Denyer, 2016). There has to be better communication between the government, organizations, and general population regarding the rules, incident particulars, as well as the statistics in order to help the public eliminate the possible dangers in a particular area and undertake relevant rules in the event of emergencies (Kingdom, Besserman, & Mentzer, 2017). As such, organizations must have the latest knowledge of the safety rules in the countries in which they operate and put these into practice accordingly. While this process is within the capacity of large companies, their smaller counterparts will face more difficulties in preventing mishaps as well as ensuring adherence to safety (Kingdom, Besserman, & Mentzer, 2017). Based on the above discussion about safety rules/ procedures and safety compliance, the following hypothesis is proposed:

H1: There is a positive and significant relationship between safety rules and procedures and safety compliance.

2.3.3 Safety Participation and Safety Compliance

Safety participation is defined as the voluntary participation of workers in activities which are organized by the management with the aim of demonstrating and promoting safety practices to the workers, apart from creating a supportive and safe environment at the workplace (Griffin & Neal, 2000; Neal & Griffin, 1997). This action is observable

and measurable, apart from being a good measure (Vijayakumar, 2007). The execution of the core safety-related activities – such as the provision of safety training and safety compliance – is described as safe behavior. It is crucial for the employees to carry out such practices in accordance to the OSH requirements to minimize the incidence of workplace accidents (Mahmood, Mohd Isa, Mustafa, Abdul Aziz, & Salleh, 2010). Research has proven that emotional intelligence and behavior of individual workers have a strong contribution to safety compliance at the workplace. Previous studies which obtained a positive and significant relationship between safety participation and safety compliance include Boughaba et al. (2014); Griffin & Neal (2000); Vinodkumar & Bhasi (2010); as well as Vinodkumar & Bhasi (2011). Employees who believe in safety will be willing to take part in optional safety activities irrespective of their amount of knowledge of the subject. Also, such activities will be more likely to be considered as a portion of the occupation if employees perceive safety to be highly crucial (Chmiel, Laurent, & Hansez, 2017). In fact, the latter is a good predictor of the former, and safety participation in turn predicts safety compliance. The following hypothesis is proposed after taking into consideration the above discussion:

H2: There is a positive and significant relationship between safety participation and safety compliance.

2.3.4 Communication and Safety Compliance

In order to successfully execute OSH practices and effectively enhance safety compliance in a company, there has to be communication from the top-down and bottom-up (Dejoy; 1985; Lin & Mills, 2001). In most organizations, the leaders convey the visions and

values to the workers through written forms of communication. Effective communication of safety goals, guidelines and practices between all levels of a company usually leads to better understanding of the same. In fact, effective communication is the most important measure to motivate the workers to adopt safe work practices (Cohen, 1977; Cox & Cheyne, 2000; Ismail et. al., 2007**;** Mearns, Whitaker, & Flin, 2003; Vrenderburgh, 2002). The study, which involved 11 manufacturing organizations, supported the conclusion that there was a positive correlation between numerous/ daily interactions between supervisors and line workers and safety improvement efforts (Cohen, 1977; Yagil & Luria. 2010). Evidently, safety compliance was a direct effect of the frequency and quality of the interactions between higher-ranking and lower-ranking staff (Dahl & Olsen, 2013). Many other studies also reported similar results (Boughaba et al., 2014; Cheyne & Cox, 1994; Cox, 1991; Cox & Cheyne, 2000; Vinodkumar & Bhasi, 2011; Zin & Ismail; 2012).

Leaders who effectively convey the importance of safety measures will enhance their employees' safety compliance. As such, the methods of communication as well as the responsibilities of the leaders are vital for minimizing mishaps and creating safe workplaces. hence both of it, the different communication approach and the role of the leader are essential to for reducing accident and in order to enhance a safety workplace (Mattson and Hellgren, 2015). A study on aviation companies reported that highly ethical and caring leaders led to a significant increase in the upward safety communication by the cabin crew (Chen, 2017). With reference to the above discussion, the following hypothesis is proposed:

H3: There is a positive and significant relationship between communication and safety compliance.

2.3.5 Safety Training and Safety Compliance

In modern times, the duty of a leader is not limited to the mere imparting of knowledge or regulations of workplace hazard elimination; rather, the training should promote an understanding of the subject matter so as to create a culture of safety which will in turn enhance the efficacy of the work processes. In light of that, such trainings should combine the communication of safety essentials as well as the comprehension of the devised guidelines in order to enhance the abilities of the employees to handle on-site hazards (Vidal-gomel, 2017). The levels of safety and health of all employees, especially the newcomers, can be improved by providing systematic and wide-ranging OSH training programs. Under these programs, a mentor will be assigned to each employee via the companion system to enable the latter to familiarize and contribute to safety, health and quality systems (Vrenderburgh, 2002).

Good safety training can reduce negative consequences at the workplace. According to Robotham (2001), a lack of safety training may result in a higher risk of injuries and illnesses at the workplace. Evidently, quality of the trainers – having the latest information on safety, appropriate qualifications, adherence to a precise training session plan, conduction of appropriate tests, documentation of the process and maintenance of participants' focus during training – is the most important contributing factor to safety compliance, (Robotham, 2001). Occupational safety training provides the workers with

knowledge, skills and abilities to carry out specific tasks safely. In addition, these activities also enable them to identify hazards at the workplace and use the existing procedures to prevent, correct as well as reduce the risks (Fernández-Mu˜niz, Montes-Peón & Vázquez-Ordás, 2007). Safety training is considered as a managerial practice and its effectiveness is measured using parameters like (1) provision of training to newly-recruited employees, (2) discussion of safety issues in training sessions, (3) adequacy of training for handling emergency situations, (4) encouragement to attend training programs and (5) provision of hazard assessment training (Vinodkumar & Bhasi, 2011). Safety training to all workers should be a priority in organizations to facilitate, apart from explaining the safety regulations, workers must also have easy access to relevant and additional knowledge regarding the same (Dahl & Olsen, 2013).

A number of studies have reported a significant positive relationship between safety training and safety compliance, which include: (1) Vinodkumar and Bhasi (2011), who evaluated the impact of management system certifications on safety management; (2) Cohen and Jensen (1984) who measured the effectiveness of safety training program involving industrial lift trucks; (3) Komaki, Barwick, and Scott (1978), who researched on the behavioral approach to occupational safety at a food manufacturing plant; (4) Zohar, Cohen, and Azar (1980), who examined the role of information feedback and human factors in promoting the use of ear protectors at noisy workplaces; (5) Cooper and Philips (2004), who analyzed the relationship between safe climates and safety behavior, as well as (6) Verma et al. (2012), who studied on the impacts of management commitment to safety and perception of employees towards safety training on future

injuries. Aviation accidents are predominantly due to insufficient servicing. Adequate training of Aircraft Maintenance Technicians (ATMs) can result in minimal aircraft failures, enhanced safety and reliability in the aviation industry, as well as increased demands for qualified ATMs in the expanding aviation market (Dalkilic, 2017). Safety training and education, risk management, safety assurance, and other safety management activities should be assessed for the extent of their alignment via cross-referencing of related data (Karanikas, 2017). Organizational leaders can improve their employees' safety and health by executing workshops, recognizing tasks performed with high safety levels, and conducting safety meetings which allow discussions on safety essentials. These leaders will feel successful when mishaps do not take place (Tappura & Nenonen, 2017). Based on the above discussion, the following hypothesis is proposed:

H4: There is a positive and significant relationship between safety training and safety compliance.

2.3.6 Management Commitment and Safety Compliance

Management commitment is defined as the measures which are undertaken by the management to achieve target safety levels. Evidently, support from the management is very important in the increasing OSH levels (Cooper, 2006; Gilkey et al., 2003). Management commitment involves various methods of approach, such as providing safety education and training, giving incentives, and empowering the employees in terms of decision-making (Ashill, Carruthers & Krisjanous, 2006),. When the management invests in safety education and training, the employees can expand their knowledge about

safety, which in turn allows them to work safely. Another important aspect in the successful implementation of safety regulations is by dishing out rewards to employees who report the unsafe behavior of co-workers at the workplace (Ashill et al., 2006). As such, financial investments are needed for the management to provide adequate safety training as well as to effectively increase safety compliance. Management commitment also involves penalizing of employees who violate safety procedures, such as those who do not use PPE (Harper & Koehn, 1998; Holmes, Lingard, Yesilyurt, & De Munk, 1999). Parameters such as corrective actions, safety managers' attendance in meetings, inquires into accidents and near misses, as well as provision of adequate personal PPE are used to measure management commitment (Vrenderburgh, 2002). In addition to these parameters, assessments of the perceptions of employees towards the management's attitudes to safety are also important in defining management commitment to safety (Hahn & Murphy, 2008; Vinodkumar & Bhasi, 2010). The reflection of the senior manager's commitment to safety is the result of management's approach towards safety related problem and it can act as a frame of reference for the workforce, (Zohar & Luria, 2005). Researches which reported a significant positive relationship between management commitment and safety compliance include Huang et al. (2012), Vinodkumar & Bhasi (2010, 2011).

Evidently, enforcement has a significant impact on the workers' adherence to safety rules (Petitta, Probst, Barbaranelli, & Ghezzi, 2017). The aforementioned research has also put forward some practical suggestions for the development of efficacious methods for enhancing safety compliance by the employees, which will in turn minimize the

occurrence of undesirable safety outcomes like occupational injuries. The acknowledgement of tasks done with high safety levels reflects the management commitment to safety, apart from encouraging them to adopt the correct practices (Tappura & Nenonen, 2017). As such, in order to enhance the management commitment to safety, leaders of an organization should give more precedence to safety instead of profit-making. Additionally, the inculcation of unwavering safety attitudes in the managers calls for support from the uppermost ranks of the company. With reference to the above discussion, the following hypothesis is proposed:

H5: There is a positive and significant relationship between management commitment and safety compliance.

2.3.7 Work Environment and Safety Compliance

From the business point of view, work environment refers to the collective effort of the employees at the workplace to achieve the objective of the organization (Awan & Tahir, 2015). There are three classes of work environments: technical, human and organizational environment (Opperman, 2002). The technical environment encompasses the paraphernalia, infrastructure and various physical or technical elements which allow the execution of work activities. Meanwhile, the remaining two environments generally comprise all the people in a company – co-workers, work teams, leaders, other people who liaise with the employees, as well as the topics of communication.

However, in addition to the aforementioned components, the organizational environment also provides opportunities to share knowledge and exchange ideas between employers

and employees, apart from encouraging informal interaction at the workplace. Cox and Cheyne (2000) assessed the safety cultures at offshore workplaces and concluded that work environment has an impact on safety compliance. Opperman (2002) also conducted a similar study on Tropical business issues Partner PricewaterhouseCoopers (PwC), and came to the same conclusion. A study on ship crew members suggests that communication barriers and inadequate managerial support had a significant negative impact on environmental compliance (Akamangwa, 2016). In light of the fact that jobs like waste, sewage, and ballast water management are undertaken by a small percentage of staff on a vessel, a safe work environment needs to be created through high levels of safety accountability and leadership charisma (Mullen, Kelloway, & Teed, 2017). The hypothesis below is proposed after considering the above discourse:

H6: There is a positive and significant relationship between work environment and safety compliance.

2.4 Underpinning Theory

This section explains the underpinning theories that are relevant to this study. The first one is the theory of reasoned action, which was adapted from Ajzen and Fishbein (1980) as well as Fishbein and Ajzen (1975), and has been widely utilized as a model to predict behavior or behavioral intentions. It is a very effective and useful method to examine and identify the behavioral changes which occur in the workers of a company (in this case, SMEs) when certain strategies or measures are applied. With the assumption that the behaviors being studied are full under voluntary control, the theory of reasoned action gives more accurate predictions. In fact, this theory is more compatible with the

behavioral factors in this study (i.e. adherence to safety rules and procedures, safety participation, communications, and management commitment. This is due to the fact that all the aforementioned factors are related to human attitudes and behavior. The silent information and beliefs that will lead to specific outcomes can be predicted by this theory; it defines the likelihood in performing a particular behavior. The is a difference between behavioral beliefs and normative beliefs; the former is postulated to be the fundamental factor which influences an individual's attitude towards adopting a certain behavior, while the latter influences the individual's subjective perceptions about performing a specific behavior. Silent beliefs create affection and attention in addition to modifying subsequent behavior through attitudes and/ or through subjective norms.

