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Promoting a Safety Culture in Health Care. Presenting a Relational-Interpretive Perspective

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Abstract This paper analyses various approaches to the concept of a 'safety culture' in terms of their epistemological assumptions regarding the nature of learning. As a result of this analysis, the study proposes a relational-interpretive framework for the promotion of safety in health care, which is based on relational theories and the philosophy of conceptual pragmatism as this can be used to integrate the various strands of current safety research. In particular, the approach based on a relational-interpretive perspective can bridge the apparent dualist gap that exists between the rational objectivist perspective and the relativist perspective on the role of learning in developing a safety culture. According to the relational-interpretive perspective of safety management that is proposed here, organizational members need to give continuous attention to the accepted organizational norms and values, which shape the safety culture. A case study from a health care safety project in Sweden is utilized to illustrate the ideas advanced in this paper.

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Introduction

Interest in health care safety is growing, and many studies have been conducted on a wide range of initiatives that have been suggested to improve the delivery of health care within a so-called safety culture (Donchin et al. 2003; Singer et al. 2003; Manser and Wehner 2002; Dean et al. 2002). However, for any such improvements to work, it is necessary to understand the goals and practice of various safety research perspectives. Applying safety methodologies without understanding the epistemological assumptions that have led to their development might be one of the reasons for failure when they are implemented within a health care context (Mauléon 2009; Mauléon and Bergman 2009; Park Daahlgard 2000; Giroux and Landry 1998). Moreover, not only may the implementation fail but 'blind trust' in the implementation of such methodologies without proper analysis can be counterproductive and decrease the organization's ability to operate safely; this as 'blind trust' in technological systems (Weick 1995) often decrease actors' attentiveness and

responsiveness to dynamic contextual cues in the organizational processes (Weick et al. 2008; Weick and Sutcliffe 2003, 2007; Roberts and Bea 2001; Weick 1995; Weick and Roberts 1993; Rochlin 1993).

In general, health care staff have been trained and taught within a paradigm that adopts what might be called a 'modern positivist' view of science (e.g. Fishman 1999). According to this paradigm, general theories are built up by breaking complex processes down into individual variables, which are identifiable and controllable. Medical research and health science, like most research in the natural sciences, often adopt these assumptions. Medical and nursing staff thus tend to turn to research expecting to find general theories that provide 'ready-made' solutions to the problems of patient safety. However, such a 'positivist' paradigm is not necessarily well suited to the dynamic nature of safety in a complex socio-cultural system such as the health care system. Although safety methodologies based on a modern positivist approach can generate potentially useful countermeasures to safety problems, these are more likely to be focused on symptoms rather than causes and do little more than suggest short-term 'fixes'.

In contrast to the 'positivist paradigm', relativist approaches (e.g. Vaughan 1996) would appear to be more attuned to the complex dynamics of most health care delivery systems. However, such approaches tend to be observational rather than remedial and are thus limited in their capacity to provide clear directions for progress in promoting health care safety.

The present study therefore proposes a third approach, the relational-interpretive perspective, which is based on the writings of the conceptual pragmatist C.I. Lewis (1929) and relational theory (e.g. Berger and Luckmann 1966; Bakhtin 1986; Shotter 2002; Gergen 2007). It is the contention of this study that this relational-interpretive approach to health care safety bridges the dualism that exists between the rational objectivist paradigm and the relativist perspective. As representatives of the objectivist and relativist perspectives, we resort to two researchers as it is not our contention to dispute these two different perspectives but to bridge the dualism between them. As a representative of the objectivist perspective, we have chosen the work of Reason, and as a representative of the relativist perspective, we have chosen the work of Vaughan as both have had a significant impact upon safety research.

The remainder of this paper is organized as follows. The next section presents a review of selected literature on the concept of safety culture. Three approaches that have been adopted are analysed in accordance with their epistemological assumptions regarding the nature of interpretation and learning and their relationship to safety culture in organizations. The paper then presents some thoughts on the application of a relational-interpretive approach to health care safety. This theoretical discussion is supported by a case study of a Swedish project for the implementation of a 'deviation reporting system' in several clinics connected to a large teaching hospital. The study concludes with a summary of the major findings and their implications.

Two Major Perspectives on Safety Culture

When studying safety in organizations, understanding the organizational culture seems unavoidable. The characteristics of an organizational culture that appear to affect safety are often referred to as the 'safety culture' of the organization. After the nuclear meltdown in Chernobyl, the international community strongly criticized the "lack of safety culture", both at the plant and also in Russia at large (IAEA 1992). It was stressed that safety issues were not given the "attention warranted by their significance" (IAEA 1991, p. 4). From then on, and in phase with the American managerial discourse (Barley and Kunda 1992), safety culture received much attention, and as a result, safety culture departments are today found at nuclear power plants (e.g. Ringhals in Sweden). The concept has been defined and used along many different axes, often with a certain lack of coherence between definitions. While some definitions see safety culture as a state, a goal by itself (e.g. Reason 1998; IAEA 1991), others understand it as a process (e.g. Vaughan 1996; Hudson 1999). While some define it as a tool to measure an organization's disposition for safe operation, i.e. safety culture is used as synonymous for safe operation (e.g. Cheyne et al. 1998; Mearns and Flin 1999), other see it as a toolbox that enables safe operation (Weick 1987). Several authors have attempted to classify the multifaceted concept into coherent frameworks

(Cooper 2000; Cox and Flin 1998); however, none has explicitly based these classifications on epistemological assumptions.

