The social aspects of safety management: Trust and safety climate

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A B S T R A C T

This study tested the contribution of trust between leaders and subordinates to safety. It is suggested that leaders who create a relationship of trust with their subordinates are more likely to create a safe working environment, and to achieve higher and stronger safety-climate perceptions among their subordinates. Hence, trust should be negatively related to injuries and positively related to safety climate. Questionnaires distributed among 2524 soldiers in three army brigades tested for trust and safety-climate variables and were then crossed with injury rate according to medical records at the platoon level of analysis ($N = 105$). Trust was found to be negatively related to injuries and positively related both to level and strength of safety climate. Furthermore, safety-climate level was found to mediate the relationship between trust and injury rates. Theoretical and practical implications are discussed.

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1. Introduction

A large part of the literature and knowledge about safety concentrates on technical elements, sometimes referred to as "safety engineering". Previous works essentially argue that, in order to prevent accidents, one must eliminate risks from the physical environment (e.g. Woodside and Kocurek, 1997). In spite of great advances in safety engineering, accidents are never totally eliminated, and it is now clear that human behavior within the physical environment is a crucial factor in accident prevention. Behavior not according to safety regulations prevails during many routine jobs because of the short-term perceived benefits of unsafe behavior (such as comfort, time), which are assigned greater psychological weight in human decision making than the risk of accident (Barron and Erev, 2003; Erev, 1998). Safe behavior is thus an ongoing managerial challenge (Zohar, 2002).

Failure to use the protective gear provided at the workplace accounts for about 40% of work accidents, and this statistic has not changed in more than 20 years despite ongoing efforts (Nationsl Safety Council, 1999). This re-occurring risky behavior has been shown to be sensitive to managerial activities. In several intervention studies Zohar (2002), and Zohar and Luria (2003) have shown significant decrease in failures to use protective gear in departments where the direct manager interacts frequently with his or her employees about safety issues.

Aiming for better understanding of the human behavior component and the role of the manager in safety, a growing body of research concentrates on psychological variables and their relationship with safety behavior. Two important contributions of this body are that: (1) quality of social relationship between managers and employees contributes to employee safety (see for example Zohar, 2002; Wallace et al., 2006). These social variables include transformational leadership (Zohar and Luria, in press), and high quality of social relationship (Geller, 1991). (2) Facet-specific safety variables are related to safety outcomes. Implicit in this approach is that the psychological variables can be limited to specific organizational facets or domains (e.g. climate for service, innovation, ethics, safety; Schneider et al., 2000). That is, psychological variables should have a strategic focus (in this case safety). Such facet-specific safety variables include: safety climate (Clarke and Ward, 2006; Luria, 2008; Neal and Griffin, 2006; Zohar and Luria, 2004, 2005), safety leadership (O'dea and Flin, 2001; Barling et al., 2002), etc.

The safety-specific variables have proven to be valid predictors of safety outcomes. For example, a meta-analysis of safety climate identified significant relationships between safety climate and outcomes such as employee safety behavior and accident/injury rate (Nahrgang et al., 2007), while safety-specific transformational leadership predicted occupational injuries (Barling et al., 2002). Theoretically, facet-specific safety variables reflect the centrality of safety in an organization and therefore influence the behavior of organizational members (Zohar and Hofmann, in press).

In sum, studies of human safety have shown that where a safety is a central goal for managers/management in an organization, and when a good social relationship exists between managers and employees, members of that organization are less likely to be involved in accidents. In this study we aim to integrate these two lines of research and examine trust as a fundamental building block in the relationship (Mayer et al., 1995; Tzafrir and Dolan, 2004), together with safety climate as a safety-specific variable (Zohar, 1980). Thus we explore trust between subordinates and leaders

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as antecedent for the promotion of safety within an organization, focusing on safety climate as the mediator between social relationships and safety outcomes.

1.1. Trust in the leader and safety

Trust is defined as "a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another" (Rousseau et al., 1998, p. 395). Similarly, McAllister (1995) defined interpersonal trust between managers and workers in organizational settings as the "individual's belief in, and willingness to act on the words, actions, and decisions of another" (p. 25). The individual's trust in the leader is thus likely to influence his/her perceptions and behavior. In relationships between a leader and followers, and in predicting unit performance the trust variable was also conceptualized at a higher level of analysis, i.e. the group level (see for example Simons and Peterson, 2000; Dirks, 2000; Webber, 2002). Accordingly, it is assumed that level of trust in a leader is shared by members of a group, and that when different members experience interactions with a trustworthy leader, high trust levels should emerge within the group.