The second theory to be understood in this research is the social cognitive theory (SCT). Human behavior is a product of learning, be it through direct experience or observing that of other people. SCT postulates that the personality of an individual is molded more by behavior, thoughts and environmental factors rather than genetics (Bandura & Abrams, 1986). This theory is more appropriate for factors like safety training and work environment in which human behavior is important for the creation of safe and healthy work environments as well as conduction of effective safety trainings. SCT believes that humans have enormous individual capacities to translate a transient experience into a guide for future actions (Bandura & Abrams, 1986). A self-system is a set of cognitive functions that involve perception, evaluation, and regulation of behavior. This system allows us to assess our own behavior in terms of previous experiences and anticipated consequences. In this study, the self-system applies to factors like compliance with

safety training and work environment, both of which have the capacity to develop an individual's behavior. Cognition is modified by interactions between behavior and the environment. Safety compliance is brought about by interactions between cognition, environmental events and behavior. In fact, cognition can drive the safety behavior in one direction or another (Bandura & Abrams, 1986).

2.5 Conclusion

This chapter presented the literature review regarding the influence of safety rules and procedures, safety participation, communications, safety training, management commitment, and work environment on safety compliance. The following chapter will describe the procedures and methodologies that were used for data collection and analysis.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter will further discuss the research framework, hypothesis, research design, and questionnaire design. The operational definitions of the variables and their methods of measurement are also included. Apart from details regarding data collection, sampling, and analysis, information regarding the pilot study is provided as well.

3.2 Research Framework

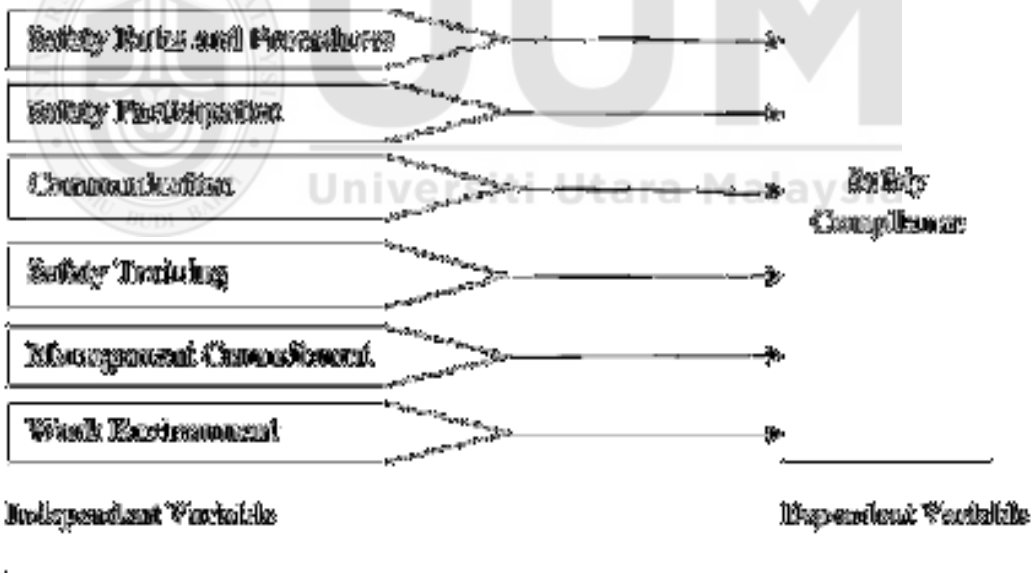

Figure 3.1
The Research Framework

Figure 3.1 illustrates the research framework of this study, which is adapted from (Zahoor, Chan, Utama, & Gao, 2015). There are six independent variables for this study, which are safety rules and procedures, safety participation, communications, safety

training, management commitment and work environment. The dependent variable is safety compliance of manufacturing SMEs in Kedah.

3.3 Hypotheses/ Proposal Development

This study examines the relationship between the independent variables mentioned in the previous subchapter and the dependent variable (safety compliance of manufacturing SMEs in Kedah). The study population comprises all the workers at manufacturing SMEs in Kedah.

3.4 Research Design

This study employs a quantitative research design, i.e. one which mostly involves numerical data and the data analysis involves both descriptive and inferential statistics (Chua, 2012). Quantitative methods also enable one to interpret the relationships between the measured variables with the purpose of explaining, predicting, and controlling phenomena (Chua, 2012). In light of the limited time available for collection, a cross-sectional study is chosen instead of a longitudinal study. While the latter undoubtedly provides results which can demonstrate the cause-effect relationship, the duration of data collection is significantly longer; hence this study design is not suitable. Data is collected through self-administered questionnaires. A cover letter is included along with the questionnaire to obtain informed consent and provide reassurance that the responses would be kept confidential.

3.5 Population and Sample

The sample population consists of all the employees at the manufacturing SMEs in Kedah, Malaysia. Simple random sampling was used to ensure that every member of the population has an equal chance of being selected. Base on the OSHA 1994, an "employee" can be any of the following: an independent contractor engaged by an employer, a self-employed person, or an employee of an independent contractor. According to data from 2015 Economic Census by SME Corporation of Malaysia, the total number of permanent workers at SMEs in Kedah was 172 728, of which there were 40 636 workers in 2 809 manufacturing SMEs. The target group of this study is all the SME workers at any level, i.e. managers, supervisors, operators, drivers, technicians, cleaners, security guards, administrative staff and business owners. Baffour and Valente (2012) mentioned that in a census whereby the sampling population is small, every unit or person in the population can be considered as a complete count.

The appropriate sample size for this study was 380 from the 40 636 workers of 2 809 SMEs manufacturing as suggested by (Krejcie & Morgan, 1970). As such, 380 sets of questionnaires were distributed by using simple random sampling. Each company was allotted between 20 and 30 sets of questionnaires depending on their respective number of workers. The response rate was about 47% (179 respondents), and the respondents came from all levels in manufacturing SMEs. Evidently, for quantitative research, the acceptable sample size ranges between 30 and 500 (Sekaran & Bougie, 2013). 55 of the 179 respondents did not complete the questionnaire, so data was available for only 124 respondents. Even though the total number of respondents was small, workers of all level

were sampled. To measure a specific phenomenon in a small population, a census is normally applied, which provides better results and can be used as a benchmark for future studies (Baffour & Valente, 2012).

3.6 Measurement and Questionnaire Design

Table 3.1
Operational Definitions and Measurement of Variables

VARIABLE	OPERATIONAL DEFINITION	NUMBER OF ITEMS	ITEMS TAKEN FROM
Safety Compliance	Is the way by which individual employees enhance their behavior towards safety and health (Vinodkumar & Bhasi, 2010)	7 items	(Vinodkumar & Bhasi, 2009; 2010)
Safety Rules and Procedures	Is a factor which can be explained with reference to the way workers respect their work environment (Glendon & Litherland, 2001)	9 items	(Vinodkumar & Bhasi, 2010)
Safety Participation	Is the employees' involvement and voluntary participation in safety-related activities with the intention of contributing to the development of a supportive and safe work environment (Griffin & Neal, 2000)	5 items	(Griffin & Neal, 2000)

Communication	Entails effective conveying of the visions and values of an organization from the leaders to the employees. This is vital in the understanding of the goals and means of the organization (Ismail et al., 2007)	5 items	(Cox & Cheyne, 2000)
Safety Training	Generally refers to the measures taken by the management to equip new employees with the skills needed to handle emergency situations, apart from discussion of safety issues, encouragement to participate in training programs and assessment of hazards (Vinodkumar & Bhasi, 2011)	6 items	(Vinodkumar & Bhasi, 2011)
Management Commitment	Is the perception of the employees with regards to the amount of emphasis placed by the management of an organization on safety, rather than the structural elements of safety (Vinodkumar & Bhasi, 2011)	8 items	(Vinodkumar & Bhasi, 2010)
Work Environment	Refers to the collective effort of the employees at the workplace to achieve the objective of the organization (Awan & Tahir, 2015)	6 items	(Cox & Cheyne, 2000)

Generally, back to back translation methods were used to prepare the final version of the questionnaire. The questionnaire was distributed in two languages – English and Bahasa Malaysia or Malay. The original questionnaire (in English) was initially translated to the target language (Bahasa Malaysia) and later translated back to the English (Brislin, 1970). After that, the translated material was reviewed by an OSH lecturer to ensure that

the words and sentences were appropriate and suitable for the environment, subject, as well as culture under study. The questionnaire contained 55 items, was divided into nine sections, and employed a five-point Likert scale (1 = strongly disagree to 5 = strongly agree) (Al-Rafaie, 2013). Negatively-worded items were reverse-scored so that positive answers gave higher scores, and these items are marked with ®.

In section D items three and five were noted to be negatively-worded and were hence reverse-scored ® as below:

3- Current safety concerns and issues are not always told to me by my line managers/ supervisors. ®

5- I don't get praised or rewarded for working safely. ®

In section G items one, two, three, four and five were noted to be negatively-worded and were hence reverse-scored ® as below:

1- Operational goals frequently contradict safety measures ®.

2- I occasionally do not get enough time to do my job safely ®

3- My ability to work safely is occasionally hampered by conditions in the company ®

4- At all times, sufficient manpower is available for the safe execution of a job ®

5- I do not have access to the required protective equipment to do my job safely ®

In section H items five, six and seven were noted to be negatively-worded and were hence reverse-scored ® as below:

5- Sometimes, I deviate from correct and safe work procedures due to time constraints ®

6- Sometimes, I deviate from correct and safe work procedures because I'm overly familiar with the task ®

7- When doing a task, adhering to all the safety rules and procedures is sometimes impractical ®

Section A **-** elicits information on the respondents' demographic data, e.g. whether they were working in the manufacturing sector, department, designation, age, gender, qualifications, number of years of working experience, presence of accident history and number of accident(s) experienced.

Section B **-** consists of nine items to measure Safety Rules and Procedures (SRPs). The SRP instruments used in this study were adapted from Vinodkumar and Bhasi (2010). Previous researches have also utilized this instrument, which was modified (translated) accordingly when necessary (Boughaba et al., 2014; Flin, Mearns, O'Connor, & Bryden, 2000; Guldenmund, 2000; Vinodkumar & Bhasi, 2011) the alpha values for these instruments were significant, i.e. 0.92 for safety procedures and 0.72 for safety rules Glendon and Litherland (2001). The Safety Rules and Procedures instruments are listed below:

1- Work procedures are complete and comprehensive

2- Work procedures are technically correct

3- Work procedures are described clearly in writing

4- Written work procedures are compatible with the performance of the procedures

5- Documented work procedures help in effective management of the same

6- The specific rules and procedures for each task can be easily identified by the workers

7- I comply with the safety rules even when the job needs to be urgently completed

8- I can comply with safety rules without compromising on my work practices

9- It is always possible and practical to comply with safety rules

Section C **-** consists of five items to measure Safety Participation. The Safety Participation instruments used in this study was adapted from Griffin and Neal (2000), who reported a significant alpha value of 0.66. Other researchers who had utilized these items for their studies are Boughaba et al. (2014), Dedobbeleer and Béland (1991), Flin and O'Connor (2000), Vinodkumar and Bhasi (2009, 2010, 2011), as well as Williamson, Feyer, Cairns, and Biancotti (1997). The Safety Participation instruments are listed below:

1- I assist my co-workers when they are working in high-risk or dangerous conditions

2- When safety issues are detected in my company, I always notify my superiors

3- I take extra measures to enhance safety at the workplace

4- I voluntarily undertake measures to increase safety levels at the workplace

5- I encourage my peers to work safely

Section D **-** Consists of five items to measure Communication. The Communication instruments used in this study were adapted from Cox and Cheyne (2000), who reported a significant alpha value of 0.73. Researchers who have utilized these instruments are Boughaba et al. (2014), Cox (1991), Cheyne and Cox (1994), Cheyne, Cox, Oliver, & Tomás (1998), as well as Vinodkumar and Bhasi (2011). The Communication instruments are listed below:

1- Proper two-way communication regarding safety issues is beneficial for the workers

2- Safety information is always communicated to me by my line managers/ supervisors

4- The management adopts an open door policy as far as safety issues are concerned.

Section E - consists of six items to measure Safety Training. The Safety Training instruments used in this study were adapted from Cohen and Jensen (1984) as well as Vinodkumar and Bhasi (2011), both of whom reported a significant alpha value of 0.82. Previous researchers who utilized these instruments were Cooper and Philips (2004), Huang et al. (2012), as well as Komaki et al. (1978). The Safety Training instruments are listed below:

1- Comprehensive training in workplace on health and safety are provided to the employees of my company.

