

The Effects of Safety Leadership on Safety Performance in Malaysia

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Abstract

In the new global economy, workplace safety has assumed central importance among companies across the world: this has been evident in Malaysia, especially the manufacturing sector. The worrying lack of workplace safety can be discerned from the increasing number of workplace accidents in manufacturing companies as reported by the Department of Occupational Safety and Health (DOSH), Malaysia. In recent years, researchers have shown an interest in studying the role of safety leadership in reducing workplace accidents. It is found that safety leadership plays a significant role in ensuring a safe and sound workplace. Against this background, this paper attempts to conceptualize safety leadership from the perspective of Malaysia's manufacturing sector. It is hypothesized that the higher level of safety leadership will reduce the occurrence of workplace accidents. A questionnaire from Wu *et al.* (2008) will be adopted to explore and explain the conceptualization of safety leadership. It is expected that safety leadership practiced in Malaysia's manufacturing sector is conceptualized in a manner similar to the perspective of western researchers.

Keywords: Safety leadership; Workplace accidents, Malaysia's Manufacturing Sector

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Introduction

In this era of globalization, almost all of the world's countries are in pursuit of development (Tharaldsen *et al.*, 2010). The advancement of technologies worldwide has led to the raising awareness of safety issues (Li *et al.*, 2009), as can be judged from the headlines featuring workplace safety issues in global news (Wameedh *et al.*, 2011). For example, as many as 591,000 cases of non-fatal injuries have reported for the period from 2011 to 2012 in the United Kingdom (Health and Safety Executive, 2012a). In addition, the United States recorded 760,000 workplace accidents in 2011 (U.S. Bureau of Labor Statistics, 2012). Based on the Health and Safety Executive (2012b), there has been a decreasing trend in workplace accidents in the United Kingdom. However, the total number of reported cases of workplace accidents has not been reassuring. Given such statistics, issues concerning safety have begun to assume central importance in the research on safety (Choudhry *et al.*, 2009; Wameed *et al.*, 2011; Shang and Lu, 2009).

Literature Review

Accidents have been defined as undesirable, unplanned, and unforeseen events that consequentially incur costs and even result in loss of life (Alicia, 2009). Efforts to mitigate workplace accidents were used to prevent them from happening and to improve workplace safety (Wu *et al.*, 2007). Numerous studies have been conducted on safety, beginning from the 1990s (Kennedy and Kirwan, 1998; Hofmann and Morgeson, 1999), through the 2000s (Wu *et al.*, 2007; Wu *et al.*, 2008; Fernandez-Muniz *et al.* 2007; Cooper and Phillip, 2004; Tam *et al.*, 2004), and, finally, to the 2010s (Kapp, 2012; Lu and Yang, 2010). Safety performance is a subsystem of organizational performance (Tharaldsen *et al.*, 2010; Wu *et al.*, 2008). Griffin and Neal (2000) and Zhang *et al.* (2013) have proposed that safety performance should be made the direct antecedent of accidents and injuries, whereas De Koster *et al.* (2011) suggested that safety performance to measure of the extent to which a given company would prevent accidents. Thus, by measuring safety performance, the effectiveness of the efforts in reducing workplace accidents can be ascertained. As suggested by

Griffin and Hu (2013), studies have been lacking on the actions of leadership for their contribution in workplace safety; accordingly, within this paper, safety leadership will be discussed.

Workplace Accidents in Malaysia

Over the years, Malaysia has attained a robust position in the new global economy, despite challenges regarding safety issues (Ministry of Human Resources Malaysia, 2009). From 2013 to 2015 (Figure 1), rates of accidents have exhibited a downward trend (2013= 63557 cases; 2014= 63331 cases; and 2015= 62837 cases) (Social Security Organization, 2015). However, the reverse trend has emerged since 2016 (2016= 66618 cases; 2017= 69980) (Social Security Organization, 2017).

Notwithstanding the inconsistent trend in the total accidents, the manufacturing sector has evidently recorded the higher number of accidents among all sectors in Malaysia (Department of Safety and Health, 2017). More specifically, however, inconsistent numbers have been observed for the sector from 2013 to 2017 (2013= 25.40%; 2014= 24.20%; 2015= 24.11%; 2016= 23.67%; and 2017= 23.71%), as are aligned with the inconsistent trend of the total numbers of workplace accidents reported (Social Security Organization 2013-2017). Therefore, the imperative exists to identify the problems of safety issues within the manufacturing sector in Malaysia (Social Security Organization, 2017).

