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The Signal Provision of Emotion:

Using Emotions to Enhance Reliability Via Sensemaking

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Abstract

High reliability organization (HRO) theory suggests that early detection of and swift responses to potentially hazardous and situation changing events in organizational environments is central to the sustainability of reliable operations. Limited research on HRO's (e.g. military groups and firefighters) considers how normative demands on feeling and emotion help to explain why some events are recognized and responded to while others not. In this article, we propose a model of enactment of anomalous events (i.e., situation changing events) that considers the manner in which emotions are regulated in high reliability contexts and how this influences the extent to which early indicators of anomalous events are heeded or dismissed. In this article, we seek to provide a theoretical framework for explaining both the enabling mechanisms by which emotions may function as a signaling resource in the detection of anomalous events and the constraining mechanisms through which emotion regulation processes may inhibit reliability. We discuss implications of the model for researchers and practitioners in high reliability organizations.

Keywords: signal function of emotion, emotion regulation, sensemaking, high reliability organizing, structure

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“A forestry crew of 6 and I were on a forest fire. The fire started out small. When we arrived we saddled up and started the attack. The dozer operator was a retired forest ranger and a long friend of my family. He cut the dozer line to the top of the hill. We were planning out the attack and he said ‘Guys, something doesn’t feel right. I’m going to get off the hill and you should come too.’” (U.S. Department of Homeland Security).

The ability of members to quickly and predictably collaborate in response to ambiguous, unanticipated events in the environment is a hallmark characteristic of high reliability organizations (HROs). In police departments, hospital emergency rooms, fire departments, 911 call centers, and military combat units, reliability is more important than efficiency or profitability (Creed and Stout and Roberts, 1993). Groups and teams in successful HROs develop and continuously refine understandings and awareness in problem situations that are ambiguous, emergent, and complex—open to myriad interpretations of problem definition, decision criteria, and solution viability (Weick, 1995, 2001; Weick and Roberts, 1993; Weick and Sutcliffe, 2007).

Recent HRO scholarship has attempted to identify phenomena thought to contribute to reliability. Whether conceptualized as “heedful interrelating,” “complex interaction,” “mindfulness” or “collective mind,” scholarship has attempted to identify modes of interaction more often associated with reliable operations that facilitate responsiveness to initial signs of danger, which are often ambiguous, open to interpretation, and easily dismissed (Cooren, 2004; Scott and Trethewey, 2008; Weick and Roberts, 1993; Weick and Sutcliff and Obstfeld, 2005; Weick and Sutcliffe, 2007). Curiously absent from this work has been a thorough consideration of the role of emotion and emotion regulation processes (e.g., feeling and display rules) in enabling and constraining the capacity of high reliability actors to properly heed these early signals of danger. Since high reliability organizations often feature feeling and display rules

(e.g., don't get people alarmed about hunches, never show fear) that would seem to inhibit heedful detection of anomalous events, this absence is particularly concerning. In this article, we contend that HRO theory would improve through a better understanding of the role of normative emotion rules in enabling and constraining whether anomalous events are properly acknowledged and appraised during the most embryonic stages of a crisis. If these subtle cues of danger are properly enacted in the earliest stages while they are still manageable, then costly errors, disasters, and crises can be prevented or minimized.

In proposing our theory of the signal provision of emotion in HRO contexts, we first define and discuss the importance of emotions and the signal provision of emotion as an untapped behavioral resource for increasing reliability of operations. We then discuss sensemaking in high reliability organizations and connect the signal provision of emotion to this important group process in organizations. This leads to the primary contribution of the article, a multi-level model of the enactment of anomalous events and propositions related to the model. The purpose of introducing this model is to demonstrate the importance of the individual-level signal provision of emotion in promoting effective collective appraisal processes in high reliability settings. Building off of recent understanding of emotion in the workplace (Waldron, 2012), we define the signal provision of emotion (SPE) as the properties of emotions that aid individuals and groups in interpreting, appraising, and making sense of anomalous events that occur in the environment. Finally, we conclude by discussing theoretical and practical contributions of the proposed model as well as potentials methods for testing the model empirically.

Before moving forward, we should note that the process our framework describes is one that may involve individual phenomena (e.g., individual subjectivity--feelings, interpretations

and emotional displays or non-displays) but that for the most part emerges in interaction at the group level. That is, a group is more or less heedful of anomalous events not merely because an individual or two noticed something and acted on it (or failed to) due to individual differences but rather because of patterns of emotion regulation or dysregulation that emerge *between* members and are maintained at the group level. Although it may be tempting to relate the model we propose here to what some scholars refer to as emotional intelligence (e.g., Mayer & Salovey, 1997), the phenomena we describe here are not the property of individuals but rather of groups. Specifically, emotional intelligence is defined as “the capacity to reason about emotions, and of emotions to enhance thinking. It includes the abilities to accurately perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth” (Mayer & Salovey, 2004). Thus, emotional intelligence is more about an individual’s ability to use emotions rather than the property of emotions to signal individuals (i.e. SPE). The focus of this paper is upon the signal provision of emotion and how that impacts group-level processing as well as some of the many individual-level constraints upon the signal provision. However, a host of other individual differences are likely meaningfully connected to the signal provision of emotion and some of these, including emotional intelligence, are discussed in the implications for research section.