If such an epistemological approach is adopted, two main perspectives on 'safety culture' become apparent in the literature. The first, which adopts a rational objectivist perspective, has been most apparent in the work of Reason (1997, 1998, 2000); this approach emphasizes the role played by deviant reporting systems and has the perspective that it is possible to 'engineer' an objective and appropriate safety culture. The second, which adopts a relativist perspective, is epitomized in the work of Vaughan (1996); this perspective emphasizes the evolving socio-cultural nature of any judgment regarding an 'appropriate' safety culture. Although there is significant diversity in the literature on safety culture, the work of these two authors can be taken as representatives of the two major streams of thought on the subject.

The present study contends that neither of these two approaches is entirely satisfactory and that a third approach—the so-called relational-interpretive perspective—provides a means of bridging the gap between them. Each of these three approaches is discussed in more detail below.

Rational Objectivist Perspective—Engineering a Safety Culture

Reason (1997, p. 195) defines safety culture as "the engine that continues to propel the system towards the goal of maximum safety health". According to Reason (1997), a safety culture can be 'engineered' through the creation of shared practices. His argument is that we can identify good shared practices (in Reason's terms "essential components"), design them and assemble them; the result of this "social engineering" being an "effective safety culture" (ibid., p. 195). He further equates the concept of 'safety culture' with that of "informed culture" (Reason 1997, p. 196), which he describes as composed of four components: (1) a *reporting* culture (in which people are prepared to report their errors and 'near-misses'); (2) a *just* culture (which engenders an atmosphere of trust that encourages people to provide safety-related information); (3) a *flexible* culture (which enables an organization to reconfigure itself to cope with high-tempo operations or certain dangers); and (4) a *learning* culture (which ensures that the 'right' conclusions are drawn from safety information and that appropriate reforms can be implemented). According to Reason (1997), these four components can be 'engineered' as described in the following.

(1) In *engineering a Reporting Culture* the first step is to get feedback. Deviation reporting systems have putatively been of great help for safety improvement activities (although their value has been disputed elsewhere, see e.g. Mauléon 2009; Amalberti 2001). Such systems must be handled with care as they can potentially do more harm than good. The deviant reporting system should create (and can only function in) a climate of trust, and it should motivate people to reporting errors and near-misses. Reason (1997, p. 197) further identifies five factors that seem to determine both the quantity and the quality of the deviation reporting systems reports:

- Indemnity against disciplinary proceedings—as far as it is practicable.
- Confidentiality or re-identification.
- The separation of the agency or department collecting and analysing the reports from those bodies with the authority to institute disciplinary proceedings and impose sanctions.
- Rapid, useful, accessible and intelligible feedback to the reporting community.
- Ease of making the report.

(2) *Engineering a just culture*. A "just culture" should not punish all "errors" and "unsafe acts" regardless of their origins and circumstances and should not give immunity from sanction to actions that may, or did, contribute to accidents. However, drawing the line between truly bad behaviour and unsafe acts to which attribution of blame is "neither appropriate nor useful" (Ibid., p. 205) is not easy. A prerequisite is "an agreed set of principles for drawing the line between acceptable and unacceptable actions" (Ibid., p. 205).

(3) *Engineering a Flexible Culture*. The idea of flexible culture comes from the organizational flexibility observed in High Reliability Organizations (HRO) theory, i.e. the capacity of HRO to effectively adapt to changing demands (see e.g. Rochlin 1993; Roberts and Bea 2001;

Weick et al. 2008; Weick and Sutcliffe 2000; 2007). In his proposal for engineering a flexible culture, Reason describes at large some of the findings of the Berkeley research group that consist of researchers such as David Teece. For instance, La Porte and Metlay (1996) describe the paradox between the organization's hierarchy and a constant bargain. This ability to adapt to local constraints while maintaining a cohesion between the different actors is one of the main traits of HRO's (see e.g. Rochlin 1999; Weick 1987). Relating to these HRO ideas, Reason depicts how an organization should be "flexible". But just as HRO theorists do not describe how organizations can pursue such a flexible culture neither does Reason.

(4) *Engineering a Learning Culture*. Reason does not expand much on this subject. He proposes that a learning process is composed of four steps: Observing, Reflecting, Creating and Acting. He then concludes that the last one (that is to say Acting or perhaps the lack of it) is likely to cause most of the problems.