Safety Leadership and Its Relation to Workplace Accidents

Safety leadership can be defined as the process through which the leaders exert their influence on employees' daily work routines through communication to lower the rates of accidents and achieve positive safety performance (Lu and Yang, 2010; Wu *et al.*, 2007). Previous studies (Barling *et al.*, 2002; Zohar, 2002) have shown that leadership practices are a vital factor influencing the rates of accidents. It has become the centre of attention on studies in numerous industries especially in energy and manufacturing sectors (Flin and Yule, 2004; Rowley, 2009). Cooper (2010) has suggested that safety leadership is



a necessity for top-performing companies to shape commitment towards safety issues as safety leadership plays a vital role in maintaining the behavioural safety process. According to Mullen *et al.* (2011), safety leadership is far more effective in shaping positive safety behaviours and attitudes through inspiring and promoting. Thus, it is hypothesized that a more prominent safety leadership in the organization will be associated with lower rates of accidents therein.

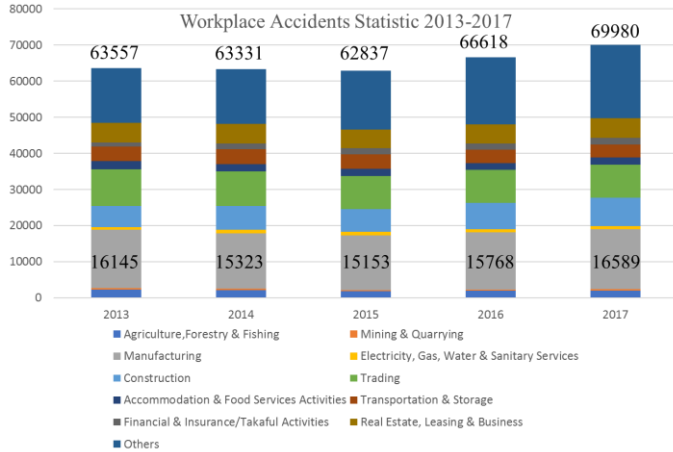


Figure 1: Workplace Accidents in Malaysia, 2013 to 2017 (Social Security Organization Malaysia, 2013-2017)

Previous studies on the relationship of safety leadership and safety performance have reported the significant influences of safety leadership on safety performance (Lingard *et al.*, 2012; Yang *et al.*, 2010; Zohar, 2002; Rowley, 2009). Wu (2005) proposed that leaders who channelled efforts into coaching and demonstrated concern towards their employees regarding safety issues would foster safety performance. Thus, it has been recommended that safety caring and safety controlling should be included in safety leadership. Wiegand (2007) explained that safety coaching refers to the efforts of leaders in managing the safety performance and that these efforts involve interpersonal interaction and communication. Safety caring refers to the level of concern and attention amongst leaders towards safety issues and involves efforts to ensure the quality of safety in the workplace (Wu *et al.*, 2010; Cooper, 1998). Both Wu *et al.* (2008) and Cooper (1998) have propounded that safety controlling is the use of power in outlining the safety rules and regulations to be complied with by the employees in order to achieve safe performance.

Throughout the years, safety leadership has always been based on transformational and transactional leaderships in engaging the dimensions, since Cooper (1998). Cooper (1998), in initiating the dimensions of safety leadership, has chosen to build the dimensions from the foundation of transformational and transactional leaderships. Ultimately, the primary dimensions of safety leadership, safety caring (transformational), and safety controlling (transactional) have been proposed. Extending from the dimensions by Cooper (1998), Wu (2005) introduced an additional dimension under transformational leadership, i.e. safety coaching, without abandoning the original dimensions initiated by Cooper (1998). Nonetheless, while Wu (2005) named the safety dimensions as safety caring, safety coaching, and safety controlling, such dimensions have been renamed in the literature, albeit without changes in their definitions. This is exemplified by Lu and Yang (2010) who re-labelled safety caring as safety motivation and safety coaching as safety policy, and by Du and Sun (2012), who re-labelled them respectively as active management and as safety monitoring. Based on the review of dimensions, the dimensions by Wu (2005) – safety caring, safety coaching, and safety controlling – have been adopted in this study as they can be generalized to most other industries (Shah Rollah, 2011). Thus, the conceptual framework (Figure 2) of this study has been developed.

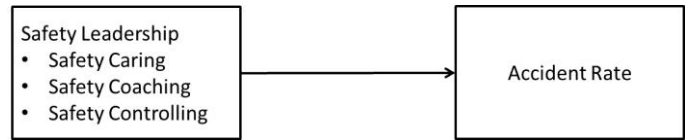


Figure 2. Conceptual Framework

H1: A more prominent safety leadership will ensure a lower occurrence of accidents.