Emotions as signals in the intersubjective appraisal process

The framework developed in this article is grounded in the HRO theoretical assumption that groups who effectively appraise anomalous events via interaction (intersubjectivity) may be more likely to heedfully enact the event (Weick & Roberts, 1993; Weick & Sutcliffe, 2007). However, we assert that processes at the individual level, specifically the signal provision of

emotion, impacts the extent to which the group engages in intersubjective appraisal. We first discuss these individual level processes in an attempt to understand how they contribute to intersubjective appraisal in a manner that more reliably enacts anomalous events and improves organizational operations. We use the remainder of the paper to present a series of theoretical propositions that we believe should be considered in future empirical work. As Whetten (1989; 491-493) notes, such propositions are most useful when the intended purpose of an article is to present a new theoretical position. But as Whetten further notes, even though good propositions specify how future research might test the authors' core arguments, they are often a bit more abstract and thus less falsifiable than hypotheses because they specify broad, anticipated relationships among constructs, not among lists of variables. Propositions are converted into more specific, falsifiable hypotheses in subsequent empirical work.

The important and fairly direct link between the management of emotion and reliability concerns the way that emotion signals people to action as they attempt to interpret and adapt to their environments. For the purpose of this study, emotions are the subjective feelings typically directed at an object that include the cognitive appraisals of and biological reactions to the object (Cornelius, 1996). Hochschild (1983) described emotion labor as a process in which employees are expected to display and/or feel specific emotions in order to conform to organizational role expectations. Consistent with Hochschild and others (e.g., Ashforth & Humphrey, 1995), we see emotion processes as socially constructed means of interpreting the world. Hochschild described how emotions have a *signal provision*—cuing us to environmental events. For example, emotions may signal danger. Hochschild describes a study that compared women who escaped attempted sexual assaults and those that were actual rape victims (Queens Bench Foundation, 1976). What differentiated members of these two groups was the tendency of non-victims to act

on their early perceptions of danger and the propensity of victims to ignore these very signals. This is related to Freud's (1923) argument that anxiety serves as a signal of environmental danger. These dangers may range from the physical to the symbolic or even ethical. Recently, Waldron (2012) expanded the notion of emotions as signals to include the idea that emotions can suggest moral jeopardy, moral decay, and even face threat. Specifically, Waldron argues that feelings of anxiety and guilt may be signs that "personal or organizational moral codes are threatened" (p. 133).

Signals such as these are typically interpreted through comparison with individual and collective expectations. When individuals' expectancies are violated by an affective event (e.g. an event that generates emotional and/or affective reactions, see Weiss & Cropanzano, 1996), they may or may not act on them, and others in the same environment may not even perceive such violations or know that other group members perceived them. Peers, supervisors, and subordinates may need to be informed or convinced. Intersubjective appraisal is needed to acknowledge that there is a seeming discrepancy between what two or more people are seeing and what they would typically expect. The example of Comair flight 191 serves to illustrate: Just before sunrise on 27 August 2006, Comair flight 191 crashed during takeoff from Bluegrass Field in Lexington, Kentucky. Investigation by the National Transportation Safety Board (National, 2006) concluded that the plane took off from the wrong runway, which was half the length of the runway the pilots had been told to use. Data from the jet's flight recorder indicated that air traffic control cleared the jet to depart from illuminated runway 22 but the pilot instead turned the plane onto runway 27, which was unlit. During takeoff, the co-pilot commented to the pilot, "That is weird with no lights." The lead pilot responded affirmatively, "Yeah." The pilots did not abort takeoff and the plane crashed a few second later, killing 49 people. In this case, the

co-pilot noticed that the runway was not lit as it normally would be before sunrise. He also communicated his observation of this abnormality to the pilot, albeit with a seemingly low level of urgency. This comment—a weak signal—was not enough to catalyze heedful intersubjective processing that an important expectation had not been met and something was seriously amiss. Heedfulness occurs when people intersubjectively detect and collectively respond both strongly and swiftly to weak cues that an expectation has been violated. In this example, a stronger emotional response in both interpretation and expression of the unmet expectation (missing runway lights) would likely have prevented this disaster and others like it. Incorporating the signal provision of emotion may be one way to enhance the intersubjective appraisal processes that occur in groups/teams like this flight crew. Thus, enhancing the signal provision of emotion among individuals in risky contexts may also enable them to attend to weak signals and intersubjectively appraise the crisis accurately.

Defining the signal provision

Given the forgoing arguments, we argue that the signal provision emotion is critically important to high reliability organizations that regularly deal with high levels of risk and environmental turbulence. HROs need to monitor their environments in sophisticated ways for unmet expectations and respond early and actively to deviations even when there are only weak signals to do so (Weick and Sutcliffe, 2007). This would suggest that HROs would benefit from members whose signal provision of emotion (SPE) remains active and functional. As previously indicated, we define the signal provision of emotion (SPE) as the properties of emotions that aid individuals and groups in interpreting, appraising, and making sense of anomalous events that occur in the environment (Waldron, 2012). The SPE is a functional property of emotion

stemming from the assumption that emotions give rise to appraisals of the object or event that initiated the emotional experience (Lazarus, 1991).