Although Reason (1997) was not explicit about his assumptions regarding the nature of learning in this framework, his emphasis on deviant reporting systems (or what he calls error reporting systems) as a major aspect of a safety culture seems to reflect his understanding of what learning is, how it can be supported and how it affects safety. Reporting deviations, errors, near-misses seems to have had two main purposes. First, it would seem that he envisage deviant reporting systems as enhancing and developing a form of 'organizational memory' that supports members of the organization when they are facing problems that might be new to them, but which are no longer new to the organization. This idea of organizational memory emanates from a reification of knowledge production. The propagation of knowledge and the development of organizational memory ultimately operate some kind of alignment of individual's behaviour and that of the organization as a whole. In the long term, this is an attempt to change individuals' minds and individuals' attitudes, which in turn change individuals' actions. Second, deviant reporting systems aim at producing information necessary to the redesign of the socio-technical system. Deviant reporting systems are thus the instruments that enable actors to obtain part of the information necessary for improving the socio-technical systems. This quest for the improvement is apparent from the links that Reason (1997) emphasizes between his *reporting* culture and his *learning* culture.

These ideas on learning are in general accordance with Elkjær's (1999) notion of learning as a *management tool* for developing the (mostly) tacit, cognitive abilities of individual members of the organization. Yet the relationship between learning and safety seems not to be problematic for Reason. Learning appears to be equated with 'progress' in improving the abilities of individuals and thus the organization as a whole. As such, learning can be seen as being positively correlated with safety; that is, if individual and organizational learning occurs, the organization becomes safer (Reason 1997). Although Reason (1997) acknowledges some problems in linking the reporting of deviances to learning, the general impression from his writings is that learning appears to have positive consequences with respect to safety. As such, it may be contended in an objectivist perspective that organizational members using scientific tools such as a deviant reporting system have the possibility of attaining information that, if used "correctly", will lead to progress in terms of a safety culture. Even if the definition of what constitutes a deviation might be problematic to the members of the organization, this is apparently not the case for objective scientific methods—which, it would seem, can confidently classify actions into categories such as 'deviations', 'errors', 'near-misses' and so on. Based on these classifications, adjustments in the deviation reporting system are perceived not to be problematic.

Relativist Perspective—The Process of Normalization of Deviance

Though Diane Vaughan's study of the Challenger disaster (Vaughan 1996) is not specifically a study of "safety culture", it does lead to compelling conclusions about organizational culture as well as safety. When the Space Shuttle Challenger was launched in 1986, the effects of low temperature on the sealing quality of O-rings in the Solid Rocket Boosters

(which help take the Shuttle into orbit) had been known before the launch, but the decision to launch was taken anyhow. When Vaughan began her study, much attention had been paid to the faulty O-rings. For instance, some authors showed how a faulty representation of data might have precipitated the wrong decision (Tufte 1997). Later, "production pressures" and "managerial wrongdoing" were brought out as major contributors. There were many factors (among them publicity) to motivate the "administration to press for Challenger to be up in time for the speech" (Vaughan 1996, p. 13). Vaughan first traced and then rejected explanations that officials may have taken a calculated risk. Instead, most decision-makers did not believe in the possibility of the accident. Vaughan's argument is that values and norms have been evolving during NASA history so that what was an unacceptable risk 30 years ago slowly became acceptable. This process of normalization of deviance is, according to Vaughan, one major explanation behind the disaster. Vaughan's (1996) notion of the 'normalization of deviance' is described as being a social process in which norms and standard practices are (often unintentionally) readjusted to accommodate multiple goals, pressures and ambiguous evidence on the nature of safety and risk (or other). The consequence of this change process is the transformation of the 'deviant' into the 'acceptable' as that which was previously unacceptable gradually becomes accepted as part of normal practice.

This understanding of the evolution of normal practice resembles the 'situated perspective' of learning espoused by Lave and Wenger (1991), who contended that learning occurs in social settings as an integral part of practice (rather than preceding or succeeding it) and the ideas of Schon (1983) of reflection in practice which in other words see learning being held as an inevitable part of social life. Lave (1993) summarized the 'situated perspective' on learning in terms of four premises:

- Knowledge always undergoes construction and transformation in use.
- Learning is an integral aspect of activity in and with the world at all times (that is, the occurrence of learning is not problematic).
- What is learned is always complex and problematic.
- Acquisition of knowledge is not a simple matter of taking in knowledge; rather, things assumed to be natural categories (such as 'bodies of knowledge' and 'learners') must be re-conceptualized as cultural and social phenomena.

What differentiates Vaughan's work and studies of situated learning is mainly the focus of inquiry. While studies of situated learning mainly focus on the learning trajectories of individuals within communities of practice, Vaughan focuses on the changes of the practice itself. With such a view on learning, the relationship between learning and safety is challenging. Evolutionary change is an integral part of practice, but the problem is to understand whether this evolution supports or counteracts safety. Events like the Challenger accident may help us differentiate 'positive' from 'negative' evolutionary changes in regard to safety, but as Vaughan (1996, p. 416) observed, such a judgment can only be made from a "… luxurious retrospective position". In fact, "…prior to the tragedy, this culture was working well: problems were discovered, launches were delayed while fixes were implemented, and disasters were averted." (Ibid. p. 418). The continual evolution of practice was not 'negative' until judged as such from hindsight provided by the accident.

