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**THE RELATIONSHIP BETWEEN SAFETY MANAGEMENT  
PRACTICES WITH WORKER SAFETY COMPLIANCE  
BEHAVIOUR IN MANUFACTURING SECTOR**



**MASTER OF SCIENCE  
(OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT)  
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2020**

**THE RELATIONSHIP BETWEEN SAFETY MANAGEMENT PRACTICES  
WITH WORKER SAFETY COMPLIANCE BEHAVIOUR IN  
MANUFACTURING SECTOR**

**By**

**SIVANANTHA A/L MADEWAN**

**824124**



**Dissertation submitted to**

**School of Business Management,**

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**in Partial Fullfillment of the requirement for the**

**Master of Science (Occupational Safety and Health Management)**



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Perniagaan**

SCHOOL OF BUSINESS MANAGEMENT

**Universiti Utara Malaysia**

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## ABSTRACT

Safety management practices are essential to reduce hazardous incidents at the workplace by improving safety conditions at the workplace, as well as encouraging employers and employees to shift their attitudes and behaviors in order to place an importance on safety and health. The purpose of this study is to review the level of safety compliance among the workers in manufacturing company and to review the relationship between safety compliance as dependent variable with the independent variables which are safety management practices which look at management commitment, safety training, and the involvement of the workers, safety communication, promotion of safety and safety rules & procedures. The research method is quantitative analysis and adopting a cross-sectional approach in data gathering. Primary data generated from the questionnaire chose as a data collection. Random sampling method was used in collecting the data and the population is from the Fabricated Metal and Hardware manufacturing company in Nibong Tebal, Pulau Pinang. Quantitative analysis using SPSS version 25.0 was used and the result is showed that the six factors of safety management practices affect the safety behaviors (safety compliance). The findings from this study will provide useful insight for future researchers and practitioners in the field to identify issues and solutions that contribute to safety and health at the workplace.

**Keywords:** management commitment, safety training, workers involvement, safety communication and feedback, safety rules and procedures, safety promotion policies and safety compliance.

## ABSTRAK

Amalan pengurusan keselamatan adalah penting dalam mengurangkan kejadian berbahaya di tempat kerja dengan meningkatkan persekitaran yang selamat di tempat kerja, serta menggalakkan majikan dan pekerja untuk mengubah sikap dan tingkah laku mereka untuk mengutamakan keselamatan dan kesihatan. Tujuan kajian ini adalah untuk menguji tahap kepatuhan terhadap keselamatan di kalangan pekerja keselamatan di syarikat perkilangan dan mengkaji hubungan antara kepatuhan keselamatan sebagai pemboleh ubah bersandar dengan pemboleh ubah bebas yang merupakan amalan pengurusan keselamatan yang melihat komitmen pengurusan, latihan keselamatan, penglibatan pekerja, komunikasi keselamatan, promosi keselamatan dan peraturan & prosedur keselamatan. Kaedah kajian adalah analisis kuantitatif dan menggunakan pendekatan keratan rentas dalam pengumpulan data. Data primer yang dikumpul melalui borang soal selidik yang dipilih sebagai pengumpulan data. Kaedah persampelan rawak digunakan dalam mengumpulkan data dan populasi adalah dari Syarikat pembuatan logam dan fabrikasi perkakasan, Nibong Tebal, Pulau Pinang. Analisis kuantitatif menggunakan SPSS versi 25.0 digunakan dan hasilnya menunjukkan bahawa kesahan dan kebolehpercayaan enam faktor amalan pengurusan keselamatan yang telah mempengaruhi tingkah laku keselamatan (kepatuhan keselamatan). Penemuan dalam kajian ini akan memberikan gambaran berguna untuk penyelidik dan pengamal masa depan dalam bidang ini bagi mengenal pasti isu dan penyelesaian yang menyumbang kepada Keselamatan dan kesihatan di tempat kerja.

Kata kunci: komitmen pengurusan, latihan keselamatan, penyertaan pekerja, komunikasi keselamatan dan maklum balas, peraturan dan prosedur keselamatan, dasar promosi keselamatan, kontrak keselamatan psikologi, pematuhan keselamatan dan penyertaan keselamatan.

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## LIST OF ABBREVIATIONS

<b>OSH</b>	Occupational Safety and Health
<b>ILO</b>	International Labour Organization OSHA
<b>1994</b>	Occupational Safety and Health Act 1994
<b>SOCSSO</b>	Social Security Organization
<b>S.O.P</b>	Safe Operating Procedure
<b>FMA 1967</b>	Factories and Machinery Act 1967
<b>PPE</b>	Personal Protective Equipment
<b>SPSS</b>	Statistical Package for The Social Science
<b>JSA</b>	Job Safety Analysis



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# CHAPTER 1

## INTRODUCTION

### 1.1. Introduction

Safety management practices are important aspect in occupational safety that need to be taken into consideration. Practice of safety management is an important factor for enhancing the efficient management of the safety organization. Safety management practices, as mentioned in Vinodkumar and Bhasi (2010), consist of management commitment, safety training, worker's involvement, safety communication and feedback, safety rules and procedure, safety promotion and policy.

### 1.2 Background of the Study

Malaysia's manufacturing sector began to grow quickly as the nation underwent a shift from an agricultural to an industrial business in the early 1980s. After enforcing a strategy to diversify with higher value-added economic activities, Malaysia has achieved remarkable progress in manufacturing sector. Now, manufacturing sector has become one of Malaysia's key contributors to the economy (Essays, UK. 2018). The rapid growth of manufacturing industries in the context of economic development is also related to extensive recruitment of new workers and new advanced technology, machinery and equipment. While using new technologies would open up more opportunities for workers, hiring new employees could pose higher risks of injuries such as the risk of working atmosphere hazards. As shown in figure 1.2, the total number of industrial accidents registered by DOSH has increased significantly in the Malaysian authorities, OSHA 1994

and the 1967 Factories and Machinery Act to preserve safety and health at work especially in the manufacturing sector.

Table 1.1: Sector-by-sector industrial incident figures 2014 to 2019 (DOSH)

<b>NUMBER OF OCCUPATIONAL ACCIDENTS RECORDED (2014-2019)</b>						
<b>SECTOR/ YEAR</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Hotel and Restaurant	56	62	90	114	123	196
Utilities (Electricity, Coal, Water, Sanitation)	69	96	79	104	173	244
Finance, insurance and real estate companies	65	119	126	146	217	310
Construction	94	237	222	240	232	275
Transport, Storage and Communication	84	131	127	122	137	315
Manufacturing	1510	2041	2315	2178	3228	4070
Wholesale and Retail Trade	74	108	111	97	73	70
Public Services and Statutory Authorities	20	32	110	66	58	77
Mining and Quarrying	43	39	24	46	41	45
Agriculture, Forestry and Fishery	441	480	467	522	749	960
<b>TOTAL</b>	<b>2456</b>	<b>3345</b>	<b>3671</b>	<b>3635</b>	<b>5031</b>	<b>6562</b>

Source: Department of Occupational Safety and Health: Occupational Accidents Statistics 2014-2019

According to a Department of Occupational Safety and Health on Occupational Accidents Statistics, the number of occupational accident from 2014 to 2019 had been rising. The Department of Occupational Safety and Health of Malaysia (DOSH) reported that in 2015, a total of 3345 cases of occupational accident have been reported as compared with 2456 cases reported in the year 2014. From 2015 to 2016, 8.88% of the overall injuries at work increased. Between 2016 and 2017 the overall number of cases of workplace injuries fell marginally by 0.98%. There was however a rapid increase of 27.74% between 2017 and 2018, followed by a modest rise of 23.33% (DOSH 2019) between 2018 and 2019.

The manufacturing sector has been the most important cause to permanent disability injuries, fatalities and non-permanent disability in the period 2014 to 2019 and has continuously linked to the highest rate to workplace accidents. Compared with other sectors, manufacturing sector was the highest proportion in 2014 (61.5%). The overall number of cases in manufacturing sector was 61.01% higher relative to other industries in 2015. The highest percentage in 2016 and 2017 both amounted to 63.06% and 59.91%. In 2018 and 2019, manufacturing sector contributed to highest percentage compared to other sector which is 64.16% and 62%. Based at these figures, it is very clear that the number of workplace hazards in the manufacturing industry increased annually.

According to a Social Security Organization (SOCSSO) the number of occupational accident registered in Malaysia for 2014 is 63,331 cases. There were 35,294 Industrial accidents and (Socso) has paid a total of RM615.2 million in compensation to workers

involved in occupational accidents for temporary disability and permanent disability (SOCSO, 2014). Although in 2015 the number fell marginally to 62,887 cases, with 34,258 reported cases of industrial accidents with total RM648.4 million of compensation paid for temporary disability and permanent disability (SOCSO, 2015).

For the following year, the number of cases registered to SOCSO in occupational accidents increased rapidly to 66,618 with 35,304 industrial accidents with total RM688.3 millions of compensation paid for temporary disability and permanent disability (SOCSO, 2016). Reports of occupational incidents jumped to 69,980 reports in 2017, including 36,661 industrial accidents and SOCSO had paid RM743 millions for temporary disability and permanent disability manufacturing sector received highest benefit amounting RM44.08 million (SOCSO, 2017).

The figure increased to 70,938 cases in 2018 and reported 37,436 cases of industrial accidents involving RM831 millions of compensation paid for temporary disability and permanent disability which manufacturing sector received benefit about RM42.04 million (SOCSO 2018).

Table 1.2: Number of industrial accident (cases)

<b>Year</b>	<b>Number of accidents (cases)</b>	<b>Compensation paid (RM)</b>
2014	35,294	RM615.2M
2015	34,258	RM648.4M
2016	35,304	RM688.3M
2017	36,661	RM743M
2018	37,436	RM831M

Annual growth in incidents is estimated to be significant and management should act to reduce the number of injuries at the workplace accordingly. Past reports have also shown that inadequate compliance of manufacturing sector employees is responsible for this situation. According to Mahmood (2010) Safety behavior defines actions to support safety protocols and activities such as safety training and compliance, to outlines the core behaviors that employees need to perform in conjunction with occupational, health and safety standards in order to avoid accidents in jobs. With regard to many occurrences of failing to comply with the provisions of the Act, there were common reasons given by employers; not aware of OSHA 1994, no time for OSH issues, insufficient allocation of funds for OSH, OSH is not important and "accidents would not occur to me" syndrome. As far as workers are concerned, their failure to comply was due to reasons such as; lack of awareness of safety and health regulations, OSH rules and regulations are tough to understand, a feeling of discomfort when complying with OSH rules and regulations, and "accidents would not occur to me" syndrome. In this paper, possible factors influencing

Safety compliance behavior of employees are evaluated by concentrating on the manufacturing sector. In the future, the findings of this current study will hopefully help the organization to enhance its safety efficiency.

### **1.3 Problem Statements**

Heinrich said that 88% of accidents were caused by unsafe human behaviour, based on 75,000 industrial incidents, 10% incidents had been caused by unsafe psychological conditions and just 2% accidents had been due to different causes. Heinrich suggested most of the accident is preventable within human ability. Consequently, human behavior in accident prevention and control has become an important topic. Heinrich's (1931), a classical study of domino theory, saw accidents as the linear result of unsafe conditions and unsafe behaviour. Unsafe act is Performance of a task or other activity that is carried out in a manner that may threaten the health of workers which is improper use of PPE, violations of safety rules, negligence, Operating equipment at unsafe speed, Using defective equipment and Horseplay.

Even many researchers have come up with an idea on new studies about occupational accidents at workplace but literature on safety behavior on manufacturing sector particularly in Fabricated Metal and Hardware manufacturing company is still lacking. Therefore, a study of occupational accidents is important and would add to an understanding of the aspects which determines workplace accidents in the sector.

Safety compliance is characterized as obedience to security measures and safety at work (Neal et al., 2000). By using protective equipment or protective clothing, workers can protect themselves at work, for instance, resulting in less workplace injuries in the company as a whole. By ensuring proper safety compliance behavior in Fabricated Metal and Hardware manufacturing company will boost the minimum level of occupational safety and health (OSH) at the workplace and to avoid industrial injuries and recurrences.

