RESEARCH ISSUES IN SAFETY PERFORMANCE: A LITERATURE REVIEW

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Abstract

Safety performance has gained acceptance as a field of study and has been increasingly researched nowadays. Researchers and practitioners have attempted to investigate factors that influence safety performance which can improve the effectiveness and productivity of an organization. Nonetheless its importance, studies on safety performance have been limited and inadequate. More specifically, the literature review reveals that as a field of study, safety performance has received minimal focused on groups, organizational and industry level analysis instead of individual as well as in the context of Malaysian small and medium enterprises. Based on the review of the literature, this paper highlights some of the major issues and research areas on safety performance that require further investigation. Future research may attempt to identify environmental factors that influence safety performance.

Keywords: Safety performance; occupational safety; accidents

1.0 INTRODUCTION

Occupational safety and health (OSH) is defined by Alwi (2011) as the state of being safe or the lack of aspects that can cause accidents, injuries, or interupptions to work. Previous studies (Fernandez-Muniz, Montes-Peon, & Vazquez-Ordas, 2009; Chang & Yeh, 2004; Moses & Savage, 1992; Mejza, 1998) have determined safety performance as the probability that workplace accidents would result in fatal injury or property damage. The topic has gained prominence among researchers since 1970s and many of the studies have focused on identifying factors that influence safety performance. The aim has been mainly to enhance the level of safety in workplace which in turn, can lessen the costs of accidents that can impede an organization's productivity.

Despite the development of studies on safety performance, some of the vital issues have been insufficiently researched. The literature indicates various gaps in the current understanding of safety performance and that the available evidence is marked by several shortcomings. This paper reviews and discusses some of the research issues and areas crucial to safety performance.

The present paper is divided into three sections. The first two sections highlight the basic issues concerning safety performance and the final section presents a brief conclusion of the paper.

2.0 DEFINING SAFETY PERFORMANCE

The term safety performance has been variedly defined by researchers. At most the present definitions tend to relate safety performace to a number of occupational accidents, injury rates, and illnesses (Fernandez-Muniz et al., 2009; Glendon & Litherland, 2001; Mayze & Bradley, 2008), as well as safety compliance and safety participation (Neal & Griffin, 2002; Neal & Griffin, 2006; Lu & Yang, 2010). The term safety performance has also been used to refer to the level of safety in an organization. In addition, the most familiar safety performance indicators are presesented by the Occupational Safety and Health Administration in the US, which records workplace accidents statistically (Arezes & Miguel, 2003; Mannan, O'Connor & Keren, 2009; Manzella, 1999). The use of accident statistics for safety performance in organizations can be widely found in a substantial amount of studies (Aksorn & Hadikusumo, 2008; Sawacha, Naoum, & Fong, 1999).

Nevertheless, it is acknowledged that no single definition can be considered the most definitive to describe safety performance. Very few studies have focused on discussing the parts of safety performance (Fernandez-Muniz, Montes-Peon, & Vazquez-Ordas, 2014) and the apparent lack of a more accurate and constant definition of the term may have been due to various factors, such as (1) the complexity and scope of safety performance, (2) limited understanding related to safety performance, and (3) lack of knowledge in this field of study. Glendon and Litherland (2001) indicate that the limitation is due to inadequate measure of this concept in assessing the success of distinct safety programs.

Martinez-Corcoles, Gracia, Tomas, and Peiro (2011) examined the safety research in depth, and identified that the safety outcomes in organizations can be studied either by accident or injury rate (e.g., Mearns, Whitaker, & Flin, 2003; Niskanen, 1994; Vredenburgh, 2002) or by safety behavior (Cooper & Philips, 2004; Neal, Griffin, & Hart, 2000; O'Dea & Flin, 2001). Martinez-Corcoles et al. (2011) suggest that safety behavior and accident or injury rates are complementary safety outcomes. These dimensions were adopted by Fernandez-Muniz et al. (2014) to evaluate safety performance and further incorporated a supplementary dimension which was employee satisfaction.