Given Vaughan's understanding of learning and evolutionary change, the relationship between learning and safety is more challenging in the relativist perspective than was the case with the rational objectivist perspective epitomized by Reason previously in this text. If evolutionary change is an inherent characteristic of practice, the problem is whether such change supports or counteracts safety. In this regard, Perrow (1984) suggested that accidents should be seen as 'normal' events in interactively complex and tightly coupled systems. Vaughan (1996, p. 415) concurs with this view and goes further in asserting that:

> … even when technical experts have time to notice and discuss signals of potential danger in a well-attended meeting prior to putting the technology into action, their interpretation of the signals is subject to errors shaped by a still-wider system that includes history, competition, scarcity, bureaucratic procedures, power, rules and norms, hierarchy, culture, and patterns of information.

Thus, according to Vaughan (1996), even 'safety experts' are not infallible in their assessments of safety issues. Their judgment is as bound to the contextual situation as anybody else's judgment as their judgement is a socio-cultural product of their participation in practice. As such, experts do not own an exclusive 'right' to pronounce what is right and what is wrong in terms of positive or negative consequences in safety. And while outsiders certainly might introduce contradictory signals able to reduce the risk of accidents, they might lack expertise and authority to convince (Ibid., p. 417), which may be justified as "… tinkering with culture can have unintended system consequences that are hard to predict" Vaughan (1996, p. 418).

Finally, according to Vaughan's (1996) relativist perspective, learning is not something that can be 'managed'; indeed, attempting to manage it by for example introducing expert consultants in the organization can even be dangerous. Nevertheless, Vaughan (1996, p. 416) continue to insist that "… accidents can be prevented through good organizational design and management". The author further encourages the pursuit of every possibility to reduce the risks of an accident. However, from her perspective, good management and organizational design cannot ultimately prevent accidents from happening—because the definition of safety itself is a socio-cultural product.

Summary of the Objectivist and Relativist Approach to Safety Culture

The problem of safety culture seems easy if we believe that social reality can be understood objectively and that it is therefore possible to define the general laws governing social life and human behaviour. This 'objectivism' has been defined by Bernstein (1983) as a "basic conviction that there is or must be some permanent, a historical matrix or framework to which we can ultimately appeal in determining the nature of rationality, knowledge, truth, reality, goodness, or rightness" (p. 8). Such objectivist views thus define the "rightness" of a safety culture in characteristics that enable for instance the creation of circumstances and structures for confidential deviant/error reporting to occur. These laws suggest that a correctly engineered safety culture, that is, a correctly engineered error reporting system, will lead to high levels of safety. Yet by acknowledging the veracity of these laws, we might forget that safety is by nature both invisible and dynamic (Weick 1987), where Vaughan (1996) and Weick and Sutcliffe (2003) remind us that we may forget that safety is about managing a constantly changing system in a constantly changing environment.

On the other hand, the view of culture emphasized by 'relativists' is quite different. As Bernstein puts, it (1983, p. 8): "The relativist not only denies the positive claims of the objectivist but goes further. In its strongest form, relativism is the basic conviction that when we turn to the examination of those concepts that philosophers have taken to be most fundamental-whether it is the concept of rationality, truth, reality, right, the good, or norms-we are forced to recognize that in the final analysis all such concepts must be understood as relative to a specific conceptual scheme, theoretical framework, paradigm, form of life, society, or culture." According to relativists, our judgment of an "inappropriate" safety culture is only a hindsight judgment. In reference to the INSAG's (International Nuclear Safety Group) definition of safety culture: people usually give things "the attention warranted by their significance", people usually are rational though this rationality is bounded or local. Because of this, relativists have been accused of refusing to "judge" culture as "right" or "wrong". Such perceived "anything goes" relativism has been criticized for being just observant. To be sure, relativists' philosophies sometimes have tried to "improve" their objects of study, for instance through emancipation of the individuals involved (e.g. Alvesson 1996). By proposing alternative views of social life, it was expected that the actors would use these as inputs in individual and collective reflection processes.

Thus, on the one hand, we have an objectivist view of culture that does not seem to take into account the dynamics of practice and thus the dynamics of safety in organizations, and on the other hand, we have a relativist view that might help us to understand after the facts, but that does not seem to help when striving for avoiding accidents to happen. Facing this impossible choice, a third approach is being proposed in an attempt to bridge this dualism (see e.g. Mauléon 2009; Sztompka 1991) and is here referred to as a relational-interpretive perspective, which is based on conceptualist pragmatism and relational theories.

