Workplace Safety Climate Assessment Based on Behaviors and Measurable Indicators

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Previous conceptualizations of safety climate present snapshots of the state of workplace safety. In reality, the factors of workplace safety climate are complex and need to be analyzed using a systemic approach. In this article, we expand on the customary concept of safety climate, and propose a systemic research framework that integrates four study fields: engineering, ergonomics, operation management, and technology management. In this framework, we define micro and macro safety climate concepts based on the study object and organizational hierarchy.

Our model focuses on two safety climate dimensions: behaviors and measurable indicators. First, we propose that the safety process consists of four basic behaviors: perceive, decide, communicate, and act (PDCDA). These PDCDA behaviors constitute a safety climate sociotechnical system involving the three roles of operator, supervisor, and manager. We then present 12 measurable indicators of PDCA behaviors for each safety climate research field to advance the systematic assessment of both qualitative and quantitative facets of safety climate. © 2008 American Institute of Chemical Engineers Process Saf Prog 27: 239–247, 2008

Keywords: safety climate; assessment; sociotechnical system; behaviors; indicators

INTRODUCTION

Schneider [1] defined organizational climate as "molar perceptions people have of their work settings." While Schneider did not distinguish between organizational climate and organizational culture, he argued that distinctions should be made between "perceptions of organizational practices and procedures" (i.e., organizational climate) and "reactions to those same practices and procedures" (i.e., organizational culture). Jones and James [2] also described organizational climate as a set of perceptually based, psychological attributes that are descriptive and cognitive rather than affective and evaluative in nature. Jones and James [2] also proposed that organizational climate is multidimensional, with a central core of dimensions that apply across a variety of situations. Notably, Donald and Canter [3] identified that organizational climate is a useful concept for considering organizational factors associated with risk and accidents.

Safety climate describes the atmosphere of the state of safety in an organization. Zolatt's [4] definition of safety climate as a summary of molar perceptions that employees share about their work environment is reflected in subsequent definitions of the construct [5-9]. Best perceived as a subdimension of organizational climate [6], safety climate represents the safety ethic in an organization that is one facet of the overall organizational culture [9]. An emerging consensus among industrial psychologists has identified safety climate as the surface features of an organization's underlying safety culture that provides a "snapshot of the state of safety" in an organization [10]. As such, safety climate has often been used somewhat interchangeably with the broader concept of safety culture [11], with common dimensions including: leadership support (i.e., management commitment to safety and supervisor safety support), employee participation, coworkers' safety support, work pressures, employee competence, work environment hazard level and perceived risk, and perceived barriers to safety [12].

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