



Mind the gap: a qualitative approach to assessing why different sub-cultures within high-risk industries interpret safety rule gaps in different ways



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ARTICLE INFO

Article history:

Received 26 August 2016

Received in revised form 14 October 2016

Accepted 3 November 2016

Keywords:

Routines in principle

Sensemaking

Compliance gap

Safety rules

ABSTRACT

Measuring the distance between the performance of safety rules as imagined and safety rules as enacted in high-risk environments has been an area of great interest and debate in recent years. Yet a significant gap in our understanding remains. Some authors have even advised us to “stop bitching about the gap” and start closing it (Hale and Borys, 2013a, p. 218). In this paper, we follow this call by investigating the relationship between safety rules as imagined, and enacted, in a rule-driven organization working in the oil and gas industry in Norway. Specifically, we investigate how three different sub-cultures within the organization: the management culture, the engineering culture, and the operations culture - make sense of safety rules at their respective levels, and why their interpretations of the gaps created by these same rules, are different. These differences lead to different levels of rule enactment. Using a case study approach, we found that how employees’ were engaged in the rule creation process led to different levels of psychological ownership, and this, in turn, led to different levels of rule enactment. We also found that these distinct occupational sub-cultures use different sensemaking approaches in understanding safety rules, and that the resultant differences in understanding directly affects both the understanding of the gap that exists between rules as imagined and rules as enacted, leading to different levels of rule compliance.

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1. Introduction

This paper focuses primarily on identifying the gap that exists between safety rules as imagined and enacted (Hollnagel, 2014), and why the level of compliance of these rules differ across different levels within an organization. Rules are codified through the creation of written routines that employees are expected to follow. Compliance, in this case, refers to how closely the rules as imagined, as expressed in written routines, match actual performance, and why deviations to the rules occur in practice. It is an area of great interest for both researchers and practitioners alike but one that lacks clarity and agreement. Safety rules are reflected in written routines, where “routines are the primary means by which organizations get work done” (Feldman and Pentland, 2003, p. 94). While some routines emerge naturally, many are the result of attempts to control behavior, and create effective patterns of action (Pentland and Feldman, 2008). Yet, still we find that the

level of control is unsatisfactory as workers still deviate from the rules as imagined despite expectations of compliance.

In many organizations, managers create a multitude of artifacts in the form of written documents, e.g. checklists, standard operation procedures (SOPs) and safety rules, and imagine that the rule-based routines are going to be performed in alignment with the described behavior (Pentland and Feldman, 2008). However, much of the research, across many different industries, has found that rules as imagined and enacted often drift apart creating a gap (Reason, 1990, 1997; Dekker, 2005), or are never aligned in the first place. Examples include: higher education (Feldman, 2003; Feldman and Pentland, 2003), car production (Becker and Zirpoli, 2008), seafaring (Knudsen, 2009), railway (Grote et al., 2009; Weichbrodt, 2013), firefighting (Weick, 1993), nuclear power plants (Bourrier, 1998), petroleum industry (Antonsen et al., 2008), and hospitals (McDonald et al., 2005; Wilhelm, 2014).

Enactment of rules, as prescribed through written routines, is crucial to organizations, failure to do so can lead to poorer coordination and performance, in some cases accidents, and in the worst-case, death (Wilhelm, 2014). Because of this, organizations undertake great efforts (e.g. training, surveillance and/or sanctions) to

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assure that routine enactments are aligned with the safety rules they represent. Investigating the relationship between safety rules and routines is paramount because it can reveal deviant behaviors, which usually are hidden patterns of action (Becker and Zirpoli, 2008). However, not all deviations are harmful, or even undesired. Some deviations can be smarter ways of performing work, while others are dangerous. But the allowance of deviations requires flexible structures enabling such deviations. The goal must be to resolve the negative deviations and learn from the positive. The majority of the research listed above has investigated safety rules and their relationship to routines. However, the relationship is relevant to other organizational areas as well, e.g. production, quality and environment (Hale and Borys, 2013a).

In this paper, we investigate the relationship between safety rules as interpreted by three sub-cultures in an international construction company that we have called “Constructor” engaged in the oil and gas industry at three different organizational levels. And even though there have been several recent research papers focusing on this relationship, authors have called for more field research, as the relationship is far from transparent (Hale and Borys, 2013b). In this study, we attempt to address three gaps in the literature. First, we attempt to further open the black box of organizational routines (Pentland and Feldman, 2005), and learn how individuals use different sensemaking approaches to understand the role of safety rules and routines at different levels within an organization, and how they approach gaps between safety rules as imagined and enacted. Second, we attempt to align the findings between the research fields of safety science and organizational psychology to further expand our understanding of why individuals deviate from what we will call “routines in principle.” And third, to investigate how three different sub-cultures; the management culture, the engineering culture and the operations culture, make sense and interpret rules in a novel environment as research in the field of safety seldom investigates how power, and hierarchical differences, affect sensemaking of safety rules at different organizational levels.

