THE INFLUENCE OF SAFETY CULTURE ON SAFETY PERFORMANCE: A CASE OF PERODUA

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UNIVERSITI UTARA MALAYSIA

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Abstract

The study was conducted to determine the influences of safety culture elements on safety performance of employees in Perodua. This survey was done among 52 respondents in a 2 divisions in Perodua Otomobil Kedua Sdn Bhd by using Kao et al. (2008) model that is "the modified International Atomic Energy Agency (IAEA)" and focusing on four out of eight elements that is commitment and support, training and competence, attitude and behaviour, and management system and organization. All the results of measurement were then being analysed statistically with descriptive frequencies on demography and, correlations and regression analysis. The findings indicated that three out of four IVs has moderate and positive relationship with safety performance. For demographic features there is none of them that is age group, position, gender and length of service show significant difference with safety performance. Further suggestions were discussed according to the findings to complete the conclusions and recommendations.

Abstrak

Kajian in dijalankan bertujuan untuk menentukan pengaruh elemen budaya keselamatan terhadap prestasi keselamatan pekerja di Perodua. Kajian in dijalankan terhadap 52 orang responden di dua bahagian di Perodua Otomobil Kedua Sdn Bhd dengan menggunakan model Kao et al. (2008) iaitu "the modified International Atomic Energy Agency (IAEA)" yang menumpukan hanya empat dari lapan elemen yang iaitu komitmen dan sokongan, latihan dan kompeten, sikap dan tingkahlaku, dan sistem pengurusan dan organisasi. Kesemua keputusan kajian ini dicerna dengan menggunakan kaedah analisis statistic seperti perincian frekuensi untuk maklumat demografi serta analisis korelasi dan regresi. Penemuan daripada kajian ini ialah tiga daripada empat elemen IV menunjukkan hubungan yang sederhana dan positif terhadap prestasi keselamatan. Untuk maklumat demografi didapati tidak ada satu pun daripada kumpulan umur, jawatan, jantina dan lama tempoh perkhidmatan yang menunjukkan perbezaan yang signifikan dan ketara terhadap prestasi keselamatan. Cadangan kajian selanjutnya akan dibincangkan untuk pengemukaan penemuaan dan kesimpulan bagi melengkapkan pengkajian ini.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Safety is a very difficult task to undertake. Every year the accidents are continuously happening and the numbers of accidents are still increasing. Safety and health at workplace is a global issue affecting all business around the world.

SOCSO reported that 63,423 out of 81,810 industrial accidents in Malaysia was accident in workplace on 2002 and it was an increasing trend compared to previous year (Sinar Harian, 29April, 2011). On 2010, there are 57,656 cases of industrial accident in Malaysia. SOCSO has paid RM 1.549 billion compensation cost to an injured worker on 2010 compared to RM1.354 billion on 2009.

Employee safety is costly. The direct and indirect costs related to the issue of safety among employee are obviously huge. A great amount of money was reported lost due to wages, workers' compensation, medical benefits and loss of working days. It is estimated that the lost working times because of injuries is about 5 times greater than the working time lost because of strikes (Jewel, 1998). The US Business Roundtable estimates that the direct and indirect costs of accidents in the US total over $17 billion on an annual basis (Opfer, 1998). The Acting Commissioner for Labour for Hong Kong estimated that the total cost of day lost due to work related injuries to all employers in Hong Kong in 1998 was HK$283 million (Occupational Safety and Health-Enhancement Forum 1999, p.5).

The U.S. Department of Health and Human Services (DHHS) has made the facts available relevant to occupational injuries and illness. Every 10 seconds a worker is temporarily or permanently disabled. Each day, an average of 137 persons die from work-related diseases and an additional 17 die from workplace injuries on the job. Each year about 70 youth under 18 years of age die from injuries at work and 70,000 require treatment in a hospital emergency room (Healthy People, 2010).

Increasing trend is an alarm to employer to set up & maintain a healthy and safe workplace. The contributory role of OHS in organizational performance has come into vogue, partly because of alarming upward trend in work-related illness and injury and the related cost to organizations and governments. Every year about 10million of the 150million workers in the European Community are affected by accidents or diseases at work (Carol Boyd, 2003).

There is a great sum of study on factor that influencing the performance of safety at workplace. For instance, work stress, communication, attitude and safety climate has found among of it. Koysand DeCotiis (1991) reported in previous studies, communication is one of the dimensions of psychological climate and it is believed that a good flow of communications of safety knowledge and policy within an organization will enhance workers' awareness and behaviour towards safety. Sutherland and Davidson (1993), in a stress audit among constructions industry site managers in the UK, found that the stress of work and role insecurity were associated with reduced mental health and high anxiety. Organizational climate was found to be the strongest predictor of job dissatisfaction. They believed that work stress and occupational injuries are related.

Bigos (1986), Greenwood & Wolf (1987) and Holmstrom (1992) found that there is a significant relationship between employee attitudes and their job-related stress with the occurrences of accidents, health and job safety. According to the studies, increasing

employee job satisfaction is as important as eliminating physical hazards in the workplace. They consistently found that job satisfaction was more predictive of lower accident rates than such factor as: demographic, health, psychological, and stress. Kniest (1997) also found that ineffective leadership practice such as lack of caring and supportive supervisors, not considering workers opinions and employees feeling that their jobs are not important was a critical employee safety performance factor.

From previous literature, there is an evident that manager who provides favourable motivators and hygiene factors (Herzberg, 1996), will affect employees positive job satisfaction. Effective management and positive job satisfaction, in turn, will motivate positive employee behaviour including improved safety performance.

Leadership and behaviour and safety culture are both important to affect safety performance, thus, neither can be ignored if safety performance is to be achieved. This has been proven in high-reliability organizations (HRO), such as in the air-traffic industry, the nuclear power industry, and the manufacturing industry. The research quantifies the association among leadership behaviour, safety culture, and safety performance in the healthcare industry.

Organizational safety performance assessment helps organizations evaluate the effectiveness of management, but various definitions of safety performance challenge the safety performance assessment. Generally, safety performance as global performance of an organization's safety management can be conceptualized by six factors: safety training, safety equipment, accident investigation and statistics, safety measures, safety organizations and safety management (T. C. Wu, 2000).

1.2 PROBLEM STATEMENT

Most of the companies in Malaysia do not really take safety and health as one of elements in their business activities. The main target is only to increase the profit and increase productivity which is obviously different compared with others industrial country such as Japan, Korea and Western country regardless of any industries. Most of the companies in Malaysia are adopted their safety and health culture from parent company which is based in overseas. They expected all culture brought out from their parent company was sufficient to provide safety in workplace.

Based on the accident trend which is still increasing from year to year, it shows that a lot of improvements need to be done and one of the main factor that need to considered is to create safety culture among employees so that perhaps it would play a main roles in reducing occupational injuries and illness in workplace. Dester & Blockley (1995) identified that unsafe behaviour such as a lack of training is one of the most significant factor contribute to accidents in workplace and thus provide a firm evidence of poor safety awareness and safety culture in workplace.

Among the problems observed in creating safety culture among automotive industries are: 1) lack of management commitment on providing the resources, facilities and equipment, 2) lack of management commitment on the urgency of connecting the substandard act and condition which has been identified, 3) number of employees was found continually violating the safety rules and procedures gazette by the company such as not wearing PPE in plant and misuse of fire extinguisher, and 4)the level of occupational safety and health awareness was not encouraging in the company. Employees were not seen to prioritize safety while doing their daily jobs.

Safety culture was ever-evolving. Within a safety culture, safety must always come first and take into consideration everyone involved (Donna Pearson Chadwick, 2009). (Kim, McInemey and Alexander) In their study on job satisfaction as related to safety performance: a case for a manufacturing firm, has conclude that behavioural characteristics and influences in the workplace are the most likely major causes for the different safety performance within interdepartmental in the company. They also found that supervision satisfaction and present work satisfaction have a direct correlation with safety performance.

In Malaysia's automotive industry, there is no empirical study conducted on influences of safety performance and safety culture among employees in the industries. The accident rate among employees within the industries has been growing up from year to years without any analysis and strategic plan done to improve the situation. Therefore, this research was conducted by intention to beneficial to automotive industries to inculcating the safety culture in the company which would consistently effects on safety performance of any company included automotive industries.

1.3 RESEARCH QUESTION

Based on the discussion stated above on the safety performance among employee in automotive industry, there are two research questions arise for this study. They are as following:

a. How well do the demographic features predict the safety performance among employees in Perodua?

b. What is the main factor within safety culture elements influencing the safety performance among employee in Perodua?

1.4 RESEARCH OBJECTIVES

Developing strong safety culture has the single greatest impact on injury reduction of any process, thus developing a safety culture and increasing level of safety performance should be a top priority in all organization. Due to that, this research is undertaken with 2 objectives.

a. To investigate the relationship between demographic factor such as age, gender, length of service and position with safety performance
b. To determine safety culture elements that mainly influencing the safety performance level among Perodua employees.

1.5 SIGNIFICANT OF STUDY

From the study, there will be a clear relationship between safety culture and safety performance towards organizational goals and objectives. From all the elements discovered on their relationship then a basis for a good performance in health and safety will be established. To achieve it sufficient financial and human resources must be made available for the health and safety function at all levels of the organizations.

Besides that, from the study also organization business should be run smoothly without any disruption or huge losses as reduction of accident, injuries and illness in

workplace. Through this study, perhaps organizations will more proactive towards implementing safety practices in daily work and daily life as well. There will also assisting for the management and safety group to establish more realistic policies, goals and procedure which become a good credit for employee's safe and healthy work environment.

The researcher is confident that the findings of this study may produce general guideline in upholding excellent and effective safety culture in Perodua. The know-how gap between non-management and management can be narrowed by related department through effective program such as promotion, campaign, training, seminar, safety talks, auditing etc.

1.6 SCOPE OF STUDY

The main focus of this study is to examine the influence of safety culture towards safety performance. The study was a cross-sectional study. The sample for the study was recruited from automotive industry in Rawang, Selangor and 52 workers in this company participated in the study.

