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Voluntary Policy Interventions: Elevating Safety and Health Compliance in Aircraft Ground Handling Operations

Muhafiza Musa[1]*, Ahmad Shahrul Nizam Isha@Isa[2]

[1,2]Department of Management and Humanities, Universiti Teknologi PETRONAS, Bandar Seri Iskandar, Tronoh, Perak, Malaysia

ABSTRACT

Objective – The present study intends to examine the safety culture and safety performance outcomes relationship, present the findings on safety culture dimensions and discuss in detailed on the moderating role of occupational health and safety management system (OHSMS) policy interventions.

Methodology/Technique – A literature research was employed to review occupational safety and health area on specific safety culture dimensions with regard to aviation (between year 1997 to 2018) as well as law and science policy on human behaviour.

Findings – The findings on safety culture dimensions were discovered from a multilevel perspective of safety culture and climate studies and were categorised as generalisation and personalisation. The findings also demonstrated the mandatory and voluntary approach in carrying out the OHSMS policy interventions.

Novelty – The findings on safety culture dimensions indicated the functionality of generalisation and personalisation that potray the substance of the workplace culture for the aircraft ground handling. The introduction of voluntary policy interventions to elevate OHSMS compliance were essential to the study because they revealed people's willingness to change their behaviour, practice self-regulation and respond to the existing regulatory models.

Type of Paper: Conceptual

Keywords: OHSMS; voluntary compliance; safety culture; safety performance outcomes

1. Introduction

The implementation of OHSMS had been recognised as an effective strategy to improve safety and health at work. Safety is motivated by culture, the management had established OHSMS as part and parcel of its culture to protect the people from any unavoidable risks (Manuele, 2019). Last few years, the frequent hazards or other potential risks in the aircraft ground handling contributed to the increase of the ground-related occurrences in Malaysia's international airports These accidents or near misses occurred continuously despite of efforts taken to manipulate work settings to control hazards and avoid unnecessary calamities or death. As a result, the setback required an intervention, which exceeded the limitations of the existing approach during the change in human behaviour.

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* Corresponding author: Muhafiza Musa
E-mail: muhafiza_16000342@utp.edu.my

Affiliation: Department of Management and Humanities, Universiti Teknologi PETRONAS, Bandar Seri Iskandar, Tronoh, Perak, Malaysia

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Legislated policy duties and employee requests were catalysts to address safety and health matters (EU-OHSA, 2012). OSH related governmental bodies and policies were established with the same purpose, to protect workers under a comprehensive safety and health regulatory regime. Studies had highlighted the issues related to regulatory and policy intervention as part of the research under occupational safety and health (OSH). According to Lamontagne (2003), stakeholders and researchers regarded national policy frameworks as the most effective strategy to improve accountability, and empower inspectors to commence constructive changes in workplace settings. As such, the steps taken under the policy intervention on OSH practices were crucial to change the existing paradigm of safety culture and, therefore, elevate the safety performance of the operation. Additionally, Cornelissen, Hoof and Jong (2017) discussed two distinct relationships that were related to the legislation/regulatory and comprised of external elements. These are (i) the law and legislation with safety outcomes, and (ii) safety performance with government (al) bodies. The results showed that the direct relationship appeared to have been scarcely investigated or lacked of investigation. Leka, Jain, Zwetsloot and Cox (2010) further stated that only few researches explored the effectiveness of the national work health and safety policy approaches, which systematically assessed policy impact over time via benchmarks.

To further discuss this matter, the following objectives had been penned for this paper:

- to explore the relationship between safety culture and safety performance outcomes;
- to present the findings on safety culture dimensions; and
- to discuss the moderating role of OHSMS' intervention policy on the safety culture and safety performance outcomes relationship of the ground handling organization.

1.1 Significance of the study

The present study is expected to contribute to the theoretical and practical as follow:

- Expanding the existing research. The study tests the significant relationship between safety culture and safety performance outcomes of the industry and validates an intervention to reduce negative safety performance outcomes of the workplace.
- The findings will produce a comprehensive theoretical and conceptual framework for later development of a research instrument that best fits with the population to address the research problem.
- The introduction of the policy intervention will provide a platform for the government and the management of ground handling companies to improve working conditions and people's health.
- The overall findings from the study will improve air transport governance and establish confidence of air traveler, local and foreign stakeholders as well as international agencies and authorities.