Weick and Sutcliffe (2006) contend that stability of attention is the mechanism through which the SPE impacts behavior. Stability of attention is “the percentage of ascertaining moments that are directed at the intended object rather than at some other object” (Weick and Sutcliffe, 2006: 519). As more ascertaining moments are directed at an object or anomalous event, the more stable the attention and the more likely that the event is enacted. According to the vignette that opened this article, one crewmember appeared to have attended to and enacted cues from the environment that other crewmembers had not. Had all the crewmembers heeded the feeling communicated by this crewmember, a near miss would likely have been avoided.

Thus, the SPE is highly beneficial for individuals and groups in HROs because it assists in the avoidance of “floating away” from the object or event. Such distractions significantly increase the likelihood that the event will be ignored and not heedfully enacted (Weick and Sutcliffe, 2001). It is generally agreed that floating away (i.e. deviation of attention) is a primary causal factor in organizational accidents (Turner, 1994). When a discrepancy or violation of expectations occurs, that violation becomes the object/event of attention. According to Weick and Sutcliffe (2006), “this object is often glossed over, normalized, and treated as if it were a familiar event already encountered, named, and understood in the past” (p. 519). These processes (e.g. normalization of emotion) discourage the stability of attention and encourage floating away from the violated of expectation (i.e. anomalous event). Thus, the ability of emotion to serve as a signal impacts individual “floating away” from the anomalous event, the likelihood that sensemaking will move from an individual to intersubjective appraisal process, and the proper

enactment of a violated expectation by the group. For these reasons the following proposition is furthered:

Proposition 1: The signal provision of emotion is positively related to intersubjective appraisal processes such that a stronger, more reliable signaling provision in individuals is likely to result in enhanced group-level detection of anomalous events.

Enactment of anomalous events model

Weick and colleagues have employed elements of sensemaking theory (Weick, 1979, 1995, 2001) and case study analysis to analyze how HRO members manage this challenge (Weick, 2001; Weick and Sutcliffe, 2001). Sensemaking proceeds through a cycle of three interdependent processes, termed *enactment*, *selection* and *retention*. First, when members notice ambiguous change in their environment, they bracket off some portion of the available information for further attention and interpretation (enactment) rather than attempting the impossible task of analyzing all available information cues (Weick, 2001). Then, they improvisationally propose and refine interpretations of the information they have enacted such that certain interpretations become increasingly compelling to the group (selection) (Weick and Daft, 1983). Finally, interpretive schemes applied in a given episode of sensemaking are retained and applied in future equivocal contexts (retention) (Weick and Bougon, 2001). In this paper, we tease out how emotion is a key and under theorized part of the first stage of sensemaking, enactment, particularly in HRO contexts. We propose that organizational rules designed to shape or restrict emotion (e.g., “don’t show fear”) can significantly constrain and potentially enable enactment processes.

In an attempt to explain the contribution of emotion processes to the enactment of anomalous events in organizations, we propose a model that incorporates the way groups

intersubjectively appraise anomalous events (i.e., at the group level) and how this process is directly impacted by the felt emotions among the individuals (i.e., individual level) in the groups (see Figure 1). Similar to the work of Ashkanasy (2003), we acknowledge the multi-level impact of emotion processes as individuals and groups intersubjectively appraise anomalous events. To begin, it is important to understand that appraisal refers to the evaluation of some focal object or event and is often associated with determining the valence and nature of the object/event (Lazarus, 1984). In the context of high reliability organizational theorizing, appraisals also include evaluations of the seriousness of risks associated with a particular event or object (Covello, 1992; Kasperson et al., 1987). During the appraisal process, individuals experience physiological arousal if the event violates their expectations (Burgoon & Hale, 1988), which calls their attention to the event and suggests an interruption of ongoing activity (Mandler, 1984). Confronted with the violation, people begin to elaborate upon what the violation may mean for them and the work at hand via group interaction. These appraisals, however, occur collectively or intersubjectively in organizations as individuals/groups discuss what is occurring or has occurred rather than as a purely individually subjective, cognitive process. That is, groups collectively attempt to understand and assign meaning to the event through appraising the nature of the event. This iterative, cyclical process requires communication, interaction, and openness to experiences that are often related to the emotionality of the group (Weick, 1995). Thus, instead of a single individual determining the nature of the violated expectation, the group collectively determines if anomalous event actually positively or negatively violates the groups' understanding of the situation through their interaction with one another.

Anomalous events and intersubjective appraisal

Positive and negative violations refer to the valence of the unexpected event (Burgoon & Hale, 1988). An event that positively violates expectations usually is simply an exaggerated event compared to the expectation. For example, if a house fire were to burn faster than usual, firefighters would consider this a positive violation. They would develop and reinforce this appraisal through their communication with one another. Firefighters already expect houses to burn quickly, so a fire that burns even faster than expected only amplifies the belief that house fires spread fast. In contrast, an event that negatively violates expectations contradicts the general belief about what should happen and suggests something is not as it should be (Weick, 1995). For example, if when responding to a house fire, the home suddenly explodes rather than merely intensifying gradually, then this contradicts standard expectations of a typical house fire and suggests that something is different about this situation. Thus the valence of the anomalous event determines the extent to which individuals and groups will find the event salient. Events are perceived as salient to the group to the extent that they violate the group's expectations about normal operations in their context. Thus, the salience of the anomalous event is a crucial factor in individuals/groups' intersubjective appraisal of it. The more salient the anomalous event is to the group (i.e. the more it violates the group's expectations), the more likely the appraisal process will move from internal cognitive appraisal to intersubjective collective communicative sensemaking and continue through towards heedful or heedless enactment. The following is proposed:

Proposition 2: A positive relationship exists between the salience of anomalous events and the intersubjective appraisal processes among groups.