Methodology

This research is quantitative in nature. According to Creswell (2002), quantitative research engages surveys as its data-collection instrument in measuring causal relationships, hypothesis-testing, and theory-testing. Creswell (2002) has further proposed that quantitative research should be used when copious statistical data are involved. Furthermore, the design of this research is descriptive and correlational. Elifson (1998) has suggested that descriptive studies characterize the trends or situations of interest. Such studies enable the elucidation of phenomena and inter-correlation between variables (Sekaran and Bougie, 2009). Correlational studies have been defined as a technique that is able to describe and statistically measure the link and relationship between two variables (Gravetter and Wallnau, 2002).

The respondents of this study were employees from the iron-and-steel-based manufacturing companies chosen from the Federation of Malaysian Manufacturers (FMM) directory. The chief reason underlying the choice of such companies is that the number of accidents is the highest among all other manufacturing industries, with an accident occurring every two working hours in Malaysia in 2017 (Social Security Organization, 2017).

In this research, the questionnaire is an adaptation of those by Wu *et al.* (2008). In order to measure safety leadership, the Safety Leadership Scale developed by Wu *et al.* (2008) is adopted. Meanwhile, in order to explore the findings, the Safety Performance Scale by Wu *et al.*'s (2008) is adopted. The adoption of their questionnaires in measuring the independent and dependent variables is grounded in the proven high reliability (Cronbach's alpha: 0.84 to 0.97) (Shah Rollah, 2011; Wu *et al.*, 2008).

Results

This study has sought to test the proposed hypothesis in ascertaining the influences exerted by safety leadership on workplace safety in Malaysia. Within this study, safety leadership was measured by the Safety Leadership Scale while workplace safety was measured by the Safety Performance Scale. The data collected were entered into SPSS 16.0. To determine the influence of safety leadership on workplace safety, path analyses through SEM AMOS was engaged. In the analysis, the measurement model was run in AMOS seeking to achieve model fit. There are three levels of model fit in structural equation modelling: absolute fit, incremental fit, and parsimonious fit (Awang, 2015). To achieve absolute fit in the measurement model, the root mean square of error approximation (RMSEA) should be less than 0.08 while a range between 0.05 and 0.1 is acceptable (Browne and Cudeck, 1993; Awang, 2012). Nevertheless, for incremental fit, its attainment necessitates a comparative fit index (CFI) higher than 0.9 (Bentler, 1990) whereas, for parsimonious fit, its attainment necessitates a ChiSquare divided by degrees of freedom (Chisq/df) that is less than 5.0 (Marsh and Hocevar). The initial measurement model yielded the following fitness indexes: RMSEA 0.113; CFI 0.816; and Chisq/df 5.865. As all the three fits were not achieved, modification indices were examined and items with highest values of modification indices were constrained one at a time until model fit was achieved. The final measurement model yielded the following fitness indexes: RMSEA 0.10; CFI 0.905; and Chisq/df 4.865. Based on the model fit indexes, absolute fit, incremental fit, and parsimonious fit were achieved. Although it exceeded 0.08, the RMSEA remained in the acceptable range as suggested by Browne and Cudeck (1993); absolute fit was thus achieved. The final measurement model is shown in Figure 3.