3.0 ISSUES OF SAFETY PERFORMANCE

The literature indicates that despite being an important area of management, safety performance has received limited research emphasis. The literature also reveals that although the number of research that focuses on safety performance appeared to increase over the years, a review of past studies on safety performance as documented in the literature.

3.1 Limited Studies on Safety Performance among Small and Medium Enterprises

Despite of its importance, limited research emphasis has been given to examining safety performance in the context of small and medium enterprises especially in Malaysia. Although the literature emphasizes the importance of safety performance, minimal research has been conducted to investigate the safety performance in small and medium enterprises. Empirical studies on workplace injuries in Malaysia are still poor especially in Malaysian manufacturing industries (Saad, Zairihan, & Fatimah, 2012), and more so in SMEs (Baba, Ahmad Rasdan, and Mohd Yusri, (2012).

3.2 Level of Analysis

Previous studies have acknowledged that safety performance can be analysed at four different levels (individual, dyads, group, and organizational) but most of the relevant studies have confined to individual analysis. Other studies have focused on the relationship among the occurences that can be observed at different levels of analysis and these studies noted that identifying such relationship is crucial not just for academics but also for practitioners and public policy makers as well. For example, from the organizational perspective, the performance of an organization can be affected by various factors that can only be observed at different levels of analysis. Given this point, it is proposed that future studies include a combination of individual, dyads, group, and organizational levels of analysis in order to yield better understanding of safety performance.

3.3 Various Perspectives Studies on Safety Performance

From time to time, safety performance has been studied from various perspectives such as civil engineering, interdisciplinary engineering, construction, industrial education, decision sciences, health policy, public health, and psychology. The studies were conducted using various approaches such as applied research, basic business research and scientific method. The outcome is the varied concepts of safety performance that are viewed from multiple perspectives.

3.4 Proposed Methodology

Knowledge and information regarding safety performance are still inadequate. Yet, the development in this subject, though progressive, has been slow particularly those that address the issues of causality in safety performance. Past studies were at most conducted through exploratory case studies, descriptive studies, or cross sectional studies and very few have attended the subject as causality and longitudinal research, as advocated in the literature. The researcher opines that exploratory case analyses or cross sectional sample surveys are no longer appropriate for producing in depth information to characterize the role of safety performance in organizations. Future studies may attempt to identify the environmental factors that may influence safety performance in organizations. Exploring and identifying factors such as legislation and enforcement can be useful to determine the extent to which these environmental factors influence safety performance.

4.0 CONCLUSION

The present paper highlights the important issues and the new research agenda for safety performance. From the review of literature and previous empirical studies on safety performance, several issues were identified and few gaps were deemed necessary for further investigation in order to provide a better understanding on safety performance. One of the key areas is in terms of the adoption and practice of safety performance in Malaysia.

The paper began by identifying and discussing the basic issues that require focus prior to conducting a study on safety performance. A new research agenda was then developed and presented on the basis of several problems and limitations identified from the literature review.

It is recommended that among others and as a crucial field of study, safety performance needs to be defined properly. Any expressive study on safety performance should be based on multi-level analyses.

Because the addressed issues and areas have not been spoken and highlighted utterly, it is hoped that this paper has delivered some understandings and input towards the progression of more beneficial and rigorous research on safety performance.

References

Alwi Saad. (2011). *Occupational safety and health management.* Penang: Universiti Sains Malaysia Press.

Aksorn, T., & Hadikusumo, B. H. W. (2008). Critical success factors influencing safety program performance in Thai construction projects. *Safety Science, 46*, 709-727.

Arezes, P. M., & Miguel, A. S. (2003). The role of safety culture in safety performance measurement. *Measuring Business Excellence, 7*(4), 20-28.

Baba Md Deros, Ahmad Rasdan Ismail, & Mohd Yusri Mohd Yusof. (2012). Conformity to Occupational Safety and Health Regulations in Small and Medium Enterprises. *Journal of Occupational Safety and Health, 9*, 1-6.

