Skills, knowledge and senior managers' demonstrations of safety commitment

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ABSTRACT

Senior managers' safety commitment is emphasised in the safety literature as a crucial influence on organisational safety. Yet there is little understanding of the characteristics that underpin their ability to engage in behaviours that demonstrate safety commitment. This study investigates the contribution of problem-solving, social competence and safety knowledge to such behaviours. Senior managers ($N = 60$) from European and North American air traffic management organisations participated in interviews consisting of open questions designed to trigger safety knowledge and descriptions of behaviours that demonstrate safety commitment as well as scenarios designed to trigger problem-solving and social competence. Reliable scores were generated through systematic scoring procedures involving two independent coders. The results indicated that problem-solving, namely the number of issues and information sources considered when understanding problems and generating ideas to solve a problem were positively related to demonstrations of safety commitment. The ability to perceive others was also found to correlate with safety commitment, whereas safety knowledge was not associated with behaviours that demonstrate safety commitment. It is proposed that training and guidance designed for senior managers should focus on their problem-solving abilities and perception of others in order to support them in demonstrating safety commitment.

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1. Introduction

As leaders of organisations, senior managers crucially contribute to organisational safety (Michael et al., 2005). Reviews of the safety climate literature (Flin et al., 2000; Guldenmund, 2000, 2007; Shannon et al., 1997) identified 'management' and their attitudes and behaviours as one of the most frequently measured safety climate factors. The predominant attribute deemed to be crucial for management's influence on organisational safety in the literature is their safety commitment. Neal and Griffin (2004) define management's safety commitment as "the extent to which management is perceived to place a high priority on safety and communicate and act on safety issues effectively" (p. 27). Two meta-analyses report management commitment to safety as not only the most frequently measured, but also one of the most influential organisational factors for safety performance and injuries (Beus et al., 2010; Christian et al., 2009).

Studies measuring safety commitment have construed this concept as reflected in five aspects of management action. These are managers' decision- and policy-making (Andriessen, 1978; Cohen, 1977; DeJoy et al., 2004; Warrack and Sinha, 1999; Zohar and Luria, 2005) and their active involvement and communication with the workforce (Cohen, 1977; Dedobbeleer and Beland, 1991; Harper et al., 1996; O'Toole, 2002; Simard and Marchand, 1997; Warrack and Sinha, 1999; Zohar and Luria, 2005). Other studies have focused on management's influence on organisational practices (Hansez and Chmiel, 2010; Yule et al., 2007; Zacharatos et al., 2005) and their safety values (Griffin and Neal, 2000; Rundmo and Hale, 2003) as reflecting safety commitment.

The theme of safety commitment also appears alongside ineffective leadership, lack of appreciation of responsibility for safety and a lack of feedback and continuous reinforcement from the top, as senior managerial contributions to accidents in investigation reports (Baker, 2007; BFU, 2004; Sheen, 1987). Most recently, the President's report (2011) on the BP Deepwater Horizon accident in April 2010, which killed 11 people and caused substantial costs and environmental damages states: "The critical common element is an unwavering commitment to safety at the top of an organization: the CEO and board of directors must create the culture and establish the conditions under which everyone in a com-

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pany shares responsibility for maintaining a relentless focus on preventing accidents." (p. 218).

Senior managers are generally under-researched in the leadership (Zaccaro and Horn, 2003) and safety literature (Flin, 2003). Although leadership at lower organisational levels has been studied extensively, such insights are not always applicable to the senior level, where positions differ crucially from lower levels (Hambrick, 1989) and managers at this level are likely to have a distinct influence on safety (Clarke, 1999). Accordingly, a need for research involving senior managers exists.

The majority of research on managers' safety commitment has approached this concept as an expression of concern for safety that is reflected in behaviours, with a particular focus on how employees perceive these behaviours. Such a conceptualisation underlies managerial safety commitment as a central component of safety climate or culture. However, the perception through the eyes of employees is only one upward perspective on the concept of safety commitment. In fact, very little empirical work has investigated what attributes of a senior manager may influence these demonstrations of commitment to safety. Because safety commitment is highlighted as so central to this group's influence on organisational safety, this angle not only offers new theoretical insights but also understanding of practical relevance for the selection and training of senior managers. Consequently, this study investigates the contribution of two skills, problem-solving and social competence, as well as safety knowledge, to the capability of senior managers to show their commitment to safety.