1.7 DEFINITION OF KEY TERMS

1.7.1 SAFETY PERFORMANCE

For this project paper, safety performance is refer to a global performance of safety management system operated and measured by safety organizations, safety management,

safety equipment, safety training practices, safety training evaluations, accidents investigations, and measures of accident statistics (Wu, 2008).

1.7.2 COMMITMENT AND SUPPORT

1.7.2.1 COMMITMENT

For this project paper, commitment is refer to "... a stabilizing force that acts to maintain behavioural direction when expectancy/equity conditions are not met and do not functions (Scholl, 1981)

There is also another definition for commitment ie "...an obliging force which requires that the person honour the commitment, even in the face of fluctuating attitudes and whims" (Brown, 1996)

1.7.2.2 SUPPORT

For this project paper, support is refer to the action of a force that aids, protect, complements, or sustains another force in accordance with directive requiring such action.(Definitons.net)

1.7.3 ATTITUDE AND BEHAVIOR

1.7.3.1 ATTITUDE

For this project paper, attitude is refer to certain regularities of an individual's feeling, thoughts and predispositions to act toward some aspects o his environment (Secord and Backman, 1969)

1.7.3.2 BEHAVIOUR

For this project paper, behaviour is refer to a response of an individual or group to an action, environment, person or stimulus (Business Dictionary.com)

1.7.4 MANAGEMENT SYSTEM AND ORGANIZATION

1.7.4.1 MANAGEMENT SYSTEM

For this project paper, management system is refer to documented and tested step-by-step method aimed at smooth functioning through standard practices. Generally include detailed information on topics such as (1) organizing an enterprise (2) setting and implementing corporate policies (3) establishing accounting, monitoring, and quality control procedures, (4) choosing and training employees, (5) choosing suppliers and getting best value from them, and (6) marketing and distribution. (Business Dictionary.com)

1.7.4.2 ORGANIZATION

For this project paper, organization is refer to a person or group of people intentionally organized to accomplish an overall, common goal or set of goals.(Carter McNamara)

1.7.5 TRAINING AND COMPETENCY

1.7.5.1 TRAINING

For this project paper, training is refer to organized activity aimed at imparting information and/or instructions to improve the recipient's performance or to help him or her attain a required level of knowledge or skill. (Business Dictionary.com)

1.7.5.2 COMPETENCY

For this project paper, competency is refer to the quality of being adequately or well qualified physically and intellectually. (The Free Dictionary by Farlex)

1.8 ORGANIZATION OF CHAPTERS

This is the first of five chapters in this project paper. Chapter 2 reviews the literature on safety performance and safety culture, explaining their definition and the details aspect of them.

Chapter 3 describes the research method for the study. The chapter reports the research design and procedure, the selection of respondents, sample types and size, the development of questionnaire for research, the survey process and data collection procedure. Chapter 3 ends with a brief description of the strategies and procedures that were used to analyse data collected from the survey.

Chapter 4 reports the result for the study. There are reports of the descriptive statistical analysis, bivariate correlation analysis, and regression analysis. The results are summarized in a number of tables to facilitate interpretation.

Chapter 5, the final chapter, discusses the interpretation of the research findings for the study. The findings are compared to those found in the past research reviewed in Chapter 2. New findings are also discussed. Chapter 5 concludes with a discussion on limitation of the study, the implication for both researchers and practitioners and suggestions for future research.

1.9 BACKGROUND OF THE COMPANY

The study will be conducted at one established automotive industry in Malaysia and number 2 Malaysia's car manufacturer that is Perodua Otomobil Kedua Sdn Bhd (PERODUA). Established in 1993, Perodua is a joint venture company between Malaysian and Japanese partners. The shareholders of Perodua are UMW Corporation Sdn Bhd with 38% stake, Daihatsu Motor Co. Ltd (20%), MBM Resources Bhd (20%), PNB Equity Resources Corporations Sdn Bhd (10%), Mitsui & C0. Ltd (7%) and Daihatsu (Malaysia) Sdn Bhd (5%).

The company started operations in 1994 and the ever so popular Perodua Kancil was first introduced to the Malaysian market in August the same year. To date, the following vehicles have rolled out of the Perodua plant: Kancil, Kelisa, Rusa, Kenari, Nautica, Myvi, Viva and Alza.

The plant is located at Perodua Automotive Centre, Sungai Choh, 48009 Rawang, Selangor Darul Ehsan. As of 2012 the total number of manpower was some 10,000 staff working in various plant and job classifications.

The factory area 64,000 square metres with facilities such us accessory shop, body shop, casting paint shop (ground floor, mezzanine floor), assembly shop bumper shop (ground floor, mezzanine floor), inspection line (assembly shop).

There is 19 divisions within the organization that's support all the activity of car's production such as quality control, vendor improvement, product planning, logistics etc.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter discusses issues related to safety performance and safety culture as presented in the management literatures. The chapter begins by describing of safety performance and followed by the explanation of safety culture. Then, the chapter reviews findings from past studies on the factors that influence safety performance.

2.2 SAFETY PERFORMANCE

2.2.1 DEFINITION

Safety performance can be described as a self-reported rate of accident and occupational injuries (Sexton, Thomas, Helmreich, et al., 2004). Huang, Smith and Chen (2006) have studied safety in many workplace, such as the manufacturing industry, building industry, service industry, and transport industry. They defined safety performance as employee safety control and self reported occupational injury.

Wu (2008) stated that safety performance is a global performance of safety management system operated and measured by safety organizations, safety management, safety equipment, safety training practices, safety training evaluations, accidents investigations, and measures of accident statistics. Safety performance can be measured as a safety process evaluations at both the individual and the organizational level. Safety performance is used for measuring safety culture and the organization's

competence improvement. When organizations base rewards on people not having injuries, it can drive injury reporting underground (R.S. Stricoff, 2000). Neal and Griffin (2000) present models of safety performance that include the components of performance, the determinants of performance, and the antecedents of performance. The antecedents of performance have been identified at both the individual level and organizational level. The individual level includes ability, experience, and personality, which are tasks of performance. The organizational level includes climate of an organizations, individuals attribute meaning, and value to features of the work environment. There are three determinants of performance: knowledge, skill, and motivation. The components of performance describe actual behaviour of individuals at work, such as safety compliance and safety participations.

Burke (2006), Burke et al. (2002), Wallace (2004) has defined safety performance as evaluative behaviours or action that individuals exhibit in almost all jobs to promote the safety employees, clients, the public and the environment.

However, there are some important assumptions regarding definition of safety performance. Burke et al. (2002) found a general safety measure and postulated several assumptions regarding safety performance. The first assumption is concerned with the scaling and evaluation of the measures of safety performance. It's assumed that general safety behaviours can be scaled in a manner that allow for the evaluation of the frequency with which employees engage in safety related behaviours. Meanwhile, the second assumption reveals that safety behaviours are assumed on the ways that yield the potential for multiple factors of a higher order safety performance construction. The third assumption suggests that the factors of safety performance are distinguishable in terms of their antecedents with either variables of interest differentially (e.g., accidents, illness, restricted work days). Therefore, it appears that safety performance is multidimensional.

2.2.2 COMPONENTS OF SAFETY PERFORMANCE

The existing literature regarding to the organizational safety indicates that a company inclusions of several aspects to describe the components of safety performance. Some researchers (Wallace, 2004) have expressed the safety performance as a multidimensional concept. There are certain key priorities that need addressing in order to achieve an appropriate safety performance.

The attempts to define components, which contribute a good safety performance, all imply that effective provision for safety depends as much upon organizational performance generally, as it does upon specific attention to safety matters. According to Saqib and Siddiqi (2008), performance indicators are being widely used in the nuclear industry. The IAEA has been engaged in the development of safety performance indicators. While researches show that there has been no consensus on the exact number of components that reflect an organization's safety performance. The most current components of safety performance according to different existing literature review are as follows: (i) visible management leadership, (ii) employee participation, (iii) training, (iv) inspection, (v) implementation tools, and (vi) maintenance.

Visible management leadership refers to the motivating force for an effective safety program and credibility in the eyes of employees (Lumley 2004; NASA Occupational Safety & Health Survey 1998).

Employee's participation refers the extent to which employees are actively involved in safety activities on a daily basis. Dolfini-Reed and Streicher (2004) believed that employee involvement connects all members of an organizations to safety as a core value.

Meanwhile training is a field that providing employees the opportunity to learn new or skill up existing skills, knowledge or abilities. Training is heavily emphasized and focused both safety and skill training to ensure that people are able to competently meet their safety responsibilities (Dolfini-Reed & Streicher 2004; Hsu et al. 2008; Yu & Hunt 2004).

Inspections refer to evaluating physical conditions and acts of people (Towill, 2001). Cooper (1998) believes that more frequent safety inspections of the workplace could carry out by line managers on a weekly, monthly, or quarterly basis to further enhance the organization's ongoing safety performance. Anon (2008a) stated that employee safety teams can also contribute to the scheduling of inspections.

For implementation tools, it should refer to those resources, functions, and expertises that facilitate effective safety implementation. This would be provided by management, including; budget, information, personnel, assigned responsibility, adequate expertise and authority, equipments, means to hold responsible persons accountable (line accountability), program review procedures, directives, and methods criteria analysis (NASA Occupational Safety & Health Survey, 1998).

Lastly, maintenance. Its refer to a set of actions that must be conducted in a way to ensures that machineries and equipment are released to operation in a safe condition. The practical maintenance programs must cover all sorts of important machinery and equipment with regular test and overhauls. Particularly important is the checking of special safety devices. Maintenance work must be carried out under strict control in order not to provoke hazards (OECD, 2005)

2.2.3 FACTOR AFFECTING SAFETY PERFORMANCE IN INTERNATIONAL LITERATURE REVIEW

There is many discussion has been done among authors on the factor affecting safety performance in international literature. Table 1.0 summarizes the factors affecting the safety performance identified in each literature.

