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Relationship Between Safety Management Practices And Safety Performance In Defence Industry

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ABSTRACT: *The objective of this study is to determine the relationship between safety communication, training, workers' involvement and safety performance. This study was conducted among workers in defence industry. This study used questionnaires to obtain responses from the workers. A pilot study was performed to determine the reliability and validity of the instrument. In the actual survey in which 250 questionnaires were randomly distributed and about 193 valid responses were obtained. The correlation analysis of this study indicated that there is a positive significant relationship between safety communication, training, workers' involvement and safety performance. The regression analysis indicated that safety communication explain more than 50 percent of the variation in safety performance whilst, safety training and workers' involvement does not indicated any variations. Therefore, the finding of this study suggested that communication at the workplace is a vital factor in ensuring effective safety performance.*

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1. Introduction

Over the past few decades, Malaysia has achieved significant improvements in the standards of Occupational Safety and Health (OSH). The rate of occurrence of work related accidents has dropped from 11.0 for every 1,000 workers in the year 2000 to 6.1 per 1,000 workers in the year 2007. However, during the same period, the rate of fatalities has remained stagnant at around 12.8 for every 100,000 workers. The country had to pay out compensation for work-related injuries, disease and fatalities covering both the employment injury insurance scheme and invalidity pension scheme. This is clearly an urgent need for all parties to do more to enhance OSH standard in the country (Occupational Safety and Health Master Plan for Malaysia 2015).

According to Takala (2005), the International Labour Organization (ILO) stated that the deaths of nearly two million workers each year due to accidents and illnesses at the workplace. In year 2000, ILO reported more than 5,000 deaths each day. And in each case, there were 500 to 2,000 reported cases of injury due to accidents depending on type of job. However, worldwide statistics showed a rising trend in the case of accidents and health at work from year to year. Protection of workers against injury and illness in the workplace has become a major issue for the ILO since its inception in year 1919.

Nevertheless OSH instruments that have been adopted over the years have helped to improve the situation of jobs safety worldwide. ILO confidants that the results of accidents and occupational health problems certainly can be prevented by all employees.

The number of workplace accident cases in Malaysia is still at a high level although it has dropped in recent years. SOCSO's statistic showed there was a drop of such cases from 63,423 in 2002 to 35,311 in 2012 (Devi, 2013). In addition, according to the Department of Occupational Safety and Health (DOSH) statistic showed that there were 1,775 accidents cases in the manufacturing sector in 2008. This dipped to 1,318 cases in 2009 before climbing up to 1,714 cases in 2010 and dramatically dropping to 913 in 2011. The manufacturing sector was able to reduce workplace-related accidents, especially in factories by multinationals, as they were able to invest in machinery with advanced safety features (Daniel, 2011).

There are several previous studies that have been conducted to examine the relationship between the safety management practices and safety performance. For example, Nor Azimah et al. (2009) examined the perception of employees regarding the management of OSH using nine dimensions including leadership style, safety involvement, management commitment, safety communication, role of supervisor, training and competence, safety objective, safety reporting and work pressure in a public hospital in Malaysia. While Lauver (2007) studied on human resource safety practices using four dimensions including selection, training, employee evaluation and compensation in Midwest state. Khair, Faridahwati and Subramaniam (2011) also conducted a study on management practices using six dimensions including training, management commitment, reward, communication and feedback, hiring practis and employee participation over the oil and gas industry in Iraq.

Although the linkage between management role and actual state of safety has been studied extensively, there is lack of effort has been made to investigate safety management practices (safety communication, safety training and workers involvement) and safety performance in the defence industry in Malaysia especially in manufacturing. This study attempts to examine the various safety management practices and their influences on safety performance in defence industry. This research will empirically examine the relationship between safety management practices and safety performance.