2- Newly-employed workers are adequately trained to follow safety rules and procedures

3- In the training programs, high priority is given to safety issues

4- Workers are encouraged by the management to participate in safety training programs

5- I have underwent enough safety training to be able to evaluate workplace hazards

6- Skills and procedures for handling emergencies (e.g. faulty conditions) are included in the training

Section F **-** consists of eight items to measure Management Commitment. The Management Commitment instruments used in this study were adapted from Vinodkumar and Bhasi (2011), who reported a significant alpha value of 0.86. Previous researchers who utilized these instruments were Brown and Holmes (1986), Dedobbeleer and Béland (1991), Cox and Cheyne (2000), Huang, Ho, Smith, and Chen (2006**)**, Huang et al. (2012), Marsh et al. (1998), as well as Vinodkumar and Bhasi (2009, 2010). The Management Commitment instruments are listed below:

1- The management assigns high priority to workplace safety

2- The management strictly enforces safety rules and procedures

3- When the management is notified regarding unsafe practices, remedial actions are always taken

4- The managers/ supervisors of my company are not interested in the workers' safety

5- Safety is regarded by the management to be as important as production

6- I feel that the management may compromise on safety levels to increase production

7- The management rapidly takes measures to solve the problems whenever near-miss accidents are reported

8- Sufficient personal protective equipment is provided for the workers

Section G **-** consists of six items to measure Work Environment. The Work Environment instruments used in this study were adapted from Cox and Cheyne (2000), who reported a significant alpha value of 0.779. Previous researchers who utilized this instruments are Cox (1991), Cox and Cheyne (2000), as well as Opperman (2002). The following are the instruments in Work Environment:

6- Compared to my previous companies, this one provides a safer work environment

Section H - consists of seven items to measure Safety Compliance. The instrument for measuring the dependent variable of this study is adapted from Vinodkumar and Bhasi (2009, 2010). Previous researchers who utilized these instruments in their studies were Barbaranelli, Petitta, and Probst (2015), Griffin and Hu (2013), Li, Jiang, Yao, and Li (2013), Liu, Zhang, and Li (2014), as well as Tucker and Turner (2011). The Safety Compliance instruments are listed below:

1- I use all the required safety equipment to perform my work activities.

2- I do my tasks in a safe manner.

3- When doing my job, I adhere to the correct safety rules and procedures.

4- When doing my job, I make sure that the level of safety is at a maximum.

3.7 Pilot Study

Before the actual data collection was performed, the researcher conducted a pilot study to identify the reliability of the measurements that will be used for the study proper (Chua, 2012). The pilot study was conducted at the Suria Bread factory in Alor Setar and involved 30 respondents. The questionnaires were distributed through the manager of the factory and were returned the researcher after two weeks. A reliability analysis was carried out on the items for each variable. Table 3.2 shows the results of the pilot study.

Table: 3.2
The Results of Reliability Analysis for Pilot Study

Variables	**Number of Items**	**Cronbach's alpha**
DEPENDENT VARIABLE		
Safety compliance	7	0.869
INDEPENDENT VARIABLES		
Safety rules and procedures	9	0.805
Safety participation	4	0.551
Communication	5	0.553
Safety training	6	0.851
Management commitment	6	0.709
Work environment	5	0.594

Based on the analysis, all the items were reliable because according to Sekaran and Bougie (2009), Cronbach alpha values of 0.70 and above are acceptable. For exploratory research purposes, alpha values of 0.60 and above are significant, with those exceeding

0.80 considered to be good and reliable (Hair, Tatham, Anderson, & Black, 1998). Based on the above table, Safety Participation and Communication showed poor reliability. It was assumed that the items were difficult to understand (especially the Bahasa Malaysia versions), by using the simple Bahasa Malaysia so the five questionnaires on safety participation and five on communication were re-translated to ensure that the future respondents better understand the items in these sections (Brislin, 1970). Although the reliability was relatively low, the items were actually still applicable because in many cases, the apparently low valued were the results of gross underestimates or poor estimations of internal consistency (Sijtsma, 2008). Inevitably, reviewers and editors still insist that the lowest estimates of reliability be quoted. Another possible reason is that even though good and powerful algorithms have been developed by psychometricians, they are still not readily available. In that case, the instrument is still valid and can be used in to collect actual data.

3.8 Data Collection

The data collection processes were carried out by distributing 380 copies of the questionnaire to the workers at SMEs manufacturing in Kedah. This study focused on industrial areas like Mergong Industrial Park and Kristal Industrial. To make the data collection process easier, boxes were placed at the unit officers' desks for the staff to submit their responses. After three weeks, the researcher went back to the said places to collect these boxes. In order to obtain good results, the respondents had to clearly understand all the items, so the questionnaires have been translated into Bahasa Malaysia instead of English. As per the results of the pilot study, most SME workers do not have

high proficiency in English. Therefore, to ensure greater understanding of the items in the questionnaires, they have been translated and validated by an OSH lecturer.

3.9 Techniques of Data Analysis

The collected data was analyzed using the Statistical Package for the Social Sciences (SPSS) version 20.0, The responses for each item was rated based on five-point Likert scale which ranged from 1 (strongly disagree) to 5 (strongly agree) (Al-Refaie, 2013). All the items and variables were coded prior to being keyed into the computer. After that, descriptive analysis was done to examine the respondents' demographic characteristics, i.e. whether they were working in the manufacturing sector, department, designation, age, gender, qualifications, number of years of working experience, presence of accident history and number of accident(s) experienced. The main purpose of factor analysis was to categorize the items for each variable (both independent and dependent). Besides, the sampling adequacy test, or Kaiser-Mayer Olkin (KMO) test, was also conducted. In addition, the Cronbach alpha coefficients were computed using reliability analysis to investigate the consistency and reliability of each instrument. Multiple regression analysis was used to examine the relationship between the independent variables (safety rules and procedures, safety participation, communication, safety training, management commitment, work environment) and the dependent variable (safety compliance), as well as to determine the variables which significantly influenced safety compliance.

3.10 Conclusion

This chapter discussed on the methodology of this study, which included the introduction, research design, measurement of variables, data collection and administration, as well as data analysis techniques. The results of the pilot study were also presented as an evidence of the reliability of the instruments prior to the collection of actual data. The next chapter will discuss the findings of this study.

CHAPTER FOUR

FINDINGS

4.1 Introduction

The results of the study have been analyzed using factor analysis, descriptive statistics (frequencies and percentage), reliability analysis, Pearson correlation analysis and multi-regression analysis. The interpretation process began with factor analysis followed by an examination of reliability. Descriptive analysis was also applied on the respondents' demographic information such as department, designation, age, gender, qualification, working experience, accident history and number of accident(s) experienced (over the last two years while they were working at the same company). Next, inferential analysis was done to determine the positive relationship between the independent variables (safety rules and procedures, safety participation, communication, safety training, management commitment, and work environment) and the dependent variable (safety compliance).

4.2 Respondents' Demographic Information

The respondents' demographic information is shown in Table 4.1. Of the 124 respondents whose responses are used for analysis, 73 (58.9%) of them were females. In addition, the dominant age category in this study was 29 – 39 years old, with a total 47 respondents (37.9%). In terms of highest level of qualifications, 73 respondents (58.9%) had Sijil Pelajaran Malaysia (SPM), 28 (22.6%) had a Bachelor's degree, 20 (16.1%) had a diploma/ Sijil Tinggi Pelajaran Malaysia (STPM), and 3 (2.4%) had Penilaian Menengah Rendah (PMR). In terms of department, 76 respondents (61.3%) were involved in

production, 37 (29.8%) were from the administrative department, and 11 (8.9%) were from the delivery team. As for designation, 55 respondents (44.4%) were operators, 33 (26.6%) supervisors, 29 (23.4%) clerks, and 7 (5.6%) managers. Most of the respondents had at least one year of working experience (n = 117; 94.4%).

In terms of accident history, 107 respondents (86.3%) had no accident history and 17 (13.7%) otherwise. At the same time, 111 respondents (89.5%) did not experience any workplace accidents while 14 (10.4%) otherwise.

Table 4.1
Respondents' Demographic Characteristics

Demographic	**Characteristic**	**Frequency**	**Percentage (%)**
Gender	Male	51	41.1
	Female	73	58.9
Age	18-28	41	33.1
	29-39	47	37.9
	40-50	28	22.6
	Above 50	8	6.5
Qualification	PMR	3	2.4
	SPM	73	58.9
	STPM/Diploma	20	16.1
	Bachelor Degree	28	22.6
Department	Admin	37	29.8
	Production	76	61.3
	Delivery	11	8.9
Designation	Operator	55	44.4
	Clerical	29	23.4
	Supervisor	33	26.6
	Manager	7	5.6
Working experience	Less than 1 year	7	5.6
	1 to 3 years	28	22.6
	3 to 6 years	50	40.3
	More than6 years	39	31.5
Accident history	Yes	17	13.7

	No	107	86.3
Number of accidents	Less than 1(0)	111	89.5
	1 to 3	6	4.8
	More than 3(4)	3	2.4
	5 and above	4	3.2

4.3 Factor Analysis

Factor analysis aims to determine the adequacy of sampling by means of classifying the relevant items according to their respective independent variables. From there, the Cronbach alpha test was used to determine the consistency as well as reliability of the independent and dependent variables. As per the results of this test, the repetitive, confusing or low-scoring items were removed. The next subsection will describe the findings of factor analysis.

4.3.1 Factors Affecting Safety Compliance, Safety Rules and Procedures, Safety participation, Communication, Safety Training, Management commitment, and Work Environment

The rotated component matrix of 46 items with seven factors was loaded above 0.50 in order to get adequately valid items for further analysis (Kline, 2015). Of the 46 items, safety rules and procedures (Factor 1) are described as SRP1, SRP2, SPR3, SRP4, SRP5, SRP6, SRP7, SRP8, SRP9; safety participation (Factor 2) SP1, SP2, SP3, SP4, SP5; communication (Factor 3) C1, C2, C3R, C4, C5®; safety training (Factor 4) ST1, ST2, ST3, ST4, ST5, ST6; management commitment (Factor 5) MC1, MC2, MC3, MC4, MC5, MC6, MC7, MC8; work environment (Factor 6) WE1®, WE2®, WE3®, WE4®,

WE5®, WE6; and safety compliance (Factor 7) SC1, SC2, SC3, SC4, SC5®, SC6®, SC7®. Four instruments which are eliminated owing to the low loading include:

1- (SP1) - I assist my co-workers when they are working in high-risk or dangerous conditions.

2- (MC4) - The managers/ supervisors of my company are not interested in the workers' safety.

3- (MC6) - I feel that the management may compromise on safety levels to increase production.

4-(WE4 ®) - At all times, sufficient manpower is available for the safe execution of a job.

The application of KMO test is illustrated in Table 4.3. It indicates the percentage of variance for each of the 7 factors. Meanwhile, Table 4.2 illustrates the rotated component matrix. This solution generated a total variance of 368.78%. The seven factors are labeled as follows:

Factor 1 - *Safety Rules and Procedures*. This factor consists of nine items concerning safety rules and procedures, i.e. the degree to which the simplicity, clarity, and easy comprehensibility of safety rules and procedures contributes to safety compliance. This factor contributed a total variance of 57.15 percent, and the factor loading varied between .691 and .864.

Factor 2 - *Safety participation.* This factor consists of five items concerning safety participation, i.e. the degree to which the workers are willing to participate in all the safety-related activities at the work place contributes to safety compliance. This factor contributed a total variance of 50.89 percent, and the factor loading varied between .649 and .845.

Factor 3 - *Communication.* This factor consists of five items concerning communication, i.e. the degree to which (1) good communications regarding safety issues and (2) frequent two-way communications between line managers, supervisors and subordinates regarding safety issues give a positive impact to comply with safety regulations. This factor contributed a total variance of 40.75 percent, and the factor loading varied between .649 and .845. The Cronbach's alpha for all the dimensions in the revised scale ranged from .403 to .496.

Factor 4 - *safety training.* This factor consist of six items concerning safety training, i.e. the degree to which effective and comprehensive safety training motivate the employees to comply with safety regulations. This factor contributed a total variance of 75.29 percent, and the factor loading varied between .802 and .918.