Intersubjective appraisal and heedful enacting

Maintaining our focus on the upper part of the model that emphasizes group level processing, when intersubjective appraisal occurs, groups can heedfully enact the event or disregard the event (Weick & Sutcliff 2007). As previously indicated, intersubjective appraisal process in groups refers to the extent to which the group considers the valence, nature, and riskiness associated with an anomalous event. If the group disregards the event, this is not to suggest that the groups are unaware of the anomalous event and associated expectancy that was violated. Rather, heedless enactment occurs as members in high reliability organizations actively ignore or minimize the event (e.g., a fire alarm) due to, for example, organizationally prescribed rituals and norms (Scott & Trethewey, 2008). For example, victims of home fires are often hysterical as the firefighters continue to fight the blaze rather than attend to them. Rather than heedfully enacting and moving attention toward the victim, firefighters may maintain attention to their assigned task (e.g., soak the fire, run the engine, protect other properties, etc.) because of longtime norms and habits. Under these circumstances, heedless enactment is the act of ignoring the victim even though awareness of their concerns is often unavoidable. It is also possible that the victim is trying to call attention to a child still trapped inside the house. In that case, the emotion signals from the victim may be constrained by the expectations of the organization (i.e., to ignore distress and maintain stability of attention on extinguishing the fire) thereby preventing attention to the most urgent need, rescuing the child. The anomalous event here is in the form of the hysterical victim who is upset by more than just the prospect of losing property in the house fire, which is the typical expectation. The desired response, of course, would be the heedful enactment of the expectancy violations through the intersubjective appraisal processes (e.g., making each other aware of the fact that this hysterical plea is important and warranted). Thus, the following proposition is suggested:

Proposition 3: A positive relationship exists between intersubjective appraisal processes and heedful enactment.

Anomalous events and individual emotion

Having focused primarily at the group-level and how the SPE impacts intersubjective appraisal processes, we now turn to how individual emotional experiences influence the experience of the SPE. Two key theoretical assumptions must be made. First, anomalous events often arouse emotions in individuals and second, individuals engage in emotion regulation as they experience emotions on a daily basis.

Beginning with the first assumption, emotions are complex psychological and physiological experiences involving physiological arousal, expressive behaviors, and conscious experience (Myers, 2004). Emotion is typically affiliated with mood, temperament, personality, disposition, and motivation (Gaulin and McBurney, 2003). Among other consequences, emotions and their subsequent reactions arbitrate life quality. We express emotion during every moment of every day – in the conversations with our friends, in the processing of directions from our supervisors, and in explaining why we are 15 minutes late for a date. Often times, emotions are experienced when we perceive that something is imminently going to affect our welfare (Ekman, 2003). Many scientific accounts of emotion assume that emotions are initiated by physical processes in the brain or body and therefore can be explained by events that transpire in the physical world (Frackowiak, 2004).

Affective events theory provides a substantial and credible explanation for why employees experience emotions (Weiss and Cropanzano, 1996). Events in one's environment provide proximal causes for affective reactions and the subsequent emotions provide some indication of the nature of the events transpiring around individuals. According to Weiss and

Cropanzano (1996), “things happen to people in work settings and people often react emotionally to these events. These affective experiences have a direct influence on behaviors and attitudes...” (p.11). Affective events theory demonstrates that employees react emotionally to things that happen to them at work and that this influences their job performance and satisfaction. Taken a step further, we propose that workplace events cause emotional reactions among individuals and these emotional reactions impact both the individuals’ and their groups’ understanding of the event through intersubjective appraisal. Further, sensemaking theory asserts that things/events do not just happen to people, they are enacted, bracketed off, and interpreted in groups (Weick, 1995).

Individual emotions and regulation

Concerning the second assumption, emotional regulation is “how individuals influence which emotions they have, when they have them, and how they experience and express them” (Gross, 1998: 542). According to Gross (1998), emotion regulation can be automatic or controlled as well as conscious or unconscious. Further, emotion regulation can occur at multiple points in the emotion generative process, thus allowing someone to experience more or less of the symptoms of an emotion relative to the regulatory demands placed upon them. Concerning why individuals regulate emotion, organizational policies, peer pressure, and societal expectations (i.e. culture) are all examples of socially constructed phenomena that define what an emotion is and how people should emotionally react. Research shows that individuals regulate both emotional expression and inner feeling (Gross, 1998).