2. Literature Review

Safety performance

Safety performance can be described as a self-reported rate pf accident and occupational injuries (Sui, Phillip & Leung, 2004). While Huang, Smith & Chen (2006) defined safety performance as employee safety control and self-reported occupational injury, since they have studied safety in many workplace such as manufacturing industry, building industry, service industry and transport industry. Wu (2005) described safety performance as a global performance of safety management systems operated and measured by safety organizations, safety management, safety equipment, safety training practice, safety training evaluation, accident investigations, and measures of accident statistics. Safety performance has been defined as the overall performance of management in safety operations (Wu, Chen, & Li, 2008). It is also part of the overall organizational performance (Vinodkumar & Bhasi, 2011; Wu, Chen, & Li, 2008).

Several studies (Hofmann & Stetzer, 1996; Seo, 2005) focused on discovering mechanisms between particular organizational factors and individual safety performance. However, empirical studies rarely attempted to investigate causal relationship across different organizational levels. Even though traditionally, safety performance was measured rely primarily on some form of accident or injury data (Vinodkumar & Bhasi, 2011; Lin & Mills, 2000; Lauver, 2007; Vredenburg, 1998; Andi, 2008, Wu, Chen & Li, 2008; Wu, 2005; Coyle, Sleeman & Adams, 1995; Cox & Cheyne, 2000; Mearns, Whitaker & Flin, 2003), or OSH effectiveness (Hamdan Osman, 2009), safety related behaviors such as safety participation and safety compliance can also be considered as the components of safety performance (Khaidar, Faridahwati, & Subramaniam, 2011; Vinodkumar & Bhasi, 2011; Lu & Yang, 2011; Muñiz, Peón & Ordás, 2012). Since normally, company or organizations under study have difficulties to give the accurate accident or injury data to researchers as it is confidential data about company or organizations. Safety participation represents the behavior of the employees in ways that increase their personal safety and health; and safety compliance represents the behavior of the workers in ways that increase their personal safety and health (Vinodkumar & Bhasi, 2010; Hagan, Montgomery & O'Reilly, 2001). Neal et al. (2000) also considered safety participation and safety compliance as components of safety performance.

Safety communication

The poor safety communication will not help the organization to improve safety at workplace. Communication of various kinds is used to enhance the general effectiveness of any motivational effort. Two-way communication can lead to exchange in behaviour. Regular communication related to safety issues between managements, supervisors and workforce is an effective management practice to improve safety in workplace (Vinodkumar & Bhasi, 2011). While Nor Azimah et al. (2009) have described safety communication as perception about safety communication including openness in communication. Safety communication was also included as a factor in their surveys using their questionnaire among various categories of workers and showed that safety performance is influenced by level of communication in an organization (Cohen, 1977; Vredenburg, 2002; Cox & Cheyne, 2000; Mearns, Whitaker & Flin, 2003; Vinodkumar & Bhasi, 2010). Similarly with Judith (2000) doing nation-wide scientific study found that the effect of corporate culture on injury and illness rates within the organization showed those elements most predictive of high safety performance include an open communication. Communication related problems have been repeatedly reported in literature to be responsible for many human errors resulting in structural failures, design quality problems, building defeats and design defects (Andi & Minato, 2004). It is thus important, in order to support site safety program, to make available appropriate information lines from management to workers and vice versa. Information such as unsafe conditions and new rules and procedures are very important to support the safety program (Andi, 2008).

Communication in the organization included all types of information passing such as meeting, telephone conversation, e-mail, writing memo, information board and face to face communication. In term of organization, Judith (2000) quoted that miscommunication is common in organizations. Open, honest, understandable communication is evident in high safety-performing companies. Information flows in all directions and the reporting of near misses are encouraged. The Health and Safety (Information and Employees) Regulations require that the latest version of the approved health and safety poster be displayed prominently in the workplace (Hughes & Ferrett, 2007). There are three basic methods of communication in health and safety. They are verbal, written and graphic. Verbal communication is the most common and it is communication by speech or word of mouth. Written communication takes many forms from the simple memo to the detailed report and the most common way in which written communication is used in the workplace is the notice board. While graphic communication is communication by the use of drawings, photographs or videos and the most common forms used are the poster and the video. In the way to ensure the effectiveness of communication within organization, two mechanisms improve the quality of the communication need to be considered. They are the repetition of the message, which decreases the amount of distortion or variance around the message, and the verification of the content, which reduces the bias in the message (Guetzkow, 1965). This is where the communication leads the organization sharing business important information as workers need to understand the relationship of environmental health and safety to the actual business operations that they perform (Nielsen, 2000).