Table 1.0

Factors affecting Safety Performance in International Literature

Jaselskis, *et al.* (1996)	Upper management support. Time devoted to safety issues for the company safety coordinator. Number of informal safety inspections made by the company safety coordinator. Meetings with the field safety representatives and craft workers. Length and detail of the company safety program. Safety training for new foremen and safety coordinators. Specialty contractor safety management. Company safety expenditures. Increased project manager experience level. More supportive upper management attitude towards safety. Reduced project team turnover (team stability). Increased time devoted to safety for the project safety representative. More formal meetings with supervisors and specialty contractors. More informal safety meetings with supervisors. A greater number of informal site safety inspections. Increased budget allocation to safety awards.
Sawacha, *et al.*(1999)	Management talks on safety. Provision of safety booklets. Provision of safety equipment. Providing safety environment.
Hinze and Gambatese (2003)	Appointing a trained safety representative on site.

	Minimizing worker turnover. Implementing employee drug testing with various factors initiating the testing. Training with the assistance of contractor associations.
Fang, *et al.* (2004a)	Growth in company size. Frequency of a crew's receiving safety inspection. Frequency of a foreman's presence in safety meeting. Frequency of a foreman's reporting safety related matters to manager. Frequency of a foreman's announcing safety related matters to workers. Frequency of a foreman's correcting workers' unsafe actions. Frequency of a worker's smoking on the site. Frequency of a worker's breaking safety regulations. Hours of safety education per year a worker receives. Frequency of a worker's partners reminding him of personal safety. Frequency of a crew's receiving notices of hazard removal. Frequency of a crew's breaking safety regulations. Frequency of a crew's suffering safety penalty. Frequency of a project manager's presence in safety meeting. Frequency of a project manager's hearing safety reports. Frequency of a project manager's discussing safety matters with subcontractors. Days of safety education per year a safety officer receives. Hours of safety education per year a foreman receives. Frequency of a foreman's reminding new workers of safety regulations.
Fang, *et al.* (2004b)	Ratio of workers whose occupational experience is less than 1 year to total workers on site. Quantity of safety supervisors. Involvement of contractor top management. Authority of safety supervisor. Authority of foremen. Size of the crew. Safety investment. Worker compensation insurance. Safety investment on personal protective equipment.
Tam, *et al.* (2004)	Factors related lo the relationship between management and labor on site. Poor safety awareness of top management. Lack of training. Poor safety awareness of project managers. Reluctance to input resources to safety.

	Reckless operations.
Ng, *et al.* (2005)	Implementation of safety management system in accordance with legislation. Compliance with occupational safety and health legislation, codes and standards. Definition of safety responsibility.
Fung, *et al.* (2005)	Development of safety policy. Provision of safe working environment. Development of emergency plan and procedures. Development of safety committee. Definition of safety responsibility to all site personnel. Effective accident reporting. High line management commitment. Active supervisor's role.
Teo, *et al.* (2005)	Active personal role. Understanding and implementation of safety management system. Understanding and participation in occupational health and safety management system. Understanding and implementation of permit-to-work system. Quality of subcontractors. Understanding and implementation of safety procedures. Carrying out work in a safe manner. Carrying out work in a professional manner. Type and method of construction. Management's attitude towards safety. Supervisors and worker's attitude towards safety. Contextual characteristics of workers. Monetary incentives. Non-monetary incentives. Disciplinary action.

2.2.4 MEASUREMENT APPROACHES OF SAFETY PERFORMANCE

There is generous model was established by researchers to evaluate the safety performance with different approaches. The models can be categorized in two that is qualitative and quantitative. The quantitative models are based on evaluating the frequency, severity and economic loss resulting from accidents. The qualitative model are

based on evaluation of the potential system of risks and increasing of severity of the hazard. By using statistical method, Adekoya (1999) & Poltev (1985) used measurement indicators such as frequency and severity of accidents to compare the accidents of a given period and another, and drew inferences for designing safety system. Also, Roelen et al. (2000) and Van Es (2001) used accidents rate to quantify the historical safety performance to assist in the determination of safety target level.

2.2.5 WHY MEASURE SAFETY PERFORMANCE?

There are a number of purposes leads to measuring of safety performance. These are listed as following: 1) to meet legal and corporate obligation, 2) to compare performance against minimum standards, 3) to compare current performance with past performance, 4) to compare performance with that of others or with established benchmarks, 5) to assess the effectives of management strategy and specific interventions, 6) to identify patterns and trends, 7) to identify priorities, 8) to provide feedback to reinforce effort applied, 10) to establish when to apply rewards and recognition

2.3 SAFETY CULTURE

2.3.1 DEFINITION

A safety cultures creates an environment in which every worker is personally committed to his or her own safety as well as each colleague's safety (Donna Pearson Chadwick, 2009). Your disciplinary process sends a clear message that your cooperative places a high priority on developing a culture of safety.

Safety cultures and the culture of safety are frequently encountered terms referring to a commitment to safety that permeates all levels in an organization, from frontline personnel to executive management. More specifically, "Safety culture" calls up a number of features identified in studies of high reliability organizations, with exemplary performance in respect to safety (Roberts, 1990).

Accident theory on human factors shows that there is a chain of events which are caused by human faults. In this theory, there are three general factor causing human faults, namely; overload, irrelevant response, and irrelevant activities. Referring to the Heinrich Theory, accidents are caused by main factors that can be predicted such as human faults, unsafe environment, or unsafe use of machineries (Goetsch, 1998).

Culture involves learned and shared behaviours, norms, values and material object. It also encompasses what people create to express values, attitudes and norms. Culture is largely not discussed by the members who share it. Edward Hall, a key researcher into cultures, in Varner and Beamer (2005) stated:

> "Culture [is] those deep, common, unstated experiences which members of a given culture share, which they communicate without knowing, and which form the backdrop against which all other events are judged"

According to Booth (1995), the term safety culture was introduced to the nuclear safety debate by the International Nuclear Safety Advisory Group of International Automatic Energy A (IAEA) in their analysis of the Chernobyl disaster. IAEA (1986) defined the safety culture of an organization as the product of individual and group values, attitudes, competencies and patterns of behaviour that determined the commitment, and the style and proficiency of an organization's health and safety programs.

The UK Health and Safety Commission (HSC) stated that "….Organizations with a positive safety culture are characterized by communications founded on mutual trust, by shared perceptions of the importance of safety, and by confidence in the efficacy of preventive measure." (Gordon et al., 2002)

Others definition also has been discovered from previous literature included as defined by Cooper (2000) considered safety culture as a sub-facet of organizational culture, which is thought to affect member's attitudes and behaviour in relation to an organization's ongoing health and safety performance. He argued that defining the product of safety culture is very important to clarify what a safety culture should look like in an organization. He added that this also could help to determine the functional strategies required to developing this product, and it could provide an outcome measure to assess the degree to which organizations might or might not possess a 'good' safety culture.

Cox and Cox (1991) on the other hand defined safety culture as one which reflects the attitude, beliefs, perceptions, and values that employees share in relation on safety. A definition of safety culture adopted by many researchers is:

> "the product of individual and group values, attitudes, perceptions, competencies and patterns of behaviour that determine the commitment to, and the style and proficiency of an organization's health and safety management characterized by communications founded on mutual trust, shared perceptions of the importance of safety and by confidence in the efficacy of preventative measures". (ACSNI, 1993).

Richter & Koch (2004) defined safety culture as the shared and learned meaning, experiences and interpretations of work and safety, expressed partially symbolically,

which guide people's action towards risks, accidents and prevention. Safety culture is shaped by people in the structures and social relations within and outside the organizations.

The literature (Bate, 1992; Thompson et al., 1996) indicates two ways of treating safety culture: as something an organization is (the beliefs, attitudes and values of its members regarding the pursuit of safety), and as something that an organization has (the structures, practices, controls and policies designed to enhance safety), Both are essential for achieving an effective safety culture.

2.3.2 THE CONCEPT OF SAFETY CULTURE

Bjorn Wahlstrom (1995) Safety culture was introduced in the aftermaths of the Chernobyl accident. The concept got an immediate interest and many people asked for additional clarifications. According to him, safety culture is consists of two components. The first is the necessary framework within an organization and is the responsibility of the management hierarchy. The second is the attitude of staff at all levels in responding and benefiting from the framework. The safety culture concept relies on a definition of commitment to safety by all persons involved as Table 2.0 below :

Table 2.0

Safety Culture defined as commitment of people

Policy level commitment	
	Statement of safety policy Management structures Resources Self-regulation
Management commitment	
	Definition of responsibilities Definition of control and safety policies Qualification and training Rewards and sanctions Audit, review and comparison
Individual commitment	
	Questioning attitude Rigorous and prudent approach communication

2.3.3 DIFFERENT PERSPECTIVES ON COMPONENTS OF SAFETY CULTURES

Table 3.0

Various Model of Safety Culture Elements

Idaho National Engineering and Environmental Laboratory (INEEL, 2001, P.11)	8 core components of a total safety culture are: 1. Management commitment to safety 2. Job satisfaction 3. Training, equipment, physical environment 4. Organizational commitment 5. Worker involvement 6. Co-worker support 7. Performance management 8. Personal accountability
Fleming (2000, p. 3)	Elements of the Safety Culture Maturity Model are: 1. Management commitment 2. Communications

	3. Productivity versus Safety 4. Learning organization 5. Safety resources 6. Participation 7. Shared perception about safety 8. Trust 9. Industrial relations and job satisfaction 10. Training
Zohar (1980, p. 97)	Doesn't specifically define Safety Culture but espouses that the dimensions that make up a Safety Climate are: 1. Strong management commitment to Safety 2. Emphasis on Safety training 3. The existence of open communication links and frequent contacts between workers and management 4. General environment control and good housekeeping 5. A stable workforce and older workers 6. Distinctive ways of promoting safety
Hudson (2000, p. 11)	Preferred to use Reason's(1997) dimension as below: 4.3.21 An informed culture 4.3.22 A reporting culture 4.3.23 A flexible culture 4.3.24 A learning culture
Cooper (1999, pp. 4-5)	Notes three major components of safety culture in line with Bandura's 1977 and 1986 which work on reciprocal determinism. Reciprocal determinism identifying that people are neither deterministically controlled by their environments nor entirely self-determining. Those 3 major components are: 1. Person 2. Situation 3. Behaviour
International Civil Aviation Organization (1992)	Notes that a good safety culture is made up of the following attributes: 1. Senior management placing a strong emphasis on safety 2. Staff having an understand of hazards within the workplace 3. Senior management's willingness to accept criticism and an openness to opposing views 4. Senior management fostering a climate that encourages feedback 5. Emphasising the importance of communicating relevant safety information 6. The promotion of realistic and workable safety rules 7. Ensuring staff are well educated and trained so that they understand the consequences of unsafe acts