Factor 5 - *management commitment.* This factor consists of eight items concerning management commitment, i.e. the degree to which the management is willing to give commitment to the employees in terms of training, provision of safety guidelines, and effective solving of safety problems. This factor contributed a total variance of 38.66 percent, and the factor loading varied between .517 and .851.

Factor 6 - *work environment.* This factor consists of six items concerning work environment, i.e. the employees' perceptions regarding the degree to which safety and health is prioritized at the workplace. This factor contributed a total variance of 45.97 percent, and the factor loading was .412. The Cronbach's alpha for all the dimensions in the revised scale ranged from .549 to .877.

Factor 7 - *safety compliance.* This factor consists of seven items concerning safety, i.e. the degree to which all the employers and employees obey the safety regulations. This factor contributed a total variance of 60.07 percent, and the factor loading varied between .764 and .831. The Cronbach's alpha for all the dimensions in the revised scale ranged from .748 to .768.

Table 4.2
Summary of Exploratory Factor Analysis Results for Safety Compliance

Factor 1: Safety Rules And Procedures	
Variables	***Factor Loading***
SRP1	0.717
SRP2	0.775
SRP3	0.828
SRP4	0.864
SRP5	0.772
SRP6	0.697
SRP7	0.691
SRP8	0.718
SRP9	0.722

Factor 2: Safety Participation	
Variables	***Factor Loading***
SP2	0.770
SP3	0.845
SP4	0.649
SP5	0.841

Factor 3: Communication

Variables	*Factor Loading*
C1	0.799
C2	0.801
C3®	0.403
C4	0.591
C5®	0.496

Factor 4: Safety Training

Variables	*Factor Loading*
ST1	0.918
ST2	0.802
ST3	0.907
ST4	0.870
ST5	0.812
ST6	0.890

Factor 5: Management Commitment

Variables	*Factor Loading*
MC1	0.851
MC2	0.834
MC3	0.517
MC5	0.730
MC7	0.653
MC8	0.595

Factor 6: Work Environment

Variables	*Factor Loading*
WE1®	0.853
WE2®	0.860
WE3®	0.877
WE5®	0.549
WE6	0.412

Factor 7: Safety Compliance

Variables	*Factor Loading*
SC1	0.764
SC2	0.777
SC3	0.831
SC4	0.776
SC5®	0.748
SC6®	0.768
SC7®	0.758

Note: SRP: safety rules and procedures, SP: safety participation, C: communication, ST: safety training MC: management commitment, WE: work environment, SC: safety compliance

4.3.2 Summary of Factor Analysis

i - Safety Rules and Procedures (SRP): no item was deleted and the factor loadings were SRP1- 0.717, SRP2- 0.775, SRP3- 0.828, SRP4- 0.864, SRP5- 0.772, SRP6- 0.697, SRP7- 0.691, SRP8- 0.718, SRP9- 0.722.

ii - Safety participation (SP): item SP1 was deleted and the factor loadings were SP2- 0.770, SP3- 0.845, SP4-0.649, SP5- 0.841.

iii - Communication (C): no item was deleted and the factor loadings were C1- 0.799, C2- 0.801, C3®- 0.403, C4- 0.591, C5®- 0.496.

iv - Safety Training (ST): no item was deleted and the factor loadings were ST1- 0.918, ST2- 0.802, ST3- 0.907, ST4- 0.870, ST5- 0.812, ST6- 0.890.

v - Management commitment (MC): item MC4® and MC6 was deleted and the factor loadings were MC1-0.851, MC2- 0.834, MC3- 0.517, MC5- 0.830, MC7- 0.653, MC8- 0.595.

vi - Work Environment (WE): item WE4 was deleted and the factor loadings were WE1®- 0.853, WE2®- 0.860, WE3®- 0.877, WE5®- 0.549, WE6- 0.412.

vii - Safety Compliance (SC): no item was deleted and the factor loadings were SC1- 0.764, SC2- 0.777, SC3- 0.831, SC4- 0.776, SC5®- 0.748, SC6®-0.768, SC7®-0.758.

A one-way analysis of variance (ANOVA) was conducted to evaluate the null hypothesis ("there is no difference between demographic factors and safety compliance") (N = 124). The demographic factors – such as department, designation, age, gender, qualification, and duration of work experience – are also dependent variables.

Table 4.3
Summary of KMO, Eigen Values and Variance of Variables, Percentage for Factor 1, 2, 3, 4, 5, 6, and 7.

Factors	KMO	Eigen values	Variance (%)
Factor 1 : Safety rules and procedures	.825	5.14	57.15
Factor 2 : Safety participation	.699	2.55	50.89
Factor 3 : Communication	.657	2.04	40.75
Factor 4 : Safety training	.885	4.52	75.29
Factor 5 : Management commitment	.696	3.10	38.66
Factor 6 : Work environment	.756	2.76	45.97
Factor 7 : Safety compliance	.794	4.21	60.07

Note: KMO = Kaiser-Meyer-Olkin

4.4 Reliability Analysis

A reliability analysis was carried out on the items for each of the variables, the results of which showed that all the items were reliable. This was because all items had Cronbach's

alpha values exceeding 0.70 except for communication (0.60). The acceptable values are 0.70 and above, and those above 0.80 are considered good and reliable (Sekaran & Bougie, 2009). Compliance demonstrated a Cronbach's alpha value of 0.88, safety rules and procedures 0.91, safety participation 0.77, safety training 0.93, management commitment 0.79, and work environment 0.77. However, while the value for communication is relatively low (0.60), alpha values of 0.60 or above are still considered to be significant in exploratory research (Hair, Anderson, Tatham & Black, 1998). Table 4.4 shows the reliability of the items results for each variable by means of Cronbach's alpha values.

Table 4.4
The Results of Reliability Analysis

Variables	**Number of Items**	**Cronbach's alpha**
Safety compliance	7	0.882
Safety rules and procedures	9	0.905
Safety participation	4	0.774
Communication	5	0.585
Safety training	6	0.933
Management commitment	6	0.792
Work environment	5	0.767

4.5 Hypothesis Testing

4.5.1 Pearson Correlation

This section presents the results of Pearson's correlation statistical analysis, which was conducted to identify the relationship between the independent variables and dependent variable. As per Table 4.5, there were significant and positive relationships between all independent variables (safety rules and procedures, safety participation, communication, safety training, management commitment, and work environment) and safety compliance. The variable which correlated the most with safety compliance was communication ($r = .720^{**}$, $p \leq 0.01$), followed by work environment ($r = .677^{**}$, $p \leq 0.01$), safety training ($r = .649^{**}$, $p \leq 0.01$), safety rules and procedures ($r = .599^{**}$, $p \leq 0.01$), management commitment ($r = .497^{**}$, $p \leq 0.01$) and lastly, safety participation ($r = .376^{**}$, $p \leq 0.01$). As mentioned, the results indicated that all of these variables were significant and positively correlated with safety compliance.

Table 4.5
The Correlation Analysis Results of the Independent and Dependent Variables

Variables	M	SD	1	2	3	4	5	6	7
1. Safety rules and procedures	3.84	0.55402	1						
2. Safety participation	3.69	0.5446	.470**	1					
3. Communication	3.5	0.49154	.559**	.396**	1				
4. Safety training	3.79	0.71501	.760**	.431**	.640**	1			
5. Management commitment	3.67	0.61797	.691**	.483**	.552**	.778**	1		
6. Work environment	3.56	0.60757	.562**	.270**	.666**	.607**	.543**	1	
7. Safety compliance	3.69	0.63698	.599**	.376**	.720**	.649**	.497**	.677**	1

$p \leq 0.01$, N = 124, M; mean, SD; standard deviation

With reference to Table 4.5, independent variable one (safety rules and procedures) had the highest mean among the others, which was 3.84. This was followed by safety training (3.79), safety participation and safety compliance (both 3.69), management commitment (3.67), work environment (3.56) and lastly, communication (3.50). Apart of that, the analysis also showed that safety training had the highest standard deviation among the six independent variables (.72), followed by management commitment (.62), work environment (.61), safety rules and procedures (.55), safety participation (.54) and communication (.49). For safety compliance, the standard deviation was (.64).

4.5.2 Multiple Regression Analysis.

This section presents the results of the multiple regression statistical analysis of the relationships between the independent variables and safety compliance.

Table 4.6 shows the results of multiple regression analysis of the effects of safety rules and procedures, safety participation, communication, safety training, management commitment, and work environment on safety compliance. The results revealed that the independent variables produced a total variance (r^2) of 0.636 [$F(6, 124) = 34.00$ ($p \leq 0.05$)] relative to safety compliance. Communication was the variable which influence safety compliance the most ($\beta = .367$, $p \leq 0.05$). This was followed by work environment ($\beta = .284$, $p \leq 0.05$) and safety training ($\beta = .247$, $p \leq 0.05$). The three remaining independent variables did not significantly influence safety compliance, and they were safety rules and procedures ($\beta = .138$, $p > 0.05$), safety participation ($\beta = .070$, $p > 0.05$), and management commitment ($\beta = -.181$, $p > 0.05$). The remaining 36.4% of variance could be caused by other variables that were not covered in this research.

Table 4.6
Multiple Regression Results of the Independent and Dependent Variables and Their Dimensions

Model	Un standardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig
(Constant)	-.098	.320		-.307	.759
Safety rules and procedures	.159	.105	.138	1.509	.134
Safety participation	.082	.078	.070	1.054	.294
Communication	.476	.108	.367	4.420	.000**
Safety training	.220	.096	.247	2.287	.024**
Management commitment	-.186	.097	-.181	-1.916	.058
Work environment	.297	.085	.284	3.517	.001**
R Square = 0.636					
F = 34.00					
R = 0.797					

$p \leq 0.05$

4.5.3 Summary of Hypothesis Testing

The results of hypothesis testing indicate that communication, safety training, and work environment significantly and positively influenced safety compliance at manufacturing SMEs in Kedah. Meanwhile, safety rules and procedures, safety participation, and management commitment positively but not significantly influenced safety compliance at

manufacturing SMEs in Kedah. The summary of the hypothesis testing shows in table 4.7.

Table 4.7
Summary of Hypothesis Testing

Hypothesis Statement	Finding
H1: Safety rules and procedures significantly and positively influences safety compliance at SMEs	**Not Accepted**
H2: Safety participation significantly and positively influences safety compliance at SMEs	**Not Accepted**
H3: Communication significantly and positively influences safety compliance at SMEs	**Accepted**
H4: Safety training significantly and positively influences safety compliance at SMEs	**Accepted**
H5: Management commitment significantly and positively influences safety compliance at SMEs	**Not Accepted**
H6: Work environment significantly and positively influences safety compliance at SMEs	**Accepted**

4.6 Key Findings

4.6.1 Safety Rules and Procedures and Safety Compliance

The findings showed that there was no significant relationship between safety rules/ procedures and safety compliance. SMEs companies should constantly enforce safety rules and regulations at the workplace as per the Work Health and Safety (WHS) Act. Encouraging the workers to abide by the safety rules and procedures is aimed to improve safety at the workplace. Evidently, small business which were not aware of and

complying with OSH Act gave the following reasons: difficult access to relevant resources (e.g. lack of resources, inability to recoup costs, and the enormous market (Lamm, 1999). This finding was incongruent with Boughaba et al. (2014), Flin and O'Connor (2000), Glendon and Litherland (2001), Guldenmund (2000), Hopkins (2011), as well as Vinodkumar and Bhasi (2010, 2011). In addition, legal matters and regulations play important roles in OSH by advocating the execution of sound interventions to improve safety (Cagno, Micheli, Masi & Jacinto, 2013). Failure to comply with these safety rules and guidelines can result in deaths at the workplace. As such, a deep understanding of the methods to control these hazards is the key to reducing the risks of injuries and illnesses in SME workers (Awodele et al., 2014).

4.6.2 Safety Participation and Safety Compliance.

The findings showed that there was no significant relationship between safety participation and safety compliance. This was consistent with the study done by Vinodkumar and Bhasi (2009) on accidents and personal attributes in the chemical industry in India. However, this finding was incongruent with Boughaba et al. (2014), Dedobbeleer and Béland (1991), Flin and O'Connor (2000), Griffin and Neal (2000), Vinodkumar and Bhasi (2010, 2011), as well as Williamson et al. (1997). In addition, Varonen and Mattila (2000) reported a non-significant correlation between workers' attitudes and safety. The behavior of an individual can cause the violation of safety standards (Jiang et al., 2010). Hence, manufacturing SMEs should promote high safety participation and commitment from the workers in order to increase their knowledge in the management of hazards at the workplace. The findings are hoped to supplement the

existing literature and knowledge regarding the improvements required to improve safety participation and hence, safety compliance.