A study done by Griffin & Neal (2000) showed that there is a relationship between safety communication and safety performance. It has been conducted on a final sample of 1,264 employees in seven Australian manufacturing and mining organizations. While a study done by Mearns, Whitaker & Flin (2003) in offshore environment, showed that there is also a relationship between safety communication and safety performance. This study was conducted on 13 offshore oil and gas installation in separate years, where total respondents are 682 and 806 respectively. Besides, in a passenger ferry context of study done by Lu and Yang (2011) also found out that there is a relationship between safety communication and both component of safety performance (safety participation and safety compliance).

Safety training

Training is an integral part of OSH. To ensure the success of any OSH programme at the workplace, adequate and effective training must be implemented for all those responsible for OSH. Training enables managers, supervisors and workers to understand the workings of safety management systems and the legal compliance required. They will then understand their own responsibilities and the necessary actions to be taken towards upgrading safety and health at their respective workplaces (Nasional Institute of Occupational Safety and Health, 2011). Law, Chan & Pun (2006) defined safety training as the knowledge of safety given to employees in order for them to work safely and with no danger to their wellbeing. While Nor Azimah et al. (2009) considered safety training as attitudes to acquire knowledge and skills about risks in job.

Health and Safety Executive (HSE) defined training as helping people to learn how to do something, telling people what they should or should not do, or simply giving them information. Training isn't just

about formal 'classroom' courses. According to Hughes and Ferrett (2007), training is the one of the most important elements of any safety and health programme. Training needs may range from training supervisors especially in their work task, employee updates and new worker orientations. The aspects of training are not limited to but include the safety and health responsibilities of all personnel concerned, regularly and systematically in specific job techniques, new employees are given extensive safety training, immediately after hiring, the dedicated time allocated and its effectiveness.

Safety training is also a legal requirement, under the Management of Health and Safety at Work Regulations and other regulations, for an employer to provide such training (Hughes & Ferrett, 2007). Training is required on recruitment, at induction or on being exposed to new or increased risks due to being transferred to another job or given a change in responsibilities. It is also due to the introduction of new work equipment or a change of use in existing work equipment and the introduction of new technology. Indeed it also due to the introduction of a new system of work or the revision of an existing system of work and an increase in the employment of more vulnerable workers (young or disable person). Training is also required on recruitment, at induction or on being exposed to new or increased risks due to particular training required by the organization's insurance company such as specific fire and emergency training.

Training is one of the HR practices most commonly discussed in the literature as a way to improve workers' safety (Lauver, 2007; Hughes & Ferrett, 2007; DeJoy et al., 2000; Zohar, 2002). Training impacts workers by improving their skills and abilities, as well as by communicating what is important. Training is an 'essential component' because organizations rely on frontline workers skill and initiative to identify and resolve problems and to initiate change in work methods (Pfeffer & Veiga, 1999). Training workers on attitudes, behaviours and beliefs toward safety has been shown effective (DeJoy et al., 2000; Harvey et al., 2001). Training interventions on the supervisor and workers level have been associated with reduced Lost Time Injury (LTI) rates and injury costs (Harshbarger & Rose, 1991), a decrease in minor injury rates, an increase in personal protective equipment (PPE) usage, improved safety climate rating (Zohar, 2002).