The private manufacturing company in Nibong Tebal, which has been known to be unsafe and hazardous for its working climate, has 43 job-related injuries and incidents as the main concern. The safety behavior of workers in occupational accidents has been a key reasoning according to Gyekye (2010). It also involves industrial workers working in various manufacturing operations and unique production equipment such as machinery, molding machines, main engines, forklift trucks, cranes, and etc (Danish Ali et al., 2017). Uncertain actions like falls, missteps, fumbles, failures and breaches of safety laws, ignorance, lack of professionalism and carelessness are just some cause of accident at work.

In accordance with safety behavior, Safety Management Practices are essential to enhance efficient management of the Fabricated Metal and Hardware manufacturing company. Safety Management Practices is linked to the original functions, safe processes and sections, and is generally seen as one of the frameworks of overall organizational management (Surienty et al., 2011). Thereby, six independent variables of safety Management Practices in this study may affect safety behavior which is safety

compliance and it has been proven by Vinodkumar and Bhasi (2010). The six dimensions are management commitment, safety communication & feedback, workers involvement, safety training, safety promotion policy and safety rules & procedure. Above measurements have been empirically shown to enhance workers' ability to mitigate incidents and injury, and increase occupational health efficiency (Vredenburgh, 2002; Vinodkumar & Bhasi, 2010).

Theoretically, Dan Petersen's Behaviour Based Safety (BBS) Theory of 1980s describes the relationship between safety management practices and safety behavior. Behavior-based safety (BBS) is the application of the applied behavior analysis methodology to workplace safety issues. The problems affect all staff from the front line to the boardroom and facilities, operating processes, concern infrastructure, management systems, employee actions, management.

This research is carried out through the brief investigation on management practices mainly on management commitment, safety communication and feedback, worker involvement, safety training, safety promotion policy and safety rules and procedure with safety behavior especially on safety compliance for the better understanding for employers to prevent their employees from any mishaps in future.

#### **1.4 Research Questions**

There were questions raised to facilitate this study of what the four independent variables of safety management practices, along with behavioural safety, Will be calculated to draw the correct conclusions and conclusions. The question list is as follows:-

- i. What is safety compliance level among the manufacturing workers?
- ii. What is the connection between management commitment and safety compliance?
- iii. What is the connection between safety training and safety compliance?
- iv. How does workers involvement influence safety compliance?
- v. What are the connection with safety communication and feedback with safety compliance?
- vi. What is the connection between safety promotion policy and safety compliance? And
- vii. What is the connection between safety rules and procedure with safety compliance?

#### **1.5 Research Objectives**

The purpose of this research is to determine whether safety management practices affect safety compliance among workers in one manufacturing firm. Below is a list of research priorities focused on research questions: The following are:

- i. To measure safety compliance level among the manufacturing workers;

- ii. To investigate the links between management commitment and safety compliance;
- iii. To investigate the links between safety training and safety compliance;
- iv. To investigate links workers involvement influence safety compliance;
- v. To investigate the links between safety communication and feedback with safety compliance.
- vi. To investigate the links between safety promotion policy and safety compliance; and
- vii. To investigate the links between safety rules and procedure with safety compliance

## **1.6 Significance of the Study**

A safer workplace is important to both employer and employees in most of the industries. Every employer has their own responsibilities to ensure their workers safety by bonded to safety rules and regulation. The main purpose of this study is to investigate the connection between safety management practices (i.e. Management commitment, safety training, workers involvement in safety, safety communication and feedback, safety promotion policy, and safety rules and procedure) and safety compliance behaviour among employees in one manufacturing company. Throughout the findings of this study, the researcher desired to share some information and knowledge for both parties involved between theoretical and practitioner on the factors that influence employee Safety Compliance behaviour in the manufacturing sector in Malaysia.

First, the findings of this study provided benefit to the manufacturing company in establishing their safety policy in the workplace by enhancing safety compliance behaviour among their employees. Manager and Human Resource professionals would need to understand these factors and other factors outside of this study to help them effectively shape the positive safety compliance behaviour among their employees'. The outcome of this study would also help to provide some reliable suggestions to manufacturing companies and other sectors as well as in which fields they will have to look more closely to boost employee positive compliance behaviour toward safety, and create a safer and zero accident culture in the organization.

As for the theoretical perspective, this research will provide future references with guidelines on how to start research without the hassle of beginning from scratch. This research may also help future researchers to identify which area correlated in this study that has to be a focus and explore more. Besides, this study can help them to seek for a potential gap that can help them to research more in-depth area of study. This effort will lead to a greater deep understanding and extensive body of knowledge on some issues.

### **1.7 Scope and Limitation of Study**

The researchers aim to determine the correlation between the practice of safety management and safety compliance behaviour among workers, in light of the goal of this study. The study is focused on workers from the manufacturing industry in a manufacturing company in Nibong Tebal, Penang. This research is quantitative research using the technique of convenient sampling. In addition, the main tool in quantitative

research design was a questionnaire. The answers obtained were tested and data analyzed using the Statistical Package for Social Science (SPSS).

## 1.8 Definition of the Key Terms

**Management Practices** to safety is reflected in the level of attention given by top management to safety related matters manifested in the encouragement and support given to employees (Hsu et al., 2007).

**Safety Training** is considered as a management practice and is measured using items related to training for newly recruited employees, discussion of safety issues in training sessions, training to meet emergency situations, encouragement to attend training programmes, and hazard assessment training (Vinodkumar & Bhasi, 2010).

**Workers Involvement** in safety is considered as a management practice and is measured using items related to safety committee comprising of workers' representatives, involvement of workers in safety related decision making, involvement in identifying safety problems, and consultation with workers about safety matters (Vinodkumar & Bhasi, 2010).

**Safety Communication and Feedback** refers to the exchange of data between two or more people in the workplace regarding health-related issues (Hoffmann & Stetzer, 1998; Siu et al., 2004).

**Safety Promotion Policy** is a process that aims to ensure the presence and maintenance of conditions that are necessary to reach and sustain an optimal level of safety (Welander et al. 2004)

**Safety Rules and Procedure** is state of system, or a pre-set way of behaving in response to a routine and predicted situation, established prior to the occurrence of the event and imposed upon and/or accepted by the individual who operates within the system as a mean to achieve a safe working condition (Hale & Swuste, 1998).

**Safety compliance Behavior** is a practice that can impact the efficiency of a company's safety record. It is adherence of employees to the rules, regulations and procedures set by their company, even if not supervised by their employer (Podsakoff et al., 2000).

## 1.9 Organization of the study

Five chapters are part of this chapter. Chapter one presents an explanation and identifies the context of the research, problem statement and research question established on the basis of the purpose of this thesis which will be useful in hypothesis analysis. Study scope, significance of this research, definition of key words also set out in this chapter. In chapter two, literature review will be clarified briefly underpinned by the previous article. This chapter describes in detail the chosen variables and the scope of this analysis.

Chapter 3 contains methodology to address the design of research and the technique to be used in this analysis. Along with variables measurement, data collection, sampling, data

collection procedures and data analysis techniques. Chapter four will send out the findings of this analysis and briefly elaborate the research outcome. Results will be shown as table, chart, and figure. The review of the findings, conclusion and recommendations is reflected in Chapter 5.

### **1.10 Summary**

The first chapter discusses the context, the research questions, the purpose of the study, the goals and objectives, research problems, scope and constraints and the research methodology briefly presented. This chapter gives an overview of all research, provides a context and a basis for the following chapter.



## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter presents each variable's conceptual context. Following this is the basis for creation of assumptions and analysis. The previous support for literature for studying describes every independent variable and dependent variable used in this analysis.

#### **2.2 Conceptual Background of safety compliance behavior**

According to Lu and Kuo, (2016) Safety behavior can be described as "the employees' behaviors and attitudes to safety activities'. In the view of Neal and Griffin, safety behavior does not consist solely of acts that can specifically be related to safety in the workplace. Many subtle indirect acts carried out by employees may also influence their workers and those in the industry to behave responsibly when they are working.

Safety behaviors can be divided into two major groups, safety-compliance behaviors and safety participation behaviour. Safety compliance refers to key safety practices that workers must conduct to ensure occupational safety, such as observing safety rules and procedure and proper use of personal protective equipment (PPE) (Fernandez-Muniz et al., 2017). Compliance with safety requires employee behavior that enhances his or her personal safety and health and which can be considered part of the position of the employee. Employee participation (or employee engagement) is a relational technique

involving individuals and groups in the upward and decision-making processes of the company (Vredenburg, A. G. 2002).

Compliance with safety, on the other hand, refers to key safety tasks which individuals must perform in order to ensure safety on the job (Kvalheim et al., 2016). For a manufacturing line the belting of the conveyor and lifting of the goods are main causes of possible injuries to workers, whether they are standing or sitting during a shift, use of the forks and operating with the machinery (Hong et al., 2018). Safety compliance leads directly to personal safety and is the central practices that need to be carried out to ensure safety at work. When occupational accidents primarily caused by human factor (Salminen & Tallberg, 1996), Behavioral strategies or methods to manage failure were proposed and implemented (Petersen, 2003) in order to minimize accidents. Safety compliance behaviour process is part of the organization need to minimal the workplace accident in the future.

In summary, safety compliance behaviors associated with adherence to existing safety protocols which means the basic safety practices that Staff have to do this in order to maintain safety at work Griffin and Neal (2000). This definition was suggested as reference frames to guide suitable and adaptive task behaviours, thus affecting safety behaviors.

### **2.3 Empirical Study on Safety compliance behavior**

There have been several researches in different dimensions and contexts on safety behaviour. In manufacturing, processing and terminal, most studies are carried out. In

essence, safety conduct studies are carried out to measure the behavior of workers in order to carry out their job safely.

Muhammad Safizal Abdullah et al., (2016) carried out a study using the Ajzen Theories (1991), of factors that influence the conduct of the safety culture of manufacturing workers in Malaysia. In this study, the effect of employee behavior and subjective standard on safety culture in the company is examined. The findings showed that the mentality of the employee and subjective standard had major effects on the behaviour (Safety Compliance). The amount of safety and health training in the company depends on the working environment, the resources available for funding training, the emphasis on safety and other organisational factors.

Fernández-Muñiz et al., (2017) states that the role of safety leadership and working conditions in safety performance in process industries of Spain. This research analyzes the impact of safety leadership and working conditions on workplace safety behaviors (Safety Compliance). The outcome of the study done by Fernández-Muñiz et al., (2017) reveals that the safety compliance depends on work pressure, environmental factors, occupational hazards and co-worker support. Results also indicate that safety leadership positively affects job pressure and has a positive impact on environmental and workplace hazards and health opportunities.

Lu and Yang (2010) examined the links between the dual-safety leadership (motivation for safety, safety policy and safety concern) and safety performance (safety compliance

and safety participation). In container terminal operations this study was performed. The findings indicate that safety motivation and safety issues affect self-reported safety behaviour, such as safety compliance.

#### **2.4 Safety management practices**

Marín et al., (2017) described safety management practices could be more critical than the employees' view of the safety environment as a direct indicator. The company is subject to safety management practices considered mandatory in compliance with existing laws (Kirwan, 1998). The specific actions and programmes that will especially notify employees will interpret these procedures.

Studies by Sembe and Ayuo (2017) concluded that the combined impact on the satisfaction levels of employees from occupational, health and safety management practices. This means that a company that systematically handles workplace, health and safety activities primarily increases its levels of employee satisfaction.

The safety practices were described in Vinodkumar and Bashi (2010) as a hazard control method used by the management in the workplace. It requires policies, policymaking, safety protocols and practices implemented by the management of health in the workplace. Vinodkumar and Bashi (2010) also investigated that in many organizations safety management practices are also introduced as an important element in enabling workplace safety.

### **2.4.1 Management Commitment**

Management commitment is the basis for an efficient safety management framework (Vinodkumar & Bhasi, 2010). Engaging in safety is a critical component of employee perceptions of how their employer's value and support healthy work and work for healthy employees. Management safety commitment, as mentioned, foresees employee safety behaviors and fatalities / injuries). Managers interact safety priority with their workers in view of conflicting conditions that impact employee conduct and consequently the risk of injury to workers. Management commitment highlights the need to protect the health of their workers, which is occupational health and occupational injury.

### **2.4.2 Safety communication and feedback**

Communication on safety issues at an organization is essential. It can be done formally and informally. Many workers must agree that they understand the processes, policies and regulations in effect as part of a greater effort to ensure a healthy workplace. Communication while working with Forklift trucks account for a substantial number of industry incidents. Communication is an important factor in the creation and maintenance of a strong culture of safety. Nor Azimah et al., (2009) defined safety communication as perception of safety communication, including communication openness. Communication is important in order to promote the site safety program; information such as unsafe conditions, new practices and regulation (Andi, 2008).