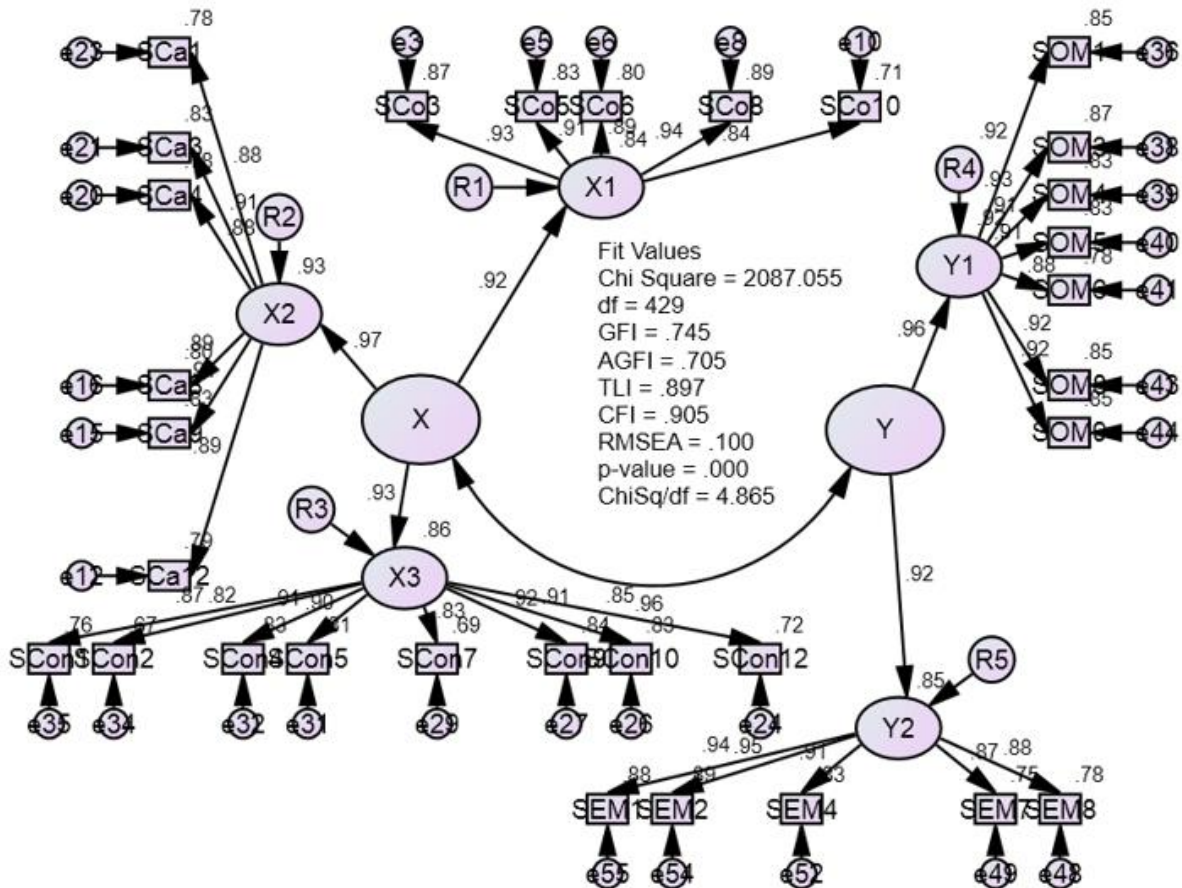


Figure 3: Measurement Model

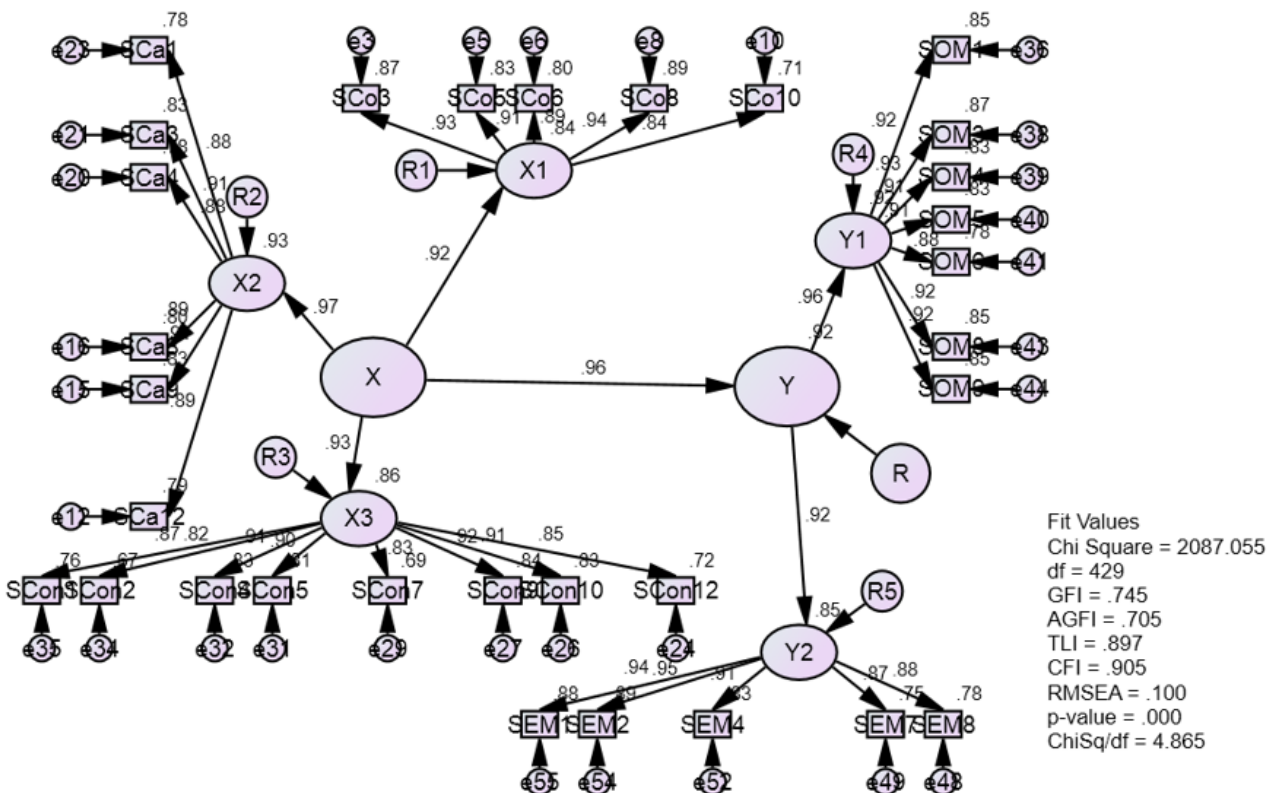


Figure 4: Structural Model



Examination of the data reliability suggests that three types of reliability should be fulfilled: internal reliability based on the Cronbach's alpha, and composite reliability (CR) based on the CR value and average variance extracted (Awang, 2015). In this study, the Cronbach's alpha of safety leadership is 0.990 while that of safety performance is 0.990. Awang (2015, 2012) suggested that composite reliability is achieved when the CR value exceeds 0.6 while average variance extracted is achieved when the AVE value exceeds 0.5. In this research, the CR value for safety leadership is 0.974 while its AVE value is 0.556; meanwhile, the CR value for safety performance is 0.937 while its AVE value is 0.5. Thus, all three levels of reliability are achieved in this research. Next, the validity of this research was examined. In structural equation modelling, there are three levels of validity: convergent validity, which is achieved when the AVE value exceeds 0.5; construct validity, which is achieved when all fitness indexes are attained; and discriminant validity, which is achieved when the model is free from redundant items. In this research, the AVE values of both safety leadership and safety performance exceed 0.5; yet, the indexes of absolute fit, incremental fit, and parsimonious fit were all achieved as discussed above. Nonetheless, the model is free from redundant items. Therefore, the three types of validity – convergent, construct, and discriminant – have been achieved.

Subsequently, the measurement model was assembled into the structural model (Figure 4) with the purpose to execute path analyses. Such analyses in turn test the hypothesis of this research, i.e. the higher level of safety leadership will reduce the occurrence of workplace accidents. The results are shown below:

Table 1: Standardized Regression Weight of the Model

Path		Path	Standardized Beta Estimate	Comment
Y	←	X	0.957	Standardized beta