Robert Guerra (2011)	In EHS Today, June 2nd, 2011 articles has propose following consideration on establishing of strong safety culture: 1. Establish and define safety responsibilities for all levels of the organization 2. Stress the importance of timely reporting 3. Evaluate, and id needed, rebuild systems 4. Ensure the safety committee is functioning appropriately 5. Meet regulatory standards 6. Observe behaviours
Mohd Saidin and Abdul Hakim,(2007); Mohd Saidin et al.,(2008)	The elements that influence the development of safety culture are : 1. Leadership 2. Involvement 3. Recognition system and acknowledgement 4. Training 5. Communication 6. Teamwork 7. Motivation 8. Safety and Health Committee 9. Worker's behaviour 10. Work environment 11. Policy and safety planning
Kao et al (2008)	Identified eight dimension of safety culture on the basis of the modified International Atomic Energy Agency (IAEA) safety culture model and they are: 1. Commitment support 2. Attitude and behaviour 3. Communication and involvement 4. Training and competence 5. Supervision and audit 6. Management system and organization 7. Accident investigation and emergency planning 8. Rewards and benefit

Generally, safety culture is a crucial part of an organization but, what actually defined a positive safety culture? Pizzi et al. (undated) explained that "...organizations with effective safety cultures share a constant commitment to safety as a top-level priority, which permeates the entire organizations. More concretely, noted components include: 1) acknowledgement of the high risk, error-prone nature of an organization's activities, 2) blame-free environment where individuals are able to report errors or close

calls without punishments, 3) expectations of collaboration across ranks to seek solutions to vulnerabilities, and 4) willingness on the part of organization to direct resources to address safety concerns."

Meanwhile, IET (2006) reveals that certain factors which appear to characterize organizations with positive safety culture. These factors include: 1) the importance of leadership and the commitment of the chief executive and other business leaders, 2) the clarity of expectations and commitment of line management, 3) the involvement of all employees, 4) effective communications and commonly understood and agreed goals, 5) good organizational learning and responsiveness to change, 6) manifest attention to workplace safety and health, 7) a questioning attitude and a rigorous and prudent approach by all individuals.

2.3.4 KAO ET AL'S MODELS

Kao et al. (2008) identified eight global dimensions of safety culture on the basis of the modified International Atomic Energy Agency (IAEA) safety culture model and they are:

2.3.4.1 Commitment and Support

The leadership provided by top management is crucial as they are required to demonstrate commitment to the high priority of safety and individuals should adopt the common goal of safety. Top management should identify safety as a core value or guiding principle. Their commitment to safety is reflected in the ability to display consistent positive attitude and behaviour towards safety. Their active presence and input

in all safety operations are vital as well as how they communicate the safety issues with others (Macdonald 2006).

Developing and sustaining a supportive safety culture hinges on understanding and applying the principles of behavioural science and person-based psychology to build tools and methods which encourage personal responsibility and interpersonal interaction about safety (Foss et al., undated).

2.3.4.2 Attitude and behaviour

Individuals must be aware of the importance of safety. The concept of safety culture implies what attitude the individuals working in a workplace (e.g. nuclear installation) and the whole organization have to safety. Safety culture is also a combination of values, standards, morals and norms of acceptable behaviour (Atomeromu.hu, undated).

A rigorous and prudent approach is required. This involves, among others: understanding the work procedures; complying with the procedures; being alert for the unexpected; stopping and thinking if a problem arises; seeking help if necessary; devoting attention to orderliness, timeliness and housekeeping; proceeding with deliberate care (Atomeromu.hu, undated).

2.3.4.3 Training and competence

Knowledge and competence of the personnel must be adequately conferred by training and instruction of personnel and by their self-education. The awareness and

education about reducing hazards and eliminating risks in the workplace is the key for preventing all workplace injuries or illness (Macdonald, 2006).

The organization's safety culture is attached to the success of its safety management training program. All personnel must understand the organization's safety philosophy, policies, procedures and practices. They must understand their roles and responsibilities within that safety management framework. Safety training should start with an employee's initial indoctrination and continue through his employment. Specific safety management training should be provided for staffs who occupy positions with particular safety responsibilities.

2.3.4.4 Management system and organization

A high level of safety culture means the systematic organization and implementation of activities aimed at creating high quality technical, human and organizational systems. Responsibilities must be clear declared, through formal assignment and description of duties, the management must make sure that the personnel understand them. High standards of process safety performance need to be established, communicated and reinforced for both organizations and individuals (AIChE.org, 2008).

Visible, active and consistent support for process safety programs and objectives needs to exist at all levels of management. Managers should feel comfortable with their roles and responsibilities to nurture process safety culture. The concept of 'process safety as a line responsibility' should cascade down from leadership to all levels of the organizations (Frank, 2007).

2.3.4.5 Communication and involvement

Safety communication comes in varying forms including policies procedures, performance statistics, hazards and incident reports, workplace inductions, risk assessments, and training. Effective communications mechanisms are critical to engage staff safety in activities, to gain cooperation and support, and to maintain positive safety culture. The mechanisms need to complement the practical ad technical safety strategies. Clear and constructive safety communication can improve knowledge and understanding that prevents at-risks behaviours and enhances safe work practices (Vecchio-Sadus, 2007).

Management must get personally involved in critical safety activities. Since safety culture has to be inherent in the thoughts and actions of all the individuals at every level in an organizations, Macdonald (2006) recommended ‘ Employee Empowerment’ within the context of safety culture. This means that employees have a significant voice in safety decisions and have the leverage to initiate and achieve safety improvement.

2.3.4.6 Supervision and audit

It is important that the management supervise the work of individuals, including audits and review practices, with readiness to respond to individuals’ questioning attitudes. Reporting is the keystone to identifying the weakness and vulnerability of safety management before an accident occurs. The willingness and ability of a company to proactively learn and adapt its operations based on incidents and near misses before an accident occurs, is critical for improving safety (Macdonald, 2006).

2.3.4.7 Accident investigation and emergency planning

Accident investigation and emergency planning are two services that address in the first case the potential for events and how to respond to minimize the outcomes and in the second case to identify direct and underlying causes of incidents in a structured context, especially large accidents with complex technical and human causes (DNV.com, 2009).

Accident investigation involved a systematic approach to the identification of casual factors and implementation of corrective actions without placing blame on or finding personal fault. The information collected during investigations is vital to determine trends and taking proper steps to prevent future accidents (Seco.noaa.gov, 2008).

Effective planning for emergencies and others undesired events is an essential part of good business management. Companies need to prepare for situations that could cause potential losses to people, assets, income or the company's reputations or harm to the environment and society at large (DNV.com, 2009).

2.3.4.8 Rewards and benefits

Personnel must be motivated to keep to safety regulations, which the management can achieve by the setting of rewards and sanctions. Here, recognition system which is a fair evaluation and reward system is needed to promote safe behaviour and discourage or correct unsafe behaviour (Macdonald, 2006). The way in which both behaviours are evaluated and the consistency in which rewards or penalties are handed out are important component of an organizations safety culture.

2.3.5 MEASURING SAFETY CULTURE

Safety culture has many different interpretations, but observation have shown that most people have a rather clear interpretations of what the concept mean for themselves (Hammer et al., 2000).

There is a popular model of measuring safety culture. Fleming et al.(1999) has designed the model so called “The Safety Culture Maturity Model” which is originally designed for the offshore oil industry but the structure has been used in other high reliability organizations with aims to measure the level of maturity of safety in design (Sharp et al., 2002) in the offshore oil industry. According to that model, there is 5 iterative stages of maturity (See Figure 1.0) where organizations can progress sequentially by building on the strengthen and removing the weaknesses.

In the early stages of a safety culture (Levels 1 and 2), top management believes accidents to be caused by stupidity, inattention and even, wilfulness on the part of their employees (in an operational environment). In design organization, management do not believe that their organization can influence the safety of future operations. Many messages may flow from management but the majorities still reflect the organization’s primary production goals, often with ‘and be safe’ tacked on at the end.