2. Literature Review

2.1 Safety Culture in Aviation

The International Civil Aviation Organisation Safety Management Manual (ICAO SMM, 2013) had defined the influence of organisational culture and its policies on the efficiency of safety and risk controls in commercialising aviation. The culture had been characterised by beliefs, values, biases and the resultant behaviours that had been shared among members of a society, group or organisation. The ICAO SMM had been recognised as an established source of international standards with regards to safety management system (SMS). ICAO had required SMS to be developed for all aeronautical operations, including aircraft ground handling at the airport. In the last decades, there had been an upswing profile of safety culture and climate in aviation, which can specifically be found in the literature. These studies had mainly focused on the general safety culture, and climate concept or partially on the component of main research. The study on safety culture in aviation, however was still scarcely investigated especially in the aircraft ground handling area, with the exclusion of military aviation (Wiegmann et al. 2002). This finding was surprising because the aviation had taken the upmost priority in its safety movement to maintain its standards as the safest mode of transportation in the world.

In the last decades, there's an uprising profile of safety culture and climate in aviation specific that can be found in the literature. These studies focus on the general safety culture and climate concept or as partial component to the main research. For instance, Lawrenson and Braithwaite (2018) studied on safety culture's potential as being a legal concept in commercial aviation. The study expanded the concept to facilitate conventional regulatory affairs which associate accident with corporate criminal liability. The scholars basically trying to push forward the regulatory efforts as the core component in promoting safety culture as a counter-productive method to safety performance. Atak and Kingma (2011) also discussed about safety culture but in the context of aircraft maintenance organisation. The study employed ethnographic methodology to explore the organisation development phase and associate the safety culture to production interests. The findings on organisational development formed an essential component when analysing safety culture and its relationship with economic interests. Another scholars namely McDonald, Corrigan, Daly, and Cromie (2000) proposed a model which integrated the main features of SMS, as a practical guide for management and streamline with the main components of safety culture. The model was developed from self-regulatory feedback to evaluate the safety management in aircraft maintenance organisations, with particular emphasis on the human and organisational aspects.

2.2 Safety Culture and Safety Performance Outcomes Relationship

The negative safety outcomes cropped up in different forms such as accidents, incidents and injuries. However, accidents and injuries had often been treated interchangeably with regards to their predictors (Cooper, Phillips, Sutherland, & Makin, 1994; Sulzer-azaroff, Loafman, Merante, & Hlavacek, 2013; Tuncel, Lotlikar, Salem, & Daraiseh, 2006). As such, Heinrich's triangle compartmentalized these safety outcomes into major, minor and no injury accidents. In a similar vein, Cornelissen et al. (2017) implied a related concept but was more specific on determining the categorisation of the safety outcomes. Therefore, incidents which involved near missed and employee errors w were labelled as the potential outcomes to inflict harm. On the other hand, incidents that included property or financial damage were called accidents. Accidents that involve in mental or physical damage including fatalities are known as injuries.

Several consistence evidence on significant relationship between safety culture/climate and negative safety outcomes were found in a meta-analytic studies between 2006 and 2010 (Smith-Crowe, Burke, & Landis, 2003; Zacharatos, Barling, & Iverson, 2005). Studies were measured based

on employees' perceptions on how their organisation valued safety (Beus, Payne, Bergman, & Arthur, 2010; Braun & Clarke, 2006; Christian et al., 2009). Besides that, Cornelissen et al. (2017) had conducted a systematic review of 176 online articles, which indicated that the safety outcomes and the performance prevailed as dependent research areas in which safety climate and culture were one of the determinants or precursors.

Neal and Griffin (2006) found evidence of the group-level safety climate as an antecedent of safety motivation, which in turn influenced safety behaviors. The relationships were examined over a five-year period of time, focusing from the linkages' safety climate to safety performance. on the study on group-level safety climate carried out by Zohar (2000), tested the model within a manufacturing organisation and found evidence for safety climate as an antecedent of micro accidents over a five-month period of time. The finding was a critical contribution to the literature, however the test conducted on the group-level climate implicate the difficulties to generalise the findings on organisational safety culture. Scholars had also agreed on the theory of safety behaviour and safety outcomes as predicted by the safety climate in a variety of settings (Beus et al., 2010; Christian et al., 2009).

3. Research Methodology

This paper was written based on a literature research. The sources were extracted from books, journals and online websites.

4. Results and Discussion

4.1 Generalisation and Personalisation of Safety Culture Dimensions

Several studies had been found in the literature which focused on specific safety culture and climate dimensions that were applicable to the various areas of aviation domains between the year 1997 and 2018. The findings were compared to a study conducted by Chen and Jin (2013) from a different domain, which was based on 33 related papers. Findings on safety culture and climate dimensions portrayed a crucial information on their characteristics. This information was not a distinctive item but an interchangeable and integrated element in a similar context. Hence, this research proposed a widely acknowledged safety culture and climate dimension, that would suit the aircraft ground-handling such as perception of management commitment, safety communication and reporting, training and competency and work environment. The above dimensions had been labelled as generalisation because it could be found from a multifaceted perspective, being an integrated element in many safety studies that predicted workplace injury.

