THE IMPACT OF ORGANIZATIONAL FACTORS TOWARDS SAFETY MANAGEMENT SYSTEM PERFORMANCE OF THE ROYAL MALAYSIAN AIR FORCE

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ABSTRACT

Safety management systems (SMS) are now being implemented throughout the aviation industry. This research was designed to investigate some of the organizational factors affecting the SMS performance in a military organization, specifically the Royal Malaysian Airforce (RMAF). The factors identified from existing organizational design literature were modeled and tested. The study population consisted of pilots and engineers from different air bases throughout the country. A survey was employed as the means of primary data collection using a cluster sampling techniques combined with secondary data obtained from published reports and statistical data from authorized agencies. The results indicate that Organizational Identity and Organizational Behaviour to have a significant impact on the RMAF Safety Management System performance with Safety Culture playing a significant mediating effect. The research findings will benefit towards improving the safety culture where organizational factors play an important role to the performance of SMS. Continuous improvement in flight safety will lead to a high-performance culture enabling the RMAF to perform its mandate more effectively.

Keywords: Safety Management Systems, Organizational Identity, Organizational Behaviour, Safety Culture, Royal Malaysian Air Force.

INTRODUCTION

Safety Management Systems (SMS) is defined as a systematic approach to managing safety, including structures, responsibilities, policies and procedures of the organization (Flight Safety Foundation, 2005). SMS can be considered as a business approach towards managing safety. It provides a systematic, clear and comprehensive process for organizations to manage safety risks. Like all management systems, the SMS provides for setting goals, facilitates planning and enables performance measurement. When the SMS is entwined into the organization, it becomes part of the culture, while performing their daily routines (RMAF SMS, 2014).

Nevertheless, even though RMAF had taken the necessary precaution steps to prevent aviation mishaps, military aircraft accidents and incidents still occurs as before the implementation of RMAF SMS (RMAF Inspectorate Annual Report, 2016). Improving the SMS

performance in terms of flight safety is therefore crucial to avoid loss of aircrew life, government/ public assets and the RMAF image as a credible aviation organization. Therefore, this research is intended to study the important organizational factors that might affect the performance of RMAF SMS as a whole.

LITERATURE REVIEW

Literature review of related works has shown that some studies have been made towards establishing the various individual and organizational factors that contributes to effective safety management systems performance especially in aviation. Chen & Chen (2014) reported that the dimensions of aviation safety climate can be arranged into seven themes: safety promotion and training, commands and documentation, response plan and emergency preparedness, executive management commitment, safety management strategy, safety oversight, and audit about aviation safety. In a study conducted by O'Connor et al. (2011) revealed that supervision management, safety systems, operations personnel, communication, rule/procedures, education/training, resources and risk were among the most commonly used dimensions of any aviation safety climate which is closely related to safety culture. Zhang et al. (2013); Oster et al. (2013) and Sieberichs & Kluge (2016) also identified the human factor as another frequently used dimension for aviation safety. Remawi et al. (2011) has also identified the crucial role of aviation employees' attitude to safety culture as very important to effective implementation of safety management systems performance.

The constructs adopted in this current study has sought to incorporate the various dimensions as captured in the above studies into two factors: organizational identity and organizational behaviour and how it influences the safety culture thus contributing to the Malaysian Air Force Safety Management Systems Performance. The research will benefit towards building RMAF personnel loyalty and improving the safety culture where organizational factors play an important role to the performance of SMS.

RESEARCH MODEL

Specifically, the objective is to study the relationship between Organizational Identity (OI), Organizational Behaviour (OB) and Safety Culture (SC) towards the performance of SMS (SMSP) in RMAF (Figure 1). This study is focusing on the SMSP as a dependant variable, in relation to OI, OB as independent variables and SC as a mediator variable. The rationale underlying this model is that OI; OB should affect the diffusion of SC among pilots and engineers in the RMAF, thereby increasing their attitude and safety behaviour in the performance of their duties, i.e. the daily routine, which helps to improve the performance of SMS. A better understanding of these interactions can allow RMAF top management to adjust its safety management to improve the aviation safety performance of the RMAF.
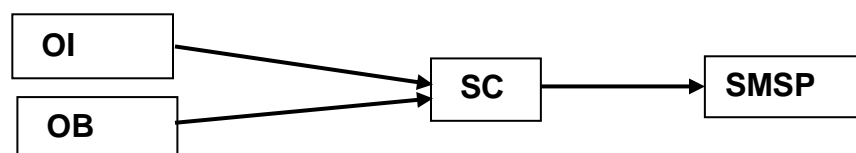

FIGURE 1

THE RESEARCH MODEL

Constructs and Hypotheses

Organizational Identity (OI)-OI is what organization members think is central, distinctive, and enduring (temporal continuity) about that organization. OI has a reciprocal relationship with individual behaviour; OI can affect individual behaviour and individual behaviour can affect OI. Positive factors of OI will create outcomes for work attitudes towards good safety culture and behaviours including motivation, job performance and satisfaction as well as performance safety management systems (Hatch & Schultz, 2002; Brickson, 2002).

> H_1 *There is a significant positive influence of OI on SC.*

Organizational Behaviour (OB)

OB is the study of the actions and attitudes that employees project within their organizations. Understanding Organizational Behaviour should help managers towards organizational effectiveness. It helps to consolidate the relevant expertise, knowledge and skills to of the employees towards organizational objectives (Frederick, 2014).