2. Literature review

For this paper, we present four theoretical concepts: organizational safety rules and routines, sensemaking, organizational culture, and psychological ownership in a safety context. Key academic areas of interest within these areas are covered, specifically how organizational safety rules and routines are related. We will also investigate the process of sensemaking of rules, and the gaps that are created at different levels within an organization, and how these are related to the enactment of routines. In addition, we look at how organizational culture is linked to differences in individual sensemaking of safety rules for different professional groups, and how this creates different types of gaps. And finally, we investigate how employee participation affects the safety rule-routine relationship, and is put forth as a potential factor for creating psychological ownership.

2.1. Organizational safety rules and routines

The concept of safety rules and routines has been theorized and studied in organizations since the early 1940s, and different conceptualizations have emerged (Becker, 2004). Routines are the written artifacts to achieve the purpose of safety rules. Routines have been compared to individual habits (Simon, 1965), programs or scripts (March and Simon, 1958; Cyert and March, 1963), and DNA (Nelson et al., 1982). Researchers have focused on one major issue: whether rule-based routines lead to stability or change (Bruno, 2009). Some argue that routines lead to inertia (e.g.

Hannan and Freeman, 1984), which stems from theories of bureaucracy (Weber, 1978) with its defining features of regularity and continuity. Others argue routines lead to change and flexibility (Feldman and Pentland, 2003; Feldman and Rafaeli, 2002; Gersick and Hackman, 1990; Howard-Grenville, 2005), and build this argument around agency. Feldman and Pentland (2003) argue that organizational routines are a generative system with internal structures and dynamics, and this paper will follow their conceptualization and definition of organizational routines as: “repetitive, recognizable patterns of interdependent actions, carried out by multiple actors” (p. 94). Several scholars (e.g. Feldman and Pentland, 2003; Becker, 2005; Grote et al., 2009; Reynaud, 2005) describe an interdependent duality of routines: between the idea of the routine (routine in principle), and the safety rules they reflect, and what is actually done in practice.

In this paper, we are interested in how the relationship between routines in principle and routines in practice creates a continuous possibility for variation, selection, and retention of new practices and patterns of action within routines, that may or may not comply with the safety rules upon which they are based. The two aspects allow routines to generate a wide range of outcomes, from apparent stability to considerable change (Feldman and Pentland, 2003). The routine in principle creates and enables performance; performance creates and recreates the routine in principle. Fig. 1 shows the dynamics between the artifacts, routine in principle, and routine in practice.

Feldman and Pentland (2003) present artifacts as representations of both the routine in principle and routine in practice. Artifacts do not necessarily lead to changes in patterns of action, e.g. formal safety rules do not always lead to compliance (Hale and Borys, 2013a; Pentland and Feldman, 2008; Weichbrodt, 2013). Safety rules have multiple functions in organizations (Weichbrodt, 2013). They are used as a tool to obtain organizational control, which is defined as “any process whereby managers direct attention, motivate, and encourage organizational members to act in ways desirable to achieving the organization’s objectives” (Cardinal et al., 2004, p. 56–57). Because of this, rules entail a form of power (Mintzberg, 1983). The individuals involved in the creation of rules have the power to support and constrain other organizational members’ behavior. Rules also function as a coordination mechanism. Organizations use rules to “achieve coordinated behavior through creating a mutual understanding of task requirements, shared expectations, and predictability of work processes” (Weichbrodt, 2013, p. 31).

A third function of rules is to store organizational knowledge. Instead of creating a new solution when a problem occurs, workers can apply a rule, and through that, make use of stored organizational knowledge (Weichbrodt, 2013). Hale and Swuste (1998) cre-

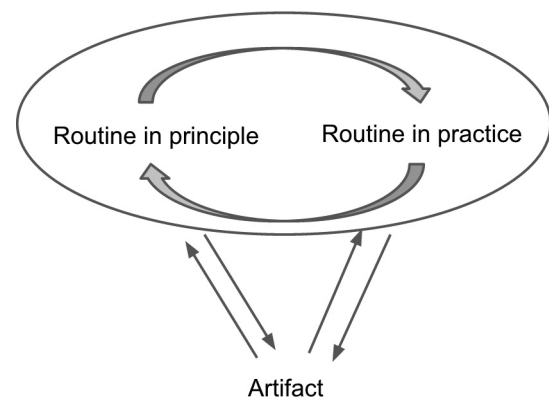


Fig. 1. Organizational routines, based on Feldman and Pentland (2003) model.

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