At the “involving” stage (Level 3), the foundations are laid for acquiring beliefs that safety is worthwhile in its own right. By constructing deliberate procedures, an

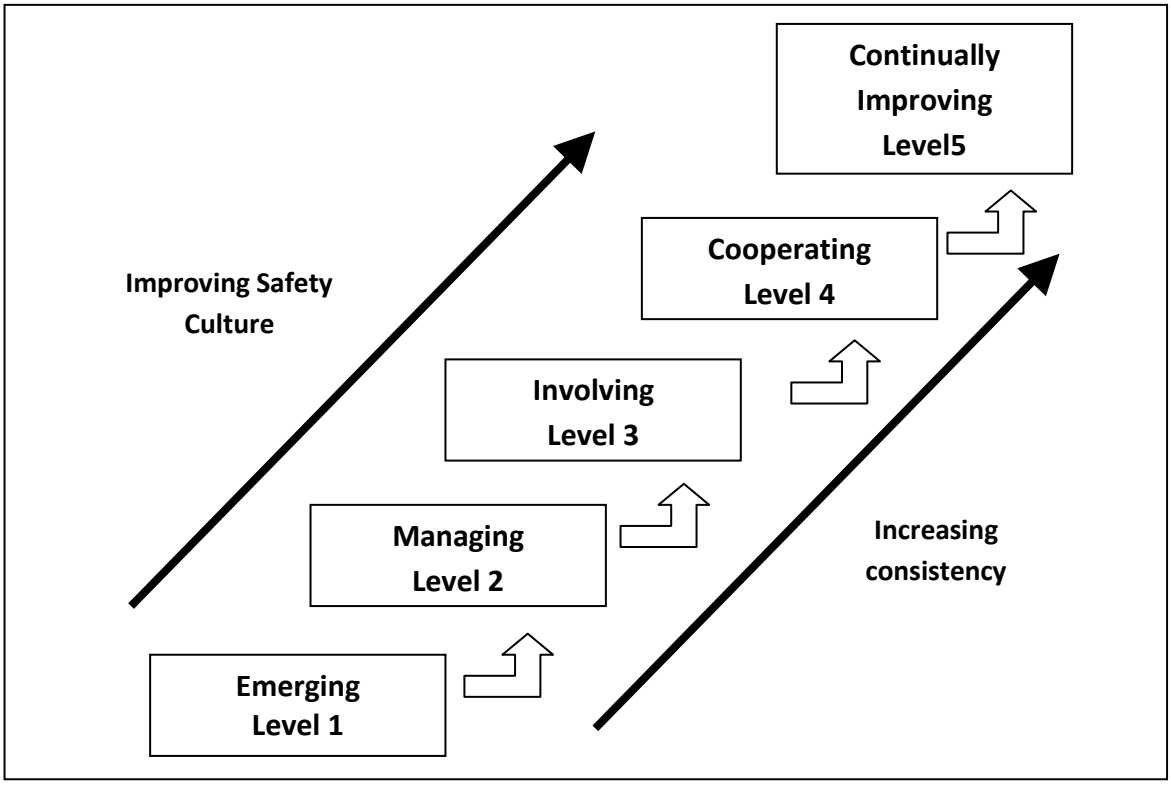

Figure 1.0

The Safety Culture Maturity Model, by Fleming

organization can force itself into taking safety seriously. At this stage the values are not yet fully internalized, the methods are still new and individual beliefs generally lag behind corporate intentions. However, a safety culture can only arise when the necessary technical steps and procedures are already in place and in operation. Level 4 means the organization really gets to grips with safety issues with commensurate resources and at Level 5 the organizations is largely controlling and managing safety effectively but without complacency and is continually improving its effort.

2.4 THE INFLUENCES OF SAFETY CULTURE ON SAFETY PERFORMANCE

Smallwood, JJ (2002) Conclude from literature that culture occurs upstream of management system, exposure and the end of the upstream → downstream sequence, incidents. This postulation is reinforced by the findings of the descriptive survey, which is indicates that positive components of a safety culture have a substantial positive impact on safety performance. Conversely, negative components of safety culture have a negative impact on safety performance.

Humanitarian and financial benefits predominate in terms of the manifestation of the positive impact of safety culture on safety performance. However, synergistic benefits, such as improved program performance and enhanced productivity, feature prominently. This holistic benefit negates the perspective that safety costs money.

Although legislation has not been specifically addressed, it is of relevance to safety culture in that employers are required to have a policy, which should encapsulate the various constituents of culture. Legislation is more relevant to management system as it is provides a template in terms of what actions and interventions are required of employers. Given that cultures occurs upstream of management system, that legislation reflects the minimum requirements, and the postulation that safety cannot be inspected into the workplace, then in terms of safety performance, safety culture is or greater importance than legislation.

2.5 CONCLUSION

This chapter has reviewed past literature on factors that influence safety performance. This chapter has discussed the relationship between safety performance and safety culture. The following Chapter 3, describes the method for the study.

There is a lot of definition on safety culture in varies perspective. A wide perspective of definition has come with further study on safety culture and its relationship with various components.

From the literature and empirical study found that management commitment, training and education, and behaviour are main factor contributing toward effective and good safety culture in workplace.

CHAPTER 3
METHODOLOGY

3.1 INTRODUCTION

This chapter describes the research method for the study. In this chapter, the researcher design, the sources of data, the population frame, the sample and sampling techniques, the measurement, the collection and administration of data and the technique of data analysis are presented. A brief explanation on Perodua Automobile is also presented.

3.2 RESEARCH FRAMEWORK

The research framework for this study is shown in Figure 2.0. This framework was based on Kao et al., (2008). For this study, four independent variables, namely employee commitment and support, employee attitude and behaviour, safety training and employee competence, and management system and company organization were chosen as the independent variables to be tested against safety performance (dependent variable).

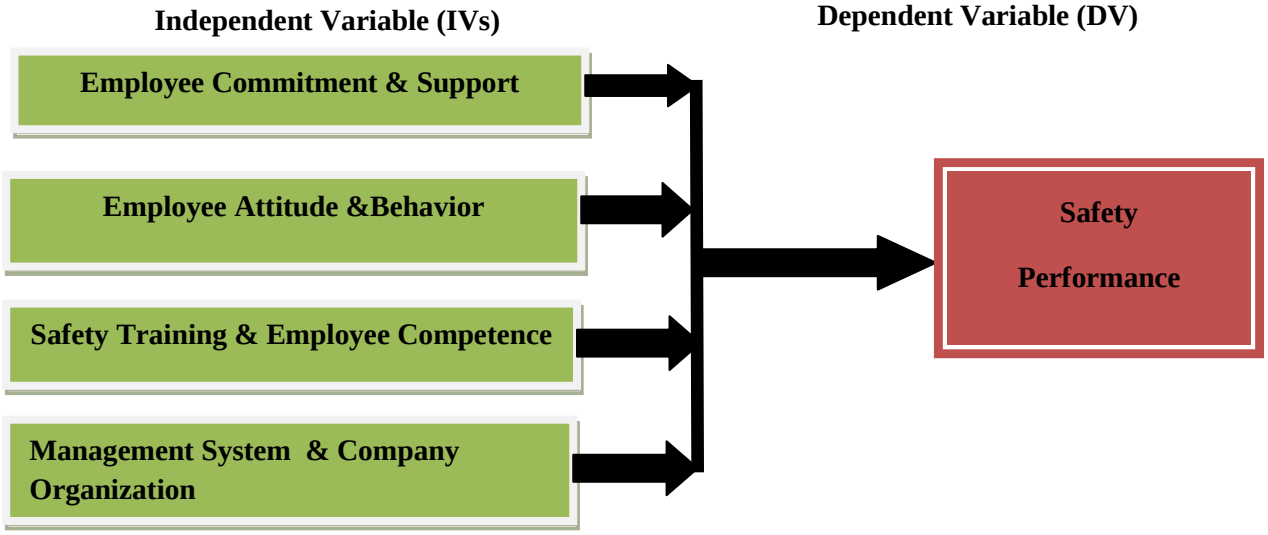

Figure 2.0

Research Framework

3.3 RESEARCH HYPOTHESES

Hypothesis for this research are expressed as below:

H_1 There is a relationship between management system and company organization with safety performance among the employees in Perodua.

H_2 There is a relationship between employee attitude and behaviour with safety performance among the employees in Perodua.

H_3 There is a relationship between employee commitment and support with safety performance among the employees in Perodua.

H_4 There is a relationship between safety training and employee competency with safety performance among the employees in Perodua.

H_5 There is a significant difference among the employees age groups with safety performance among the employees in Perodua.

H_6 There is a significant difference among the employees gender with safety performance among the employees in Perodua.

H_7 There is a significant difference among the employees position with safety performance among the employees in Perodua

H_8 There is a significant difference among the employees length of service with safety performance among the employees in Perodua

3.4 RESEARCH DESIGN

Quantitative research design was used to examine the relationship between safety culture and safety performance. The study was cross-sectional. The study was conducted in the natural environment of the organization where the researcher interference is minimal.

3.5 MEASUREMENT OF IVs AND DV

Table 4.0 shows the measurement items of variable IVs and DV which is adopted in questionnaire form. All items in this study were adopted from Kao et al. model. In this study, each of the adapted questions asked how strongly the respondents agreed or disagreed with the statement given on a Linkerts' point scale whereby 1 = strongly disagree, and 5 = strongly agree.

Table 4.0

Measurement of IVs and DV

Variables (dependent and independent)	Dimensions	Items	Authors
Safety Performance		1. Do you feel safe at your workplace? 2. Does your company have safety & health policy? 3. Are safety inspections being carried out? 4. Do you have system for reporting accidents? 5. Does your company provide safety and health information to employees? 6. Does your company have a safety and health committee?	Manaf bin Mohammad Hashim, 2008
Safety Culture	Employee Commitment and Support	1. There are always enough people available to get the job done safely 2. My workmates would take appropriate action if they saw rules being broken 3. Colleagues work safely even when they are not being supervised 4. Information on current safety performance is readily available 5. I trust the people I work with to work safely	Manaf bin Mohammad Hashim, 2008
	Employee Attitude and Behaviour	1. I have responsibilities for the safety of my colleagues 2. I am aware of the safe system of work before I start a job 3. My safety is more important to me than "getting of job done" 4. People here wear their "Personal Protective Equipment"(PPE) when they are supposed to. 5. When I see potential safety hazard, I am willing to correct it myself if possible	Manaf bin Mohammad Hashim, 2008
	Safety Training and	1. Some jobs here are difficult to do safely	Manaf bin Mohammad

	Employee Competence	2. I can always get the equipment I need to work safely 3. Individuals receive sufficient training to enable them to work safely 4. I have been briefed to identified safety hazards in the workplace 5. There are frequent safety training/briefing sessions that are useful/relevant to me. 6. Safety components included in all new employees orientation programs (induction)	Hashim, 2008
	Management System and Company Organization	1. Management readily acts upon safety suggestions from staff 2. The company I work for does not learn from its incidents/accidents 3. The company puts sufficient resources into safety 4. Management sometimes turns a blind eye when health and safety procedures/ instructions/rules are broken 5. The company takes safety issues into account when making decisions	Manaf bin Mohammad Hashim, 2008

3.6 DATA COLLECTION

3.6.1 POPULATION AND SAMPLING

The population of the study are employees of Perodua and a sample of the population are all employees regardless of level or position. The sample was collected from two division which is directly involved with production of vehicles and directly exposed to the hazards. The total staff in the sample are 75. The samples size are selected using stratified sampling method where it is commonly used probability method that is superior to random sampling because it will reducing sampling error (Statrpac.com, 2008)

3.6.3 SURVEY MATERIALS

For the survey purposes, structured questionnaires' was established as a survey material. It was distributed among the employees and provided them with appropriate time to complete the form. To accommodate better understanding among the respondents, the material tools had been companioning with national language translation or bi-language for every single each element in the questionnaire.