Gross identified two types of emotion regulation: antecedent-focused and response-focused regulation (Totterdell and Holman, 2003). Antecedent-focused emotion regulation refers to changing initial feelings by adjusting the situation or thoughts about the situation (Grandey

and Fisk and Steiner, 2005). For example, firefighters are often excited to attack the fire and are looking forward for the opportunity to show their skills. They engage in antecedent-focused emotion regulation when they change those feelings of excitement and enthusiasm in order to empathize with the victim who has lost property in the fire (Scott and Myers, 2005).

Response-focused emotion regulation refers to changing one's behavior once the emotion is experienced by suppressing, faking, or amplifying the response. Using the same example, if the firefighter simply suppresses their excitement and attempts to show concern and understanding for the victim through the outward expression of empathy, they are engaged in response-focused emotion regulation. Suppressing is the idea that individuals can hide the feelings they are experiencing by bottling them inside whereas amplifying would suggest that the individual enhances the emotion they are experiencing. Thus, the theoretical assumption grounded in previous research (e.g. Gross, 1998; Grandey, 2003; etc.) is that individuals experience emotions and regulate them.

Emotion regulation in HROs

Despite the importance of SPE for making appropriate appraisals in high reliability organizations, members of HROs face several structural challenges to their need to preserve the signal provision. In short, members must rely on the signal provision while simultaneously being asked to manage, stifle or control their emotions. For example, ethnographic studies of firefighting, police work, and military settings have demonstrated that organizational norms and socialization processes encourage employees to regulate emotions such as fear, distress or anger (Katz, 1990; Myers, 2004; Scott and Myers, 2005). In other words, normative emotion regulation demands in those environments often require that individuals ignore affective responses to their

environments. Specifically, what many HRO jobs have in common is the normative expectation to stifle emotion (e.g., fear), rather than amplify or express certain emotions.

Indeed, a range of HRO settings feature emotional expectations that would seem to dampen the signal provision. For example, employees such as flight attendants (Murphy, 1998) and cruise ship activities staff (Tracy, 2000) are expected to preserve safety and communicate risk to crew members and passengers, yet emotion labor remains an important, if not central, facet of their work (Hochschild, 1983). What's more, members of these occupations regularly engage in drills that hone their emergency response skills but may weaken unintentionally their ability to sense deviations because the repeated exposure to the focal hazardous stimulus desensitizes them to signals they should attend (Weick and Sutcliffe, 2001). For example, firefighters engage in training drills where they put out fires in a training facility, enter the burning training facility to retrieve a mock victim, and where full protective gear to simulate real fire situations. By engaging in these repetitive simulations and following orders given by superiors in a systematic way, individuals may learn important skills but nevertheless begin to ignore emotional cues leading them to attend to an anomalous event. In these controlled situations, normalizing of emotion (felt and expressed) that calls attention to the anomaly is desirable. However, the subsequent desensitization that occurs may also suppress the signal provision of emotion in other contexts.

As organizations regulate employee emotion through policies and procedures (Grandey, 2000), employees may learn that they are not supposed to show certain emotions (e.g. fear or anger). Simultaneously, emotion regulation as dictated by organizations may also sensitize employees to certain emotional cues (e.g. dissatisfied facial cues of customers) while ignoring others (Gross, 1998). At times, this identification of organizationally prescribed emotion cues

and suppression of emotion may serve an adaptive function. For example, if an employee experiences a negative customer service interaction, suppression helps employees avoid becoming distraught. Such an outburst would reflect negatively on the employee and the organization, thus avoiding such behavior is of primary interest to both parties. However, the suppression of such negative emotion makes it simultaneously unavailable as a signal that might help people to adequately and heedfully enact information.

When people learn not to feel, they turn off an important way of knowing and making sense of the world (Cornelius, 1996; Frijda, 1994; Weick, 2001). The stoic firefighter may not experience anger or fear, though they may be natural and useful responses to situations faced each day on the job. Without anger, they may not be moved to see or enact information that indicates imminent threat. Without fear, they may not enact information that indicates danger. As the pressure to subdue and regulate emotion increases, the benefits of experiencing emotion (e.g., fight or flight, stability of attention, etc.) are lessened and the possibility of continued reliable operations becomes suspect. In other words, the signal provision of emotion enhances the intersubjective appraisal process, which leads to more accurate enactment of anomalous events. When organizations suppress the signal provision of emotion, they may reduce the accuracy of enactment and therefore cause operations to be less reliable, decrease the detection of hazards, and increase the possibility of unsafe workplace incidents. The following is proposed:

Proposition 4: Emotional regulation (i.e. suppression of alarm-based emotions) is negatively related to the signal provision of emotion.

Affective structure: constraining or enhancing the signal provision of emotion

Given the nature of anomalous events and the key role of emotions in organizations, we now turn attention to the way that the SPE is enhanced or constrained by affective structure in organizations. Individuals and groups are capable of experiencing a wide range of emotions that impact their attitudes and behaviors within the organization context (Weiss and Cropanzano, 1996; Cornelius, 1996). The presence or absence of certain types of affective structure (e.g. formal and informal) can decrease or increase this range, thus enhancing or constraining the ability of emotions to signal anomalies and spur appropriate action. Unfortunately, little is known as to how these structures enable or constrain the SPE that could improve life in the HRO workplace (Lovaglia and Houser, 1996).