Relational-Interpretive Perspective

To describe the relational-interpretive perspective upon learning more clearly, the classic debate of dualism within sociology needs to be described, as it is from this debate that the relational-interpretive perspective originates. The debate concerns the separation of individual and society, later named structure and agency, micro versus macro levels, body versus mind and product versus process. Researchers have been seeing it as a matter of taking sides. Both social constructionism (e.g. Berger and Luckmann 1966) and critical realism (e.g. Bhaskar 1989; Archer 1988, 1995; Giddens 1987) later argued against this dualist approach and talked about focusing upon the interplay and interconnectedness between the two. Here, we find how Archer (1988) proposes that we examine the interaction between structure and agents, operations and actions, individuals and society rather than seeing them as one forming the other. The duality aspect Archer challenges is what Bhaskar claims: "If society is the condition of our agency, human agency is equally a condition for society, which in its continuity, it continually reproduces and transforms. On this model then, society is at once the ever-present condition and the continually reproduced outcome of human agency: this is the duality of structure" (Bhaskar 1989, p. 123).

However, describing interplay and interconnectedness, Sztompka (1991) argues is simply not enough in describing the relations between structure and agency. Sztompka (1991) has elaborated upon this matter and argues for a third direction that utilizes the insights from both sides. He does not want to treat 'structure in operation' and 'agents in actions' as analytically separable nor as mutually reducible. He describes a third intermediate level where he gives the following examples of his idea:

> …anything that is actually happening, is it not always, without exception, a fusion of structures and agents, of operation and action? Show me an agent which is not enmeshed in some structure. Show me a structure which exists apart from individuals. Show me an action which does not participate in societal operation. Show me a societal operation not resolving into action. There are neither structure-less agents nor agentless structures. At the same time, structures do not melt away into agents nor agents into structures. (Sztompka 1991, p. 92).

Following this line of reasoning, we find Sztompka (1991) describing our way of thinking of or treating something abstract as if it existed as a real and tangible object. He calls this the "…illusion of reification… "(p. 93). What he argues against is that we think of states, bureaucracies, economies, political regimes, social systems or in this case safety culture as a superindividual, standing above us, distant from us, independent of our will and still controlling our lives. But this is only an illusion. If social objects are superindividual at all, it is only in their material, physical form, as for example buildings, offices, courtroom, prisons, hospitals and error reporting systems. Their truly social, institutional nature consists entirely of people and their actions. They exist only so long and only so far as individuals fill the material shell with actions.

What Sztompka (1991) therefore says what truly exists in society, in the ontological sense, is 'the unified socio-individual field', the third level of reality between traditionally conceived levels of totalities and individualities. He argues that the concept 'socio-individual field' overcomes the opposition of the individual versus society. Sztompka (1991) perceives the individual as having a 'free' will with the proviso that her/his actions are acted out in a constrained environment such as our social contexts. "In taking action directed at a constraining environment the individual is reflectively influenced by its limitations, has to adapt to them by changing his/her actions and even in the long run, curbing and reshaping the very tendencies to act his/her immanent drives. The individual thus modifies her/his actions and also changes her/himself under the impact of the 'clash' with 'hard' realities" (Sztompka 1991, p. 66). In this sense, we find how deviant reporting systems and relational activities in the social situation are inextricably intertwined and as such continuously shape and reshape the safety culture and vice versa. One is not reducible to the other (Sztompka 1991).

Meaning, Weick (1995) argues, is a retrospective process, but how can we know this, if meaning is shaped in the situation as relational theorists (such as Shotter 2002; Cunliffe 2002a, b; Gergen 2007) claim? Then, retrospectively we cannot know this.

Here, we find how the ideas of the conceptual pragmatist Lewis (1929) can help us. He describes how meaning which he also connects to learning is shaped through reflection of previous experiences, interpretation of present experience and anticipation of future experiences (Lewis 1929). This means that actions are the result of reflections of the past, which influence interpretations of the present and anticipations of the future. Thus, following a pragmatist view, we get past the duality of seeing meaning and learning as a retrospective interpretation process or a socially constructed process in the present—is both and more.

Lewis (1929) describes this clearly in his development of a theory for knowledge, where he describes the interpretation process that he also refers to as the learning process, in detail. To Lewis, knowledge in general is about experience. It is through the process of interpretation of experience in which knowledge is generated. Interpretation of experience is done through our 'a priori' '. Where the 'a priori', in Lewis' (1929) definition, is simply the instrument that our mind imposes upon experience to interpret it. The 'a priori' is built upon a conceptual framework, which in turn is built upon our categorization and classification of experience. It is through the system of categories we can interpret, interrogate, comprehend and understand experience. But there is a difference between categories and concepts. For example, the word 'disease' is a category but the meaning of it is its concept. And concepts, that is the meaning of a category, is determined by the social context. Therefore, Lewis remarks do our categories usually remain the same but the concepts may change over time. What we find here is how the process of interpretation is not only determined by a cognitive process but is also shaped in the situation sometimes also referred to as the 'relational space' between actors (see e.g. Mauléon 2009).