3.6.4 DATA COLLECTION PROCEDURE

To start the process of sample selection, first step is to identify the relevant stratums and their actual representation in the population. The relevant stratum will job role (i.e. management and non-management), and gender. Random sampling was then applied to select a sufficient number of subjects from each stratum (Statpac.com, 2008) .

Questionnaire are distributed to all 75 population but only 52 of the respondents return the forms as per Table 5.0 below.

Table 5.0

Selection of Stratum

Stratum	Population	Returned Questionnaire	Rate of Return
All employees regardless of position, age, gender and length of service	75	52	69%

3.7 TECHNIQUES OF ANALYSIS

3.7.1 ANALYSIS METHOD

For the purpose of data collection, SPSS 19.0 or Statistical Package for Social Science for windows Version 19.0 will used to perform data analysis. Quantitative technique was applied to score the response of questionnaire and during analysis

Descriptive analysis was used to reproduce the collected data in terms of frequency and counts to draw out the demographic features of the respondents concerning their age, gender, position and length of service. Others than that, demographic features were also being used to analyze using t-test (for gender and position) and one-way ANOVA (for length of service and age)

3.7.2 DATA ANALYSIS

The main objective of data analysis was to determine the nature and strength of relationship between independent variables and dependent variable (Sekaran, 2005). This was achieved by determining their Pearson correlation (*r*) as shown in Table 6.0 below.

Table 6.0

Guildford Rule of Thumb

Pearson Correlation($-1 < r < 1$)	Strength of Relationship
< 0.2	Negligible Relationship
0.2 – 0.4	Low Relationship
0.4 – 0.7	Moderate Relationship
0.7 – 0.9	High Relationship
> 0.9	Very High Relationship

Inferential analysis was also used to test the null hypotheses validity and whether eventually the research objectives have been met. Level of significance (alpha, α) was set at 0.05. Null hypotheses were accepted if ρ is smaller than α .

3.7.3 QUESTIONAIRE DESIGN

The questionnaire was made bi-language, Malay and English to consider the difference level of education background and respondent fluency on both languages and was replicated from Manaf Mohammad Hashim (2008).

The questionnaire is a mixture of 'positively-keyed' and 'negatively-keyed' items. This aspect needs to be addressed before computing the scores and before conducting any analyses.

Score will be measured using Likert's 5-point rating scale which is widely used in survey type research. Figure 3.0 illustrated how the rating scales to be used.

Strongly Disagree SangatTidak Bersetuju	Disagree Tidak Bersetuju	Neither Agree nor Disagree Tidak Pasti	Agree Setuju	Strongly Agree Sangat Bersetuju
1	2	3	4	5

Figure 3.0

Likert's 5-point Rating Scale.

3.8 PILOT TEST

30 copies of questionnaires were distributed to selected employees within two divisions in Perodua to test its reliability. The responses obtained were tested using Cronbach's alpha, a reliability coefficient based on the average covariance among items on the scale in a case where the items are not standardized. Cronbach's alpha value ranging from 0.6 - 1.0 is regarded as satisfactory. Table 7.0 has shows the result of Cronbach's alpha for each dimension. The actual result are ranging from 0.610 to 0.927 which is depicting that the questionnaire used for pilot test is reliable and acceptable. No change on the question was made then.

Table 7.0

Pilot Test Result, Cronbach's Alpha for all dimensions/variables

Variables	Cronbach's Alpha	N of Items
Employee attitude and behaviour	0.610	5
Employee commitment and support	0.640	5
Safety training and employee competency	0.777	6
Safety performance	0.927	6

3.9 CONCLUSION

This chapter has provides an explanation on methodology aspect for this research which is included theoretical framework, research design, sampling, questionnaire design and data analysis. It shows the whole aspect that to be considered as a method to be applied throughout the study.

CHAPTER 4

FINDINGS

4.1 INTRODUCTION

This chapter will consists a details of result obtained from SPSS analysis. The analysis will be divided into two parts which first parts will be under Descriptive Analysis and the second parts will discuss on Correlational and Inferential Analysis.

4.2 DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

This section will focus on the demographic features of the respondents as following :

a. Age
b. Gender
c. Position (Job Role)
d. Length of Service

To support the objective and hypotheses of the study, there is an independent–sample t-test and One-Way ANOVA.

Independent-sample t-test will shows the comparison between means score, on some continuous variable for two group of subject and for this study, it's will used to obtain the equality of variances between respondents Gender and Position (Job Role) through Levene's test and t-test.

Meanwhile, One Way ANOVA has been used to make a comparison of variances between the different group with the variability of within each of the group. For this study, it was used to find the significance differences in the mean scores on the safety performance across the group for respondents age and length of service. There is a significance value (Sig) in the table (result) and if the sig value is less than or equal to 0.05, thus there is a significance difference somewhere among the mean score on dependent variable for the group.

Table 8.0

Demographic characteristics of respondents

Parameter	Items	Frequency	Percentage (%)
Age group	20 – 29 years old	8	16
	30 – 39 years old	35	67
	40 – 49 years old	9	17
Gender	Male	38	73
	Female	14	27
Position	Executive	32	62
	Non-executive	20	38
Length of service	> 5years	8	15
	5 – 10 years	8	15
	10 – 15 years	20	39
	15 – 20 years	16	31

4.2.1 Age Group

Table 8.0 shows the composition of the age group respondent. There is 16 % of the respondents is from age between 20-29 years old. 17 % of the respondents representing of age 40-49 years old. Meanwhile, majority of respondents is come from age between 30-39 years old.

4.2.2 Gender

Table 8.0 illustrates the gender of respondents. It shows that 27% of the respondents representing the female respondents. Meanwhile 73% of the respondents made up the majority of gender male respondents.

4.2.3 Position (Job Role)

Table 8.0 illustrates the position of respondents. From the graph, obviously shows that a significance difference on the percentage of respondents position. Executive level has representing 61 % of total respondents compare to 39% for Non-Executive level.

4.2.4 Length of Service

Table 8.0 illustrate the length of service of respondents. 15% of the respondents is come from employees work with the company for years less than 5 years and 5-10 years. Meanwhile, 31% of the respondents has length of service between 10-15 years. 39% of respondents, representing majorities of respondents with 15-20 years length of service with the company.

4.2.5 Independent Samples t-Test for Gender

Independent samples t-test has been conducted to compare the safety performance scores for gender males and females. Tables 9.0 and 10.0 below illustrates the actual result of the analysis.

Table 9.0

Statistics for Respondent's Gender

Gender	N	Mean	Std Deviation	Std error Mean
Males	38	4.1096	0.58288	0.09456
Females	14	3.9643	0.92260	0.24658

Table 10.0

Independent Samples t-Test for gender

	Levene's Test for Equality of Variances		t-Test for Equality of Means						
	F	Sig	t	df	Sig 2-tailed	Mean Diff	Std Error Diff	95% confidence interval of the diff	
								Lower	Upper
Equal variances assumed	0.000	0.992	0.676	0.50	0.502	014536	0.21496	-0.28693	0.57712
Equal variances not assumed			0.550	16.976	0.589	014536	026408	-041187	0.70259

From Table 9.0 and 10.0 above, it's found that there is no significant difference in scores for males (mean = 4.1096, standard deviation = 0.58288) and females (mean = 3.9643, standard deviation = 0.92260) and value for t (50) = 0.676, ρ = 0.502 which greater than 0.05. Therefore, H_6 is rejected There is no significant difference between the two group of gender males and females towards safety performance among employees in Perodua.

4.2.6 Independent Samples t-Test for Position (Job Roles)

Table 11.0

Statistics for Respondent's Position

Gender	N	Mean	Std Deviation	Std error Mean
Executive	32	4.1719	0.55275	0.09771
Non-Executive	20	3.9083	0.84375	0.18867

Table 12.0

Independent Samples t-Test for Position

	Levene's Test for Equality of Variances		t-Test for Equality of Means						
	F	Sig	t	df	Sig 2-tailed	Mean Diff	Std Error Diff	95% confidence interval of the diff	
								Lower	Upper
Equal variances assumed	0.131	0.719	1.363	50	0.179	0.26354	0.19332	-0.12475	0.65183

Equal variances not assumed			1.240	29.269	0.225	0.26354	0.21247	-0.17083	0.69792

There was an independent samples t-Test conducted for comparing the position executive and non-executive. From the Table 11.0 and 12.0 above, it's found that there is no significant difference in scores for both executive (mean = 4.1719, standard deviation = 0.55725) and non-executive (mean = 3.9083, standard deviation = 0.84375) and value for t (50) = 1.363, ρ = 0.179 which greater than 0.05. Therefore, H_7 is rejected. There is no significant difference between the two group of executive and non-executives towards safety performance among employees in Perodua.

4.2.7 One-way ANOVA for Age Group

Table 13.0

Descriptive of Age Group

Years	N	Mean	Std Dev	Std Err	95% Confidence Interval for Mean		Min	Max
					Lower Bound	Upper Bound		
20-29	8	4.1042	0.40764	0.14412	3.7634	4.4450	3.67	5.00
30-39	35	4.0524	0.76459	0.12924	3.7897	4.3150	1.00	5.00
40-49	9	4.1111	0.58926	0.19642	3.6582	4.5641	3.33	5.00
Total	52	4.0705	0.68388	0.09484	3.8801	4.2609	1.00	5.00

Table 14.0

Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig
0.830	2	49	0.442

Table 15.0

ANOVA

	Sum of Squares	df	Mean Square	F	Sig
Between Group	0.035	2	0.018	0.036	0.964
Within Group	23.817	49	0.486		
Total	23.853	51			

Table 13.0 shows the information about the age group. From the table, there is a small variances between each group.