The findings also managed to introduce two personalised dimensions at the individual level, which were pressure of job completion and employees' fatigue intensity. These dimensions are specifically focused and developed for the ground handling workers relating to personal priority toward operational goal and safety as well as measuring their work ability through fatigue intensity. The dimensions were made primarily from the working conditions but also considering the multiplier effect created from this high reliability organisation onto aviation domain and nation as a whole. Apart from that, the personalised dimensions were also unrepresented within the domain of SMS' factors that associated to safety, health programs, and activities (Kirwan, 1997) including ICAO SMM (2013).

4.2 OHSMS Policy Interventions in the Context of Regulatory Compliance

This paper also aimed to present several OSH policy intervention studies found in the literature with the intention to eliminate or minimise risks to the organisation and people. Intervention is necessary and crucial when a system is incapable of correcting itself or is facing a stagnant

performance. Therefore, such OSH interventions had denoted the actions of a whole constituent that compel adaptation and assist company to overcome forces that perpetuate a resistance (Ginsberg, 1988). The policy makers or company management would use such settings to change human behavior and alleviate problems from the management's system. Therefore, this problem would best suggest a systematic literature review by Robson et al., (2005) to address the effectiveness of OHSMS policy intervention. Their study concluded that the primary elements of OSHMS were carried out through two initiatives, the mandatory and voluntary approach. Mandatory refers to an initiative rooted in legislation, and is enforced through inspections, fines and other autocratic methods (Robson et al. 2005). On the contrary, voluntary approach is the willingness of the organisation to address potential harm and not directly link to regulatory requirements (May, 2005; Robson et al., 2005).

Therefore, it is significant to adopt the voluntary method as it would motivate regulatory compliance of OHSMS and produce promising results of an elevated workplace safety. The voluntary approach would best complement the regulatory strategies to facilitate compliance and address harms. It would be necessary to consider the industry stakeholders' motivation to carry out the OHSMS intervention at the workplace to understand the viability of this approach. Most of the policy interventions and regulatory literature on the present subject revealed several compliant motivations for the firms and individuals to willingly adhere to the developed guidelines. The voluntary instruments were developed out of the ordinary regulatory compliance and were derived from the established literature on intervention, specifically to suit the aircraft ground handling operations, and governing body. Such instruments were presented in the OHSMS' voluntary interventions' modelling policy in Figure 1.