4.6.3 Communication and Safety Compliance

The findings showed that was a significant positive relationship between communication and safety compliance; hence, communication increases safety compliance. This is consistent with the research done by Boughaba et al. (2014), Cheyne and Cox (1994), Cheyne et al. (1998), Cox (1991), Cox and Cheyne (2000), as well as Vinodkumar and Bhasi (2011), even though Vinodkumar and Bhasi (2010) revealed that communication was an indirect predictor of safety compliance. Effective communication involves two-way communications. In OSHMP 2020, the government will take steps to improve communications between the Department of OSH and SMEs regarding information on implementing OSH regulations.

4.6.4 Safety Training and Safety Compliance

The findings showed that was a significant positive relationship between safety training and safety compliance; hence, safety training increases safety compliance. SME workers should be exposed to innovative and creative OSH training in order to enhance their OSH knowledge and skills. Employees who did not receive adequate training always failed to comply with safety guidelines. Also, the purpose of training is to build safety awareness and behavior, apart from being a safety precaution. If the workers are willing to participate in safety training, these programs could be more effective (Green & Selman, 2005). This finding was congruent with Cohen and Jensen (1984), Cooper and Philips

(2004), Huang et al. (2012), Vinodkumar and Bhasi (2011), as well as Zohar et al. (1980). Good and effective safety training can foster positive safety and health cultures. Indeed, all employees require safe and healthy working conditions. Moreover, safety training is an indirect predictor of safety compliance (Vinodkumar & Bhasi, 2010, 2011).

4.6.5 Management Commitment and Safety Compliance

In this research, the relationship between management commitment and safety compliance was not significant. This was incongruent with studies like Zohar and Luria (2005), Mearns and Hope (2005), Brown and Holmes (1986), Cox and Cheyne (2000), Dedobbeleer and Béland (1991), Huang et al. (2006), Huang et al. (2012), as well as Vinodkumar and Bhasi (2009, 2011), all of which reported a significant positive correlation between the said variables. Also, according to Zin and Ismail, (2012) management commitment was a crucial constituent of safety compliance. In fact, the former did not only significantly affect the latter; it was essential for the successful execution of safety-related activities in companies as well (Zohar, 1980).

4.6.6 Work Environment and Safety Compliance

The findings showed that there was a significant positive relationship between work environment and safety compliance; hence, work environment increased safety compliance. This result was in line with those of Cox (1991), Cox and Cheyne (2000), as well as Opperman (2002). However, in a study, there was no significant association between level of safety at the workplace and self-reported accident rates (Vinodkumar &

Bhasi, 2009). A good working environment exists when the employees are being provided with all the essential needs and facilities for doing their work (Nakpodia, 2011).

4.7 Conclusion

The chapter presented the analysis and discussion of the results. Four types of statistical analyses have been conducted. The first was factor analysis. This was followed by reliability analysis for each variable, and descriptive analysis. The intention of the descriptive analysis was to examine the respondents' demographic information. The fourth analysis involved the use of two main statistical analyses, namely correlation and regression analyses. This was because the outcomes of these analyses enabled the identification of the relationships between the independent variables (safety rules and procedures, safety participation, communication, safety training, management commitment, and work environment) and the dependent variable (safety compliance). To summarize, the outcome of this study revealed that each of communication, safety training and work environment demonstrated a significant positive relationship with safety compliance, whereas safety rules and procedures, safety participation, and management commitment each had no significant relationship with safety compliance. Of the six hypotheses proposed, only three were accepted. The results of multiple regressions were that only communication, safety training, and work environment were associated with increased safety compliance. The next chapter will discuss the findings, recommendations, and conclusion.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This study was conducted to examine whether safety rules and procedures, safety participation, communication, safety training, management commitment, and work environment influenced safety compliance at manufacturing SMEs in Kedah; the findings of which were described in Chapter 4. This chapter will be divided into four sections: (1) summary and significance of the main findings; (2) theoretical, practical and policy implications of the said findings; (3) research constraints; and (4) recommendations for future research.

A cross-sectional research design was used in this study and it was conducted at manufacturing SMEs in the Malaysian state of Kedah. The respondents were randomly selected and self-administered questionnaires were used. Before collecting the actual data, a pilot study was performed to analyze the reliability of the items. This study was utilized multiple regressions for factor analysis.

5.2 Discussion of Hypothesis Testing

The specific objectives of this study were (1) to examine the positive relationship between safety rules/ procedures and safety compliance, (2) to examine the positive relationship between safety participation and safety compliance, (3) to examine the positive relationship between communication and safety compliance, (4) to examine the

positive relationship between safety training and safety compliance, (5) to examine the positive relationship between management commitment and safety compliance, (6) to examine the positive relationship between work environment and safety compliance. The findings of this study were that three variables (communication, safety training, and work environment) significantly and positively influenced safety compliance whereas the remaining three (safety rules and procedures, safety participation, and management commitment) positively but not significantly influenced safety compliance.

5.2.1 Safety Rules and Procedures and Safety Compliance.

The objective was to examine the positive relationship between safety rules/ procedures and safety compliance. In this study, the results showed that there was no significant positive relationship between the said variables. Manufacturing SMEs in Kedah should communicate the safety rules and procedures through multicolored posters, signs, brochures, or handbooks to make them easily understood by the workers. Good cooperation between all staff members by means of immediately reporting unsafe conditions or hazards to the superiors is necessary to make the workplace safe.

5.2.2 Safety Participation and Safety Compliance.

The objective was to examine the positive relationship between safety participation and safety compliance. In this study, the results showed that there was no significant positive relationship between safety participation and safety compliance. By electing Health and Safety Representatives (HSRs) as well as setting up Health and Safety Committees (HSC), SMEs can increase the involvement of and support from their workers in safety-

related activities. Members of the aforementioned groups should approach the workers and motivating them to practice safety measures as well as participate in safety-related activities to ensure high levels of OSH.

5.2.3 Communication and Safety Compliance

The objective was to examine the positive relationship between communication and safety compliance. In this study, the results showed that there was a significant positive relationship between communication and safety compliance; hence, communication increased safety compliance. Effective communication skills, be it verbal or nonverbal, are valuable in order to develop robust safety and health management systems at the workplace.

5.2.4 Safety Training and Safety Compliance

The objective was to examine the positive relationship between safety training and safety compliance. In this study, the results showed there was a significant positive relationship between safety training and safety compliance; hence, safety training increases safety compliance. Every single person in the company – employees, business owners, managers, and supervisors – gains a particular skill and type of behavior through training. Overall, training is the act of teaching. However, a study has found that training is generally ineffective in reducing injuries associated with manual handling of goods (Clemes, Haslam & Haslam, 2009).

5.2.5 Management Commitment Safety Compliance

The objective was to examine the positive relationship between management commitment and safety compliance. In this study, the results showed that there was no significant relationship between management commitment and safety compliance. Good management commitment towards safety can reduce costs in terms of healthcare and insurance charges, fines, as well as lawsuits. In fact, management commitment has been found to be a reliable predictor of safety compliance (Vinodkumar & Bhasi, 2010).

5.2.6 Work Environment and Safety Compliance

The objective was to examine the positive relationship between work environment and safety compliance. In this study, the results showed that there was a significant positive relationship between work environment and safety compliance; hence, work environment increases safety compliance. Workers in small businesses are frequently subjected to poorer workplace conditions.

5.3 Implications of Research Findings

The results of this study indicated that communication, safety training, and work environment are effective in increasing compliance with safety as well as reducing occupational accidents at SMEs. As per the social cognitive theory (SCT), an individual's behavior is predominantly shaped by the environment instead of genetics, and the personality of the individual is largely molded by their behavior (Bandura & Abrams, 1986). This theory gives a good basis for changing the attitudes of SME workers. Also, non-compliant behavior reflects an imbalance between job demands and

resources as well as a lack of motivation (Hansez & Chmiel, 2010). If the workers adhere to safety guidelines, their productivity will definitely be increased, which in turn generates good income. This is in line with objectives of the OSH MP 15 and OSH MP 2020, which were (1) to promote innovation in OSH, (2) to increase safety compliance through innovation and technology, (3) to provide human resource training, (4) to increase monitoring and enforcement of the Acts, regulations, guidelines, codes of practices, (5) to encourage effective reporting of work hazards, and (6) to establish beneficial mutual relationships. To make the plans a reality, all SMEs – specifically those in manufacturing sector – must be proactive and take necessary steps to change their mindsets about the importance of safety in their business.

In addition, the government, private sector, and non-profitable organizations should promote good safety practices, provide adequate safety training, develop simple risk-assessment tool and guidelines, as well as create access to affordable and good-quality safety services to all SMEs in Malaysia, especially in Kedah. Conduction of safety fairs, seminars, exhibitions, competitions, talks, motivation sessions, and advertisements can inculcate safety-compliant behavior and culture among all SMEs workers and the community in general. As an individual, safety must be the utmost priority. All employers and employees of SMEs must improve their job efficiency and level of safety compliance.

It is also hoped that with reference to the results of this research, manufacturing SMEs will find it easier to come up with appropriate methods to determine the effectiveness as well as usefulness of safety management activities at the workplace.

5.4 Limitations of the Study

Evidently, there are a few limitations in this study, which are described as follows::

i – ***Study design*** **-** as this is a cross-sectional study, all the aforementioned relationships only imply the presence of correlation instead of causation.

ii - Scope of study **–** generally, SMEs can be classified into five categories: agriculture, mining and quarrying, manufacturing, construction and services. However, in light of the fact that this study only covered manufacturing SMEs, the findings may only be applicable to the said type and not other types of SMEs.

iii - Low response rate **-** most of the manufacturing SME workers were afraid to participate in this study, so it was very hard to get volunteers to participate. Consequently, the total number of respondents was very low compared to the actual number of manufacturing SME workers.

iv - Generalized findings - the results of this study may not be applicable to newly-established SMEs or other states as they were limited to Kedah.

v – Quality of data **-** the data for this study was gathered through a questionnaire; no interview sessions were conducted. This was due to time constraints in completing this study. As such, questionnaires were the most applicable method to obtain data for this study.

vi - Ability to answer questionnaire items **-** even though the pilot study was conducted to examine the capability of the respondents to understand and answer the questionnaire as

well as the reliability of the items, different people had different cultures, behavior, perceptions, and knowledge, which may affect their understanding and method of answering the said questions.

5.5 Recommendations for Future Research.

i - Future studies should adopt longitudinal and experimental designs to demonstrate the causality of the relationships. Alternatively a mixed research design could be used so that the respondents have some idea about safety compliance.

ii - Future researches should be conducted on at least two types of SMEs (agriculture, mining and quarrying, construction, manufacturing, and services) so that the results of the study are not limited to manufacturing SME workers only. Doing so also makes it easier to generalize the findings and make comparisons.

iii - Future researches should focus on the workers at the production lines of manufacturing companies because they are in direct contact with the machinery and instruments. Also, task observations should be conducted and more responses collected as the response rate in this study was only moderate and hence, bias cannot be excluded.

iv - Future researches should gather data through interviews, telephone calls and online questionnaires.

vi - If the researcher has intentions to conduct the study in rural areas, the items have to modified accordingly to make sure that the respondents fully understand the research question.

vii - If the future research focus on multiple data collection so it can overcome the correlation issue between the small study variable.

viii - Future researches should indicate the relationship between safety compliance and safety performance at SMEs.

5.6 Conclusion

The findings of this study provide precious information, guidance, and knowledge for researchers and practitioners to evaluate and identify the steps, tasks, and mechanisms which can used to improve the levels of safety at SMEs. Employees are more motivated to work and participate in safety-related activities when they believe that they have good health, feel safe at the workplace, and perceive that their efforts are appropriately rewarded. Companies which adhere to safety regulations always ensure that all the employees are satisfied with their job and workplace; this is part of the management's commitment to provide a peaceful work environment. Frequent monitoring and addressing of all complaints about safety issues is one of the preventive actions in increasing safety compliance. Following safety rules and procedures is important and highly desirable because apart from reducing the occurrence of deaths, injuries, financial losses, and damage to property, it will also increase productivity and efficiency of both employers and employees, ensure the good quality of products and services, as well as promote good public relationships. All SMEs of any size, especially those in the manufacturing sector, can achieve their safety goals with effective safety training. Efficient and effective safety training for SME workers will increase productivity,

decrease risks, and promote a sense of responsibility among the staff in terms of OSH. All these will in turn bring enormous benefits to the employers and employees in general.