### **2.4.3 Workers Involvement**

An effective safety management system has high rates of participation among employees, in particular, by establishing a line of responsibility for embedding safety and health. The main reasons why workers should involve in safety management decision according (Vinodkumar & Bhasi, 2010) are for behavioral modification technique that involves upward communication flow and decision-making process in an organization. This technique is acceptable, as the employees are closest to the danger. Vredenburg (2002) also states that employees who are working near are the best qualified employee to promote workplace enhancement through internal risk assessment and risk controls.

### **2.4.4 Safety Training**

Safety training is intended to enable workers to act safely and prevent occupational accidents. Training is to help people to learn how to do something, tell them what to do or just give them information. Capabilities may be in the kind of awareness of job safety (Gillen et al., 2002). Most industries can benefit from health and safety awareness and training, with certain industries being more prone to hazards than others, and therefore requiring specialist training. Security training must send a message that, as an employee, you have a responsibility to comply with a company's protective measures, obey orders in compliance with the training provided and taking care of the protection and health of your own and colleagues. Training requires helping people understand how to operate safely.

#### **2.4.5 Safety promotion policies**

Welander et al. (2004) described safety promotion policy as a mechanism aimed at ensuring the existence and maintenance of conditions needed to achieve and sustain an optimum level of health. In addition, motivation, accolades and recognition will boost and encourage workers to perform safely. This will help all parties in terms of management of organizational behavior and of overall quality control models (Hagan et al., 2001). Eiff (1999) found a fair program of incentives sufficient to enable people to behave responsibly within the sense of safety. Vredenburg (2002) suggests that a well-designed incentive program should be identified through high organizational exposure and appreciation that facilitates behavioral improvements. Reward programs such as promotion, bonuses and incentives may also be a form of enhancing employees' safety behaviour.

#### **2.4.6 Safety Rules and Procedure**

Vinodkumar and Bhasi, (2010) reported that well-established safety rules and procedures would enhance employees' safety behaviour. Safety rules are also an effective way to enhance the health behavior of employees. The safety regulations, as suggested by Hale and Swuste (1998), indicate how each person must behave in their daily business. Safety rules and procedures related issues such as appropriate safety facilities, daily safety checks, safety compliance officers, effective health and safety laws, and procedures in place to avoid accidents. Safety procedures can help to keep the number of injuries at work to a minimum. Many organizations are informing and educating staff about safety steps through their staff handbooks or manuals.

## **2.5 Hypotheses Development**

### **2.5.1 Relationship between management commitments with safety compliance behaviour**

Management commitment is important key term on determining employee safety behavior (Vinodkumar & Bhasi, 2010). Management commitment to safety compliance behaviour is a key factor that affects the efficiency of staff working patterns and contributes to the success of the company Zohar (1980). The duties of organizations, as well as the determination to ensure health in the workplace, can be witnessed by workers and the management demonstrates them (Hofmann et al., 1995). Management must always take care of an employee's well-being through behaviour and practice through safety operations, so their employees can see it clearly (Neal & Griffin 2002).

In most of the high-risk industries, such as the manufacturing sector, workers safety is constantly stressed to management (Cox and Cheyne, 2000; Cox and Flin, 1998; Vinodkumar and Bhasi, 2010). The general system for safety at work is guided by the organizations management, having a clear understanding of all respective staff and giving guidelines what activities are required to comply with the security responsibility. Hence, Management commitment is a crucial component in safety management practices and important element for safety compliance behaviour.

H1: Management commitment positively related with safety compliance behaviour.

## **2.5.2 Relationship between safety communications and feedback with safety compliance behaviour**

Safety communication and feedback is an essential platform between management and employees to understand the concept of safety behaviour. Communication is a tool which could help management to ensure members of an organization stay away from potential hazard and accident (Alsamadani et al., 2012). Organization's safety standing is determined by how safety is discussed and spreads. It is the proof that safety communication and feedback has been shown to affect specific employees' behaviour for example safety performance (Geller, 2005). Lack of safety communication and feedback will most likely lead to hazard to the laborer's in the organization.

Communication can be divided into three components which are verbal, written, and visual. Verbal communication is most common. Memo, report and notification board are written communication in a workplace. Communication through photographs, drawings, engineering drawings and other images is graphical communication. This is the few ways to show the effectiveness of communication within the organization and improve the quality of the communication. In this study, the researcher is believed that safety communication and feedback is a major component which could significantly bring a huge influence in safety behaviour.

H2: Safety communication and feedback positively related with Safety Compliance behaviour.

### **2.5.3 Relationship between workers involvement with safety compliance behaviour**

Worker involvement meaning is management creating opportunity for employees to help employees to make right decisions in the workplace. Worker involvement also can be referred as a significant contact between management and staff that allows staff to take responsibility for the results of a project. Griffin and Neal (2000) proposed that employee involvement as an indication of behaviour, for example in volunteer safety meetings or safety events. The importance of involvement of workers is also evident in the participatory ergonomics research by Rivilis et al., (2006). They found that there is a positive link between employee involvement and injury reduction.

Practices of worker involvement can also involve giving the workers with opportunities empowers workers without management approval to make significant decisions, other strategies for improving the employee's efficiency and developing an organizational environment that promotes free thinking and new method of training. Employees involved in the production and implementation, planning and control of the safety management process have a sense of system ownership Goetsch (2011). Companies that motivate workers on safety related matter has a lower hazard and accidents (Minter, 2003). This study shows that worker involvement have positive relationship with safety compliance behaviour.

H3: Worker involvement positively related with safety compliance behaviour.

#### **2.5.4 Relationship between safety training with safety compliance behaviour.**

Safety Training helps to provide workers with the requisite ability to conduct them safely and prevent injuries during jobs. Hilyer et al., (2000) investigated how safety training workers' unions were a kick start. 86% of workers, after attending several training sessions, were capable of detecting hazardous substances. However, 83% of the employees were capable of expressing what they learned about health and safety after their training to their colleagues. The research also shows that safety training has been effective in terms of employees' attitudes and behaviour. Lack of knowledge can contribute the workplace into unsafe states and, probably, undesirable results outcomes (e.g., decreased product consistency and Health incidents) (Dekker et al., 2011).

Lingard's (2001) research also showed that training in emergency assistance in Australian small-scale construction companies has a positive impact on workers' health and safety. Following the first aid training, the use of personal protective equipment increased to 96% compared to 65% before the training. Safety training assists with accident and injury prevention and management, as it underlines the value of compliance with security rules and procedures for employees. A study on increasing safety compliance behavior in Libya's construction projects showed that there is a relationship between safety training and safety compliance behavior. The study was done in Tripoli City on 10 owners, contractors and consultants each in construction projects (Foad Mohamed Al-Kilani, 2011).

Vinodkumar and Bhasi, (2010) had conducted a study on employees' perceptions on six safety management practices and safety behavior (safety compliance and safety participation) in Kerala, a state in southern part of India. Safety training was described as the most important activities for

safety management that predict safety knowledge, motivation, compliance, and engagement in safety. Safety training succeeds by improving occupational health and health education. From the given example there is connection between safety training with safety compliance behaviour and further research must be done to deepen the connection between Safety training with safety compliance behaviour particularly in manufacturing sector.

H4: Safety training positively related with safety compliance behaviour

#### **2.5.5 Relationship between safety promotion policies with safety compliance behaviour.**

(Hagan et al., 2001) suggested that Incentives, recognitions and promotions are an established function of all organizational behaviour management programs and the overall quality control model for workers to work safely. (Vredenburg, 2002) recommended high levels of visibility in the organisation, which are recognizable in terms of behaviour modification, must be defined as a properly designed reward system. It also showed the management's commitment to employee safety and whether or not the employees are effective in enforcing protection.

As the award rises, it has a direct effect on beneficial actions (Geller & Wiegard, 2005). The value of safety policies in avoiding and reducing incidents through industries has also been noted by Cabrera et al. (2007). Researchers have shown that health promotion and policies play a key role in reducing incidents and injuries at the work place.

H5: Safety Promotion Policy positively related with Safety Compliance behaviour

### **2.5.6 Relationship between safety rules and procedure with safety compliance behaviour.**

Inness et al. (2010) indicated that injuries at the workplace can be minimized when workers comply with safety rules and procedures during work. Vinodkumar and Bhasi (2010) describe the safety rules and practices that a company has created, and is well documented, which will improve safety behaviour and workplace enforcement. Mearns et al. (2003) considered safety rules and procedures to be the driver in their offshore safety research and found a clear correlation to accident rates. Compliance with safety is a direct reference to the health of workers and reflects the key measures to be carried out to ensure safety at work.

H6: Safety rules and procedures positively related with Safety Compliance behaviour

## **2.6 Underpinning Theory**

Ajzen (1991) introduced the Theory of Planned Behaviour in order to analyze factors outside our control which may also affect intentions and behaviours. The planned behavioural theory says that behavioural regulation, enhanced by behavioural intent, can be used directly to predict behavioural performance. Human behaviour is influenced by three types of factors, according to the TPB: Behavioural belief creating a positive or negative attitude, normative beliefs resulting in perceived social pressures or arbitrary standards, and regulated beliefs which lead to the perceived regulation of the behaviour. Attitudes to behaviour, subjective expectations and interpretations of behavioural management contribute to behavioural purpose.

The person who has the possibilities and resources and plans to carry out the conduct will be able to perform well. In low safety conditions in an organization, it may affect workers and involve them in unpredictable conditions and behaviour, resulting in poor safety participation. So this could lead to hazard and injury to the worker. This TPB is used primarily to forecast the health actions and attitudes of employees and to identify them.

## **2.7 Research framework**

The theoretical framework is the conceptual model of how the relationships among several factors defined as relevant to the problem area in a research are theorized (Sekaran, 2005). This research examines, on the basis of the theoretical framework, whether safety management Practices affect safety behaviour with safety compliance in the manufacturing sector. The independent variables are Management commitment, safety communication and feedback, worker involvement, safety training, safety promotion policy and safety rules and procedures. The dependent variable is safety compliance.

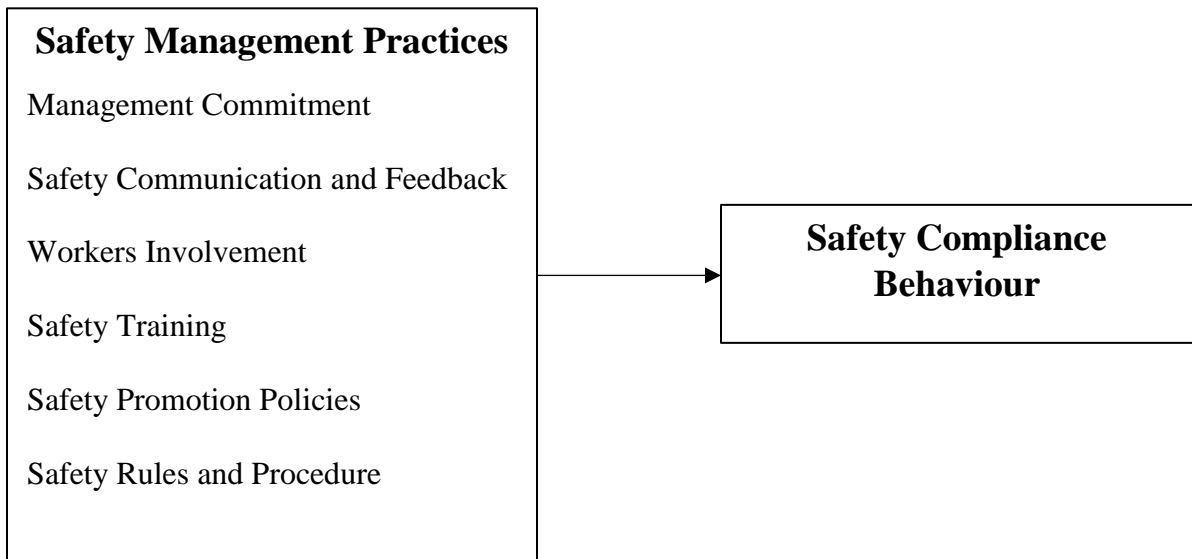


Figure 2.1: *Research Framework*

## 2.8 Summary

This chapter explained in detailed the entire dimensions involved in this present study with variety of literature support. The entire dimensions mentioned in this chapter was measured using a designed questionnaire. Hence, the conceptual structure was developed using the above literature review. The following chapter is chapter three, which explains about the research methodology.