Lin and Mills (2000) found that safety training played an important role in reducing accident rates. While Lingard et al. (2009) claimed that safety training assists operatives to work more safety. Chinda (2011) noted that safety communication is of five key safety factors in planning for safety improvement at food industry. While in a passenger ferry context of study done by Lu & Yang (2011) also found out that there is a relationship between safety training and both component of safety performance (safety participation and safety compliance). There were also studies found that safety training is correlated with safety involvement (Xuesheng & Xintao, 2011; Xuesheng & Wenbiao, 2012).

A study on improving safety performance in construction projects in Libya showed that there a relationship between safety training and safety performance. The study was conducted on 10 each of owners, contractors and consultants in construction projects in Tripoli City (Foad Mohamed Al-Kilani, 2011). While a study done by Lauver (2007) on "Human resource safety practices and employee injuries" also showed that there is a relationship between safety training and safety performance. It has been conducted on a sample of 48 workers from the Association of Business and Industry and Safety Councils in a Midwest state. Huang et al. (2006) also discovered the link between safety training and increased safety performance.

Judith (1997) has not indicated that initial safety orientation resulted in better safety performance, which may indicate that safety training should be an on-going process. As an addition, she stated that firms that encourage employees to attend seminars, conferences and continuing education courses have better safety performance. Based on a study done by Mustazar Mansur and Peng (2009) related to effectiveness of occupational safety and health training in reducing accidents at workplace, it showed that there a relationship between safety training and safety performance. The study was conducted on trainee in the National Institute for Occupational Safety and Health (NIOSH) Bangi. A study conducted by Ng, Cheng and Skitmore (2005) on a framework for evaluating the safety performance of construction contractors showed that there is a relationship between safety training and safety performance. Where it plays an important role as safety factors in organisation level. A study also has been conducted in the area of food industries. The recent increase in incidence of certain food borne diseases has been attributed to many difference factors, including changes in food preparation habits and a lack of training and education amongst food handlers and consumers (Motarjemi and Käferstein, 1999). Whilst, it is important to recognize that formal training might ensure greater consistency and quality (Manning, 1994), improper training could greater risk to food safety than no training at all (Ackerley, 1989).

A study done by Zacharatos, Barling & Iverson (2005) showed that there is a relationship between safety training and safety performance. Results of the study are based on a sample of 138 human resource directors of manufacturing organizations that were members of the Industrial Accident Prevention Association of Ontario. There is also a study done by Griffin & Neal (2000) that showed a relationship between personnel training (safety training) and safety performance. It has been conducted on a final sample of 1,264 employees in seven Australian manufacturing and mining organizations. Zohar and Erev (2007) stated that as occupational safety training is likely the most researched issue and practiced technique in safety management, and employees who receive safety training suffer fewer work-related injuries than their untrained counterparts.

Workers involvement

World Health Organization (WHO) defines involvement as a process in which individuals, groups and communities work together to drive the development of safety and engaging in safety development efforts that will ultimately affect the condition and quality of life their own (Haidar, Ahmad Fareed & Jamsiah, 2010). Workers involvement as the explanation of behaviour such as taking part in the activities of voluntary safety or security meetings (Griffin & Neal, 2000). Meanwhile, workers involvement is crucial in building awareness of employees will be the security aspect. Forms of participation may be the involvement of employees in the development of safety programs and a survey of unsafe behaviors and actions to report the incident (Andi, 2008). Workers involvement represents the behavior of employees in an effort to improve safety and health, and support the goals and objectives set by the organization involved (Khaidar, Faridahwati & Subramaniam, 2011). The success of the OSH management can only be achieved through teamwork, especially all the individuals involved in the organization (Cooper, 2000). Workers involvement is defined as involving efforts to help their subordinates to promote workplace safety program, shows initiative and educate workers about safety in the workplace (Lu & Yang, 2010).