Informal “affective” structure

Informal affective structure can be thought of as the unspoken rules and norms within the organization that govern emotion laden behavior between members of the organization and when members interact with the public (Van Maanen and Kunda, 1989; Grandey, 2003; Ashforth and Kreiner, 2002; Scott and Myers, 2005). Ashforth and Kreiner (2002) identify four processes for normalizing or managing emotions in organizations that fall into the category of informal affective structure. These processes are common to many organizations that view emotion as problematic and irrational (Putnam and Mumby, 1993; Ashforth and Humphrey, 1995). They include: (1) *diffusing*, where the impact of less desirable emotions is dissipated or reduced, (2) *reframing*, where emotions or the affective event are reinterpreted in a way that forestalls, redefines, or renders them acceptable, (3) *adaptation*, which capitalizes on the idea that repeated exposure to the affective event reduces the emotional impact, and (4) *ritualism*, where the process of enacting standardized procedures provides a greater sense of control and thereby reduces emotions. Normalizing emotion in this way significantly constrains the signal provision

of emotion by increasing emotion regulatory processes in individuals, thus reducing the attention paid to the anomalous event. As individuals feel that they are expected to experience certain types of emotion and avoid others, the range of emotion cues for which they are allowed to attend is limited (Diefendorff and Richard, 2003; Ashforth and Kreiner, 2002). For example, new “booter” firefighters report feeling fear or anxiety as they enter a burning building early in their career (Scott and Myers, 2005). Various rituals and activities (such as belittling the new “booter” for moments of expressed distress), however, serve to normalize their gut emotional responses. Through these activities, firefighters, over time, reframe and re-evaluate their emotions (i.e. normative emotion regulation)—transforming fear to excitement, stoicism, or anticipation. This, in turn, blunts the signal provision of fear and plays a role in reinterpreting the event in ways that may be problematic (e.g. that fire really isn’t that dangerous). Because emotion normalizing processes reduce the range of emotions experienced by individuals by increasing emotion regulation, the viability of the SPE is decreased. Thus, the following proposition is offered:

Proposition 5: Normalizing of emotions (i.e. diffusing, reframing, adaptation, ritualism, and peer pressure) in an organization is positively related to emotion regulation.

Formal “affective” structure

In addition to informal normalization of emotions, more formal structures, in terms of recorded material and documentation, also affect the viability of the SPE. Examples of formal structure may include employment contracts, procedure manuals, work processes, organizational hierarchy, evaluation tools, and technology (Scott, 2003; Barley, 1990; Diefendorff and Richard, 2003; Diefendorff and Richard and Gosserand, 2006; Wilk and Moynihan, 2005). McPhee (1985) explains that formal structures are 1) explicitly stated and available to all authorized persons; 2) prescriptive, telling what the organization should be like and indicating ways to

ensure the ideal; and 3) refer to members of the organization and describe their activities, roles, and behavior while working for the organization.

Thus, any description of the type of emotion that an organization wants to communicate to the customer or public would be considered formal affective structure. For example, Tracy (2000) discussed the service credo that cruise ship crewmembers with safety responsibilities were required to carry in their wallet, wear as a lapel pin, and see plastered on the walls in employee only areas. The credo mandated that employees should never say no, smile all the time because they are “on stage”, and recognize that they are ambassadors of the cruise ship at all times. Given the fact that these same employees were also emergency officers on the ship, it seems plausible that, in fact, these employees may *have* to say “no” to passengers and not smile in emergency situations. However, given the ways employees were socialized, rewarded and punished, cheery emotional fronts became the norm.

Such overt prescriptions of appropriate emotional expression, as described in the cruise ship study above, exemplify the types of affective structure within organizations that maintains and constrains emotional expression. As previously stated, individuals engage in emotional work in response to the organizational demands placed upon them for particular types of expressions (Rafaeli and Sutton, 1990). These demands by the organization are display rules placed upon the employee (Grandey, 2000). Ekman (1973) stated that display rules are standards of expression that indicate which emotions are appropriate for the situation and how these emotions are supposed to be conveyed to the public. When coworkers actually follow these policies and communicate their acceptance of the policies, then the affective structure becomes the normative culture of the organization. Also, the self-monitoring and self-censoring that occurs when powerful members of the organization are present during organizational events is an example of

the ways in which formal affective structure potentially constrains emotional expression. As the constraints on emotional expression increase, emotion regulation increases and the likelihood of enjoying the benefits of the SPE are reduced. Thus the presence of formal display rules will increase the level of emotion regulation and therefore constrain the SPE. The following propositions are furthered:

Proposition 6: Formal affective structure (e.g. overt descriptions of appropriate emotional expression, perceived presence of powerful members of the organization, perception of display rules) in an organization is positively related to emotion regulation occurring in individuals.

