



# Safety climate dimensions, leader–member exchange, and organizational support as predictors of upward safety communication in a sample of rail industry workers

Lisa M. Kath<sup>a,\*</sup>, Karen M. Marks<sup>a</sup>, Joyce Ranney<sup>b</sup>

<sup>a</sup> San Diego State University, 5500 Campanile Drive, MC-4611, San Diego, CA 92182-4611, United States

<sup>b</sup> Volpe National Transportation Systems Center, 55 Broadway, Kendall Square, Cambridge, MA 02142, United States

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## ABSTRACT

The freedom employees feel to communicate safety concerns with their supervisors, termed upward safety communication, has been shown to be related to adverse safety events (Hofmann and Morgeson, 1999). Research to date has demonstrated that good supervisor–employee relationships (leader–member exchange), a sense that the organization values an employee (perceived organizational support) and safety climate (including perceived management attitudes toward safety, job demands interfering with safety, and pressure from coworkers to behave safely) all contribute to employees' comfort in bringing up safety issues with their supervisors. However, little is known about which specific dimensions of safety climate are most predictive of upward safety communication. Using a sample of 548 railway workers, we found that when all factors were considered simultaneously using dominance analysis, the dominant factor predicting upward safety communication was perceived management attitudes toward safety, followed by job demands interfering with safety and then leader–member exchange. Implications for research and practice are discussed.

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## 1. Introduction

Workplace safety is an organizational issue that continues to exact costs from companies in financial and human capital. The United States Department of Labor (2007) reported 4.4 million occupational injuries in 2005. The National Safety Council (2002) reported that these occupational injuries are costing an estimated of \$512.4 billion annually for organizations. What can organizations do to keep their employees safe and minimize the costs associated with employee injuries?

Most organizations focus on safety policies and procedures when considering how to enhance a safe working environment, such as safety training workshops, safety manuals, and the like. However, many organizations fail to recognize the human component of a safe workplace. The best-designed policies and procedures embedded in an organizational environment that is not supportive of safety measures are often doomed to failure.

The freedom employees feel to discuss safety issues with their supervisors, which Hofmann and colleagues have termed *upward safety communication*, has been identified as a critical component of a safe work environment (Hofmann and Morgeson, 1999; Hof-

mann and Stetzer, 1998). Hofmann and colleagues have shown that when employees feel free to raise safety concerns with their supervisors, injury rates decrease. This is likely due to benefits of improved communication between employees and supervisors, such as a better understanding of proper safety policies and procedures, improved monitoring of employee compliance with those procedures, and early identification of problems that allows for preventative measures to be developed.

Given that increased freedom to raise safety concerns is related to fewer injuries, it is important for organizations to understand how to increase this type of communication between employees and supervisors. Previous research has indicated that there are at least three broad predictors of upward safety communication, namely leader–member exchange, perceived organizational support, and safety climate (Hofmann and Morgeson, 1999; Hofmann and Stetzer, 1998). Construct definition and measurement for the first two (leader–member exchange and perceived organizational support) are fairly well-established (Eisenberger et al., 1986; Graen and Uhl-Bien, 1995; Wayne et al., 1997). The third factor (safety climate) has not been thoroughly analyzed (Flin, 2007; Flin et al., 2000; Guldenmund, 2000; Mueller et al., 1999). Hofmann and Stetzer's link between safety climate and upward safety communication relied on a general measure of safety climate (1998), but safety climate has often been discussed as having many different dimensions (e.g., Mueller et al., 1999). Our aim in the current study is to use dominance analysis to provide an initial examination of

\* Corresponding author. Tel.: +1 619 594 8702; fax: +1 619 594 1332.

E-mail address: [lkath@sciences.sdsu.edu](mailto:lkath@sciences.sdsu.edu) (L.M. Kath).

which dimensions of safety climate were most predictive of upward safety communication in a sample of employees where safety is a major concern.

## 2. Upward safety communication

Research on workplace safety has shown that there are various ways organizations can attempt to decrease the number of injuries that occur on the job, such as mandatory safety training and regular appraisals on employee safety compliance. In addition to safety policies and procedures, communication can also be an extremely important part of reducing workplace injuries. As noted above, the freedom employees feel in discussing safety issues with their direct supervisors, or upward safety communication, has been linked to improved safety commitment as well as decreased injuries (Hofmann and Morgeson, 1999; Hofmann and Stetzer, 1998). We seek to replicate and add some specificity to Hofmann and colleagues' findings regarding what predicts employees' comfort with raising safety concerns with their supervisors (Hofmann and Morgeson, 1999; Hofmann and Stetzer, 1998).