Workers involvement plays an important role in the success of implementing the Occupational Safety and Health Management Systems (OSHMS) of organization. According to Quality Management Principle (QMP), people at every levels of are the essence of an organization and their total involvement enables their abilities to be used for the organization's benefit. In fact, many notable management system such as ISO 9001, ISO 14001, OHSAS 18001 and Quality Award had put strong emphasis on the workers involvement in the organization. Workers involvement is also a key element in the success of the program to avoid injuries in the hospital (Garret & Perry, 1996; Vredenburg, 2002). A study was done by the Department of Veterans Affairs Medical Center (VAMC) in New Jersey, a program was undertaken to reduce cases of lost-time injury and it also requires the involvement of all levels of employees in each phase of the security program. As a result, the programs are able to decrease the total number of lost-time injury within a year of the implementation.

More recently management practice has kindled a renewed interest in this issue. This is due to growing evidence that workers participation increase effort, which subsequently improves efficiency and productivity. It reduces the cost of monitoring employees and to increased commitment (Doucouliagos, 1985). According to Kogi (2002), improvement of the safety level in the workplace with the OSH management system is more successful when the measures of participation and workers involvement on a continuous basis from planning and implementation. The involvement of employees in the organization as a whole is the most important in achieving this. A high involvement of the top management is very important to focus on the empowerment of workers in the high flow of information and the power to make their own decisions. It's a whole leads to increased productivity and safety performance in the workplace (Zacharatos, Barling & Iverson, 2005). Workers involvement is very important in building workers awareness toward safety programs (Andi, 2008). The form of involvement can be workers participation during development of the safety program and accident or unsafe act investigation and reporting.

Choudhry, Fang and Lingard (2009) have done a study on measuring safety climate of a construction company. The results showed there is a relationship between worker involvement and safety performance. It was tested on a sample in a study done by Mearns, Whitaker and Flin (2003) on a topic of safety climate, safety management practice and safety performance in offshore environment, showed that there is relationship between worker involvement and safety performance. The study was conducted on 13 offshore oil and gas installation in separate years, where total respondents are 682 and 806 respectively. Griffin & Neal (2000) based on the study of the perception of safety in the workplace a safe environment framework for linking safety performance, knowledge and motivation on 1.264 respondents among employees at seven manufacturing and mining industry in Australia. This study found that there is a positive relationship between workers involvement and safety performance.

3. Methods

This research is conducted among employees in a Malaysian Defence Industry. A cross-sectional study using structured questionnaire is used to obtain responses from the respondents. Specifically, particular research questionnaire is developed based on modification, extension and combination of past studies on safety performance (Griffin & Neal, 2000; Vinodkumar & Bhasi, 2010; Lu & Yang, 2011), safety communication (Mohamed Amran, 2008; Andi, 2008; Griffin & Neal, 2000) safety training (Vinodkumar & Bhasi, 2010; Mohamed Amran, 2008; Lu & Yang, 2011; Griffin & Neal, 2000) and workers involvement (Andi, 2008; Mohamed Amran, 2008; Vinodkumar & Bhasi, 2010; Tharaldsen, Olsen & Rundmo, 2008). A pilot study was initially conducted to establish the reliability of the questionnaire scale and measurements.

In the selected defence industry firm, the total population is about 250 employees. For this particular study, the total population is selected as the sampling frame in order to be effective unit of analysis on the basis of being convenient, offering unrestricted choice having the least bias and offering the most generalizability (Sekaran, 2005). From the total 250 questionnaires distributed, about 193 valid questionnaires were obtained and usable with 77.2 percent response rate.

Data obtained from the questionnaire survey were analysed using 1) descriptive analysis to determine the level of each variable; 2) correlation analysis to examine the relationship between variables; and multiple regression analysis to examine the factors influence safety performance.

4. Findings

Relationship between safety management practices and safety performance

It has been hypothesized that there is a significant positive relationship between 1) safety communication and safety performance; 2) safety training and safety performance; 3) workers involvement and safety performance.