## CHAPTER 3

### METHODOLOGY

#### 3.1 Introduction

The purpose of this chapter is to clarify how empirical evidence, procedures, and knowledge can be collected to achieve the study goals. Conceptually and operationally the independent variables and dependent variables are revealed. The required knowledge is theory, design of the study, population recognition, the sample size and methodology, collection of data, measuring of variable and instrumentation and the process of data analysis.

#### 3.2 Research Design

This analysis is a quantitative descriptive analysis and takes a cross-sectional approach to data collection, aimed at contributing to the goals of research to the results. It is also a research and plan strategy to be implemented and sets out the methodology to collect, calculate and analyse data. The independent variable according to Sekaran (2005) has a positive or negative effect on the dependent variable. Sekaran and Brougie (2011) describes such trials as a one-shot trial that collects information only once or for days, weeks or months to respond to research questions.

#### 3.3 Population, Sample Size, Sampling Techniques and Unit of Analysis

The focus of this research was on all employees in the Nibong-Tebal, Penang manufacturing Company as a sample population. On the basis of the information gathered at the selected organization by the human resources manager, 150

manufacturing workers are involved. This research referred to Krejcie and Morgan's (1970) sample size table, in order to establish a certain sample size required for data completion.

Consequently, for this research, the samples needed for data analysis are approximately 108. As part of the standard practice of gathering additional data in view of the likelihood of respondents failing to react to the questions and the frightening outcomes of lowest response rates, the researcher distributed about 120 sets of questionnaires to respondents. Individual manufacturing workers were the research unit in this report. The analytical unit is the object which frames what is analysed.

In this analysis, the convenience sampling method was selected. convenience sampling is the collection of data from a population sample that is the selection of respondents willing to respond. Initially it's most commonly used during research processes as it is possibly the easiest way to acquire any critical knowledge rapidly and reasonably (Sekaran and Bougie, 2016). This approach is also used during research projects.

### **3.4 Research Instrument**

The content and substance of the variables which is Management commitment, safety communication and feedback, worker involvement, safety training, safety promotion policy, safety rules and procedures and safety compliance behaviour are taken from previous questionnaire from Vinodkumar, Bhasi (2010), Griffin and Neal (2000). The questionnaire contains dual language system which is English and Bahasa Malaysia with

39 questions. In terms of socio-demographic factors, part A of the survey will be divided in 3 areas (gender, age, academic background, service time, job level / position). This part is in Nomical Scale (10 items). Part B consist questions to measure employee perception on management practices (35 items) and Part C questions to self-rate safety compliance (4 items). In the questionnaire, the Likert scale is used on a five-point Likert scale with '1,' meaning 'strongly disagree' and '5,' which is 'strongly agree.'

Table 3.1: Independent Variable Sources

Variables	Items	Source
Management commitment	<ol style="list-style-type: none"> <li>1. Safety is given high priority by the department.</li> <li>2. Safety rules and procedures are strictly followed by the management.</li> <li>3. Corrective action is always taken when the management is told about unsafe practices.</li> <li>4. In my workplace, managers / supervisors do not show interest in the safety of workers.</li> <li>5. Management considers safety to be equally important as production.</li> <li>6. Members of the management do not attend safety meetings.</li> <li>7. I feel that management is willing to compromise on safety for increasing production.</li> <li>8. When near-miss accidents are reported, my management acts quickly to solve the problems.</li> <li>9. My company provides sufficient personal protective equipment for the workers.</li> </ol>	Vinodkumar and Bashi, (2010)
Safety communication and feedback	<ol style="list-style-type: none"> <li>1. Employees do not sincerely participate in identifying safety problems</li> <li>2. My company doesn't have a hazard reporting system where employees can communicate hazard information before incidents occur.</li> <li>3. Management operates an open-door policy on safety issues.</li> </ol>	Vinodkumar and Bhasi (2010)

	<ol style="list-style-type: none"> <li>4. There is sufficient opportunity to discuss and deal with safety issues in meetings.</li> <li>5. The target and goals for safety performance in my organization are not clear to the workers.</li> </ol>	
Workers' involvement	<ol style="list-style-type: none"> <li>1. Safety training given to me is adequate to enable to me to assess hazards in workplace</li> <li>2. Management always welcomes opinion from employees before making final decisions on safety related matters.</li> <li>3. My company has safety committees consisting of representatives of management and employees.</li> <li>4. Management promotes employees involvement in safety related matters.</li> <li>5. Management consults with employees regularly about workplace health and safety issues.</li> </ol>	Vinodkumar and Bhasi (2010)
Safety training	<ol style="list-style-type: none"> <li>1. My company gives comprehensive training to the employees in the workplace health and safety issues.</li> <li>2. Newly recruits are trained adequately to learn safety rules and procedures.</li> <li>3. Safety issues are given high priority in training programmes.</li> <li>4. I am not adequately trained to respond to emergency situations in my workplace.</li> <li>5. Management encourages the workers to attend safety training programmes.</li> <li>6. Safety training given to me is adequate to enable to assess hazards in workplace.</li> </ol>	Vinodkumar and Bhasi (2010)
Safety promotion policies	<ol style="list-style-type: none"> <li>1. The safety procedures and practices in this organization are useful and effective</li> <li>2. In my company, safe conduct is considered as a positive factor for job promotions.</li> <li>3. In my company employees are rewarded for reporting safety hazards (thanked, cash or other rewards, recognition in newsletter, etc.).</li> <li>4. In my company safety week celebration and other safety promotional activities arranged by the management are very effective in creating safety awareness among the workers.</li> <li>5. There exists very healthy competition among employees to find out and report unsafe</li> </ol>	Vinodkumar and Bhasi (2010)

	condition and acts.	
	6. Our supervisor becomes very unhappy and angry when employees find out and report unsafe conditions and acts in our section.	
Safety rules and procedures	<ol style="list-style-type: none"> <li>1. There is open communications about safety issues in this workplace</li> <li>2. The safety rules and procedures followed in my company are sufficient to prevent incidents occurring.</li> <li>3. The facilities in the safety department are not adequate to meet the needs of my organization.</li> <li>4. My supervisors and managers always try to enforce safe working procedures.</li> <li>5. Safety inspections are carried out regularly.</li> </ol>	Vinodkumar and Bhasi (2010)

Table 3.2: Dependent Variable Source

Variables	Items	Source
Safety compliance	<ol style="list-style-type: none"> <li>1. I carry out work in a safe manner.</li> <li>2. I use the correct safety procedures for carrying out my job.</li> <li>3. I use all the necessary safety equipment to do my job.</li> <li>4. I ensure the highest levels of the safety when I carry out my job.</li> </ol>	Neal and Griffin (2006)

### 3.5 Data Collection Procedures

Three weeks were completed with the data collection method. In many stages of deployment the data collection process was carried out. A proper briefing was held on the purpose of the study and on obtaining research authorization for the leadership of the firm. After short discussion, questionnaire distribution date was fixed. A briefing was conducted with the head of department at their work station to complete the questionnaires. This helped them to describe the questionnaires to their subordinates in

depth. The questionnaires were distributed among respondents through both hard copy and soft copy. The interviewees circulated these questionnaires on paper as well as on soft copy. Data collection questionnaires have allowed respondents to reply in a normal, impartial and objective manner. The aim of using this questionnaire is because of the reduced cost and the tight time needed for completing the data necessary for analysis and interpretation of results.

### **3.6 Pilot Study**

The statistical tools used for data analysis including the uses of and statistical tool used are listed in this section. The statistics study was carried out using the Social Science Statistical Software (SPSS) computer program version 25.0. The objective of the pilot test is to check the validity of the questionnaire. In order to assess suitability of research instruments, a pilot study is carried out with a total of 30 respondents with the same population. The near Cronbach Alpha is to 1, the more reliable the reliability factor is according to Sekaran & Bougie (2016). Following is the results of the pilot study.

Table 3.3: Reliability Coefficient for Each Variable

Measurement	Cronbach's Alpha
Management commitment	<b>0.724</b>
Safety communication and feedback	<b>0.707</b>
Worker involvement	<b>0.718</b>
Safety training	<b>0.705</b>
Safety Promotion Policies	<b>0.714</b>
Safety Rules and Procedure	<b>0.816</b>
Compliance of Safety compliance behaviour	<b>0.734</b>

### 3.7 Data Analysis Techniques

Data will be analysed to optimize and describe the data by concise statistics. For socio-demographic elements, the frequencies, percentages and mean are determined using SPSS version 25.0 for Windows to achieve the appropriate performance. Pearson's Correlations were used to establish any link between the independent and dependent variables. Multiple regression modelling is further studied to determine which independent variables are most important within the Fabricated Metal and Hardware manufacturing company to comply with safety compliance behaviour. The difference is determined by the value of R and beta coefficient test the ranking of contributors (Chua, 2013). By the correlation coefficient (r), the affiliation frequency between the two variables is evaluated.

### 3.8 Summary

The entire process of the analysis was described in depth in this chapter. Analysis methodology is often known by all and is an important component of the analysis that allows the study to produce a successful result. Over the next chapter the outcomes will be thoroughly explained.



## CHAPTER 4

### RESULTS AND FINDINGS

#### 4.1 Introduction

This chapter summarizes the results from the data collected and analyses process based on the statistical methods applied to get to the bottom of the research objectives. 108 responses were collected from the targeted respondents. Respondents were chosen among workers in a private Fabricated Metal and Hardware manufacturing company in Pulau Pinang, Malaysia to analyze living demographic distribution of the respective respondents. The data was analyzed using SPSS.

#### 4.2 Response Rate

The total of 108 surveys was sent to interviewees from the private Pulau Pinang-based manufacturer of fabricated metal and hardware. The respondents received brief explanations on the intent of this study and their responses were granted confidentiality. The interviewees were given ample time to fill in the questionnaires and the respondents immediately provided full answers. The answer percentage was 100%.

Table 4.1: Response Rate

<b>ITEMS</b>	<b>TOTAL</b>	<b>PERCENTAGE</b>
<b>Distributed Questionnaires</b>	108	100 %
<b>Collected Questionnaires</b>	108	100%
<b>Unreturned Questionnaires</b>	0	0
<b>Completed Questionnaires</b>	108	100%

### 4.3 Respondent's Demographic Background

The researchers utilize frequencies for categorical variables including age, sex, and marital status.

Table 4.2: Demographic Profile

<b>Demographic</b>	<b>Category</b>	<b>Frequency</b>	<b>Percent</b>
Gender	Male	69	63.9
	Female	39	36.1
Salary	RM2001 – RM3000	63	58.3
	RM3001 – RM4000	36	33.3
	Above RM4000	9	8.3
Services	Less than a year	15	13.9
	1-3 years	42	38.9
	4-7 years	36	33.3
	More than 7 years	15	13.9

Education Level	Secondary School	28	25.9
	Certificate	33	30.6
	Diploma	31	28.7
	Degree	14	13.0
	Master	2	1.9
Marital Status	Single	38	35.2
	Married	64	59.3
	Divorced	6	5.6

The total feedback from this survey is 108 respondents. The number of male respondents is 69 (63.9%) and for female respondents, there are 39 (36.1%) respondents. Most people who participated in this study are males.

Based on table above, it shows that majority of respondents have salary between RM2001 to RM3000 which are 63 (58.3%) respondents. Followed by respondents who have salary between RM3001 to RM4000 which are 36 (33.3%) respondents. Besides, only 9 respondents who have salary above RM4000 with 8.3% of total respondents.

For service analysis, majority of respondents have services between 1 to 3 years services which is 42 respondents while the least of respondents have a services less than a year and more than 7 years of services which is only 15 respondents respectively. Meanwhile, 36 respondents have services between 4 to 7 years.

While for respondents education analysis, majority of respondents have certificate which are 33 (30.6%) respondents. Followed by respondents who have diploma level with 31

(28.7%) respondents. 28 respondents have secondary school with 25.9% and 14 respondents have degree level with 13.0%. The balance 2 respondents are master level with 1.9%.

In the study, only 6 respondents are divorced with 5.6%. Besides, majority of respondents are married which are 64 (59.3%) respondents. Followed by single respondents with 35.2% which are 38 respondents.

