



## Safety motivation at work: Evaluation of changes from six interventions



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### ABSTRACT

Unsafe work environments can be both unhealthy for employees and costly for organizations. Safety motivation is essential to enhancing safety behaviors among employees. The objective is to evaluate whether six different interventions including safety training increase safety motivation. A validated questionnaire was used at two metal companies, two municipal agencies, one paper mill, and one plastic company. Statistical tests were used to compare the results at the factorial and item levels. In three cases, safety motivation changed significantly at the factorial level. There was a significant difference in each intervention at the item level. The outcomes indicate that the degree of participation, the number of occasions, the primary target group, and the decision maker of the intervention affect safety motivation.

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### 1. Introduction

Although work environments in general have improved over the years, Swedish workplaces continue to face some problems. Over 30,000 work accidents with sick absences were reported annually during the period of 2011–2013 (Swedish Work Environment Authority, 2014). For employers, absent employees lead to increase in costs and lost human capital. In addition, a poor work environment can lead to decreased productivity among workers (Jeding et al., 1999; Leman et al., 2010). For employees, the consequences include impaired quality of life, health problems (Rose and Orenius, 2006), and withdrawal from the labor market at an early age (Nilsson, 2005).

In Sweden, extensive regulations on the work environment impose obligations on the employer. One such regulation is the seminal regulation “internal control,” of 1991, which stresses that employers should enact safety improvements for the company continually. In 2001, the regulation was adjusted and labeled “systematic work environment management” (Swedish Work Environment Authority, 2001). The regulation has, to some extent, proven to be difficult to implement for small- and medium-sized enterprises (SMEs) because of a lack of knowledge, the perception of its being time consuming, or the absence of financial resources (Gunnarsson et al., 2004).

Another reason why work environment regulations are not always followed and workplace accidents occur is a lack of

motivation regarding safety issues. Indeed, motivation is often absent when implementing health and safety measures at a company (Kwon and Kim, 2013). *Safety motivation* is defined as “an individual’s willingness to exert effort to enact safety behaviors and the valence associated with those behaviors” (Neal and Griffin, 2006, p. 947). Thus, there is causality between safety motivation and behavior; therefore, the stronger the safety motivation is among employees, the more willing they are to practice safe behaviors (Chen and Chen, 2014). Thus, safety motivation among both employees and leaders is essential to create a safe workplace (Helander, 1991).

Interventions have been shown to be effective for increased collaboration, conflict management, and change management in organizations (Häggqvist, 2004). Moreover, literature demonstrates that organizations may benefit financially from, for example, ergonomic and musculoskeletal injury prevention interventions (Tompa et al., 2009). It is important that the owner/manager is aware of the need for interventions (Rydell et al., 2014) and makes a decision that the workplace will participate in. A study of occupational health and safety program shows that the motivation to participate is influenced by the approach to the program, the specific content of the program, and to what degree the context limits program mechanism (Kvorning et al., 2015). However, to carry out the implementation of interventions in organizations can be complex (Goldenhar et al., 2001; Robson et al., 2007). It is important to understand both the context where the intervention is performed (Goldenhar et al., 2001; Zohar and Luria, 2003; Ipsen et al., 2015) and the attitudes, knowledge, and behaviors of the target groups (Goldenhar et al., 2001). Nevertheless, the intervention development may though favor from being theory based (Goldenhar

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et al., 2001). In addition, other studies show that the intervention activity benefits from being adapted to the specific workplaces, with a focus on the target group that supports and contributes to the process and engages in the activities. Trusted internal facilitators are often selected. Participation in the process proved to be an enabling factor for the intervention. It may also be good for interventions at organizational level to have participation at several levels in the company (Ipsen et al., 2015). Further, it is important to consider changes at other levels of the organization (Zohar and Luria, 2003). Moreover, comprehensibility and manageability within interventions increases the meaningfulness of safety and thereby the motivation (Stave, 2005).

Even though there is knowledge of workplace hazards and ways to measure, minimize, and eliminate them (Rosén et al., 2005a), there are, to date, relatively few studies focused on measuring employee safety motivation. However, one such study is presented by Hedlund et al. (2010), who developed a questionnaire aimed to measure safety motivation. That questionnaire is used in practice herein, and accordingly, safety motivation is measured in six cases, before and after an intervention. The aim is to evaluate whether these interventions increase employee safety motivation.

## 2. Safety motivation

Research shows that different aspects, such as goals, leadership/influence tactics, safety climate, participation, and compliance are related to safety motivation (Neal et al., 2000; Neal and Griffin, 2006; Hedlund et al., 2010). Hedlund et al. (2010) identified three factors that, with 61.6% of the total variance, explain safety motivation. The three factors are “perception of safety behavior,” “intrinsic safety motivation,” and “perception of safety goal setting.” The present study uses the factors to analyze safety motivation, which is discussed in detail below.