From the Pearson Correlation coefficient, it is found that safety communication and safety performance is strongly high and significant where $r = 0.745$ and $p = 0.0001$. Pearson Correlation coefficient ($r = 0.745$) show that there is a linear relationship between those two variables and the relationship is positive strongly high. This finding also shows that there is significant relationship between safety communication and safety performance where it is significant value is 0.0001. This value is smaller than alpha value which has been setup ($p = 0.05$). **Table 1** shows the result for correlation analysis between safety communication and safety performance. Hence, it is found and confirmed that, **H₁: There is a significant positive relationship between Safety Communication and Safety Performance.** This consistent with past research, where they also found that there is a significant positive relationship between safety communication and safety performance (Griffin & Neal, 2000; Mearns, Whitaker & Flin, 2003; Lu & Yang, 2011).

This study found that safety training and safety performance is strong and significant where $r = 0.674$ and $p = 0.0001$. Pearson Correlation coefficient ($r = 0.674$) show that there is a linear relationship between those two variables and the relationship is positive high. This finding also shows that there is significant relationship between safety training and safety performance where it is significant value is 0.0001. This value is smaller than alpha value which has been setup ($p = 0.05$). **Table 1** also shows the result for correlation analysis between safety training and safety performance. Hence, it is found and confirmed that, **H₂: There is a significant positive relationship between Safety Training and Safety Performance.** In addition, this finding supports previous studies (Griffin & Neal, 2000; Zacharatos, Barling & Iverson, 2005; Mustazar Mansur & Peng, 2009; Ng, Cheng & Skitmore, 2005; Lu & Yang, 2011; Lauer, 2007; Foad Mohamed Al-Kilani, 2011).

It is identified that workers involvement and safety performance is strong and significant where $r = 0.688$ and $p = 0.0001$. Pearson Correlation coefficient ($r = 0.688$) show that there is a linear relationship between those two variables and the relationship is positively high. This finding also shows that there is significant relationship between workers involvement and safety performance where it is significant value is 0.0001. This value is smaller than alpha value which has been setup ($p = 0.05$). **Table 1** also shows the result for correlation analysis between workers involvement and safety performance. Hence, it is found and confirmed that, **H₃: There is a significant positive relationship between Workers**

Involvement and Safety Performance. This finding supporting findings from previous study (Choudhry, Fang & Lingard, 2009; Griffin & Neal, 2000; Mearns, Whitaker & Flin, 2003; Zacharatos, Barling & Iverson, 2005).

Table 1: Correlation between variables

		Safety Performance
Safety Performance	Pearson Correlation	1
	Sig. (2-tailed)	
	N	193
Safety Communication	Pearson Correlation	0.745**
	Sig. (2-tailed)	0.0001
	N	193
Safety Training	Pearson Correlation	0.674**
	Sig. (2-tailed)	0.0001
	N	193
Workers Involvement	Pearson Correlation	0.688**
	Sig. (2-tailed)	0.0001
	N	193

** . Correlation is significant at the 0.01 level (2-tailed).

Influence of safety management practices towards safety performance

To determine the best set of predictor variable in predicting safety performance, a Multiple Linear Regression (MLR) by enter regression method was used. Based on the enter method used, the findings show that only one predictor variable to be of significance in explaining safety performance. The predictor variable is safety communication (X₁). Safety training (X₂) and workers involvement (X₃) were excluded because it did not contribute in significance [X₂ (t = 0.864, p = 0.389) and X₃ (t = 1.795, p = 0.074)] to the variation of the dependent variable (Safety Performance). As depicted in the coefficients table (**Table 2**), the estimates of the model coefficients for b₀ is 1.444, b₁ is 0.407, b₂ is 0.070 and b₃ is 0.144.

The R-squared of 0.760 implies that the predictor variable (safety communication) explains about 76.0 percent of the variation in the safety performance. This is quite a good and respectable result. The ANOVA table revealed that the F-statistics (F = 86.124) is low and the corresponding p-value is highly significant (0.0001) or lower than the alpha value of 0.05. This indicates that the slope of the estimated linear regression model line is not equal to zero confirming that there is linear relationship between safety performance and the predictor variable (safety communication).