This investigation involves senior managers working in air traffic management (ATM). ATM is provided by Air Navigation Service Providers whose employees' guide airplanes at airports and enroute to ensure traffic safety and efficiency. In increasingly busy airspaces, these organisations contribute towards flying being one of the safest ways to travel (EASA, 2010). Studying senior managers in this environment enables insights from a group that works at the upper end of the reliability distribution of organisations.

1.1. Skills, knowledge and safety commitment

A focus on skills and knowledge as determinants of behaviours that can indicate safety commitment follows the senior management research's emphasis on individual characteristics as most appropriate to understand this group's influence on organisations (Day and Lord, 1988; Hambrick and Mason, 1984). The consideration of problem-solving, social competence and safety knowledge was guided by the skills-based leadership model (Mumford et al., 2000) and the specific literature outlined below.

Problem-solving has been defined (Brophy, 1998) as the process of working towards a goal when the means to get there are not known. According to Isaksen and Treffinger (2004), this consists of three stages: understanding the problem, generating ideas and planning the implementation of ideas. In line with descriptions of strategic work (David, 2001), senior managers will especially engage in the first two stages of the problem-solving process in their work, whereas the actual implementation of ideas will be delegated to others. Consequently, senior managerial problem-solving is most likely to crucially contribute to their safety commitment with respect to these two stages. First, the way management approaches safety problems, is proposed to function as a frame of reference for organisational members, which goes onto reflect senior management's commitment to safety (Zohar and Luria, 2005). A manager who is able to engage with safety related problems effectively, from many angles and aims to gain a deeper understanding of such problems by using multiple information sources, is likely to make decisions that will affect safety positively. Consequently, his or her interest in safety will be evaluated by the workforce as reflecting commitment to safety. Secondly, the ideas a senior man-

ager generates to solve safety problems will shape an organisation's work conditions (e.g. equipment, staffing level, training, awareness campaigns), which are likely to be used as proxies for the manager's safety commitment by the workforce (e.g. Hansez and Chmiel, 2010). Accordingly, it can be proposed that the skill of a senior manager to engage with safety problems effectively will support him or her in showing behaviours that reflect commitment to safety.

Baron and Markman (2000) define social competence as consisting of perceiving others, being able to adapt in social situations, express one's opinion, to persuade others and to be able to induce positive reactions in others. Personable communication of senior managers with the workforce is frequently emphasised as a powerful vehicle for senior managers to convey their safety message (e.g. Harper et al., 1996). Site visits have been suggested as benefitting from high levels of social competence as these provide an opportunity to demonstrate the managers' commitment to safety (Hopkins, 2011).

Two aspects of social competence can be highlighted as being especially relevant for senior managerial influence on safety: social perception and persuasion. Gardner and Stough (2002) emphasise the ability to understand the emotions of others as being among the strongest predictors of senior managers' effectiveness and this has also been highlighted for the influence on safety (Hopkins, 2011). A senior manager's ability to show active involvement and communicate effectively will be facilitated by their social perception skills. Persuasion can also be particularly relevant for the management of safety, as safety is an abstract goal, for which indicators are not easily defined (Hale, 2009). According to goal setting theory (Locke and Latham, 1990) safety is a difficult goal to drive individuals towards suggesting the ability to persuade others of the importance of safety contributes to a manager's safety commitment.

Based on the definition of knowledge in the Oxford Online Dictionary, we conceptualise safety knowledge as consisting of facts and information, theoretical and practical understanding, awareness gained by experience as well as background and education in relation to safety. Finkelstein (1992) evaluates expertise and knowledge as one of the main tenets of senior managerial power. To show commitment to safety, a senior manager is likely to require high levels of safety knowledge to act appropriately in relation to safety matters and to communicate related facts to the workforce. Safety knowledge can enable a senior manager to understand safety related information and to draw meaningful conclusions from it, which can guide demonstrations of safety commitment.

Accordingly, we suggest that problem-solving (consisting of understanding problems and generating ideas), social competence (consisting of perceiving others and persuasion) and safety knowledge will be relevant for a senior manager's capability to demonstrate safety commitment. We investigate the relationships of these skills and knowledge with behaviours through which senior managers can show their safety commitment.

2. Method

2.1. Sample

A total of 60 senior managers from 11 Air Navigation Service Providers in Europe (10) and North America (1) were interviewed (response rate 79%). The sample consisted of senior managers, either CEOs, direct reports to CEOs or board members (e.g. safety managers, director of operations, head of engineering, head of ATM, head of HR, head of finance and others). The participating organisations covered a broad geographical and cultural range, as