REFERENCES

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behivor and human decision process*. Englewood Cliffs, NJ: Prentice Hall.

Al-Refaie, A. (2013). Factors affect companies' safety performance in Jordan using structural equation modeling. *Safety Science, 57*, 169-178. doi:10.1016/j.ssci.2013.02.010

Ashill, N. J., Carruthers, J., & Krisjanous, J. (2006). The effect of management commitment to service quality on frontline employees' affective and performance outcome: An empirical investigation of the New Zealand public healthcare sector. *International Journal of Nonprofit and Voluntary Sector Marketing., 11*(4), 271-287. doi:10.1002/nvsm.281

Awan, A. G., & Tahir, M. T. (2015). Impact of working environment on employee's productivity: A case study of Banks and Insurance Companies in Pakistan. European *Journal of Business and Management, 7*(1), 329-347. Retrieved from http://iiste.org/Journals/index.php/EJBM/article/viewFile/18911/19378

Awodele, O., Popoola, T. D., Ogbudu, B. S., Akinyede, A., Coker, H. A. B., & Akintonwa, A. (2014). Occupational hazards and safety measures amongst the paint factory workers in Lagos, Nigeria. *Safety and Health at Work*, *5*(2), 106-111. doi:10.1016/j.shaw.2014.02.001

Ayyagari, M., Demirguc-Kunt, A., & Maksimovic, V. (2011). *Small vs. young firms across the world contribution to employment, job creation, and growth.* World Bank Policy Research Working Paper No. 5631. Retrieved from *https://papers.ssrn.com/sol3/Delivery.cfm/5631.pdf?abstractid=1807732&mirid=1*

Baffour, B., & Valente, P. (2012). An evaluation of census quality. *Statistical Journal of the IAOS, 28*(3,4), 121-135. doi:10.3233/SJI-2012-0752

Baldock, R., James, P., Smallbone, D., & Vickers, I. (2006). Influences on small-firm compliance-related behaviour: The case of workplace health and safety. *Environment and Planning C: Politics and Space, 24*(6), 827-846. doi:10.1068/c0564

Bandura, A., & Abrams, K. (1986). *Self -regulatory mechanisms in motivating, apathetic, and despondent reaction to unfulfilled standards*. Unpublished manuscript, Stanford University, Stanford, California.

Bank Negara Malaysia. (2013). *Circular on new definition of Small and Medium Enterprises (SMEs).* Retrieved from http://www.bnm.gov.my/files/2013/sme_cir_028_1_new.pdf

Barbaranelli, C., Petitta, L., & Probst, T. M. (2015). Does safety climate predict safety performance in Italy and the USA? Cross-cultural validation of a theoretical model of safety climate. *Accident Analysis & Prevention, 77*, 35-44. doi:10.1016/j.aap.2015.01.012

Beaver G. (2003). Management and the small firm. *Strategic Change, 12*(2), 63-68. doi:10.1002/jsc.623

Bernama. (2013, July 6). DOSH identifies negligence in second Penang bridge ramp collapse. *Malaysiakini*. Retrieved from www.malaysiakini.com/news/234970

Boughaba, A., Hassane, C., & Roukia, O. (2014). Safety culture assessment in petrochemical industry: A comparative study of two algerian plants. *Safety and Health at Work*, *5*(2), 60-65. doi:10.1016/j.shaw.2014.03.005

Brislin, R. W. (1970). Back translation for the cross-cultural research. *Journal of Cross Cultural Research, 1*(3), 185-216. doi:10.1177/135910457000100301

Brown, R. L., & Holmes, H. (1986). The use of factor-analytic procedure for assessing the validity of an employee safety climate model. *Accident Analysis and Prevention, 18*(6), 455-470. Retrieved from http://158.132.155.107/posh97/private/culture/safety-climate-model-Brown.pdf

Cagno, E., Micheli, G. J. I., & Perotti, S. (2011). Identification of OSH-related factors and interactions among those and OSH performance in SMEs. *Safety Science, 49*, 216-225. doi:10.1016/j.ssci.2010.08.002

Cagno, E., Micheli, G. J. I., Masi, D., & Jacinto, C. (2013). Economic evaluation of OSH and its way to SMEs: A constructive review. *Safety Science, 53*, 134-152. doi:10.1016/j.ssci.2012.08.016

Chen, S. (2017). Journal of Air Transport Management Paternalistic leadership and cabin crews ' upward safety communication : The motivation of voice behavior. *Journal of Air Transport Management*, *62*, 44–53. https://doi.org/10.1016/j.jairtraman.2017.02.007

Cavana, R. Y., Delahaye, B. L., & Sekaran, U. (2001). *Applied business research: qualitative and quantitative methods* (1st ed.). US & Australia: John Wiley & Sons Australia, Ltd.

Cheyne, A. T. J., Cox, S., Oliver, A., & Tomás, J. M. (1998). Modelling safety climate in the prediction of level of safety activity. *Work & Stress, 12*(3), 255-271. doi:10.1080/02678379808256865

Cheyne, A., & Cox, S. (1994, November). *A comparison of employee attitudes to safety.* Paper presented at the Proceeding of the Fourth Conference on safety and well-being at work, Loughborough University of Technology, UK.

Chmiel, N., Laurent, J., & Hansez, I. (2017). Employee perspectives on safety citizenship behaviors and safety violations. *Safety Science*, *93*, 96–107. https://doi.org/10.1016/j.ssci.2016.11.014

Chua, Y. P. (2012). *Kaedah dan statistik penyelidikan: Kaedah penyelidikan* (2nd ed.). Shah Alam: Mc-Graw Hill Education.

Clarke, S. (2006). The relationship between safety climate and safety performance: A meta-analytic review. *Journal of Occupational Health Psychology, 11*(4), 315-327. doi:10.1037/1076-8998.11.4.315

Clemes, S. A., Haslam, C. O., & Haslam, R. A. (2009). What constitutes effective manual handling training? A systematic review. *Occupational Medicine*, *60*(2), 101-107. doi:10.1093/occmed/kqp127

Cohen, A. (1977). Factor in successful occupational safety programs. *Journal of Safety Research, 9*(4), 168-178. Retrieved from http://csemails.elsevier.com/JSR/JSR_1147.pdf

Cohen, H. H., & Jensen, R. C. (1984). Measuring the effectiveness of an industrial lift truck safety training program. *Journal of Safety Research, 15*(3), 125-135. doi:10.1016/0022-4375(84)90023-9

Company fined RM20,000 over fatal tower crane crash. (2012, September 12). *The Star Online.* Retrieved from http://www.thestar.com.my/news/community/2012/09/12/company-fined-rm20000-over-fatal-tower-crane-crash/

Cooper, M. D. (2006). Exploratory Analyses of the effects of managerial support and feedback consequences. *Journal of Organizational Behaviour Management, 26*(3), 1-41. doi:10.1300/J075v26n03_01

Cooper, M. D., & Philips, R. A. (2004). Exploratory analysis of the safety climate and safety behavior relationship. *Journal of Safety Research, 35*(5), 497-512. doi:10.1016/j.jsr.2004.08.004

Cox, S. J., & Cheyne, A. J. T. (2000). Assessing safety culture in offshore environments. *Safety Science*, *34*(1), 111-129. doi:10.1016/S0925-7535(00)00009-6

Cox, S., & Cox, T. (1991). The structure of employee attitudes to safety: An European example. *Work & Stress, 5*(2), 93-106. doi:10.1080/02678379108257007

Cunningham, T., & Sinclair, R. (2015). Application of a model for delivering OSH to smaller businesses: Case studies from the U.S. *Safety Science, 71*(100), 213-225. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4544669/pdf/nihms712052.pdf

Dahl, Ø., & Olsen, E. (2013). Safety compliance on offshore platforms: A multi-sample survey on the role of perceived leadership involvement and work climate. *Safety Science, 54*, 17-26. doi:10.1016/j.ssci.2012.11.003

Dalkilic, S. (2017). Improving aircraft safety and reliability by aircraft maintenance technician training. *Engineering Failure Analysis*, *82*(June), 687–694. https://doi.org/10.1016/j.engfailanal.2017.06.008

Dedobbeleer, N., & Béland, F. (1991). A safety climate measure for construction sites. *Journal of Safety Research*, *22*(2), 97-103. doi:10.1016/0022-4375(91)90017-P

DeJoy, D. M. (1985). Attributional process and hazard control management in industry. *Journal of Safety Research, 16*(2), 61-71. doi:10.1016/0022-4375(85)90008-8

DeJoy, D. M., Della, L., J., Vandenberg, R. J., & Wilson, M. G. (2010). Making work safer: Testing a model of social exchange and safety management. *Journal of Safety research, 41*(2), 163-171. doi:10.1016/j.jsr.2010.02.001

Dekker, S. W. A. (2005). *Ten questions about human error: A new view of human factors and system safety.* Mahwah, New Jersey: Lawrence Erlbaum Associates.

Department of Occupational Safety and Health Malaysia. (2010a). *Occupational Safety and Health Master Plan for Malaysia 2015 (OSH-MP 15).* Retrieved from http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---sro-bangkok/documents/policy/wcms_182420.pdf

Department of Occupational Safety and Health Malaysia. (2010b). *Laporan Tahunan 2010.* Retrieved from http://www.dosh.gov.my/index.php/en/archive-publication

Department of Occupational Safety and Health Malaysia. (2014). *Prosecution.* Retrieved from http://www.dosh.gov.my/index.php/en/osh-info-2/prosecution-case

Department of Occupational Safety and Health Malaysia. (2015). *Laporan Tahunan 2015.* Retrieved from http://www.dosh.gov.my/index.php/en/publication-sp-249/annual-report/2353-laporan-tahunan-jkkp-malaysia-2015/file

Department of Occupational Safety and Health Malaysia. (2016). *Strategic plan for occupational safety and health in small and medium industry sector 2016-2020*. Retrieved from http://www.dosh.gov.my/index.php/ms/iks/pelan-strategik-iks-2020-versi-eng/file

Department of Occupational Safety and Health Malaysia. (2017). *Occupational accident statistic by sector until April 2017.* Retrieved from http://www.dosh.gov.my/index.php/en/occupational-accident-statistics/by-sector

Department of Statistics Malaysia. (2015). *Census of distributive trade report 2014: Sales value of goods and services for distributive trade sector in 2013 grew by 6.6%*

compared to 2008. Retrieved from https://www.dosm.gov.my/v1/index.php?r=column/pdfPrev&id=U1FoUzF2WjBERmgzWHd5elZZVkNWQT09

Didonet, S R., & Díaz, G. (2012). Supply chain management practices as a support to innovation in SMEs. *Journal of Technology Management & Innovation, 7*(3), 91-109. doi:10.4067/S0718-27242012000300009.

Diugwu, I. A. (2011). Re-strategising for effective health and safety standards in small and medium-sized enterprises. *Open Journal of Safety Science and Technology, 1*(3), 115-128. doi:10.4236/ojsst.2011.13013

Dov, Z. (2008). Safety climate and beyond: A multi-level multi-climate framework. *Safety Science, 46*(3), 376-387. doi:10.1016/j.ssci.2007.03.006

Elling, M. G. M. (1987). Veilig werken volgens geschreven procedures: illusies en werkelijkheid [Safe working following written procedures: Illusion and reality]. *Communicatioe in Bedriif en Beroep: Toegepaste Taalwetenshap, 2*, 133-143.

Environment Agency. (2000). *Business decision-making and the environment* (R7D technical report E98). Bristol: Environment Agency.

European Union- Occupational Safety and Health, (2014). *European Agency for Safety and Health at Work – EU-OSHA. Summary*.