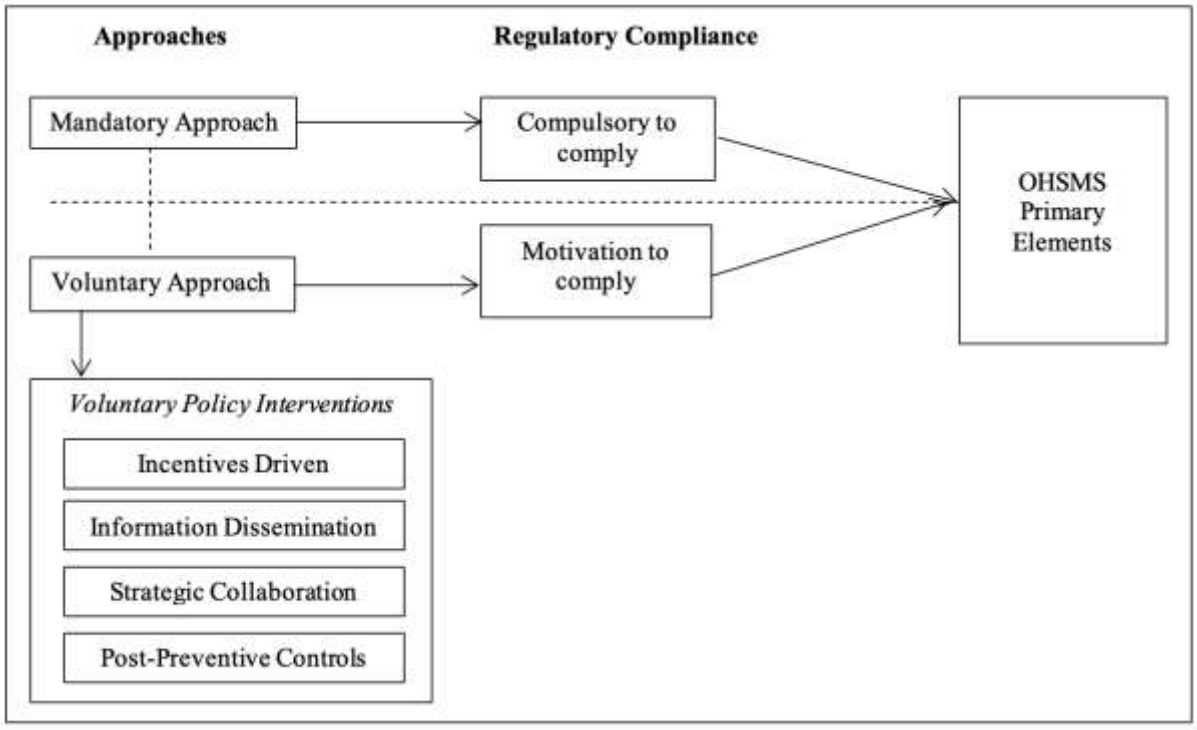

Figure 1. OHSMS Policy Interventions

4.3 Conceptual Framework

The conceptual framework as depicted in Figure 2 was constructed based on the findings from prominent literatures of safety culture and policy interventions. The framework will become the

foundation for the quantitative work and primary data collection process of this study. This framework identified six antecedents of safety culture believed to be necessary to influence the aircraft ground handling safety performance outcomes. The study will measure the relationship between safety culture dimensions and safety performance outcomes with the moderating role of voluntary policy intervention.

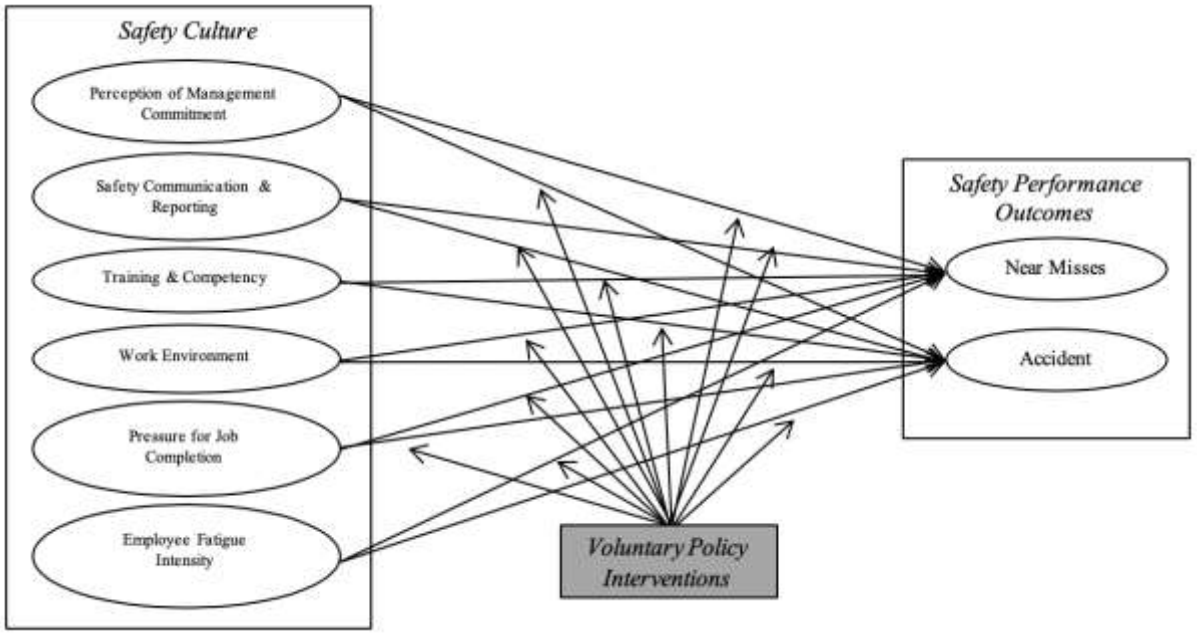

Figure 2. Conceptual Framework

5. Conclusion

The ultimate aim of this paper was to introduce an intervention, which would go beyond the common context of OHSMS' regulatory compliance. The paper addressed the first objective of the literature review, which was on the culture of safety in the aviation domain. This was done to provide evidence on its relationship to safety performance outcomes, found in safety and health literature. Next, the second objective of the paper highlighted several dimensions discovered from a multilevel perspective of safety culture and climate studies., They were then categorised in order to portray the substance of the workplace culture for the aircraft ground handling. The paper continued to discuss in detail the role of voluntary policy interventions to reduce workplace accidents and near misses, and to address the final objective of this paper. The rationale of voluntary policy intervention in the paper was to create change in the human behavior or increase the ground-handling workers' actions in a high-reliability environment. With an appropriate implementation of the policy intervention voluntary initiative, OHSMS would be able to primarily serve and develop an effective way for behavior change to protect workers' health and safety and complement the existing mandatory regulatory compliance.

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