Given the above, experience in part is a product of our mind since experience is interpreted by our 'a priori' with its conceptual modes (Lewis 1929). However, the 'a priori is also intertwined and shaped by experience in a forever ongoing spiral of knowledge building. It is therefore not possible to clearly separate 'mind' from 'experience', since whatever experience may bring, our mind will impose upon it its 'a priori' to structure and interpret it. In other words, Lewis (1929) describes how learning is the outcome of experience *and* experience is the outcome of learning, and it is from this intertwining action unfolds. We find how these ideas are closely connected to Vaughan's explanation of the normalization of the deviant process; how practices slowly may transform over time without the actors noticing it.

The pragmatic element in learning and knowledge, in Lewis' (1929) theory, is found in his explaining how we have a possibility of selecting our 'a priori'. As the 'a priori' is created by our mind, so can we also alter it and this is done through reflection as reflection is the only way to become aware of and to know our 'a priori'. Lewis further describes that without the awareness of our own 'a priori', we cannot possibly understand another person's perception and action. As such is reflection not only necessary to know our own 'a priori' and to be able to understand and change our way of action but it is also necessary to understand others choices of action and to be able to cooperate (Lewis 1929).

Lewis further describes how "Our common world is very largely a social achievement—an achievement in which we triumph over a good deal of diversity in sense–experience" (Lewis 1929, p. 93). And he illustrates how we need to create 'common concepts' if we are to be able to cooperate where "congruity of behavior" (Lewis 1929, p. 30) is the ultimate practical test to see whether there exists common meaning (common concepts). The creation of common concepts is precisely what Reason describes in his way of 'engineering' a safety culture. For example, in a deviation reporting system, certain concepts used are often commonly defined by the actors involved in the design of the system. However, the difficulties do not lie in this aspect but in the aspect of how actors later using these deviation reporting systems interpret these 'common concepts' differently with consequences in action.

While Lewis acknowledges the social intertwining of learning and action, our interpretation is that he primarily has a cognitive focus upon learning. Limited by this focus upon the individual, the possibilities of understanding more specifically how learning is also shaped in relational activities in the situational context passes us by. Here, we can find assistance by adding a relational perspective upon learning (see e.g. Shotter 2002, 2008; Cunliffe 2002a, b; Gergen 2007).

Seeing learning as shaped in our relational activities means that it is shaped in our coordinations, coactions or 'joint actions' (Vygotsky 1986; Shotter 2002; Gergen 2007). It is not hidden in someone's head, but occurs in the ceaseless flow of living, language-interwoven relations between ourselves and others (Vygotsky 1986; Shotter 2005). Vygotsky (1986) describes how it is within the complex internal relations, characteristic of a living whole, where the possibility exists for learning that go on shaping, directing and organizing people's action. Learning thus, in a relational perspective, is not solely a result of interpretation, but is located within the action two or more people engage in (see e.g. Vygotsky 1986).

To summarize, in a relational-interpretive perspective, learning is something that can both be supported and 'managed' but with an awareness that learning occurs continuously everywhere. Learning is an evolutionary process not only determined by the single individual's interpretations but is also situated in the continuous unfolding of relational processes between actors. As such to be able to support a safety culture organizations need to create the possibility for actors to continuously reflect upon and be attentive to their practices and actions as these are the result of the continuous reshaping of their 'a priori' *and* of the organizations common norms and values (Lewis 1929; Vaughan 1996; Sztompka 1991).

Applying a Relational-Interpretive Perspective to Health Care Safety

According to conceptual pragmatism, the significance of knowledge is not whether it is 'true' or 'false', but whether it is *usable* (Lewis 1929). The key question thus becomes how research can provide usable knowledge to practitioners who are working to improve patient safety; in other words, the issue is the *kind* of knowledge that practitioners require for improving patient safety. But as described above, conceptual pragmatism just as objectivist theory neglect or at least does not elaborate upon the relational aspect upon learning and knowledge creation. Whereas the relativist perspective neglects or does not elaborate upon how to gain actionable knowledge, which may prevent potentially harmful choices of action in the future. Here, a relational-intepretive perspective, which in a sense merges and expands upon these two perspectives, can have a positive impact upon understanding how safety culture continuously is shaped and reshaped and may be continuously supported.

It is acknowledged that the methods and tools advocated in the rational objectivist perspective of e.g. Reason (1997) are usable in many situations. For example, the principle of confidentiality of error reporting—which Reason (1997, p. 197) described as "indemnity against disciplinary proceedings, as far as it is practicable"—certainly appears to be 'usable' as a guideline. However, the utility of some other objective guidelines for safe operation might be appropriate today but irrelevant tomorrow. Moreover, as, Vaughan (1996) has warned, safety is compromised if people cease to reflect upon such guidelines and norms—or, as Lewis (1929) would express it, if they cease to reflect upon their own a priori if this happens neither will the actors be aware what shapes their action but it will also be difficult to cooperate in the sense of reaching common objectives (for more on this see Joint Directed Action, Mauléon 2009).