Discussion

The purpose of this article was to describe how emotions enter the process of enactment of anomalous events in high reliability organizations. Through this discussion we highlighted how anomalous events impact individual emotions, attitudes, and behaviors (Ashkanasy, 2003). By extending these ideas to the group level, we propose that the signal provision of emotion that is active at the individual level, may provide an important adaptive property to be used in group level intersubjective appraisal process, but is often overlooked by high reliability organizations. As future research investigates the propositions outlined above, an understanding of the nature of the signal provision of emotion will provide insights into the way that individuals and groups make sense of anomalous events. As researchers explore these relationships, the importance of deregulating emotions in organizations may gain momentum in high reliability organizations as they attempt to remain reliable in an ever changing and dangerous environment. Even if minimal reductions to the formal and informal affective structures in these organizations only marginally reduces overall failures and increases attention to weak signals through the signal provision of

emotion, then the changes will be worth the effort. We conclude the article with a discussion of potential avenues for investigating the propositions outlined as well as implications for both research on emotion in HROs as well as implications for practice.

Future Directions

One key component to any good theory article is providing some general ideas and guidance for investigating that theory (Weick, 1989; Sutton and Staw, 1995). Our primary concern is to illustrate that the forgoing propositions are worthy of further investigation and through doing so, some useful conclusions can and should be drawn. In order to begin to investigate the propositions, some preliminary actions need to be considered. As an example, some method for assessing the signal provision of emotion must be developed before any variable analytic research can feasibly be undertaken. Measurement development researchers illustrate that sometimes the initial steps in measurement development include engaging in qualitative research methods to uncover the nature of a phenomenon (Jick, 1979). In the case of the signal provision of emotion, it might be first useful to consider engaging in observation, participant observation, interviews, and focus groups with individuals in high reliability organizations to begin to investigate the nature of emotion in these contexts. After elaborating upon the signal provision of emotion in this manner, variable analytic measures should be developed following current conventions (Guion, 2011).

After developing a measure of the signal provision of emotion, several of the propositions in the model are more easily investigated. For example, proposition four suggests that emotion regulation is negatively related to the signal provision of emotion. That is, the more emotion regulation required of individuals, the less likely that emotions they experience will allow them to attend to weak signals in their environment. A simple test of this idea would be to ask

workers in a high reliability context to assess their emotion regulation and their signal provision of emotion using survey methods. At the same time, individuals could provide information concerning the presence of formal and informal affective structure and thus, allow for the test of a mediated model where formal/informal affective structure predicts emotion regulation which then predicts the signal provision of emotion.

Alternatively, the model could be investigated more comprehensively through field observation where a researcher engages with the environment where these processes are likely to occur. For example, a researcher could shadow a firefighting crew over the course of some defined period of time and observe the intersubjective appraisal processes (Scott and Trethewey, 2008). Through individual and focus group interviews with individuals engaged in the intersubjective appraisal process, the researcher can asking probing questions to get at the feelings, thoughts, and ideas that were or were not introduced during the group interaction and thereby begin to draw conclusions concerning the presence or absence of the signal provision of emotion among individuals.

Another future direction concerns the absence of several key individual difference variables in the proposed model. As previously mentioned, the proposed model is not to be confused with a facet of or component of emotional intelligence (Mayer & Salovey, 1997). However, this particular individual difference may have important implications for the degree to which the SPE is active within an individual. It is likely that a person who is more sensitive to their own and others emotions (i.e. more emotionally intelligent) may be more likely to attend to the SPE. As such, it could be that more emotionally intelligent individuals are more effective at detecting, acknowledging, and sharing their insights from the SPE with the group. Future

research needs to dig into the theoretical connections between the SPE and emotional intelligence.

Another individual difference variable that impacts group-level processing and intersubjective appraisal is emotional contagion (Barsade, 2002). Emotional contagion is the “tendency to automatically mimic and synchronize expressions, vocalizations, postures, and movements with those of another person's and, consequently, to converge emotionally” (Hatfield, Cacioppo, & Rapson, 1994, p. 5). Barsade (2002) argued that group emotional contagion is the transfer of moods and emotions among group members. The proposed model clearly argues that individuals need to attend to the emotion cues in their environment thereby experiencing more emotion in their intersubjective group appraisal processes. It is likely that individual susceptibility to contagion as well as the extent to which group emotional contagion is present will impact the intersubjective appraisal of the anomalous event. Future research should consider assessing the contagion processes that occur at the group-level as well as individual susceptibility to contagion in relation to the SPE. It is likely that the deregulating of emotions in HROs will lead to more contagion processes as well as the SPE being more active in individuals.

Future research may also consider the role of intuition in the decision making processes that characterize HROs. As Weick and Sutcliffe (2007) note, case studies and formal investigations often demonstrate that disasters emerge or are enlarged when members fail to act on intuitions that “something isn't right” or, in the parlance of HRO theory, some abstract feelings indicate that a normal expectation about the organizational environment and/or operations is not being met. Although the empirical work on intuition in decision making (e.g., Khatri and Ng, 2000) is very limited, it generally indicates that intuition plays a strong role in decision processes in a range of organizational settings. Since disaster case analyses indicate that

intuitive feelings of danger are often ignored and not displayed, it makes sense to suspect that affective structure plays a role in dampening or sharpening the impact of intuition. However, given the very limited number of empirical investigations of intuition in decision making, more empirical work is needed in the future to provide an theoretical and empirical basis for theorizing the antecedents and outcomes of intuition focused emotion.