European Agency for Safety and Health at Work. (2015). *Summary annual report 2014.* Retrieved from https://osha.europa.eu/en/tools-and-publications/publications/annual-report-2014-summary

European Commission. (2016). *Annual report on European SMEs 2015/2016.* Retrieved from https://ec.europa.eu/jrc/sites/jrcsh/files/annual_report_-_eu_smes_2015-16.pdf

Fabiano, B., Currò, F., & Pastorino, R. (2004). A study of the relationship between occupational injuries and firm size and type in the Italian industry. *Safety Science, 42*(7), 587-600. doi:10.1016/j.ssci.2003.09.003

Fernández-Muñiz , B., Montes-Peón, J. M., & Vázquez-Ordás, C. (2007). Safety culture: Analysis of the causal relationships between its key dimensions. *Journal of Safety Research, 38*(6), 627-641. doi:10.1016/j.jsr.2007.09.001

Fernando, Y., Zailani, S., & Janbi, L. (2008, December). *The determinant factors of safety compliance at petrochemical processing area: Moderator effects of employees experience and engineering background.* Paper presented at the Proceesdings of the 9th Asia Pasific Industrial Engineering & Management Systems Conference (APIEMS), Nusa Dua, Bali, Indonesia. Retrieved from

http://s3.amazonaws.com/academia.edu.documents/705301/175-Yudi_Fernando.pdf?AWSAccessKeyId=AKIAIWOWYYGZ2Y53UL3A&Expires=1499215483&Signature=Uh5MMg3kSl6sAKfLJ10XHHGUsqQ%3D&response-content-disposition=inline%3B%20filename%3DThe_Determinant_Factors_of_Safety_Compli.pdf

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior. An intrduction to theory and research.* Reading, MA: Addison-Wesley.

Flin, R. K., & O'Connor, P. (2000). Applying Crew resource management on offshore oil platforms. In E. Salas, C. A. Bowers, E. Edens. (Eds.), *Improving teamwork in organizations: Applications of resources management training.* Boca Raton, FL: CRC Press.

Flin, R., Mearns, K., O'Connor, P., & Bryden, R. (2000). Measuring safety climate: Identifying the common features. *Safety Science, 34*(1-3), 177-192. doi:10.1016/S0925-7535(00)00012-6

Frick, K. (2011). Worker influence on voluntary OHS management systems – A review of its ends and means. *Safety Science, 49*(7), 974-987. doi:10.1016/j.ssci.2011.04.007

Gerstenfeld, A., & Roberts, H. (2000). Size matters: Barriers and prospects for environmental management in small and medium sized enterprises. In R. Hillary (Ed.), *Small and medium sized enterprises and the environment: Business imperatives* (pp. 106-118). Sheffield, UK: Greenleaf Publishing.

Ghedini, N. (2014, October 30). The importance of health and safety training for OSHA compliance [Web log message]. Retrieved from http://www.ecsconsult.com/blog/author/nicole-ghedini/page/3?hsFormKey=56167b1c0dd8309e25837fb553a20392

Gilkey, D. P., Keefe, T. J., Hautaluoma, J. E., Bigelow, P. L., Herron, R. E., Stanley, & S. A. (2003). Management commitment to safety and health in residential construction: HomeSafe spending trends 1991-1999. *Work, 20*(1), 35-44.

Glendon, A. I., & Litherland, D. K. (2001). Safety climate factors, group differences and safety behaviour in road construction. *Safety Science, 39*, 157-188. Retrieved from http://158.132.155.107/posh97/private/culture/safety-climate-factors-Glendon.pdf

Green, L. R., & Selman, C. (2005). Factor impacting food workers' and managers' safe food preparation practices: A qualitative study. *Food Protection Trends, 25*(12), 981-990. Retrieved from https://www.cdc.gov/nceh/ehs/ehsnet/docs/factors_impacting_food_workers_food_prep_fpt_journal.pdf

Griffin, M. A., & Hu, X. (2013). How leaders differentially motivate safety compliance and safety participation: The role of monitoring, inspiring, and learning. *Safety Science*, *60*, 196-202. doi:10.1016/j.ssci.2013.07.019

Griffin, M. A., & Neal, A. (2000). Perceptions of safety at work: A framework for linking safety climate to safety performance, knowledge, and motivation. *Journal of Occupational Health Psychology, 5*(3), 347-358. doi:10.1037/1076-8998.5.3.347

Groundwork Foundation. (1995). *Small firms and the environment: A groundwork status report.* Birmingham: Groundwork Foundation.

Guldenmund, F. W. (2000). The nature of safety culture: A review of theory and research. *Safety Science, 34*(1-3), 215-257. doi:10.1016/S0925-7535(00)00014-X

Hahn, S. E., & Murphy, L. R. (2008). A short scale for measuring safety climate. *Safety Science, 46*(7), 1047-1066. doi:10.1016/j.ssci.2007.06.002

Hair, J. F., Tatham, R. I., Anderson, R. E., & Black, W. C. (1998). *Multivariate data analysis* (5th ed.). Upper Saddle River, NJ: Prentice-Hall International.

Hale, A. R., & Borys, D. (2012). Working to rule or working safely? Part 2: The management of safety rules and procedures. *Safety Science, 55*, 222-231. doi:10.1016/j.ssci.2012.05.013

Hansez, I., & Chmiel N. (2010). Safety behavior: Job demands, job resources, and perceived management commitment to safety. *Journal of Occupantional Health Psychology, 15*(3), 267-278. doi:10.1037/a0019528

Harper, R. S., & Koehn, E. (1998). Managing industrial construction safety in southeast Texas. *Journal of Construction Engineering and Management, 124*(6), 452-457. doi:10.1061/(ASCE)0733-9364(1998)124:6(452)

Hasle, P., & Limborg, H. J. (2006). A review of the literature on preventive occupational health and safety activities in small enterprises. *Industrial Health, 44*(1), 6-12. doi:10.2486/indhealth.44.6

Hasle, P., Kines, P., & Andersen, L. P. (2009). Small enterprise owners' accident causation attribution and prevention. *Safety Science, 47*(1), 9-19. doi:10.1016/j.ssci.2007.12.005

Holmes, N., Lingard, H., Yesilyurt, Z., & De Munk, F. (1999). An exploratory study of meanings of risk control for long term and acute effect occupational health and safety risks in small business construction firms. *Journal of Safety Research*, *30*(4), 251-261. doi:10.1016/S0022-4375(99)00020-1

Hopkins, A. (2011). Risk-management and rule-compliance: Decision-making in hazardous industries. *Safety Science, 49*(2), 110-120. doi:10.1016/j.ssci.2010.07.014

Hu, X., Griffin, M. A., & Bertuleit, M. (2016). Modelling antecedents of safety compliance : Incorporating theory from the technological acceptance model. *Safety Science*, *87*, 292–298. https://doi.org/10.1016/j.ssci.2015.12.018

Huang, Y.-H., Ho, M., Smith, G. S., & Chen, P. Y. (2006). Safety climate and self-reported injury: Assessing the mediating role of employee safety control. *Accident Analysis & Prevention, 38*(3), 425-433. doi:10.1016/j.aap.2005.07.002

Huang, Y.-H., Verma, S. K., Chang, W.-R., Courtney, T. K., Lombardi, D. A., Brennan, M. J., & Perry, M. J. (2012). Management commitment to safety vs. employee perceived safety training and association with future injury. *Accident Analysis & Prevention, 47*, 94-101. doi:10.1016/j.aap.2011.12.001

Hutchinson, A., & Chaston, I. (1994, September). *Environmental perceptions, policies and practices in the SME sector: A case study.* Paper presented at the Business Strategy and the Environment Conference, Bradford, UK.

Inness, M., Turner, N., Barling, J., & Stride, C. B. (2010). Transformational leadership and employee safety performance: A within-person, between-jobs design. *Journal of Occupational Health Psychology, 15*(3), 279-290. doi:10.1037/a0019380

International Monetary Fund. (2016). *World Economic Outlook: Too slow for too long*. Retrieved from file:///C:/Users/ASUS/Downloads/_textpdf.pdf

International Monetary Fund. (2017). *World Economic Outlook, April 2017: Gaining Momentum?* Retrieved from . http://www.imf.org/en/Publications/WEO/Issues/2017/04/04/world-economic-outlook-april-2017

Ismail, F., Torrance, J. V., T. A., Abdul Majid, M. Z. (2007, July). *The reflection of management commitment on OSH within the Malaysia construction organisations.* Proceeding of the 10th Conference and Exhibition on Occupational Safety & Health, Genting International Convention Centre (GICC), Genting Highlands, Pahang, Malaysia.

Jiang L., Yu, G., Li, Y., & Li, F. (2010). Perceived colleagues' safety knowledge/behavior and safety performance: Safety climate as a moderator in a multilevel study. *Accident Analysis & Prevention, 42*(5), 1468-1476. doi:10.1016/j.aap.2009.08.017

Kedah to implement state transformation plan. (2013, June 2). *Astro Awani.* Retrieved from http://english.astroawani.com/malaysia-news/kedah-implement-state-transformation-plan-15469

Karanikas, N. (2017). Evaluating the horizontal alignment of safety management activities through cross-reference of data from safety audits , meetings and investigations. *Safety Science*, *98*, 37–49. https://doi.org/10.1016/j.ssci.2017.05.008

Kingdom, U., Besserman, J., & Mentzer, R. A. (2017). Journal of Loss Prevention in the Process Industries Review of global process safety regulations : United States , European. *Journal of Loss Prevention in the Process Industries*, *50*, 165–183. https://doi.org/10.1016/j.jlp.2017.09.010

Kline, R. B. (2015). *Principles and Practice of Structural Equation Modeling*. Fourth Edition

Komaki, J., Barwick, K. D., & Scott, L. R. (1978). A behavioral approach to occupational safety: Pinpointing and reinforcing safe performance in a food manufacturing plant. *Journal of Applied Psychology, 63*(4), 434-445. doi:10.1037/0021-9010.63.4.434.

Krejcie, R., & Morgan, D. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30*(3), 607-610. doi:10.1177/001316447003000308

Lamm, F. (1999). *Occupational health and safety in Australian small business: What can be done to reduce the lack of awareness and raise the level of compliance in Australian small business?* Sydney: Industrial Relations Research Centre, University of New South Wales.

Laurence, D. (2005). Safety rules and regulations on mine sites: The problem and a solution. *Journal of Safety Research, 36*(1), 39-50. doi:10.1016/j.jsr.2004.11.004

Legg, S. J., Olsen, K. B., Laird, I. S., & Hasle, P. (2015). Managing safety in small and medium enterprises. *Safety Science*, *71*, 189-196. doi:10.1016/j.ssci.2014.11.007

Legg, S., Laird, I., Olsen, K., & Hasle, P. (2014). Guest editorial: Special issue – Understanding small enterprises: Healthy lives in healthy businesses. *Small Enterprise Research, 21*(2), 139-147. doi:10.1080/13215906.2014.11082083

Li, F., Jiang, L., Yao, X., & Li, Y. (2013). Job demands, job resources and safety outcomes: The roles of emotional exhaustion and safety compliance. *Accident Analysis & Prevention, 51*, 243-251. doi:10.1016/j.aap.2012.11.029

Lien, L. B., & Knudsen, E. S. (2012). Norwegian businesses through the crisis: An overview. *Magma: Econa's Journal of Economics and Management, 6*, 40-51. Retrieved from https://www.magma.no/norske-bedrifter-gjennomkrisen-en-oversikt

Lin, J., & Mills, A. (2001). Measuring the occupational health and safety performance of construction companies in Australia. *Facilities, 19*(3/4), 131-139. doi:10.1108/02632770110381676

Liu, Y., Zhang, Q., & Li, Q. (2014). A research on mechanisms and countermeasures of the food safety incidents occuring on food supply chain. *Journal of Service Science and Management, 7*(4), 337-345. doi:10.4236/jssm.2014.74030.

MacEachen, E., Kosny, A., Scott-Dixon, K., Facey, M., Chambers, L., Breslin, C., … Small Business Systematic Review Team. (2010). Workplace health understandings and processes in small businesses: A systematic review of the qualitative literature. *Journal of Occupational Rehabilitation, 20*(2), 190-198. doi:10.1007/s10926-009-9227-7.