Thus, in a relational-interpretive perspective, practitioners require more than a set of principles that seem to be useable today; people also need to be given the possibility and space to challenge and reflect upon the norm of what constitutes 'usable' knowledge as their 'common' understanding of e.g. a safety culture is continuously evolving in any organization. This can be related to both the works of Schon (1983), Weick (1987) and Weick and Sutcliffe (2003)where we find how they express the need for a continuous attentiveness of contextual cues, shared norms and values and heedful interrelations (Roberts and Bea 2001; Weick et al. 2008; Styhre and Berg 2008) within the organization as this can provide support positive outcomes in terms of safety.

Finally, we find how several authors (Snook 2000; Weick and Sutcliffe 2003; Vaughan 1996) have contended that accidents occur when the norms and values of an organization do not match the reality of contemporary operations. This can occur when norms and values change over time (Vaughan 1996; Lewis 1929) or if the norms and values fail to adapt to a changing environment (see e.g. Weick and Sutcliffe 2003). If such a mismatch does arise between the accepted norms and the reality of operations, the major challenge is not whether to report a 'deviation'

or 'error', but understanding the evolution of the definition of a 'deviation' or 'error' itself.

Case Study: Deviation Reporting in Health Care

Setting of the Case Study

An illustrative case from Sweden provides some interesting insights into the issues discussed above. A public authority responsible for health care clinics attached to a teaching hospital was gathering data about patient safety. However, it soon became apparent that the database of the national deviation reporting system was quite inadequate. The few local deviations that had been reported at the national level did not provide a reliable basis for the improvement initiatives at the local level. There was therefore a need to define and implement a local system for deviation reporting that would complement the national system by providing accessible and useful data on patient safety in the local region. It was therefore decided to collaborate with a few local clinics to define a new system that could subsequently be implemented across the whole region. For this purpose, a reference group was created consisting of practitioners from three local clinics (nurses and doctors) and consultant 'experts' in human resources and quality management (including the second author of the present paper).

Few years ago, staff from the local council in charge of health care organizations began to focus upon improving patient safety. These persons could be described as facilitators: their role was to support the organizational members around organizational development issues. They took upon the charge of leading the organization's plan for improving patient safety. Used to normative views of sciences, these employees first felt the need of gathering data about patient safety. But when they opened the databases of the national deviation reporting system, they soon realized the difficulty to use these data. The few deviations reported on the national level did not seem to be a good, reliable base for local improvement initiatives. Opening books, consulting research findings and studying other fields of practice, these persons discovered the problem (and consequently the solution to their problem): the national deviation reporting system is not anonymous, it is not just, it does not give "*rapid, useful, accessible, and intelligent feed-back to the reporting community*" (Reason, xxx), etc. Other fields seemed to have found the solution: their task was to implement such a solution to their application domain. As such, a project was commenced to first define and then implement a local system for deviation reporting. This deviation reporting system, which would not replace the national system but only complement it, would make reporting "*easy*", "*just*" and "*useful*" (Reason 1998). The idea was to cooperate with a few clinics of the region to define the characteristics of this system and then implement the system in the whole region. A "reference group" was created including practitioners (nurses, and doctors), as well as "scientific experts" (this is where the second author of the present article comes in). Some clinics volunteered and started to define their need for a deviation reporting system. They soon encountered their first problem: what is a 'deviation'? Each clinic was given the task to work out a definition. Then, representatives from the three clinics met together with the project leaders and, following long discussions, came up with a common definition. The project then went on defining a simple deviation reporting system for reporting 'deviation', trying this system over a period of a few weeks, reflecting upon the reported 'deviations', etc. In parallel with this work, discussions began with companies selling computer-based tools for deviation reporting. Both courses of action converged to a version of a computer-based tool that was adapted to the needs of the three clinics involved in the project.

The original plan was then that this computer-based system would be implemented in all the clinics of the region. But it has not been the case. Instead, what had happened during the 2 years of the project is the emergence of an alternative understanding of the usefulness of the deviation reporting system. While first understood as one of the solutions that would improve patient safety, project members realized during the course of the project that the complex issue of patient safety could not be solved by simply implementing a deviation reporting system. They understood that by simply reporting deviations would not directly lead to a safer health care; however, if the organizational members could "learn" from the reported events, this could lead to a safer health care. Of course, project members had understood from the

beginning the need to "*learn*" (Reason 1998) from the reported deviations but what people realized along the course of the project was the need for organizational members to fully understand the utility of the deviation reporting system before being able to use it. They understood the need to promulgate the understanding of "human errors" as consequences of the design of the socio-technical system and not only as causes of accidents. They realized the need to shift the understanding of "human errors" from an unspeakable taboo to an accepted subject of continuous reflection and discussion. They realized the need to change the image of the "expert" as a failure-free person to somebody who can discuss and reflect upon his/her own perspective and interpretations. They realized that this shift of mind would not naturally follow the implementation of a "good" deviation reporting system. Though the deviation reporting system might support a shift of mind, it surely cannot make it happen as it is not using Sztompkas (1991) words "a superindividual".