### 2.1. Perception of safety behavior

The factor “perception of safety behavior” involves perceptions of participation, compliance, and leadership regarding work environment improvements. It accounts for most of the variance (41.6%). In addition, it generally includes perceptions of the responsibilities, resources, and participation of coworkers, management, and self (Hedlund et al., 2010).

Studies have revealed that safety motivation is strongly determined by leadership and the safety standards of the leader (Andriessen, 1978). The leader plays a key role in promoting safety at work, and this is called “leadership/influence tactics” (Clarke and Ward, 2006; Hedlund et al., 2010). Indeed, leaders can improve safety participation and the safety performances of employees and create a safety climate using empowering attitudes (Martínez-Córcoles et al., 2011, 2012, 2013).

Employees' practices relating to safety at work can be divided into safety participation and safety compliance. Safety participation refers to behaviors beyond the worker's formal role, including greater voluntary elements (Neal and Griffin, 2006). Safety participation involves voluntary elements and behaviors, such as communicating safety concerns to coworkers (Griffin and Hu, 2013). Safety compliance, in contrast, refers to “core activities that individuals need to carry out to maintain workplace safety” (Neal and Griffin, 2006, p. 947). It includes standard work procedures and wearing personal protective equipment (Neal et al., 2000; Neal and Griffin, 2006). Both safety participation and compliance have been used as components for safety-related performance, and they are essential behaviors for developing a work environment that supports safety (Griffin and Neal, 2000). Safety motivation is, according to previous studies, related to safety knowledge, and both are related to safety performance (Christian et al., 2009).

The research literature is somewhat inconsistent and inconclusive regarding whether compliance or participation exhibits the stronger relationship with safety motivation. One strand suggests that safety motivation exhibits a stronger relationship with safety compliance than with participation (Neal et al., 2000; Chen and Chen, 2014). In contrast, another study shows that higher safety motivation correlates with increased safety participation, but no significant correlations to safety compliance were found (Neal and Griffin, 2006). A later study showed that employees' perceptions of safety compliance correlated with “perception of safety behavior,” whereas safety participation correlated with “intrinsic safety motivation” (Hedlund et al., 2010).

### 2.2. Intrinsic safety motivation

The factor “intrinsic safety motivation” accounts for 11.8% of the variance. The factor involves perceptions regarding the importance of work environment improvements and the personal degree of participation. Generally, intrinsic safety motivation includes an individual's perception of the importance of resources, consultation, participation, and initiative in enterprises and safety improvements (Hedlund et al., 2010).

*Intrinsic motivation* is defined as “the doing of an activity for its inherent satisfactions rather than for some separable consequence” (Ryan and Deci, 2000, p. 56), and it can be separated from extrinsic motivation, which refers to “a construct that pertains whenever an activity is done in order to attain some separable outcome” (Ryan and Deci, 2000, p. 60). Extrinsic motivation can affect intrinsic motivation, such as when employees receive constructive and positive feedback from management, creating intrinsic motivation. A leader can support and recognize improvements among employees by creating a sense of accomplishment and belonging to the organization, which also can lead to intrinsic motivation (Kotter, 2001). In contrast, rewards in terms of money can decrease intrinsic motivation (Deci, 1971).

### 2.3. Perceptions of safety goal setting

“Perceptions of safety goal setting” is the factor accounting for the lowest variance (8.2%). This factor involves perceptions of how the organization sets goals and works systematically within the work environment. Generally, this refers to perceptions about the presence and fulfillment of goals, demands for achievement, appreciation received, and active demands for work environment improvements (Hedlund et al., 2010).

In previous studies, enhanced safety knowledge has been shown to create safety motivation through safety training (Lingard, 2001). Goal setting is used to create efforts aimed at increasing knowledge (Locke and Latham, 2006), safety (Cooper et al., 1994), and motivation among employees (Kim and Hamner, 1976; Locke and Latham, 2006). Ambitious and clear goals can motivate individuals through the sense of satisfaction that is obtained when the goals are accomplished (Locke and Latham, 2006). In addition to goal setting, systematic work environment management has proven to be important for safety in enterprises. In a study on 45 SMEs, systematic work environment management was shown to improve communications, psychosocial work environments, ergonomic conditions, and safety routines (Birgersdotter et al., 2002). It has been shown that creating common goals and routines for better work environments and evaluating the results lead to increased commitments and motivation (Andersson et al., 2008).

### 2.4. Aspects related to safety motivation

The above-mentioned theories concerning aspects related to safety motivation can be summarized in a path diagram, as seen

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