Table 14.0 shows the homogeneity of variances where Levene's test will test whether the variance in scores is the same for each of the three groups. It's found that significant value for Levene's test is 0.442 which is greater than 0.05. Thus, it's not violated the homogeneity of variance assumption.

Table 15.0 shows the result of ANOVA. From the table, it's found that significant value for ANOVA is 0.964 which is greater than 0.05. It's conclude that there is no significant different among the mean score on safety performance among the three groups of age. Therefore, H_5 is rejected. There is no significant difference among employees age group towards safety performance among employees in Perodua.

4.2.8 One way ANOVA for Length of Service

Table 16.0

Descriptive of Length of Service

Years	N	Mean	Std Dev	Std Err	95% Confidence Interval for Mean		Min	Max
					Lower Bound	Upper Bound		
< 5	8	4.0625	0.64818	0.22917	3.5206	4.6044	3.00	5.00
5 - 10	20	4.0250	0.86056	0.19243	3.6222	4.4278	1.00	5.00
10 - 15	16	4.0729	0.60237	0.15059	3.7519	4.3939	3.00	5.00
15 - 20	8	4.1875	0.42199	0.14920	3.8347	4.5403	3.50	4.67
Total	52	4.0705	0.68388	0.09484	3.8801	4.2609	1.00	5.00

Table 17.0

Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig
0.207	3	48	0.891

Table 18.0

ANOVA

	Sum of Squares	df	Mean Square	F	Sig
Between Group	0.152	3	0.051	0.102	0.958
Within Group	23.701	48	0.494		
Total	23.853	51			

Table 16.0 shows the information about the length of service. From the table, there is a small variances between each group.

Table 17.0 shows the homogeneity of variances where Levene's test will test whether the variance in scores is the same for each of the four groups. It's found that significant value for Levene's test is 0.891 which is greater than 0.05. Thus, it's not violated the homogeneity of variance assumption.

Table 18.0 shows the result of ANOVA. From the table, it's found that significant value for ANOVA is 0.958 which is greater than 0.05. It's conclude that there is no significant different among the mean score on safety performance among the four groups of length of service. Therefore, H_8 is rejected. There is no significant difference among employees length of service towards safety performance among employees in Perodua.

4.3 CORRELATION ANALYSIS

In this section, the relationship between two variable; dependent variable (DV) and independent variable (IV) will be identified through Pearson Correlation Coefficient, *r*. *r* value will be describe the strength and direction of the linear relationship between those DV and IV. There is two types of analysis will be involved; preliminary analyses and bivariate correlation. The result of the analysis will be used to determine and test the validity of the hypotheses done on Chapter 1.0.

Table 19.0

Pearson Correlation Coefficient, r

		Management Systems & Company Organization	Employee Attitude & Behaviour	Employee Commitment & Support	Safety training & employee competency	Safety Performance
Management Systems & Company Organization	Pearson Correlation	1	0.395**	0.420**	0.292*	**0.389****
	Sig. (2-tailed)		0.004	0.002	0.036	0.004
	N	52	52	52	52	52
Employee Attitude & Behaviour	Pearson Correlation	0.395**	1	0.624**	0.531**	**0.531****
	Sig. (2-tailed)	0.004		0.000	0.000	0.000
	N	52	52	52	52	52
Employee Commitment & Support	Pearson Correlation	0.420**	0.624**	1	0.704**	**0.568****
	Sig. (2-tailed)	0.002	0.000		0.000	0.000
	N	52	52	52	52	52
Safety training & employee competency	Pearson Correlation	0.292**	0.531**	0.704**	1	**0.561****
	Sig. (2-tailed)	0.036	0.000	0.000		0.000
	N	52	52	52	52	52
Safety Performance	Pearson Correlation	0.389**	0.531**	0.568**	0.561**	**1**
	Sig. (2-tailed)	0.004	0.000	0.000	0.000	
	N	52	52	52	52	52

4.3.1 MANAGEMENT SYSTEM & COMPANY ORGANIZATION AND SAFETY PERFORMANCE

From the Table 19.0, it is found that management system & company organization has low relationship with safety performance where the Pearson correlation, r value are 0.389. Thus, H_1 is accepted. Therefore, there is a relationship between management system & company organization with safety performance among the employees in Perodua.

4.3.2 EMPLOYEE ATTITUDE & BEHAVIOR AND SAFETY PERFORMANCE

Employee attitude & behaviour , Table 19.0 shows a moderate relationship with safety performance where the Pearson correlation, r value are 0.531.Thus, H_2 is accepted. Then, there is a relationship between employee attitude & behaviour with safety performance among the employees in Perodua.

4.3.3 EMPLOYEE COMMITMENT & SUPPORT AND SAFETY PERFORMANCE

For employee commitment & support, from Table 19.0 it shows a moderate relationship with safety performance where the Pearson correlation, r value are 0.568. Thus, H_3 is accepted. There is a relationship between employee commitment & support with safety performance among the employees in Perodua.

4.3.4 SAFETY TRAINING & EMPLOYEE COMPETENCY AND SAFETY PERFORMANCE

For safety training & employee competency, from Table 19.0, it shows a moderate relationship with safety performance where the Pearson correlation, r value are 0.561. Thus, H_4 is accepted. Thus, there is a relationship between safety training & employee competency with safety performance among the employees in Perodua.

4.4 REGRESSION ANALYSIS

Multiple regression is used for exploring the relationship between one continuous dependent variables and a number of independent variables or predictors. In this case, one continuous dependent variables is safety performance and independent variables or predictor is management system & company organization, employee attitude & behaviour, employee commitment & support and safety training & employee.

There is three main types of multiple regression analyses are commonly used as following: standard or simultaneous, hierarchical or sequential, and stepwise.

For this study purposes, standard multiple regression will be applied to the analyses.

Below is the statistical result of standard multi regression using SPSS.

Table 20.0

Descriptive Statistics

	Mean	Std. Deviation	N
Performance	4.0705	.68388	52
Management System & Company Organization	3.7404	.54674	52
Attitude & Behaviour	4.0192	.50773	52
Commitment & Support	3.6891	.45736	52
Safety Training & Competency	3.7212	.54104	52

Table 21.0

Correlation of Variables

		Performance	Management System	Attitude Behaviour	Commitment Support	Training
Pearson Correlation	Performance	1.000	.389	.531	.568	.561
	Management system	.389	1.000	.395	.420	.292
	Attitude Behaviour	.531	.395	1.000	.624	.531
	Commitment Support	.568	.420	.624	1.000	.704
	Training	.561	.292	.531	.704	1.000
Sig. (1-tailed)	Performance	.	.002	.000	.000	.000
	Management system	.002	.	.002	.001	.018
	Attitude Behaviour	.000	.002	.	.000	.000
	Commitment Support	.000	.001	.000	.	.000
	Training	.000	.018	.000	.000	.

N	Performance	52	52	52	52	52
	Management system	52	52	52	52	52
	Attitude Behaviour	52	52	52	52	52
	Commitment Support	52	52	52	52	52
	Training	52	52	52	52	52

Table 22.0

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.654[a]	.428	.379	.53880

Table 23.0

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.208	4	2.552	8.791	.000[a]
	Residual	13.644	47	.290		
	Total	23.853	51			

Table 24.0

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
(Constant)	-.068	.720		-.094	.925	-1.517	1.381					
Management system	.188	.155	.150	1.210	.232	-.124	.499	.389	.174	.134	.793	1.260
Attitude Behaviour	.288	.197	.214	1.468	.149	-.107	.684	.531	.209	.162	.572	1.749
Commitment Support	.259	.262	.173	.989	.328	-.268	.786	.568	.143	.109	.397	2.520
Training	.355	.199	.281	1.784	.081	-.045	.756	.561	.252	.197	.490	2.040

From the Table 21.0, it is found that there is a relationship between independent variable and dependent variable. From pearson correlation, *r* value for safety performance against all four independent variable are 0.389, 0.531, 0.568 and 0.561 respectively which is > 0.3.

For the relationship among independent variables itself, it's was found that the *r* value is < 0.7 except between employee commitment & support against safety training & employee competency which is slightly higher than 0.7 that is 0.704. This means all variables either DV against IV and among IV itself, there is a significant correlation.

Thus, H_1 is accepted. Therefore, there is a relationship between management system & company organization with safety performance among the employees in Perodua.

From Table 22.0, the value of R^2 is 0.428. This value indicates that 42.8% of the variance in safety performance is explained by the model or all independent variables. This means that the model explains 42.8% of the variance in safety performance which is answering the research question number 1 in Chapter 1 that is how well do the demographic features predict the safety performance among employees in Perodua.

From Table 23.0, it's found that significant value for ANOVA is 0.000 which is lower than 0.05, F = 8.791, ρ-value < 0.001. Therefore, null hypotheses $H_0 : \beta_1 = \beta_2 = \beta_3 = 0$ is rejected and Ha : at least ones $\beta_i \neq 0$ is accepted. As a conclusion at the $\alpha = 0.05$ level of significance, there exists evidence to conclude that at least one of the predictor (IVs) is useful for predicting safety performance, therefore the model is useful.

From Table 24.0, the largest value for beta is 0.28 which means that safety training & employee competency make the strongest unique contribution to explaining the safety performance when the variances explained by all other variables in the model is controlled for. This has answer the research question number 2 in Chapter 2 that is the main factor within safety culture elements influencing the safety performance among employee in Perodua.

Meanwhile from significant value, all independent variable value shows > 0.05 means that all variables does not making a significant unique contribution to the safety performance.

4.5 SUMMARY

This study has successfully meets the objectives and answer all questions arose from beginning. It manages to collect and evaluate information on safety performance influences against safety culture elements in Perodua and also able to assesses on gender influences on safety culture elements and safety performance as well.

From study conducted, SPSS analysis revealed that 52 respondents from two divisions has show low, moderate and positive relationship among employees of automotives industries towards safety culture elements and safety performance. Three out of four IVs that is employee attitude and behaviour, employee commitment and support, and safety training and employee has moderate and positive relationship with safety performance. Meanwhile, the one that has low and positive relationship against safety performance is management system and company organization.