Today, the strategy is thus not to propose a ready-made deviation reporting system to the clinics who desire it, but only to the clinics that can explain why they need such an deviation reporting system, and can show how they are planning to work with patient safety issues. As a noteworthy aspect of this shift of mind, relating to the use and purpose of the deviation reporting system can be found in the transformation of the project name where the original name of the project was: "Adverse-event reporting system project" and later became: "Patient Safety—including adverse-event reporting" (even the term 'project' was removed).[1] Of course, it is not thought that every clinic should reinvent the wheel, and a good balance between self-reflection and ready-made solutions should be found. A quite indicative detail is the actual definition of "deviation". While a first idea was to provide the clinics with a definition of what a deviation is. In fact, the *dialogue* of what is "normal" and what is a 'deviation' in this particular project was identified being an important aspect of pursuing safety in organizations (see also Vaughan 1996). Other authors have also discussed the problems of the shift of judgment over time (e.g. Creed et al. 1993). As such, it could be contended that supporting organizational members' continuous reflection about what is "safe practice" or "unsafe practice" is just as important as a well-functioning deviation reporting system when pursuing a safety culture in organizations.

Analysis of the Case Study

The most important issue arising from this case study is how a deviation was defined by the project team. Participants in the project team realized that the concept was vague and that they needed to discuss a common definition to being able to act together towards better safety for patients. For example, the question of whether an unreadable prescription should be considered a 'deviation', which could lead to a harmful situation for a patient led a nurse to state: "This is not a deviation; this happens every day!" Other instances of uncertainty regarding the definition of a 'deviation' led to multiple meetings in which people found themselves talking at cross-purposes. As a result of this, a decision was taken to pursue a common definition of what defined a 'deviation'; this was done by asking each participant of the project to initiate a dialogue in his or her own clinic, followed by subsequent conversations with the other members of the project team.

Over a period of a few weeks, a working definition was adopted in the project team, which subsequently was revised in the light of further experience and as new input from the different clinics came. The 'final' and 'official' definition that was eventually agreed upon in the project team was:

"A deviation occurs when a process or an event does not follow the expected course of action" this definition was further perceived by the project members as an important outcome of the project.

Although the formulation of a common definition was an important outcome in the project in terms of being able to design a deviation reporting system, it is here contended, based on a relational-interpretive perspective upon safety, that the continuous dialogue about the concept of deviation was even more important than the final wording of the definition itself in regards to increasing patient safety. By engaging in conversational dialogue about the concept 'deviation', the members of the project team questioned the norms and values of what acceptable and

[1] There are practical implications related to administrative policies that could explain why the term 'project' was abandoned. But it was clearly accompanied by the project leader's changing perspective on the nature of patient safety.

safe practice is and what unacceptable and unsafe practice is. As what has previously been described here, there are several authors who have argued the important for people to engage in continuous revision of their norms and values and a priori (Lewis 1929) assumptions of what is acceptable or safe and what is unacceptable and unsafe (Vaughan 1996; Weick and Sutcliffe 2003). Although common concepts and common definitions to some extent are needed, it is important to be aware that concepts and more so their definitions evolve over time (Lewis 1929; Vaughan 1996); as such, they must be continuously reflected upon, addressed and questioned (Mauléon 2009; Mauléon and Bergman 2009) in practice when pursuing a safety culture.

Conclusions

The present study has reviewed the concept of 'safety culture' in the literature and analysed its links to various epistemological views on the nature of learning. As a consequence, the study has proposed that a relational-interpretive perspective can be used as a means to integrate the rational objectivist perspective view upon how to pursue a safety culture and the relativist perspective view upon this matter; as such, practitioners can get past the dualist gap that separates the two and can see them as one enabling and shaping the other with consequences in the safety culture.

As such, the present study does not deny the importance of tools such as deviation reporting systems in promoting safety as these systems facilitate the gathering of important information that is potentially useful in assessing and redesigning complex socio-technical systems. However, the present study proposes that the importance of deviation reporting systems goes beyond their conventional role as scientific tools that purport to provide objective information; rather, deviation reporting systems can be utilized to enable actors to reflect upon current work practices and their role in a safety culture. The perspective adopted in the present study is that deviation reporting systems are, in the enactment of them (Weick 1995), a vital aspect of the unfolding events in any organization. As such, actors need to be constantly aware of the evolving significance of the inputs and outputs of these systems, rather than passively accepting them as objective 'truth'.

To achieve this understanding of the potential role of deviation reporting systems, organizational members need to put aside a rational objectivist view of learning (which implicitly defines deviation reporting systems as infallible scientific tools) and adopt a relational-interpretive view (which recognizes that deviation reporting systems reflect through their enactment the dynamic socio-cultural processes). In the case study reported here, the *development* of the deviation reporting system and the organizational practices of patient safety had an ongoing mutual relationship of reciprocal influence.

In the final analysis, it was thus ironic (and potentially counterproductive) for the actors in the case study to claim, as they did, that they had established a 'final' definition of the word 'deviation'; in the ultimate, safety management as seen from a relational-interpretive perspective has no such 'final' definition.

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