Mahmood, R., Mohd, Isa, M. F., Mustafa, L., Abdul Aziz, F. S., & Salleh, A. (2010, November). *Safety behaviour: The role of safety commitment.* Paper presented at the Proceeding of the ICBER 2010 International Conference, Kuala Lumpur, Malaysia. Retrieved from http://www.internationalconference.com.my/proceeding/icber2010_proroceeding/PAPER_214_SafetyBehaviour.pdf

Maslen, S., & Ransan-cooper, H. (2017). Safety framing and compliance in relation to standards : Experience from the Australian gas pipeline industry. *Safety Science*, *94*, 52–60. https://doi.org/10.1016/j.ssci.2016.12.011

Marsh, T. W., Davies, R., Phillips, R. A., Duff, A. R., Robertson, I. T., Weyman, A., & Cooper, M. D. (1998). The role of management commitment in determining the success of a behavioural safety intervention. *Journal of the Institution of Occupational Health & Safety*, *2*(2), 45-56. Retrieved from http://behavioral-safety.com/articles/The_role_of_managerial_commitment_in_Behavior_Based_Safety.pdf

Mayhew, C. (1999). Why owner/managers in small business miss out [Owner/managers of car maintenance and repair garages are reliant on suppliers for advice on hazardous substances and manual handling]. In C. L. Peterson (Ed.), *Occupational Health and Safety in Australia: Industry, Public Sector and Small Business* (pp.116-126, 187-198). Sydney, Australia: Allen & Unwin.

Mearns, K., & Hope, L. (2005). *Health and well-being in the offshore environment: The management of personal health.* (305 ed.) (Research Report; No. 305). Sudbury: Health and Safety Executive.

Mearns, K., Hope, L., Ford, M. T., & Tetrick, L. E. (2010). Investment in workforce health: Exploring the implications for workforce safety climate and commitment. *Accident Analysis & Prevention, 45*(5), 1445-1454. doi:10.1016/j.aap.2009.08.009.

Mearns, K., Whitaker, S. M., & Flin, R. (2003). Safety climate, safety management practice and safety performance in offshore environments. *Safety Science, 41*(8), 641-680. doi:10.1016/S0925-7535(02)00011-5

Mendeloff, J. M., & Kagey, B. T. (1990). Using Occupational Safety and Health administration accident investigation to study patterns in work fatalities. *Jounal of Occupational Medicine, 32*(11), 1117-1123. Retrieved from https://www.researchgate.net/publication/20896843_Using_Occupational_Safety_an

d_Health_Administration_Accident_Investigations_to_Study_Patterns_in_Work_Fatalities

Ministry of Human Resources. (2015). *OCCUPATIONAL SAFETY AND HEALTH MASTER PLAN FOR MALAYSIA 2015 (osh-mp 15)*.

Micheli, G. J. L., & Cogno, E. (2010). Dealing with SMEs as a whole in OHS issues: Warnings from empirical evidence. *Safety Science, 48*(6), 729-733. doi:10.1016/j.ssci.2010.02.010

Mullen, J., Kelloway, E. K., & Teed, M. (2017). Employer safety obligations , transformational leadership and their interactive effects on employee safety performance q. *Safety Science*, *91*, 405–412. https://doi.org/10.1016/j.ssci.2016.09.007

National SME Development Council. (2012). *SME MASTERPLAN 2012-2020 - Catalysing Growth and Income*.

Nakpodia, E. D. (2011). Work environment and productivity among primary school teachers in Nigeria. *African Research Review, 5*(5), 367-381. doi:10.4314/afrrev.v5i5.29

Neal, A., & Griffin, M. A. (1997, February). *Perception of safety at work: Developing a model to link organization safety climate and individual behaviour.* Paper presented at the 12th Annual Conference of the Society for Industrial and Organizational Psychology, St. louis, MO.

Neal, A., & Griffin, M. A. (2006). A study of the lagged relationships among safety climate, safety motivation, safety behaviour, and accidents at the individual and group levels. *Journal of Applied Psychology, 91*(4), 946-953. doi:10.1037/0021-9010.91.4.946

Occupational Safety And Health Act 1994 [Act 514].

Okun, A., Lentz, T. J., Schulte, P., & Stayner, L. (2001). Identifying high-risk small business industries for occupational safety and health interventions. *American Journal of Industrial Medicine*, *39*(3), 301-311. doi:10.1002/1097-0274(200103)39:3<301::AID-AJIM1018>3.0.CO;2-L

Opperman, C. S. (2002). *Tropical business issues.* Partner Price Water House Coopers. Retrieved from http://www.pricewaterhousecoopers/zambiaeconomistsParker, S. C., Storey, D., & van Witteloostuijn, A. (2010). What happens to gazelles? The importance of dynamic management strategy. *Small Business Economics, 35*(2),

203-226. doi:10.1007/s11187-009-9250-2

Patil, P. P. (2016). *Understanding and overcoming barriers to technology adoption among India's micro, small and medium enterprises*. Retrieved from https://www.linkedin.com/pulse/understanding-overcoming-barriers-technology-adoption-pritesh-patil

Petitta, L., Probst, T. M., Barbaranelli, C., & Ghezzi, V. (2017). Disentangling the roles of safety climate and safety culture : Multi-level effects on the relationship between supervisor enforcement and safety compliance. *Accident Analysis and Prevention*, *99*, 77–89. https://doi.org/10.1016/j.aap.2016.11.012

Petts, J. (2000). SMEs and environmental compliance: Attitudes among management and non-management. In R. Hillary (Ed.), *Small and medium-sized enterprises and the environment* (pp. 49-60). Sheffield: Greenleaf Publishing Ltd.

Petts, J., Herd, A., Gerrard, S., & Horne, C. (1999). The climate and culture of environmental compliance within SMEs. *Business Strategy and the Environment, 8*(1), 14-30. doi:10.1002/(SICI)1099-0836(199901/02)8:13.0.CO;2-4

Pilbeam, C., Doherty, N., Davidson, R., & Denyer, D. (2016). Safety leadership practices for organizational safety compliance : Developing a research agenda from a review of the literature. *Safety Science*, *86*, 110–121. https://doi.org/10.1016/j.ssci.2016.02.015

Robotham, G. (2001). Safety training that work. *Professional Safety, 46*(5), 33-37.

Sekaran, U., & Bougie, R. (2009). *Research methods for business: A skill building approach* (5th ed.). United Kingdom: John Wiley & Sons Ltd.

Sekaran, U., & Bougie, R. (2013). *Research methods for business: A skill-building approach.* (6th ed.). Chichester: Wiley.

Sijtsma, K. (2008). On the use, the misuse, and the very limited usefulness of Cronbach's alpha. *Psychometrika, 74*(1), 107-120. doi:10.1007/s11336-008-9101-0

SME Corp. Malaysia. (n.d.). *SME Corporation Malaysia - State Office*. Retrieved from www.smecorp.gov.my/index.php/en/state-offices

SME Corp. Malaysia. (2012). *SME Masterplan 2012-2020: Catalysing growth and income*. Retrieved from http://www.smecorp.gov.my/index.php/en/resources/2015-12-21-11-07-06/sme-masterplan/book/11-sme-masterplan-english/3-sme-masterplan

SME Corp. Malaysia. (2013). *Guideline for new SME definition.* Retrieved from http://www.ofs.org.my/file/files/Guidelines%20on%20New%20Definition%20of%20SME%202013__SME%20Corporation.pdf

SME Corp. Malaysia. (2016). *SME Annual Report - 2015/2016*. Retrieved from http://www.smecorp.gov.my/images/Publication/Annual-report/SME%20AR%202015-16%20English%20Final%20web.pdf

Smith, T. D., & DeJoy, D. M. (2014). Safety climate, safety behaviors and line-of-duty injuries in the fire service. *International Journal of Emergency Services, 3*(1), 49-64. doi:10.1108/IJES-04-2013-0010

Social Security Organization. (2015). *Annual Report 2015.* Retrieved from https://www.perkeso.gov.my/images/Laporan_Tahunan_2015.pdf

Steven, G. (1999). Features - workplace injuries in small and large manufacturing workplace - an analysis of the risks of fatal and non-fatal injuries, including figures for 1994/5-1995/6. *Labour Market trends, 107*, 19-26.

Suruda, A., & Wallace, D. (1996). Fatal work-related injuries in the U.S. chemical industry 1984-89. *Intertional Archives of Occupational Environmental Health, 68*(6), 425-428. doi:10.1007/BF00377864

Tappura, S., & Nenonen, N. (2017). Managers ' viewpoint on factors influencing their commitment to safety : An empirical investigation in five Finnish industrial organisations. *Safety Science*, *96*, 52–61. https://doi.org/10.1016/j.ssci.2017.03.007

Tucker, S., & Turner, N. (2011). Young worker safety behaviour: Development and validation of measures. *Accident Analysis & Preventation, 43*(1), 165175. doi:10.1016/j.aap.2010.08.006

Unnikrishnan, S., Iqbal, R., Singh, A., & Nimkar, I. M. (2015). Safety management practices in small and medium enterprises in India. *Safety and Health at Work, 6*(1), 46-55. doi:10.1016/j.shaw.2014.10.006

Varonen, U., & Mattila, M. (2000). The safety climate and its relationship to safety practice, safety of work environment and occupational accidents in eight wood-processing companies. *Accident Analysis & Prevention, 32*(6), 761-769. doi:10.1016/S0001-4575(99)00129-3

Vassie, L., Tomàs, J. M., & Oliver, A. (2000). Health and safety management in UK and Spanish SMEs: A comparative study. *Journal of Safety Research, 31*(1), 35-43. doi:10.1016/S0022-4375(99)00028-6

Vidal-gomel, C. (2017). Training to safety rules use . Some reflections on a case study. *Safety Science*, *93*, 134–142. https://doi.org/10.1016/j.ssci.2016.12.001

Vijayakumar, T. (2007, August). *Achieve total safety culture through behaviour based safety.* Paper presented at the Proceeding of the 10th Conference and Exhibition on Occupational Safety and Health (OSH): Reinforcing the Commitment (pp. 303-313). Genting Highlands, Malaysia.

Vinodkumar, M. N., & Bhasi, M. (2009). Safety climate factors and its relationship with accidents and personal attributes in the chemical industry. *Safety Science*, *47*(5), 659-667. doi:10.1016/j.ssci.2008.09.004

Vinodkumar, M. N., & Bhasi, M. (2010). Safety management practices and safety behaviour : Assessing the mediating role of safety knowledge and motivation. *Accident Analysis & Prevention*, *42*(6), 2082-2093. doi:10.1016/j.aap.2010.06.021

Vinodkumar, M. N., & Bhasi, M. (2011). A study on the impact of management system certification on safety management. *Safety Science*, *49*(3), 498-507. doi:/10.1016/j.ssci.2010.11.009

Vrenderburgh, A. (2002). Organization safety: Which management practices are most effective in reducing employee injury rates? *Journal of Safety Research, 33*(2), 259-276. doi:10.1016/S0022-4375(02)00016-6

Walters, D. (2006). The Efficacy of strategies for chemical risk management in small enterprise in Europe: Evidence for success? *Policy Practice in Health and Safety, 4*(1), 81-116. doi:10.1080/14774003.2006.11667677

Williamson, A. M., Feyer, A.-M., Cairns, D., & Biancotti, D. (1997). The development of a measure of safety climate: The role of safety perceptions and attitudes. *Safety Science, 25*(1-3), 15-27. doi:10.1016/S0925-7535(97)00020-9

Yagil, D., & Luria, G. (2010). Friends in need: The protective effect of social relationships under low-safety climate. *Group & Organization Management, 35*(6), 727-750. doi:10.1177/1059601110390936

Zahoor, H., Chan, A. P. C., Utama, W. P., & Gao, R. (2015). A research framework for investigating the relationship between safety climate and safety performance in the construction of multi-storey buildings in Pakistan. *Procedia Engineering, 118*, 581-589. doi:10.1016/j.proeng.2015.08.488

Zin, S. M., & Ismail, F. (2012). Employers' behavioural safety compliance factors toward occupational, safety and health improvement in the construction industry. *Procedia - Social and Behavioral Sciences*, *36*, 742-751. doi:10.1016/j.sbspro.2012.03.081

Zohar D. (1980). Safety climate in industrial organizations: Theoretical and applied implications. *Journal of Applied Psychology, 65*(1), 96-102. doi:10.1037/0021-9010.65.1.96

Zohar, D., & Luria, G. (2005). A multilevel Model of Safety Climate : Cross-level relationships between organization and group-level climates. *Journal of Applied Psychology*, *90*(4), 616-628. doi:10.1037/0021-9010.90.4.616

Zohar, D., Cohen, A., & Azar, N. (1980). Promoting increased use of ear protectors in noise through information feedback. *Human Factors, 22*(1), 69-79.

10.1177/001872088002200108