Table 4.3: Accident in Organization

<b>Have you ever had any accident ever since you started working in this organization?</b>	<b>Frequency</b>	<b>Percentage</b>
No	38	35.8
Yes	70	64.8
<b>Total</b>	<b>108</b>	<b>100</b>

Table 4.3 shows the accidents experiences since the respondents started working in the organization. On overall, 70 (64.8%) respondents are had any accident ever since they started working in the organization. 38 (35.8%) respondents had no accident experience ever since they started working in the organization.

Table 4.4: Attend Occupational Safety Training

<b>Have you attended any occupational safety training?</b>	<b>Frequency</b>	<b>Percentage</b>
No	13	12.0
Yes	95	88.0
<b>Total</b>	<b>108</b>	<b>100</b>

Table 4.4 shows the attended any occupational safety training by the respondents. On overall, 95 (88.0%) respondents are had attended any occupational safety training since they started working in the organization while, 13 (12.0%) respondents had never attended any occupational safety training

Table 4.5: How Often Do You Have to Attend Safety Training?

<b>How Often Do You Have to Attend Safety Training</b>	<b>Frequency</b>	<b>Percentage</b>
Every month	1	.9
Once in three month	10	9.3
Once in six month	41	38.0
Once a year	33	30.6
Not at all	23	21.3
<b>Total</b>	<b>108</b>	<b>100.0</b>

A total of 41 (38.0%) respondents have attended safety training once in a six month. From this table, 33 (30.6%) respondents stated that there are attend safety training once a year, while 23 (21.3%) respondents have not attended any safety training at all. However,

10 (9.3%) respondents have attended safety training once in three month and the balance 1 respondent has attended safety training every month with 0.9%.

#### 4.4 Reliability Testing

The reliability analysis based on the Alpha value of Cronbach is provided in Table 4.6. Cronbach's alpha is the method of measuring reliability of the scale most commonly used (Cortina, 1993). The alpha value of Cronbach for management commitment is 0.853. Furthermore, for safety communication and feedback it is 0.885. In addition, the alpha of Cronbach is 0.883 for workers involvement. Furthermore, for safety training it is 0.865. Cronbach 'Alpha is 0.854 and 0.911 respectively for safety promotion policy and safety rules and procedures. There is 0.865 for safety compliance. The alpha value of all Cronbach is more than 0.7 (Cortina, 1993). We should conclude that there is ample evidence that the size of each problem can be used for evaluating the data in this study.

Table 4.6: Reliability Test

<b>Component</b>	<b>Number of Items</b>	<b>Cronbach's alpha</b>
Management Commitment	9	0.853
Safety Communication	5	0.885
Workers Involvement	5	0.883
Safety Training	5	0.865
Safety Promotion Policies	6	0.854
Safety Rules & Procedure	5	0.911
Safety Compliance	4	0.822

#### 4.5 Descriptive Statistics for Variables

Table 4.7 documents and accomplishes the descriptive analysis that includes the mean and default deviation values for independent and dependent variables. SPSS produced a mean and standard deviation to analyse the relationships between the variables. The mean measures the central trend and shows the degree of dispersion in the standard deviation (otherwise known as data varying). Table 4.7 shows the average and standard deviation values for each variable.

Table 4.7: Descriptive Statistics for Main Variables

<b>Variables</b>	<b>Mean</b>	<b>Std. deviation</b>	<b>N</b>
Management Commitment	3.8837	.63844	108
Safety Communication	3.9815	.84346	108
Workers Involvement	3.9481	.80251	108
Safety Training	3.9912	.66722	108
Safety Promotion Policies	4.2022	.69041	108
Safety Rules & Procedure	4.2204	.61928	108
Safety Compliance	3.9722	.61649	108

Based on mean and standard deviation table above, It shows that safety rules and procedures have a mean 4.2204 and 0.61928 values for standard deviation, based on the average and standard deviations table above. The average value is also highest in comparison to other variables. Following the safety promotion policy, the standard deviation is 0.61928 and the mean 4.2022. The lowest mean and the lowest standard

deviation is 3,8837 management commitment and the default value is 0,63844. This means that most respondents agree that safety rules and procedure affect safety compliance among employees. For safety communication and feedback the average and standard deviation are 3.9815 and 0.84346; for worker involvement 3.9481 and 0.80251 are observed. For safety training, the average value is 3,9912 and the default is 0,66722. The mean and standard deviation values for safety compliance are respectively 3.9722 and 0.61649.

#### **4.6 Correlation Analysis**

One of the methods used for measuring the relationship among dependent variable variables is Pearson correlation. The Pearson coefficient of correlation is intended to determine the strength of the relationship between two quantitative variables. Positive and negative signs reflect positive relationships, but negative relationships between the two quantitative variables reflect negative signs. The correlation value is from 0 to 1.

Table 4.8: Pearson Correlation

<b>Variables</b>	<b>Pearson Correlation</b>	<b>Sig. (2-tailed)</b>	<b>N</b>
Management Commitment	0.107	0.270	108
Safety Communication	0.165	0.087	108
Workers Involvement	0.251	0.009	108
Safety Training	0.631	0.000	108
Safety Promotion Policies	0.326	0.001	108
Safety Rules & Procedure	0.338	0.000	108

Table 4.8 shows the correlation between the six elements of safety management practices and safety compliance. Based on Table 4.8, there is a moderate positive correlation between safety training and safety compliance with the correlation value is 0.631. While, there is a weak positive correlation between workers involvement, safety promotion policies and safety rules & procedures towards safety compliance when the correlation values are 0.251, 0.326 and 0.338. Besides, there are no correlation between management commitment and safety communication with safety compliance. The p-value for both variables are greater than 0.05. Therefore, there is no correlation between the variables on safety compliance.

## 4.7 MULTIPLE LINEAR REGRESSION ANALYSIS

### 4.7.1 Hypothesis Testing

Regression analysis attempts to measure the degree of correlation between dependent variable and independent variable. Using scatter plot technique, plot X and Y axis of independent variable and dependent variable it clearly suggests a relationship between the two variables. In regression analysis, the dependent variable (Y) must be measured on a continuous scale.

Table 4.9: Multiple Regression Analysis Model Summaries

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.679 <sup>a</sup>	.461	.429	.46599	1.986

The result shows in Table 4.9 above revealed the value of R-square of 0.461 or 46.1% on the multiple regression analysis of all the variables which are Management Commitment, Safety Communication, Workers Involvement, Safety Training, Safety Promotion Policies and Safety Rules & Procedures. It means that the variance which is the R-square is 46.1% in dependents variable of Safety Compliance is significantly explain of independent variables which are Management Commitment, Safety Communication, Workers Involvement, Safety Training, Safety Promotion Policies and Safety Rules &

Procedures. The other balance 53.9% is explained by other factors that are not accounted in this study model.

Table 4.10: ANOVA Table

	Sum of Squares	df	Mean Square	F	Sig.
Regression	18.735	6	3.122	14.380	.000 <sup>b</sup>
Residual	21.932	101	.217		
Total	40.667	107			

Meanwhile, based on Table 4.10, the F value indicates 14.380 and the significant value 0.000 explains that overall of independent variables of Management Commitment, Safety Communication, Workers Involvement, Safety Training, Safety Promotion Policies and Safety Rules & Procedures have effect on the dependent variable which is the Safety Compliance among workers.

Table 4.11: Regression Analysis

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.806	0.469		1.720	0.089
Management Commitment	-0.108	0.115	-0.112	-0.937	0.351
Safety Communication	0.048	0.089	0.065	0.538	0.592
Workers Involvement	0.097	0.061	0.126	1.591	0.115
Safety Training	0.507	0.075	0.549	6.723	0.000
Safety Promotion Policies	0.157	0.075	0.176	2.106	0.038
Safety Rules Procedure	0.078	0.086	0.079	0.907	0.367

The interpretation of constant term is usually pointless. Through the table, it shows that there is zero units for Management Commitment, Safety Communication, Workers Involvement, Safety Training, Safety Promotion Policies and Safety Rules & Procedures, the Safety Compliance is still be 0.806 units.

Management Commitment has not significantly influence towards safety compliance since p-value = 0.351 (more than 0.05 significant level).

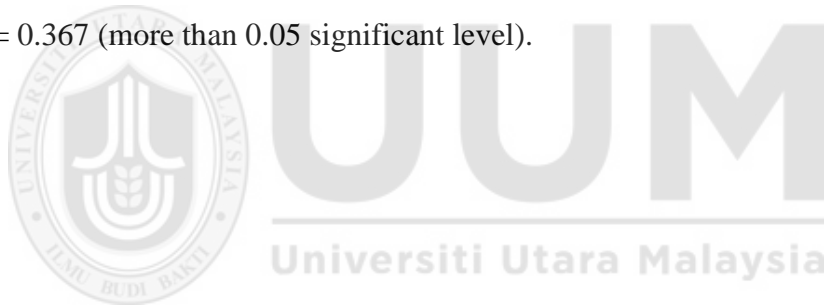
Safety Communication has not significantly influence towards safety compliance since p-value = 0.592 (more than 0.05 significant level).

Workers Involvement has not significantly influence towards safety compliance since p-value = 0.115 (more than 0.05 significant level).

For Safety Training, it has the significant positive influence towards Safety Compliance since p-value = 0.000 (less than 0.05 significant level).  $\hat{\beta}_1 = 0.507$ , shows that for every one unit increase in Safety Training, the Safety Compliance will increase by 0.507 units, while other variables remain constant.

For Safety Promotion Policies, it has the significant positive influence towards Safety Compliance since p-value = 0.038 (less than 0.05 significant level).  $\hat{\beta}_1 = 0.157$ , shows that for every one unit increase in Safety Promotion Policies, the Safety Compliance will increase by 0.157 units, while other variables remain constant.

Safety Rules & Procedures has not significant influence towards safety compliance since p-value = 0.367 (more than 0.05 significant level).



#### 4.7.2 Summary of Regression Analysis

Table 4.12: Hypothesis Results

Hypothesis	Result
H1a: There is a significant relationship between management commitment with safety compliance among workers in the Fabricated Metal and Hardware manufacturing company in Pulau Pinang.	Not Supported
H2a: There is a significant relationship between safety communication with safety compliance among workers in the Fabricated Metal and Hardware manufacturing company in Pulau Pinang.	Not Supported
H3a: There is a significant relationship between workers involvement with safety compliance among workers in the Fabricated Metal and Hardware manufacturing company in Pulau Pinang.	Not Supported
H4a: There is a significant relationship between safety training with safety compliance among workers in the Fabricated Metal and Hardware manufacturing company in Pulau Pinang.	Supported
H5a: There is a significant relationship between Safety Promotion Policies with safety compliance among workers in the Fabricated Metal and Hardware manufacturing company in Pulau Pinang.	Supported
H6a: There is a significant relationship between safety rules and procedures with safety compliance among workers in the Fabricated Metal and Hardware manufacturing company in Pulau Pinang.	Not Supported

#### 4.8 Summary

This chapter explained the results and the finding of normality test, reliability test, the respondent characteristics, descriptive analysis, and the inferential analysis of Pearson Correlation Coefficient and Multiple Regression Analysis.



## CHAPTER 5

### CONCLUSION AND RECOMMENDATION

#### 5.1 Introduction

This chapter provides a brief discussion of the outcome obtained from the present study. Besides that, this chapter also provides discussion on the research results. This chapter explains the implication from the present study outcome, limitations of the study, suggestion for future researchers, and lastly conclusion of the study.

#### 5.2 Overview of the Study

The purpose of conducting the research is to determine whether six independent variables of safety management practices influence safety compliance among workers in manufacturing companies. The target population of this research is workers in private Fabricated Metal and Hardware manufacturing company in Nibong Tebal, Pulau Pinang, which was selected due to its greater sample size and to achieve results consistency. About 108 questionnaires were distributed to the respondents from Malaysians living in Pulau Pinang.