Trust is thus an indicator of the quality of social exchange, in which many theories of trust are grounded (Blau, 1964; Whitener et al., 1998). According to social exchange theory, gradual expansion of exchanges over time creates trust (Blau, 1964). Previous studies stress that, within social exchanges, trustworthy behavior consists of such actions such as showing consideration and sensitivity towards others and towards situations (McAllister, 1995). The quality of the social exchange relationship between leader and subordinates influences the leader's concern for subordinates' wellbeing (Austin and Vancouver, 1996). This is also consistent with the concept of the reciprocity that leaders develop with their subordinates (Yukl, 1998). In situations involving risk of injury, it also pertains to physical wellbeing and safety (Hofmann and Morgeson, 1999).

Group leaders who have a trusting relationship with subordinates should be concerned for their wellbeing and consequently practice better safety. For example, they should resist short-term production pressures which are often met at the cost of compromising subordinates' safety (Pate-Cornell, 1990). Eventually, leaders will create safer work conditions for subordinates, as demonstrated in previous studies in which high quality of social relationship was found to promote safety (Geller, 1991) and health (Heaphy and Dutton, 2008).

In this study we sampled soldiers in operational units. These soldiers are exposed to many safety risks, having to work day and night in outdoor conditions, using weapons and live ammunition, driving armored vehicles, etc. They mostly operate in platoons under the command of their platoon officer, who is also in charge of managing and monitoring safety in the platoon. Some officers develop better trust relationships with their subordinates, and it is predicted that these commanders will care more about the safety of their subordinates, who would consequently suffer less injury.

Hypothesis 1. Trust in the leader will be negatively related to injury rate.

1.2. Mediating effect of safety climate on the trust and injury rate relationship

The main reason for interest in trust is the conviction that it has significant impact on a variety of organizational outcomes (Dirks and Ferrin, 2002). This said, a review of the consequences of trust in leaders drew no conclusive findings concerning behavioral and performance variables, although some consistent evidence of relationship with attitudinal variables was found (Dirks and Ferrin, 2001). One such variable is climate, i.e. shared perceptions among members of an organization concerning the procedures, practices and kinds of behaviors that get rewarded and supported with regard to a specific strategic focus (Schneider, 1990). Searching for methods of improving safety, researchers also examined the impact of trust on safety outcomes. Slovic (1993) found that trust plays an important safety-related role by influencing communication of risk. Reason (1997) suggested that trust promotes safer behavior and reduces accidents in the workplace.

Though research into the link between safety climate and trust is still sparse, one can learn about it via the related concept of safety culture. Analysis of the 54 definitions of culture revealed that culture is a system of shared norms, beliefs and values that shape the way of doing things in an organization (Verbeke et al., 1998 p. 313). Zohar and Hofmann (in press) explained the link between climate and culture and suggested that organizational climate can be viewed as a bottom-up indicator of underlying core values and assumptions that form an organization's culture. Therefore, as suggested by Ostroff et al. (2003), climate can be viewed as a cognitive mechanism for the interpretation of culture by organizational members (Ostroff et al., 2003). These explanations of the relationships between climate and culture are consistent with Denison's (1996) insistence that culture and climate overlap.

Studies that measured safety culture and safety climate reported a positive relationship between the two (Luria and Rafaeli, 2008). According to Reason (1997), trust plays an important role in promoting a safety culture in which employees can report incidents without fear of being blamed for them, and feel that they can modify organizational safety hazards if necessary. Two recent studies show results that support the central role of trust in safety culture (Jeffcott et al., 2006; Cox et al., 2006). Cox et al. (2006) reported the results of two case studies. The first was in a nuclear organization in which the high levels of internal trust encouraged employees to take responsibility for safety within the organization and to develop an effective safety culture based on reporting safety events and learning from those events. In the second case (an offshore organization), low trust relationships between stakeholders were shown to have negative impact on safety culture, and to reinforce blame culture in which employees do not report safety-related information.

Trust thus promotes care for the safety of subordinates (see Hypothesis 1), while the safety climate model denotes managerial commitment to safety (Zohar and Luria, 2005). Climate is comprised of shared perceptions among organizational members concerning policies, procedures, practices, indicating which kinds of behavior are rewarded and supported with regard to specific strategic foci (Schneider, 1990). The core measure is *safety-climate level*, defined as the mean climate score of a group, aggregating individual perceptions to the required level of analysis (Reichers and Schneider, 1990). A high level of safety climate indicates high priority of safety in a unit (Zohar, 2000; Zohar and Luria, 2004). For example, when organizational members perceive that safety is highly important in their unit, each of them will report high levels on the safety climate scale, and the overall mean unit score (averaging all items and members of a unit) will be high.

It is proposed that in organizations or units in which a relationship of trust exists between leaders and their subordinates, high safety climate is more likely to emerge. The positive relationships between trust and safety climate are predicted because (as explained in Hypothesis 1) trust should be related to safety practices of the leader (Zohar and Luria, 2004). In other words, subordinates perceive the importance of safety by paying attention to leaders' decisions emphasizing the importance of safety. Hence, leaders who develop a high-trust relationship with their