Implications for Research

As the foregoing propositions are investigated and receive some support, several implications for researchers of high reliability organizations become apparent. First, our analysis illustrates the key importance of emotions when studying high reliability organizations. Although previous research has certainly entertained the idea that individuals and groups experience emotions in high reliability organizations (e.g. Katz, 1990; Scott and Myers, 2005), incorporating emotions into the theory and testing of theory concerning high reliability organizations is an area ripe for research.

Second, assuming some of the propositions receive some support surrounding the focal importance of the signal provision of emotion, then researchers may need to subscribe to the adaptive and interpretive benefits of emotion. While we have assumed an adaptive and interpretive approach to emotion experiences, others argue that emotions are problematic, irrational and thus conceptualize them pejoratively (Ekman, 2003). The pejorative approach to emotion suggests that all emotion is the antithesis of rationality and must be controlled and managed (Putnam and Mumby, 1993). For example, military and paramilitary organizations (typically HRO's) often take a pejorative approach to emotion, suggesting that emotions (particularly those other than anger) are irrational, inappropriate, and a source of individual and group vulnerability in emergency situations (Scott and Myers, 2005). In contrast, we agree with

the adaptive approach which argues that emotions aid in the establishment of each individual's place within their environment, pulling them toward certain people and pushing them away from others (Levenson, 1994). Levenson further asserts that emotions function as a "repository for innate and learned influences." Rather than irrational and weak, emotions can serve adaptive functions by assisting in the recall of expectancies in diverse situations. For example, a firefighter may experience a particular emotion or mixture thereof (e.g. fear, excitement, irritation, etc.) each time a particular type of emergency call occurs (e.g. freeway accident). The emotion serves as an additional cue (i.e., SPE) to help the individual understand the expectations of the organization and his work group in that type of call. Thus, under the conditions described in this article and as the propositions are confirmed, researchers may need to acknowledge the value of emotions in high risk occupations.

Third, future research and theory can extend these ideas into the other facets of sensemaking theory (Weick, 1995). Although the focus of this article was to bring emotion into the enactment of anomalous events, the processes of selection and retention may also be informed by emotion processes, including the signal provision of emotion. For example, the stability of attention may be enhanced by the signal provision of emotion leading to a greater amount of information being selected by individuals and groups as they attempt to understand the meaning of the anomalous event. There are a host of other variables connected to selection and retention (e.g. assembly rules, etc.) that may also provide insight into how emotions are involved in sensemaking.

Although we have focused on the HRO context in which the stakes of missed signals of danger are much higher, the framework described here may be applied to other organizational contexts where other forms of danger figure more prominently. For example, as Waldron (2012)

suggests, emotion processes and the formal and informal feeling and display rules that constitute them may shape how individual make sense of the moral hazards of organizational life. Future work that explores these and other non-HRO settings in which emotion influences the appraisal of risk may be fruitful for expanding and enriching the extent to which sensemaking processes in a variety of organization types are shaped by affective structure.

Implications for Practice

As these propositions are investigated, there are several potential implications for practice. First, high reliability organizations are continually looking for ways to improve safety and reliability and modifying the formal and informal affective structure present in organizations may provide an individual and group level resource for doing just that. There is considerable research on safety climate and culture indicating that the normative culture of the organization stimulates a positive or negative safety environment (e.g. Hoffman and Stetzer, 1998; Collinson, 1999; Gherardi and Nicolini, 2000; Zohar, 2000). As the many examples above illustrate, the constraining of the available emotional range may be problematic to high reliability organizations' interested in maximizing the detection of weak signals and avoiding disastrous errors. Although we do not mean to suggest that emotion could or should be completely unregulated, deregulating emotions by eliminating policies that promote singular emotional practices as well as making employees aware of the normative culture surrounding emotions (e.g., the heroic, stoic firefighter who ignores his feelings) may be one method of reducing near misses and accidents. Specifically, organizations might consider training courses where employees' role play situations where ambiguity is present and they are required to make decisions about which types of emotions to pay attention to and which to ignore. Additionally,

building some sort of reward structure in such training programs where effective weak signal detection through emotions are recognized and rewarded.

Second, although reducing the constraints upon the signal provision of emotion is a necessary first step for high reliability organizations, leaders should consider activating and/or enhancing the SPE further. For example, rather than just removing outdated formal affective structure (e.g. policies and standard operating procedures), high reliability organizations can encourage organizational members to express their concerns about behaviors in the organizational environment. Rather than suppressing fear, firefighters should be encouraged to indicate when a situation looks uniquely dangerous (e.g., wary of entering the burning building due to structural integrity concerns). Although firefighters are encouraged to express such concerns overtly, often informal normative processes within the firehouse discourage such behavior (Scott and Myers, 2005). However, there is a difference between feeling and communicating fear or distress, and being overcome by it. As of now, many high reliability organizations do not distinguish between these two conditions—suggesting that feeling fear or talking about it is irrational and problematic. Organizational leaders can consider incorporating after-action-reviews where open discussion of both the good practices and questionable practices on a service call are discussed (Ellis and Mendel and Nir, 2006; Allen and Baran and Scott, 2010). The dangerous environments in which many high reliability organizations function make any method of reducing the overall time loss due to injury or death worth consideration.

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Figure 1: Enactment of Anomalous Events Mode