In this study, “Statistical Package for Science Social” (SPSS) version 25.0 is used to generate the analysis by entering the data from the survey conducted. The questionnaire comprises three parts. Part A contains respondent’s demographics data. It contains

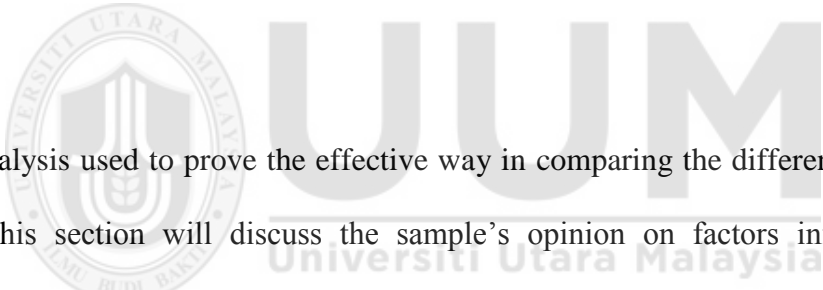
questions regarding the information of respondents including gender, salary, year of services, education level and marital status. Meanwhile, Part B in this questionnaire consists of independent variables which are Management Commitment, Safety Communication, Workers Involvement, Safety Training, Safety Promotion Policies and Safety Rules & Procedure. Lastly, Part C consists of safety compliance questions. Both Part B and Part C problem-solving questionnaire use a closed format with Likert scale of five phases. This research aims to determine whether six independent variables of safety management practices (Independent Variable) influence safety compliance (Dependent Variable) among workers in manufacturing companies. Based on the results, it shows that there is a significant relationship between safety management practices and safety compliance.

### **5.3 Discussion**

The study was conducted mainly to determine the relationship between importance of organizational interference from the aspect of safety management practices and safety compliance. The first hypothesis of this study is to investigate the link between safety management practices and safety compliance behavior. The study was carried out primarily to evaluate the connection between influence of organizational interference from the safety management practices and safety compliance aspects. Among the six safety management practices, Safety Rules & Procedure obtained the strongest relationship with safety compliance follow with Safety Promotion Policies.



Based on the multiple regression analysis, the study found that safety training has significant relationship with safety compliance with beta value 0.507 and p-value 0.000. Lingard's (2001) research also found that first-aid training has a positive impact on workers' health and safety at work in Australian small-scale construction firms. Following the first aid training, the use of personal protective equipment increased to 96% compared to 65% before the training. Besides, the study also found that Safety Promotion Policies has significant relationship with safety compliance with beta value 0.157 and p-value 0.038. Researchers have shown that health promotion and policies play a significant role in reducing incidents and injuries at the work place. Therefore, the previous research has similar findings with the study done by the researcher.



Mean analysis used to prove the effective way in comparing the different sets of data or items. This section will discuss the sample's opinion on factors influencing safety behaviours among workers in manufacturing industry. In this survey, Likert Scale was used to analyse the information from the respondents. Based on descriptive analysis for Management Commitment, the lowest mean is 3.3426 and the lowest standard deviation is 0.98742. The respondents said safety rules and procedures are strictly followed by the management. Meanwhile, the highest mean score is 4.1944 and the highest standard deviation is 0.99961. Most of the respondents agree that corrective action is always taken when the management is told about unsafe practices. Followed by the mean 4.1019 and standard deviation 0.93669 that most of the respondents agree that their company provides sufficient personal protective equipment for the workers. The mean and standard deviation for statement "safety is given high priority by the management" are 3.4259 and

0.98781 while for statement “Management considers safety to be equally important as production”, the mean value is 3.9259 and standard deviation 0.89342.

For Safety Communication, the lowest mean is 3.7778 and the lowest standard deviation is 1.07071. The respondents the target and goals for safety performance in their organization are not clear to the workers. Meanwhile, the highest mean score is 4.1296 and the highest standard deviation is 0.89748. Most of the respondents agree that management operates an open door policy on safety issues. Followed by the mean 4.0741 and standard deviation 1.02039, most of the respondents agree that employees do not sincerely participate in identifying safety problems. For statement “My Company doesn’t have a hazard reporting system where employees can communicate hazard information before incidents occur”, the mean value is 4.0093 and standard deviation 1.14790. While, the mean and standard deviation for statement “There is sufficient opportunity to discuss and deal with safety issues in meetings”, are 3.9167 and 0.93853 respectively.

For the third factor which is Workers Involvement, the highest mean and standard deviation value are 4.0556 and 0.94556. Majority of respondents agree with the statement “Management consults with employees regularly about workplace health and safety issues”. While the least mean and standard deviation value is 3.8426 and 0.98742. The respondents agree that the management promotes employees involvement in safety related matters. Besides, the mean for statement “Management always welcomes opinion from employees before making final decisions on safety related matters” is 3.9722 and

the standard deviation is 0.96149. For statement “Safety training given to me is adequate to enable to me to assess hazards in workplace”, the mean is 3.9815 and the standard deviation is 0.95684.

For Safety Training, the highest mean score is 4.0463 and the highest standard deviation is 0.80168. Most of the respondents agree that newly recruits are trained adequately to learn safety rules and procedures. Followed by the mean 4.0185 and standard deviation 0.80862, most of the respondents agree with the statement “I am not adequately trained to respond to emergency situations in my workplace”. For statement “My Company gives comprehensive training to the employees in workplace health and safety issues”, the mean and standard value is 3.9630 and 0.98518 respectively. Besides, for statement “Safety issues are given high priority in training programs”, the mean=3.9722 and standard deviation=0.71642. The lowest mean and standard deviation value is 3.9626 and 0.80006 with the statement “Management encourages the workers to attend safety training programs”.

For Safety Promotion Policies, the highest mean score is 4.3148 and the highest standard deviation is 0.70576. Most of the respondents agree that the safety procedures and practices in this organization are useful and effective. Followed by the mean 4.2315 and standard deviation 0.93335, most of the respondents agree with the statement “In my company safety week celebration and other safety promotional activities arranged by the management are very effective in creating safety awareness among the workers”. For

statement “In my company employees are rewarded for reporting safety hazards (thanked, cash or other rewards, recognition in newsletter, etc”, the mean and standard value is 4.2130 and 0.97684 respectively. Besides, for statement “In my company safe conduct is considered as a positive factor for job promotions”, the mean=4.1481 and standard deviation=0.99358. The lowest mean and standard deviation value is 4.1296 and 0.92819 with the statement “Our supervisor becomes very unhappy and angry when employees find out and report unsafe conditions and acts in our department”.

Lastly, for Safety Rules Procedure, the lowest mean is 4.0926 and the lowest standard deviation is 0.73034. The respondents agree that safety inspections are carried out regularly. Meanwhile, the highest mean score is 4.2963 and the highest standard deviation is 0.77652. Most of the respondents agree that there is open communications about safety issues in this workplace. Followed by the mean 4.2593 and standard deviation 0.64664, most of the respondents agree that the facilities in the safety department are not adequate to meet the needs of my organization. For statement “My supervisors and managers always try to enforce safe working procedures”, the mean value is 4.1852 and standard deviation 0.62872. While, the mean and standard deviation for statement “The safety rules and procedures followed in my company are sufficient to prevent incidents occurring”, are 4.2685 and 0.80427 respectively.

Further explanation on the relationship between variables with continues as below:

### **5.3.1 Relationship between Management Commitment and Safety Compliance**

Hypothesis 1: To study the relationship between Management Commitment and Safety Compliance

For Safety Compliance, the p-value is 0.351 which is greater than significant level 0.05. The researcher can conclude that there is no significant relationship between Management Commitment and Safety Compliance. This correlation analysis supports the findings in the regression analysis. Therefore, H1 is not supported.

The commitment to safety is a basic, crucial component of employee perceptions of the extent to which their employers appreciate and endorse healthy work and are committed to employee health. As stated, management safety commitment predicts employee safety behaviors and incidents / injuries).

It is contrary with the previous research by Zohar (1980), it stated that Management commitment to safety behaviour is major factor that affects the effectiveness of employees working pattern and contributes to the success of an organization. Management always has to look after the wellbeing of an employee through their behavior and practices by involving safety-related operations, so that their workers can perceive it unambiguously (Neal & Griffin, 2002).

### **5.3.2 Relationship between Safety Communication and Safety Compliance**

Hypothesis 2: To study the relationship between Safety Communication and Safety Compliance

The p-value is 0.592 which is greater than significant level 0.05. Therefore, the researcher can conclude that there is no significant relationship between Safety Communication and Safety Compliance. H2 is not supported.

Communication is a key factor in creating and maintaining a strong safety culture. Nor Azimah et al. (2009) defined safety communication as understanding of safety communication, including communication openness. Communication is important in order to support the site safety program; information such as unsafe conditions, new rules and procedures (Andi, 2008).

Based on the previous research done by Geller (2005), it shows the significant relationship between safety communication and safety compliance. This means that this study has contrary result with the previous study. Besides, safety communication is an essential platform between management and employees to understand the concept of safety behavior. Communication is a tool which could help management to ensure members of an organization stay away from potential hazard and accident (Alsamadani et al., 2012)

### **5.3.3 Relationship between Workers Involvement and Safety Compliance**

Hypothesis 3: To study the relationship between Workers Involvement and Safety Compliance

Based on the result that has been shown in Chapter 4, it shows that there is no significant relationship between workers involvement and safety compliance. Besides, p-value of the variable is 0.115 which is greater than 0.05 and the regression results imply that there is no significant relationship between workers involvement and safety compliance. So that it can be conclude workers involvement not give an impact on and safety compliance among employees.

Based on previous research study by Rivilis et al. (2006), the findings shows that participatory ergonomics also shows how effective employee involvement is. They found that workers involvement and decreased injuries have a positive relationship. It indicates that workers involvement gives an impact and has significant relationship with safety compliance.

Practices of workers involvement can also involve giving the workers with opportunities empowers workers without management approval to make significant decisions, other strategies for improving the employee's efficiency and developing an organizational environment that promotes free thinking and new method of training. Employees who

involve in the design and execution, surveillance and control of the safety management process, they have a sense of ownership of programs Goetsch (2011). Companies that motivate workers on safety related matter has a lower hazard and accidents (Minter, 2003). This study shows that worker involvement have positive relationship with safety behaviour.

#### **5.3.4 Relationship between Safety Training and Safety Compliance**

Hypothesis 4: To study the relationship between Safety Training and Safety Compliance

In this study, it shows that, there is a positive significant relationship between safety training and Safety Compliance since the beta-coefficient value is 0.507 and the significant value is 0.000 which is less than 0.05. This indicates that, safety training influenced on safety compliance.

Safety training helps to provide workers with the requisite ability to conduct them safely and prevent injuries during jobs. Hilyer et al. (2000) pointed out that Safety training showed that, after completing safety training, 84% of workers reported being able to identify and recognize dangerous chemicals better. So there is positive feedback by workers how safety training could improve their level of knowledge and help workers to handle the hazardous material.

Safety training assists with accident and injury prevention and management, as it underlines the value of compliance with security rules and procedures for employees.

### **5.3.5 Relationship between Safety Promotion Policies and Safety Compliance**

Hypothesis 5: To study the relationship between Safety Promotion Policies and Safety Compliance

In this study, it shows that, there is a positive significant relationship between Safety Promotion Policies and Safety Compliance since the beta-coefficient value is 0.157 and the significant value is 0.038 which is less than 0.05. This indicates that, Safety Promotion Policies influenced on safety compliance.

(Vredenburgh, 2002) recommended high levels of visibility in the organisation, which are recognizable in terms of behavior modification, must be defined as a properly designed reward system. It also showed the management's commitment to employee safety and whether or not the employees are effective in enforcing protection.

As the award rises, it has a direct effect on beneficial actions (Geller & Wiegard, 2005). The value of safety policies in avoiding and reducing incidents through industries has also been noted by Cabrera et al. (2007).

### **5.3.6 Relationship between Safety Rules & Procedure and Safety Compliance**

Hypothesis 6: To study the relationship between Safety Rules & Procedure and Safety Compliance

Based on the result that has been shown in Chapter 4, it shows that there is no significant relationship between Safety Rules & Procedure and safety compliance. Besides, p-value of the variable is 0.367 which is greater than 0.05 and the regression results imply that there is no significant relationship between Safety Rules & Procedure and safety compliance. So that it can be conclude Safety Rules & Procedure not give an impact on and safety compliance among employees.

Previous research shows that there is a significant relationship between Safety Rules & Procedure and safety compliance. It is contrary with the previous research done by Vinodkumar and Bhasi (2010) that outline the safety rules and practices developed and well reported by an organization will enhance the safety conduct and compliance in the workplace of its employees. In its offshore safety research, Mearns et al., (2003) considered safety rules and procedures as a factor and found strong association with accident rates. Compliance with safety is a direct reference to the health of workers and reflects the key measures to be carried out to ensure safety at work.