As depicted in **Table 2**, the largest beta coefficient is 0.407 which is for safety communication. This means that this variable makes the strongest unique contribution in explaining the dependent variable (safety performance), when the variance explained by all other predictor variables in the model is controlled for. It suggests that one standard deviation increase in safety communication is followed by 0.407 standard deviation increase in safety performance.

From three independent variables in this study, only safety communication was found to be significance in explaining safety performance and these findings are parallel with previous studies (Cohen, 1977; Vredenburgh, 2002; Cox & Cheyne, 2000; Mearns, Whitaker & Flin, 2003; Vinodkumar & Bhasi, 2010; Judith, 2000). But this result did not supporting the findings from Nor Azimah et al.'s (2009) study. In contrast to findings from several past studies (Zohar, 2002; Lu & Yang, 2011; Huang et al., 2006; Nor Azimah et al., 2009), this study did not find a significant connection between safety training and safety performance outcomes. In addition, this study also did not find a significant

connection between workers involvement and safety performance as the finding from previous research (Garret & Perry, 1996; Vredenburg, 2002; Mearns, Whitaker & Flin, 2003).

Table 2: Influence of safety management practices towards safety performance

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	Beta	Std. Error	Beta		
1 (Constant)	1.444	0.158		9.117	0.0001
Safety Communication	0.407	0.067	0.520	6.055	0.0001
Safety Training	0.070	0.081	0.090	0.864	0.389
Workers Involvement	0.144	0.080	0.188	1.795	0.074

Notes: R = 0.760; R² = 0.578; Adj. R² = 0.571

5. Discussion

Generally, there are significant positive relationships between safety communication, safety training, workers involvement and safety performance. This indicates that safety communication, safety training and workers involvement play important roles in achieving good safety practices in workplace. Safety communication is vital in workplace as it is one of the ways of employer to emphasise employee’s safety. Employees’ accidents and injuries could be prevented by attending proper and suitable safety training. Workers involvement in discussion, meeting and training related to safety can improve safety performance in workplace. Ignoring all these practices i.e safety communication, safety training and workers involvement will increase numbers in accident and injury cases at workplace.

It specifically reflects that perceived priorities of the employees in Malaysian defence industry as far as the importance and ranking of these particular variables (safety communication, safety training and workers involvement) towards achieving safety performance. In other words, it suggests the magnitude of importance placed upon the safety communication, safety training and workers involvement in their relationship with safety performance.

6. Conclusion

The overall findings indicate a significant positive relationship between safety communication, safety training, workers involvement and safety performance. The total variance in safety performance accounted for by the safety communication in the MLR model is 57.80 percent. As such the overall contribution of this research to the literature is that it has managed to further extend and strengthen the theoretical discourse on safety needs and accident causation of the safety performance in particular by empirically illustrating the extent or magnitude of the relationship between safety communication, safety training, workers involvement and safety performance as perceived by defence industry. In other words, this study shows the reflective effects of safety communication, safety training and workers involvement on safety performance. In short, the findings from this study have not only contributed to the body of knowledge or literature on the subject or issue of the relationship between safety management practices (safety communication, safety training and workers involvement) and safety performance but also provided vital information to both practitioners and policy makers on the subject matters. Nonetheless, other future research might want to consider examining the relationship other potential variables (for examples safety leadership, motivation and safety knowledge) and their probable effects on the organization’s safety performance. Furthermore, adopting a qualitative research approach using other potential sampling frame (for example transportation industry) to address and examine safety performance might be another future empirical research direction to be considered. However, this study only begins to touch on issues that may make a significant difference in defence industry’s safety performance, calling for future studies to continue defining what and how safety management practices may be associated with improving safety performance.

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