Table 1 shows that the standardized beta of X towards Y is 0.957. In this research, X represents safety leadership while Y represents safety performance in measuring workplace safety. Accordingly, the standardized beta estimate of safety leadership towards safety performance is 0.957. The results imply that, when safety leadership rises by 1 standard deviation, safety performance correspondingly rises by 0.957 standard deviation.

Table 2: Hypothesis Testing for the causal effect of X to Y

	Estimate	S.E	C.R.	P
Y← X	.869	.036	23.981	***

***indicates a highly significant at <0.001

Table 2 shows the results for hypothesis-testing for the causal effect of safety leadership on safety performance. The probability of obtaining a critical ratio as large as 23.981 in absolute value is less than 0.001. In other words, the regression weight for X in the prediction of Y is significantly different from zero at the 0.001 level (two-tailed). Therefore, the above research hypothesis is supported: a better safety leadership brings about superior safety performance. It is known that safety performance in this study is adopted with the purpose to measure workplace safety. Thus, it can be concluded that the higher level of safety leadership will reduce the occurrence of workplace accidents.

Conclusion

In conclusion, this study has lent supportive evidence to the important constructs of safety leadership in affecting the workplace safety. Safety leadership has been demonstrated to play a pivotal role in determining the level of workplace safety through safety coaching, safety caring, and safety controlling. Furthermore, employees' perception of safety-related leadership in the organizations influences their behavior in handling their works, either safely or unsafely. The outcomes of this research highlight the importance of leaders within the organizations to not only implement safety-related leadership skills but

also devote more attention to safety issues to foster a safer workplace culture.

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