Therefore, most of the results are support the underpinning theory which safety management practices give an impact on safety compliance among manufacturing workers. From the study, the researcher can conclude that factors that contribute to safety

compliance are safety training and safety promotion policies. Overall of the study, there are significant relationship between safety management practices (Management Commitment, Safety Communication, Workers Involvement, Safety Training, Safety Promotion Policies and Safety Rules & Procedures) and safety compliance.

## **5.4 Implications of Findings**

This section explains about the theoretical implication and managerial implications based the outcome of the study conducted.

### **5.4.1 Theoretical Implication**

The aim of this research is to look at the connection and effect of Management Commitment, Safety Communication, Workers Involvement, Safety Training, Safety Promotion Policies and Safety Rules & Procedure to safety behaviour among Fabricated Metal and Hardware manufacturing company in Pulau Pinang. The research was conduct in order to achieve the objective of this study.

The present study also makes contribution by emphasising that safety management practices and safety behaviour relationship can be understood if the compliance and participation in safety are examined simultaneously in this study.

Based on the finding of this research, the result of the study shows that safety training and safety promotion policies give an effect on safety compliance in the manufacturing

industry in Malaysia. Meanwhile, the other is the factors that are not influencing safety compliance behavior among workers in the Fabricated Metal and Hardware manufacturing industry.

This study also helps researchers to know about safety management practices that influence safety behaviour which is safety compliance. Therefore, the findings from this study can help researcher to improve on safety and health management among employees in a company. From the result of the study, it is clear that safety management practices are important in examining the safety compliance behaviour among workers in the manufacturing industry.

#### **5.4.2 Practical Implications**

Even many researchers have come up with an idea on new studies about occupational accidents at workplace but literature on safety behavior on manufacturing sector particularly in Fabricated Metal and Hardware manufacturing company is still lacking. Some limitations must be faced in preparing this research and need to be highlight to the researchers. Besides, this study is only limited to the employees in Fabricated Metal and Hardware manufacturing company in Pulau Pinang.

This research is carried out through the brief investigation on management practices mainly on management commitment, safety communication, worker involvement, safety

training, Safety Promotion Policies and Safety Rules and Procedure with safety behavior especially on safety compliance for the better understanding for employers to prevent their employees from any mishaps in future.

Based on the finding on this research, the result of the study shows that safety training and safety promotion policies have a relationship on safety compliance. It indicates that safety training and safety promotion policies give an effect on workers in Fabricated Metal and Hardware manufacturing company in Pulau Pinang, Malaysia. Therefore, manufacturing industry should focus more on the variables that have an effect on safety compliance behavior. Safety compliance will increase as the safety training and safety promotion policies increases.

Meanwhile, the others variables (management commitment, safety communication, workers involvement and safety rules & procedure) are the factors that are not influencing safety compliance among workers in private Fabricated Metal and Hardware manufacturing company.

## **5.5 Limitations of the Study**

During the process of conducting this research with their potential, ability and aptitude performed their best in hope to achieve the stated objectives, however few unavoidable limitations were faced regarding this dissertation. The limitation must be used when

evaluating the results of the study and should be mentioned to provide guidance for future research and to fill the gaps.

The first limitation is short time for research, the researcher only have a short time, which may have caused several data to be left out. And also the time is mostly spend in collection the data, because the size of data is big. To find the result, there are several tests that researcher found is very complicated. To get the best result, researcher spends quite a lot of time to understand how to use software.

Next, the data collection was only based on questionnaire survey and every method has shortfalls and might cause biases. The respondents may have overemphasized the positive aspects of safety management practices and safety compliance behaviours. It is recommended to use multi method of data collection in future research, to overcome this bias, such as conducting interviews with employees to get more detailed overview about this issue.

The other limitation is concerned with language barrier. Even though the questionnaire in the present study was prepared in dual language, some respondents were still unable to read and understand the questions. Furthermore, time also is one of the problems faced by researcher while conducting this study. More time needed to have more reliability results on the findings.

Finally, although this study focuses on employees in the manufacturing industry only, it is expected that the findings will apply to other organizations too. Future researchers are encouraged to take a similar approach towards large organizations, to illustrate whether the factors influencing safety compliance behaviours among employees in Malaysia can be used to the other large firms and industries.

## **5.6 Suggestion for Future Research**

It is recommended that more extensive study should be carried out to examine the factors affecting safety compliance behaviors among workers in manufacturing industry in Malaysia. With this research, we could identify and compare what are the factors that significant contribute to increase in the safety compliance. Besides, the researcher can add more factors for the study so that it can be more useful as reference for the organizational.

Besides that, the amount of questions and type of question is not enough to find out the real reason on the safety compliance behaviors. When construct the questionnaire, need to provide more questions to be asked on the factors need to be find out, for example on the factors for safety communication. This will go into more details on the factor. Other than that, the basic information collected from respondents have to analysis in depth.

Next, the researcher should ask for simple questions, so that the respondents can understand better on the questions given. This is to avoid misunderstanding to respondents that can lead to unreliability for the result of the study.

## **5.7 Conclusion**

This study attempts to provide additional literature on the safety management practices towards safety compliance behaviors among workers from manufacturing industry in Malaysia. Despite its limitations, this study provides knowledge on relationship between safety management practices and safety compliance. The study examines the safety management practices on employee's safety compliance in the manufacturing industry in Malaysia.

The main findings of the study are to review the level of compliance to safety among workers in a manufacturing company and to review the relationships between safety compliance and four independent variables of safety management practices which look at management commitment, safety communication, the involvement of the workers and safety training. Besides, the results of the study show that there are two factors in safety management practices, safety training and safety promotion policies that influence the safety compliance. Based on the empirical results, it can be concluded that this study have achieved most of its research objectives.

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**APENDIX A  
RESEARCH QUESTIONNAIRE**



Dear Participant,

Thank you for agreeing to participate in this research titled:

**The relationship between safety management practices and worker safety  
compliance behaviour in manufacturing sector**

I am a Master of Science in Occupational safety and Health Management student (By Research) and I would appreciate it if you could answer the questions carefully as the information you provide will influence the accuracy and the success of this research. It will take no longer than 30 minutes to complete the questionnaire. All answers will be treated with strict confidence and will be used for the purpose of the study only. If you have any questions regarding this research, you may address them to me at the contact details below.

Thank you for your cooperation and the time taken in answering this questionnaire.

Yours Sincerely,

Sivanantha Madewan  
Othman Yeop Abdullah Graduate School of Business  
Universiti Utara Malaysia  
Malaysia  
Email: [sivanantha12@gmail.com](mailto:sivanantha12@gmail.com)

## SECTION A

### Instruction:

---

This part contains few demographic information pertaining to yourself. **Please tick ( √ )** in the box or write your response in the space provided.

---

1. **Job title/ Jawatan :** \_\_\_\_\_

2. **Gender/ Jantina**

- Male  
  Female

3. **Age/ Umur:** Please specify/ Nyatakan: \_\_\_\_\_ years/ Tahun.

4. **Current monthly salary:**

- Below RM 2000  
  RM 2001 – RM 3000  
  RM 3001 – RM 4000  
  Above RM 4000

5. **Years in service:**

- Less than a year  
  1 – 3 years  
  4 – 7 years  
  More than 7 years

6. **Highest Educational level/ Tahap pendidikan tertinggi :**

- Secondary School/ *Sekolah Menengah*                        Diploma/ *Diploma*  
  Certificate/ *Sijil*      Degree/ *Ijazah*  
  Master above/ *Master ke atas*  
  Others/ *Lain-lain:* .....

7. **Marital Status:**

- Single/ *Bujang*  
  Married/ *Berkahwin*  
  Divorced/Separated/Widowed

8. **Have you ever had any occupational accident ever since you started working in this organisation/ Adakah anda pernah mengalami kemalangan di tempat kerja sepanjang bekerja di organisasi ini ?**

Yes/ Ya

No/ Tidak

If yes, how many accidents have you had while working in this organisation?/ Jika ya, berapakah bilangan kemalangan yang pernah dialami sepanjang bekerja di organisasi ini?

1 - 3

4 – 8

9 - 15

Over 15

9. **Have you attended any occupational safety training? / Pernahkah anda pernah menghadiri latihan keselamatan?**

Yes/ Ya

No/ Tidak

10. **How often do you have to attend safety training? Berapa kekerapan latihan keselamatan yang anda perlu hadiri?**

Every month/ Setiap bulan

Once in three month/ Sekali dalam tempoh tiga bulan

Once in six month/ Sekali dalam tempoh enam bulan

Once a year/ Sekali setahun

Not at all/ Tiada langsung

## SECTION B

**GUIDELINES: Considering only your perception, please circle the most appropriate answer to you based on the scale below: Dengan hanya mengambil kira pandangan anda, bulatkan jawapan yang paling tepat kepada anda berpandukan pada skala jawapan di bawah:**

		1 = Strongly Disagree SD	2 = Disagree D	3 = Neutral N	4 = Agree A	5 = Strongly Agree SA			
					SD	D	N	A	SA
B1.	Safety is given high priority by the management/ <i>Keselamatan diberikan keutamaan oleh pihak pengurusan</i>				1	2	3	4	5
B2.	Safety rules and procedures are strictly followed by the management/ <i>Peraturan dan prosedur keselamatan dipatuhi oleh pihak pengurusan</i>				1	2	3	4	5
B3.	Corrective action is always taken when the				1	2	3	4	5

management is told about unsafe practices/ *Pihak pengurusan membuat pembedulan segera atas amalan tidak selamat apabila dimaklumkan*

B4.	In my workplace manager or supervisors do not show interest in the safety of workers/ <i>Pengurus atau penyelia di tempat kerja tidak menunjukkan minat terhadap keselamatan pekerja</i>	1	2	3	4	5
B5.	Management considers safety to be equally important as production/ <i>Pihak pengurusan mementingkan keselamatan sama seperti penghasilan produk</i>	1	2	3	4	5
B6.	Members of the management do not attend safety meetings/ <i>Wakil pihak pengurusan tidak menghadiri mesyuarat keselamatan.</i>	1	2	3	4	5
B7.	I feel that management is willing to compromise on safety for increasing production/ <i>Saya merasakan pihak pengurusan sanggup bertolak ansur terhadap hal keselamatan demi meningkatkan pengeluaran</i>	1	2	3	4	5
B8.	When near-miss accidents are reported, my management acts quickly to solve the problems/ <i>Pihak pengurusan bertidak pantas untuk menyelesaikan masalah berpunca dari kejadian hampir kemalangan yang telah dilaporkan</i>	1	2	3	4	5
B9.	My company provides sufficient personal protective equipment for the workers/ <i>Pihak pengurusan menyediakan peralatan perlindungan keselamatan secukupnya untuk pekerja-pekerja</i>	1	2	3	4	5
B10.	Employees do not sincerely participate in identifying safety problems/ <i>Penglibatan pekerja adalah tidak ikhlas dalam pengenalpastian masalah keselamatan</i>	1	2	3	4	5
B11.	My company doesn't have a hazard reporting system where employees can communicate hazard information before incidents occur/ <i>Syarikat tidak mempunyai sistem laporan bahaya untuk membolehkan pekerja menyampaikan maklumat punca kemalangan sebelum ia berlaku</i>	1	2	3	4	5

B12.	Management operates an open door policy on safety issues/ <i>Pengurusan mengamalkan dasar keterbukaan mengenai isu-isu keselamatan</i>	1	2	3	4	5
B13.	There is sufficient opportunity to discuss and deal with safety issues in meetings/ <i>Terdapat peluang yang secukupnya bagi membincangkan dan menangani isu-isu keselamatan di dalam mesyuarat</i>	1	2	3	4	5
B14.	The target and goals for safety performance in my organization are not clear to the workers/ <i>Sasaran dan matlamat prestasi keselamatan kepada para pekerja di organisasi ini tidak jelas</i>	1	2	3	4	5
B15.	Safety training given to me is adequate to enable to me to assess hazards in workplace/ <i>Latihan keselamatan yang diberikan kepada saya adalah mencukupi untuk membolehkan saya menilai bahaya/hazad di tempat kerja</i>	1	2	3	4	5
B16.	Management always welcomes opinion from employees before making final decisions on safety related matters/ <i>Pihak pengurusan sentiasa mengalu-alukan pendapat pekerja sebelum membuat keputusan akhir mengenai hal-hal berkaitan keselamatan</i>	1	2	3	4	5
B17.	My company has safety committees consisting of representatives of management and employees/ <i>Jawatankuasa keselamatan di syarikat saya terdiri daripada wakil pihak pengurusan dan wakil pihak pekerja</i>	1	2	3	4	5
B18.	Management promotes employees involvement in safety related matters/ <i>Pihak pengurusan menggalakkan penglibatan pekerja dalam hal-hal keselamatan</i>	1	2	3	4	5
B19.	Management consults with employees regularly about workplace health and safety issues/ <i>Pihak pengurusan sering berunding dengan pihak pekerja mengenai isu kesihatan dan keselamatan di tempat kerja</i>	1	2	3	4	5