Consider an example where Dan works for John in a railroad company. Dan notices one day before his shift starts that the ice on the railroad track was not removed completely by the early morning shift, which could cause workers to slip and fall or prevent them from getting out of the way of moving equipment. He thinks the workplace would be safer if work was postponed until the track was completely cleared of all ice and snow. What would make Dan more likely to approach John with his idea?

### 2.1. Social exchange perspective

Hofmann and Morgeson (1999) studied how social exchanges between employees and their supervisors affect the safety of the working environment. They invoked Blau's *Social Exchange Theory* (1964) when stating that perceived management attitudes about safety, a key component in safety climate (Zohar, 1980), could be considered an implied obligation for employees to engage in safe behaviors at work. Using this perspective, safety behavior, such as upward safety communication, is cast as an employee citizenship behavior. Picking up on the earlier example, if Dan perceives that his organization and his supervisor are supportive of him, he is likely to feel obliged to reciprocate by informing them of the potentially dangerous ice buildup on the tracks.

One aspect of social exchange is expected to occur at the organizational level. Eisenberger et al. (1986) defined perceived organizational support (POS) as "global beliefs concerning the extent to which the organization values their contributions and cares about their well-being" (p. 501). Perceived organizational support develops because employees have a tendency to assign humanlike characteristics to their employing organization (Eisenberger et al., 1986). Furthermore, POS is one-sided in that it focuses solely on the employer's side of the exchange as perceived by the employees (Coyle-Shapiro and Conway, 2005).

An employee's perceptions of the organization's concerns for its employees is an important precursor to safety communication. Employees who perceive their organization has concern for them and cares for their well-being will feel freer to raise safety concerns with their supervisors. Hofmann and Morgeson (1999) demonstrated that POS is positively related to upward safety communication. When there is organizational support and concern, employees are more likely to feel that safety issues are important and that action will be taken. This will likely help employees feel free to raise safety concerns with their supervisors. Therefore, we expect to replicate Hofmann and Morgeson's finding that employees who perceive the organization is concerned about its employees will

report greater comfort in communicating with their supervisors about safety issues than those who do not perceive much organizational concern.

**Hypothesis 1.** Perceived organizational support will be positively correlated with upward safety communication.

Another aspect of social exchange is expected to occur with one's supervisor. The strength of a working relationship in which an exchange occurs between an employee and his/her supervisor has been termed leader-member exchange (LMX; Graen and Scandura, 1987). When supervisor-employee relationships are good (i.e., when LMX is high), the relationship is based more on mutual trust than hierarchy, and goals are internalized by the employee. LMX involves an exchange of resources between employees and leaders (Graen and Scandura, 1987). Employees offer high levels of performance for the exchange, whereas leaders can offer employees influence in the decision-making process, valued task assignments, autonomy to perform tasks without direction, support for the activities of the employees, and attention for professional development.

High quality supervisor-employee relationships have many positive organizational outcomes, such as job performance, organizational citizenship behaviors, and doing favors for others (Wayne et al., 1997). Fairhurst (1993) studied the communication patterns for high, medium and low LMX dyads. The study found that high quality supervisor-employee relationships involve open discourse surrounding non-routine problems. Applying this finding specifically to safety communication, it is expected that employees who have strong relationships with their supervisors will feel more comfortable discussing safety concerns with those supervisors. As a result, they will feel free to discuss even the smallest concern with their supervisor to correct or avoid potential safety incidents. When supervisor-employee relationships are poor in quality, employees may feel uncomfortable or even afraid to bring any safety concerns to the supervisor's attention. In this situation, safety issues may surface only after an incident has progressed to a point when it becomes acute.

Previous research has demonstrated that high LMX is positively related to upward safety communication (Hofmann and Morgeson, 1999). We expect to replicate this finding and have included the quality of the supervisor-employee relationship as an important antecedent of upward safety communication in the proposed model.

**Hypothesis 2.** Leader-member exchange will be positively correlated with upward safety communication from employees to their supervisors.

### 2.2. Safety climate perspective

Safety climate is defined as employees' perceptions pertaining to safety policies, procedures, and practices (Zohar, 1980, 2002). Policies and procedures are the guidelines established to ensure safe behavior, and practices are the implementation of the policies and procedures as well as employees' perceptions of the relative importance of safe conduct at work (Zohar and Luria, 2005). A strong, positive safety climate is created when management, coworkers, and job tasks consistently encourage employees to carry out their jobs safely.

A positive safety climate is an important part of a safe work environment. A great deal of past research has examined the many benefits of having a positive safety climate in an organization (e.g., Griffin and Neal, 2000; Hofmann and Stetzer, 1996, 1998; Huang et al., 2006; Zacharatos et al., 2005). Hofmann and Stetzer (1996, 1998) studied the effects of safety climate using employees from a large chemical processing plant and a large utility company. Both

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