From the demographic features includes age group, position, gender and length of service it shows that there is no significant difference between safety performance with demographic features among employees in automotive industries. Thus, the result can be concludes that all hypotheses, H_n was rejected.

For SPSS analysis result on relationship between all IVs and DV, there is a significant different among the relationship. Therefore, all hypotheses for each of variables were accepted. Those accepted hypotheses are as Table 25.0

Table 25.0

Accepted Hypotheses

H_n	Hypotheses	Accept or Reject
H_1	There is a relationship between management system and company organization with safety performance among the employees in Perodua	Accept
H_2	There is a relationship between employee attitude and behaviour with safety performance among the employees in Perodua	Accept
H_3	There is a relationship between employee commitment and support with safety performance among the employees in Perodua	Accept
H_4	There is a relationship between safety training and employee competency with safety performance among the employees in Perodua	Accept

CHAPTER 5

5.1 INTRODUCTION

In this chapter, the result and finding of the study will be elaborated in details. All findings had been summarized in form of SPSS analysis and will be interpreted and presented in simple and easy way. Instead of that, there will be a further recommendation for future research and practices and limitation of study throughout completing the research.

5.2 DEMOGRAPHIC FACTORS AND SAFETY PERFORMANCE

From the study, clearly depicted that demographic feature does not significant with safety performance. Age group, length of service, gender and position has not critically influence the level of safety performance among Perodua's employee. This finding definitely contrast with past literature revealed by Lisa A. Ronald (1998) which quotes that workplace and workplace demographics may correlate with safety success. In particular, among employee-related factors, there was strong evidence to suggest that an older workforce with more married workers, longer average seniority/lower turnover rate, and a greater level of work experience is highly correlated with improved safety outcomes. In contrast, the average level of workers' education and language fluency do not appear to be correlated with safety outcomes. Thus, research question number 1 in Chapter 1 to predict the demographic features influences on safety performance among

Perodua employees has answered and concluded that there is no significant among it. Higher age, longer length of service, male or female, executive or non-executive does not significant and affect any positive or negative perception towards safety culture and safety performance directly or indirectly among Perodua employees.

5.3 SAFETY CULTURE(IVs) AND SAFETY PERFORMANCE(DV)

To response on research question number 2 in Chapter 1, the study revealed that management system and company organization has a low and positive relationship with safety performance among employees in Perodua. Generally, respondents agree and admit with management against their support on safety issues and activities in the company. Basically, respondent satisfied with management feedback on employee proposal and idea pertaining to safety issues. Management also seems like successful to show their positive commitment towards bad experiences on safety accidents or incidents where they have found take immediate initiative to take it as a lesson for future preventive measure. Besides that, employee also satisfied with management afford towards safety practices and awareness within premises by providing sufficient resources such as PPE, budget for campaign, training etc. All this has been visualized through positive trend of analysis as stated above. This finding correlated with pass literature done by Forler et al. (1998) whose depicted that every organization possesses a specific and identifiable culture characterized by a pattern of values, beliefs, behaviours and unspoken underlying assumptions that are conveyed to and shared by all member. These values are then reflected in management opinions, actions and behaviour (specifically through what management does, what management pays attention to, what management

ignores, what measures and controls management uses, and how management responds to organizational crises). Then, through such actions, employees become aware of the organization's value and learn what is expected and how to behave (Erickson, 1997). Thus an organization's underlying culture can influence how the entire organizations functions, from its upper management levels to its lowest level worker.

Employee attitude and behaviour is the one that show the positive and moderate relationship with safety performance among employees in automotives industries. Most of respondents notify that they have a big responsibility and play a main role towards their surrounding friend safety. Besides that, employees also found notify about important of having an awareness on safe system or work prior commence their work. They also agree that safety is more important than getting the job done quickly. This seems strongly agree with motto " no compromise with safety" or "safety is our first priority". This finding clearly supporting pass literature by Isla Diaz & Diaz Cabrera (1997) which revealed that there were significant differences in attitude with respect to the type of company and whether employees work on ramp. Others literature also positively correlate with this findings that is conducted by Erickson (1997). According to him safety performance is higher when employee morale. Commitment and overall job satisfaction are higher. This observation is explained in part by proponents of 'behavioural safety' theories (ie., Gregory, 1996; Kelley, 1996; Simon, 1997; Krause, 1997; Peterson, 1997), who claim that attitudes drive behaviours and performance. Thus attitudes which may develop over time from poor working conditions and relationships, such as apathy, complacency, hostility, rebelliousness, over confidence, and lack of ownership, could potentially lead to a decrease in safety performance.

Meanwhile for employee commitment and support, also show the positive and moderate relationship with safety performance among employees in automotives

industries. Most respondents notify that their workmates work in safe manner even without supervised. Subsequently, this has developed trust among employees. Besides that, with enough people available to get the job done, employees in automotives industries always demonstrate positive health and safety behaviour. Employees also found that their workmates would take appropriate action if they saw rules being broken by irresponsible employees. Other than that, employee also aggressively update all information about the safety issues and activities within premises by frequently conducted meeting, briefing, campaign and safety talks. All this has been found positively affect the level of safety awareness and performance as well among the employees.

This findings also supporting literature and study conducted by Philson (1998). According to his finding, he reveals that to create the best possible safety culture, it is best to get as many employees actively involved with the safety process as possible. This serves three purposes: it promotes safety within the organization, it relieves the supervisor of some the responsibility of safety tasks, and it holds employees accountable for some of the safety activities, thus giving them ownership is the safety process. This is important for safety success since, according to Erickson (1997), when employees are truly committed to their firm, safety performance is higher.

For safety training and employee competency, the study indicate the positive and moderate relationship with safety performance. Most respondents admit that some job are difficult to do safely. This might be due to the nature of job itself. There also found that employee agree and satisfy with safety training being conducted which assist them to perform their job safely. Instead of that, through clear and frequent briefing within the company, they enable to perform their work safely and all of it relevant with their daily job. Besides that, through proper guide and taught from safety training and training, they

seems agreed that its main a play roles in developed their knowledge to identified the hazards might be exists within their surroundings. This findings has also found correlated and significant with Erickson (1997); Peterson (1998) whose reveals that safety performance is higher when management has a better appreciation and knowledge about health and safety issue (ie., since they are then more likely to commit resources to the health and safety function and to become more active in health and safety programs). Besides that, Komaki, Heinzman and Lawson (1980) found that in a group of vehicle maintenance workers exposed to either training alone or training combined with performance feedback treatments, safety training alone was not able to improve and maintain the desired level of safety performance. Specifically, when no safety performance feedback was provided, the effects of training were found to be only marginal. Similarly, Ray, Bishop and Wang (1994) found that safety training alone did not produce any significant any significant improvement in safety performance among experienced workers in an automobile manufacturing plant. Only performance feedback and performance feedback combined with goal setting treatments resulted in increased levels of safety performance. As a conclusion, Ray and Bishop concluded that supportive factors, including organizational environment, integration of safety into management and supervisory functions, effective training methods, and training implementation, must be instituted in order to obtain an effective, durable safety program.

5.4 FACTORS WITH STRONGEST CONTRIBUTION TO SAFETY PERFORMANCE

From the findings, the factor that produce strongest contribution to safety performance are employee commitment and support which has highest r value 0.568. This indicates that employees play a main and vital roles in determining the safety performance level in Perodua.

5.5 LIMITATIONS AND DIRECTION FOR FUTURE RESEARCH

5.5.1 LIMITATIONS OF STUDY

There are few limitation were faced by researcher during conduct this study. As a full time worker in Perodua and with a quite heavy work load, completing process of this study has pushed the researched to his limit sometimes. Anyway, with patience, support from surrounding buddies and family, all the challenges encountered successfully faced by researcher.

Among the limitations encountered are as following :

i. Delay feedback :

Two weeks time frame given to response and return the questionnaire was extended to three weeks due to late submission. Mainly, the reason of late return is due to respondents commitment on their daily job. Which currently the company are aggressively in progress of applying and cultivate moral –based culture among employee. Thus, a lot of work and afford being done to achieved the objectives.

ii. Time constraint :

Due to limited time researcher could spend on the survey, therefore the number of respondents that able to be sampling only 52 which is covered for two divisions only with population 75 employees.

iii. Lack cooperation

From 75 questionnaire distributed, only 52 respondents feedback and return the questionnaire form. This might be due to respondents tied with tight schedule and busy with daily task.

5.5.2 DIRECTION FOR FUTURE RESEARCH

As stated in 5.5.1 above, time constraint has plays a main role as a restriction to researcher to complete the study. Therefore, the survey only can be conducted only in two divisions instead of total 19 divisions which is representing of 11% of total divisions. Therefore, in future with more time spend on the survey it will help to collect more respondent and better result analysis might be computed from the survey.

Other than that, instead of survey within the main plant the study can also be extended to others branches, dealers and vendor as well. The final result could give more deeps and clear idea about the current level of safety culture and safety performance throughout the whole organization in nationwide. From there, then the organization can improve their safety policy and consequently enhance safety culture and performance as well. On top of that, more effective program, campaign and activities can be planned

within the actual scope of organization to cultivate and instil safety culture among the employees.

To get thorough surveys and better compilation of result, is better if the survey being conducted by the employees of the organizations itself. There are proposed to set up a taskforce committee to fully focus on the survey. This enables to quicker data collection and more precise result to be obtained. Of course more satisfaction will be gained from the survey.

Besides that, this study could be extended to others automotive company in Malaysia such as Naza, Proton, Tan Chong, Toyota etc. This will assist to get more precise and thorough result on actual level of safety culture and safety performance in Malaysia's automotive industries.

5.6 CONCLUSION

As a summary, this chapter will be a final chapter for the thesis. There is a conclusion, limitation of study and recommendation for future study in this chapter. Hopefully, it will assist to reader of this thesis to get the idea and clear picture on how the level of safety performance against safety culture element among automotive industries in Malaysia.

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