B20.	My company gives comprehensive training to the employees in workplace health and safety issues/ <i>Pihak pengurusan memberi latihan kesihatan dan keselamatan yang komprehensif untuk pekerja di tempat kerja</i>	1	2	3	4	5
B21.	Newly recruits are trained adequately to learn safety rules and procedures/ <i>Pekerja baru diberikan latihan secukupnya mengenai peraturan dan prosedur keselamatan.</i>	1	2	3	4	5
B22.	Safety issues are given high priority in training programmes/ <i>Isu keselamatan diberikan keutamaan dalam program-program latihan</i>	1	2	3	4	5
B23.	I am not adequately trained to respond to emergency situations in my workplace/ <i>Saya tidak diberikan latihan secukupnya untuk bertindak balas terhadap situasi kecemasan di tempat kerja</i>	1	2	3	4	5
B24.	Management encourages the workers to attend safety training programmes/ <i>Pihak pengurusan menggalakkan pekerja untuk menyertai latihan-latihan keselamatan</i>	1	2	3	4	5
B25.	The safety procedures and practices in this organization are useful and effective/ <i>Prosedur dan amalan keselamatan dalam organisasi ini adalah berguna dan berkesan.</i>	1	2	3	4	5
B26.	In my company safe conduct is considered as a positive factor for job promotions/ <i>Dalam syarikat ini amalan keselamatan adalah faktor positif yang boleh membantu kenaikan pangkat</i>	1	2	3	4	5
B27.	In my company employees are rewarded for reporting safety hazards (thanked, cash or other rewards, recognition in newsletter, etc.)/ <i>Dalam syarikat ini pekerja diberikan ganjaran kerana melaporkan bahaya/hazad keselamatan (ucapan terima kasih, imbuhan wang atau penghargaan di dalam bulletin, dll)</i>	1	2	3	4	5
B28.	In my company safety week celebration and other safety promotional activities arranged by the management are very effective in creating safety	1	2	3	4	5

awareness among the workers/ *Dalam syarikat ini minggu keselamatan dan lain-lain aktiviti promosi keselamatan yang dianjurkan oleh pihak pengurusan adalah berkesan untuk mewujudkan kesedaran keselamatan di tempat kerja.*

B29.	There exists very healthy competition among the employees to find out and report unsafe condition and acts/ <i>Wujud persaingan yang sihat di kalangan pekerja untuk melaporkan keadaan dan tingkahlaku yang tidak selamat</i>	1	2	3	4	5
B30.	Our supervisor becomes very unhappy and angry when employees find out and report unsafe conditions and acts in our department/ <i>Penyelia kami tidak berpuas hati dan marah jika pekerja mengetahui dan melaporkan keadaan dan tingkahlaku yang tidak selamat yang berlaku di bahagian kami</i>	1	2	3	4	5
B31.	There is open communications about safety issues in this workplace/ <i>Terdapat komunikasi terbuka mengenai isu keselamatan di tempat kerja</i>	1	2	3	4	5
B32.	The safety rules and procedures followed in my company are sufficient to prevent incidents occurring/ <i>Peraturan dan prosedur keselamatan di organisasi ini adalah cukup untuk mencegah berlakunya kemalangan</i>	1	2	3	4	5
B33.	The facilities in the safety department are not adequate to meet the needs of my organization/ <i>Fasiliti di jabatan keselamatan tidak mencukupi untuk memenuhi keperluan organisasi</i>	1	2	3	4	5
B34.	My supervisors and managers always try to enforce safe working procedures/ <i>Penyelia dan pengurus saya sentiasa cuba untuk menguatkuasakan prosedur kerja yang selamat</i>	1	2	3	4	5
B35.	Safety inspections are carried out regularly/ <i>Pemeriksaan keselamatan kerap dijalankan</i>	1	2	3	4	5

## SECTION C

**GUIDELINES:** Considering only your perception, please circle the most appropriate answer to you based on the scale below: *Dengan hanya mengambil kira pandangan anda, bulatkan jawapan yang paling tepat kepada anda berpandukan pada skala jawapan di bawah:*

	1 = Strongly Disagree SD	2 = Disagree D	3 = Neutral N	4 = Agree A	5 = Strongly Agree SA			
				SD	D	N	A	SA
C1.	I carry out work in a safe manner. <i>Saya melaksanakan kerja saya dengan cara yang selamat.</i>			1	2	3	4	5
C2.	I use all necessary safety equipment to do my job. <i>Saya menggunakan semua peralatan keselamatan yang sesuai untuk melakukan kerja saya.</i>			1	2	3	4	5
C3.	I use the correct safety procedures for carrying out my job/ <i>Saya menggunakan prosedur keselamatan yang betul ketika menjalankan kerja saya.</i>			1	2	3	4	5
C4.	I ensure highest level of safety when I carry out my job/ <i>Saya memastikan tahap keselamatan paling tinggi apabila saya melaksanakan tugas saya.</i>			1	2	3	4	5

Please indicate any comments you have in order to improve this questionnaire:

.....

.....

.....

.....

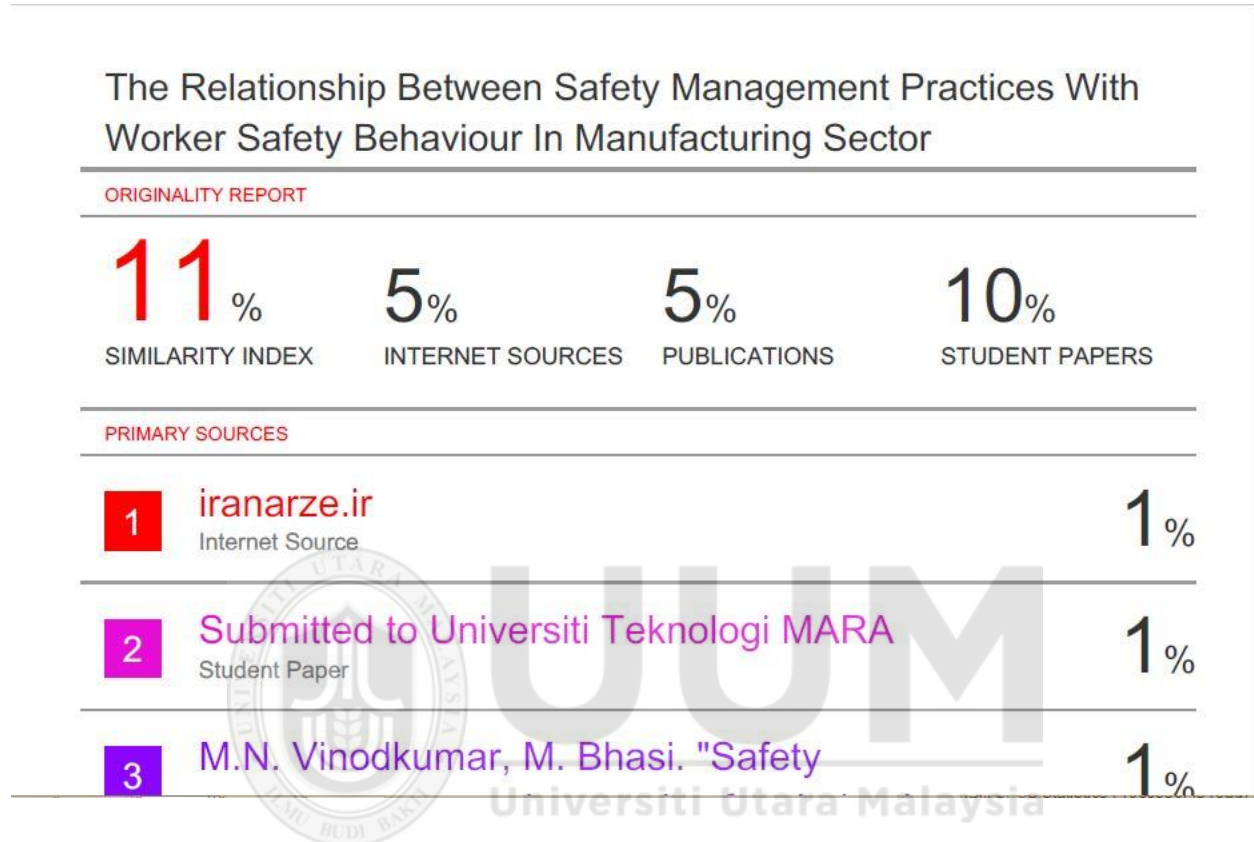
.....

.....

Please, feel free to contact me on any issue(s) regarding to this questionnaire.  
Thank you for your participation in answering this questionnaire.

Sivanantha Madewan.  
Tel No: +60163797727  
E-mail: [sivanantha12@gmail.com](mailto:sivanantha12@gmail.com)

## APPENDIX B: Turnitin Result



## APPENDIX C: Reliability Result

### Reliability Test

Component	Number of Initial Items (Pilot Test)	Cronbach's alpha (Pilot Test)	Number of Items	Cronbach's alpha
Management Commitment	9	0.724	9	0.853
Safety Communication	5	0.707	5	0.885
Workers Involvement	5	0.718	5	0.883
Safety Training	5	0.705	5	0.865
Safety Promotion Policies	6	0.714	6	0.854
Safety Rules & Procedure	5	0.816	5	0.911
Safety Compliance	4	0.734	4	0.822
<b>Total</b>	<b>39</b>		<b>39</b>	

## APPENDIX D: Regression Result

Model	Coefficients <sup>a</sup>						
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	.806	.469		1.720	.089		
ManagementCommitment	-.108	.115	-.112	-.937	.351	.374	2.677
SafetyCommunication	.048	.089	.065	.538	.592	.362	2.764
WorkersInvolvement	.097	.061	.126	1.591	.115	.853	1.172
SafetyTraining	.507	.075	.549	6.723	.000	.802	1.247
SafetyPromotionPolicies	.157	.075	.176	2.106	.038	.764	1.309
SafetyRulesProcedure	.078	.086	.079	.907	.367	.709	1.410

a. Dependent Variable: DSafetyCompliance



### APPENDIX E: Correlation Result

		SAFETY COMPLIANCE	MANAGEMENT COMMITMENT	SAFETY COMMUNICATION	WORKERS INVOLVEMENT	SAFETY TRAINING	SAFETY PROMOTION POLICIES	SAFETY RULES PROCEDURE
SAFETY COMPLIANCE	PEARSON CORRELATION	1	.107	.165	.251**	.631**	.326**	.338**
	SIG. (2-TAILED)		.270	.087	.009	.000	.001	.000
	N	108						
MANAGEMENT COMMITMENT	PEARSON CORRELATION	.107	1					
	SIG. (2-TAILED)	.270						
	N	108	108					
SAFETY COMMUNICATION	PEARSON CORRELATION	.165	.782	1				
	SIG. (2-TAILED)	.087	.000					
	N	108	108	108				
WORKERS INVOLVEMENT	PEARSON CORRELATION	.251	.332	.300	1			
	SIG. (2-TAILED)	.009	.000	.002				
	N	108	108	108	108			
SAFETY TRAINING	PEARSON CORRELATION	.631	.221	.240	.246	1		
	SIG. (2-TAILED)	.000	.022	.012	.010			
	N	108	108	108	108	108		
SAFETY PROMOTION POLICIES	PEARSON CORRELATION	.326	.048	.136	.019	.200	1	
	SIG. (2-TAILED)	.001	.625	.161	.844	.038		
	N	108	108	108	108	108	108	
SAFETY RULES PROCEDURE	PEARSON CORRELATION	.338	-.043	-.077	.055	.320	.439	1
	SIG. (2-TAILED)	.000	.660	.427	.573	.001	.000	
	N	108	108	108	108	108	108	108