Chang, H. –L., & Yeh, C. –C. (2004). The life cycle of the policy for preventing road accidents: an empirical example of the policy for reducing drunk driving crashes in Taipei. *Accident Analysis and Prevention, 36*, 809-818.

Cooper, M. D., & Phillips, R. A. (2004). Exploratory analysis of the safety climate and safety behavior relationship. *Journal of Safety Research, 35*, 497-512.

Fernandez-Muniz, B., Montes-Peon, J. M., & Vazquez-Ordas, C. J. (2009). Relation between occupational safety management and firm performance. *Safety Science, 47*, 980-991.

Fernandez-Muniz, B., Montes-Peon, J. M., & Vazquez-Ordas, C. J. (2014). Safety leadership, risk management and safety performance in Spanish firms. *Safety Science, 70*, 295-307.

Glendon, A. I., & Litherland, D. K. (2001). Safety climate factors, group differences and safety behaviour in road construction. *Safety Science, 39*, 157-188.

Lu, C-S., & Yang, C-S. (2010). Safety leadership and safety behavior in container terminal operations. *Safety Science, 48*, 123-134.

Mannan, M. S., O'Connor, T. M., & Keren, N. (2009). Patterns and trends in injuries due to chemicals based on OSHA occupational injury and illness statistics. *Journal of Hazardous Materials, 163*, 349-356.

Manzella, J. C. (1999). Measuring safety performance to achieve long-term improvement. *Professional Safety, 44*(9), 33-36.

Martinez-Corcoles, M., Gracia, F., Tomas, I., & Peiro, J. M. (2011). Leadership and employees' perceived safety behaviours in a nuclear power plant: A structural equation model. *Safety Science, 49*, 1118-1129.

Mayze, B., & Bradley, L. (2008). Safety culture: A multilevel assessment tool for the construction industry. Paper presented at Third International Conference of the Cooperative Research Centre (CRC) for Construction Innovation – Clients Driving Innovation: Benefiting from Innovation. Gold Coast Queensland, Australia, 12-14 March.

Mearns, K., Whitaker, S. M., & Flin, R. (2003). Safety climate, safety management practice and safety performance in offshore environments. *Safety Science, 41*, 641-680.

Mejza, M. C. (1998). *Evaluating motor carrier safety processes using data envelopment analysis*, Ph.D. dissertation, University of Maryland.

Moses, L. N., & Savage, I. (1992). The effectiveness of motor carrier safety audits. *Accident Analysis and Prevention, 24*(5), 479-496.

Neal, A., & Griffin, M. A. (2002). Safety climate and safety behaviour. *Australian Journal of Management, 27*, 67-75.

Neal, A., & Griffin, M. A. (2006). A Study of the Lagged Relationships Among Safety Climate, Safety Motivation, Safety Behavior, and Accidents at the Individual and Group Levels. *Journal of Applied Pscyhology, 91*(4), 946-953.

Neal, A., Griffin, M. A., & Hart, P. M. (2000). The impact of organizational climate on safety climate and individual behavior. *Safety Science, 34,* 99-109.

Niskanen, T. (1994). Safety climate in the road administration. *Safety Science, 17*, 237-255.

O'Dea, A., & Flin, R. (2001). Site managers and safety leadership in the offshore oil and gas industry. *Safety Science, 37*, 39-57.

Saad Mohd Said, Zairihan Abdul Halim, & Fatimah Said. (2012). Workplace injuries in Malaysian manufacturing industries. *Journal of Occupational Safety and Health, 9*, 1-6.

Sawacha, E., Naoum, S., & Fong, D. (1999). Factors affecting safety performance on construction sites. *International Journal of Project Management, 17*(5), 309-315.

Vredenburgh, A. G. (2002). Organizational safety: Which management practices are most effective in reducing employee injury rates? *Journal of Safety Research, 33*, 259-276.