> H_2 *There is a significant positive influence of OB on SC.*

Safety Culture (SC)

SC is the enduring value and prioritization of worker and public safety by each group member and in every level of an organization (Robertson, 2018). SC is also defined as those aspects of the organizational culture which will influence attitudes and behaviour related to increasing or decreasing safety risk (Clarke 1999 & 2003; Guldenmund, 2000). SC is the way safety is perceived, valued and prioritized in an organization thereby reflecting the actual commitment to safety at all levels (Kim & Choi, 2016).

> H_3 *There is a significant positive influence of SC on SMSP.*

Safety Management System Performance (SMSP)

An overall safety management system with components that focus on organizational structure, planning, roles and responsibilities, practices, operating procedures, business processes, assets and resources. These components provide the support for the implementation, monitoring and controlling the overall safety environment of the organization (RMAF Safety Management System, 2013).

> H_4 *SC mediates the relationship between OI and SMSP.*

> H_5 *SC mediates the relationship between OB and SMSP.*

Questionnaire Design

A questionnaire was designed in which the first part is getting the demographic background of the respondents. Using validated constructs from previous research, the second part looks at the relationships between Organizational Identity (Brickson, 2002), (Hsin Lin, 2012), Organizational Behaviour (Williams & Anderson, 1991), (Teh & Yong 2011), Safety Culture (Hsin Lin, 2012) and SMS Performance (Hsin Lin, 2012; Robertson 2018).

The questions were written in English considering that the respondents involved i.e. RMAF pilots and engineers, should have sufficient proficiency in understanding English. However, all of the respondents were also explained the requirements by their respective head of department. Items were calculated using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Data Collection

The questionnaire were distributed among the RMAF pilots and engineers who were serving at RMAF Headquarters at Ministry of Defense, Kuala Lumpur as well as air bases located in Subang, Butterworth, Gong Kedak, Kuantan and Kuching. Only those that pass Basic Flying Course or pass Basic Engineering Officer Course and have working experience serving at RMAF Flying Squadron for at least one year were selected. There were a total of 226 respondents involved in giving their response of which 117 of it comprise of RMAF pilots while the remaining 109 comprise of RMAF engineers. They were from various ranks which are currently serving with RMAF flying units or had the experience serving in RMAF flying units. The questionnaire was distributed to the pilots and engineers randomly from all respective units. This is to ensure that all functional areas within the organization are fully represented.

Research participants comprises 85.4 per cent male and 14.6 per cent female. A majority of these participants are married and in their late 20's to early 40's. In terms of employees' length of service, around 70 per cent have worked between six years to twenty-five years.

RESULTS AND ANALYSIS

Data collected from the survey was analyzed via various statistical methods using the Statistical Package for Social Sciences (SPSS) version 22. Normality test was used to determine if the sample and group of data fits a standard normal distribution. As a result, two responses were removed due to outliers resulting in 224 usable responses. Analytical statistics (Pearson's correlation analysis, multiple linear regression analysis, t-test and ANOVA) were then used to test and confirm the significant and insignificant relationship (Nunnally, 1994).

Table 1 presents the summary of the Regression Analysis and the decisions with respect to the hypotheses.

In summary, the study found that Organizational Identity to significantly positively influence Safety Culture, while Organizational Behaviour does not. This may suggest that, Organizational Behaviour plays a lesser role in a highly regulated environment like the RMAF. Secondly, Organizational Identity and Organizational Behaviour are positively associated with the performance of the Safety Management System. Third, Safety Culture also significantly positively influences the performance of Safety Management System. Finally, Organizational

Identity and Organizational Behaviour through the mediation of Safety Culture positively contributed significantly to the performance of the Safety Management System in the RMAF.

VARIABLES	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Hypotheses Result
	B	Std. Error	Beta			
Safety Culture (Constant)	2.395	0.409	-	5.861	0.000	-
Organizational Identity	0.251	0.091	0.209	2.756	0.006	H1 (Supported)
Organizational Behaviour	0.15	0.095	0.119	1.572	0.117	H2 (Unsupported)
SMSP (Constant)	2.37	0.172	-	13.745	0.000	
Safety Culture	0.464	0.041	0.607	11.371	0.000	H3 (Supported)
SMSP (Constant)	2.703	0.251	-	10.782	0.000	
Organizational Identity	0.366	0.057	0.397	6.454	0.000	H4 (Supported)
SMSP (Constant)	2.675	0.275	-	9.744	0.000	
Organizational Behaviour	0.359	0.06	0.373	5.99	0.000	H5 (Supported)

Table 1
SUMMARY OF REGRESSION ANALYSIS AND HYPOTHESES RESULT

Overall, the findings points to the strong role of Organizational Identity to influence the Safety Culture. The RMAF is therefore recommended to formulate policies and activities that will increase staff motivation and job satisfaction that will strengthen their organizational identification towards the RMAF. Positive OI factors will create results for the work relation of good culture and behavior in the field of safety, including motivation, performance and satisfaction, as well as the effectiveness of safety management systems in the RMAF.

The findings can also be generalized to other organizations that seek to improve their safety management systems performance. It points to the need to have a better understanding of these relationships which can allow senior management to enhance their personnel identification towards the organizational safety culture, and to shape their safety management systems towards improving their performance.

SUGGESTIONS FOR FUTURE RESEARCH

The research can be extended to all RMAF pilots and engineers at all the RMAF bases to increase sample size. Research can also be conducted in a more holistic manner, involving officers at different levels of management in all RMAF bases. A theoretical extension could be to investigate other possible organizational factors such as the role of top management commitment and leadership.

A similar study could also be done at other Military organizations such as the Royal Malaysian Navy and a comparative analysis could yield some interesting insights towards contributing to the overall effectiveness of Safety Management Systems performance of the Malaysian Armed Forces.

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