Oxford Research Encyclopedia of Psychology

Organizational Sensemaking FREE

Ravi S. Kudesia

date: 05 June 2017

Summary and Keywords

Since the 1980s, the management and organizations literature has grown substantially, turning over the years toward cognitive, discursive, and phenomenological perspectives. At the heart of this continued growth and its many turns is the matter of sensemaking. Construed narrowly, sensemaking describes the process whereby people notice and interpret equivocal events and coordinate a response to clarify what such events mean. More broadly, sensemaking offers a unique perspective on organizations. This perspective calls attention to how members of organizations reach understandings of their environment through verbal and embodied behaviors, how these understandings both enable and constrain their subsequent behavior, and how this subsequent behavior changes the environment in ways that necessitate new understandings.

Whereas organizational psychology constructs typically fit most comfortably into a linear "boxes and arrows" paradigm, sensemaking highlights a recursive and ongoing process. Sense is never made in a lasting way: It is always subject to disruption and therefore must be continually re-accomplished. As a result, sensemaking is especially evident when equivocal events cause breakdowns in meaning. Such breakdowns render organizations incapable of answering two key questions: "What's going on here?" and "What should we do about it?" Not coincidentally, such events—including crisis situations, strategic change episodes, firm formations and dissolutions, and new member socialization—are among the most pivotal events that occur in organizations. Sensemaking is therefore strongly implicated in organizational change, learning, and identity.

Sensemaking can appear impenetrable to newcomers for precisely the same reason that it enables remarkably incisive analyses: the sensemaking perspective helps disrupt limiting rationality assumptions that are so often embedded in organizational theories. As such, sensemaking sensitizes scholars to counterintuitive aspects of organizational life. These aspects include how action in organizations often precedes understanding rather than following from it, how organizations are beset by a surplus of possible meanings rather than a scarcity of information, how retrospective thought processes often trump future-oriented ones, and how organizations help create the environments to which they must react. Nonetheless, despite these advances and insights, much remains to be learned about sensemaking as it relates to emotion and embodiment; as it occurs across individual, group, organizational, and institutional levels of analysis; and as it both shapes and is shaped by new technologies.

Keywords: sensemaking, organizing, organizational cognition, social construction, interpretation

date: 05 June 2017

Introduction to Sensemaking

Sensemaking in Action: The Chicago Board Options Exchange

It is often easiest to understand sensemaking with an example of how it unfolds in action. For this reason, we begin with an example (see MacKenzie & Millo, 2003):

> There are few organizational environments as tumultuous as that of financial derivatives trading. In 1973, the economists Black and Scholes tried to understand how options were priced in the newly instituted Chicago Board Options Exchange. They developed a formula that priced options (i.e., the ability to purchase a particular commodity at a specific price) based on a handful of parameters like its spot price or time to maturity. In the first months of trading, the formula failed to predict option prices, with typical deviations as large as 30% to 40%. Yet, over time, the formula became accurate to within the low single digits, leading its creators to receive Nobel Prizes. Interestingly enough, however, the formula became accurate only because market participants acted *as if* it was accurate. Traders used values derived from the formula to inform their bids, the formula became integrated into trading regulations, and assumed in technological infrastructure. The Black–Scholes formula began by modeling options prices. It ended up modeling options prices in response to its modeling of option prices.

This case has much to tell us about sensemaking. In fact, it describes three pertinent features of the sensemaking perspective: (1) organizations operate in environments characterized by chaos and flux, (2) people develop plausible and tentative interpretations of their environments by noticing and bracketing out certain pieces of information, and (3) by acting on the basis of these interpretations, people actually make their environments more orderly and better understood (Weick, Sutcliffe, & Obstfeld, 2005). As our story indicates, from the initial chaos of prices and bids in options trading, Black and Scholes extracted certain plausible parameters and compiled them into a tentative formula, broader social utilization of this formula changed prices and bidding behavior, and the world of options trading became more orderly as a result.

Sensemaking: A Perspective and a Process

Perhaps the critical point underlying sensemaking research is that action and knowledge are recursively entangled. It is difficult to act without knowing the context in which action is to occur. And yet, it is difficult to know much about any context without first acting on it. This insight is not always obvious because when the events we face are familiar—as they typically are—our existing knowledge structures most often prove adequate. We can form a reasonable interpretation of what an event means and how we

date: 05 June 2017

should respond to it. At times, however, we are faced with equivocal events. Equivocal events contain elements of shock and surprise: They defy straightforward applications of our existing knowledge structures.

In order to understand what such events mean and how we should respond to them, we engage in a process of *sensemaking*. Sensemaking models how people adjust their knowledge structures as they notice and interpret an equivocal event and coordinate a response to clarify what the event means (Holt & Cornelissen, 2014; Maitlis & Christianson, 2014; Sandberg & Tsoukas, 2015; Weick et al., 2005). It is for this reason that sensemaking is so important to organizational scholarship: If "organization" is a pattern of interlocking group behaviors, then sensemaking is the pattern formation process (Weick, 1979). And if equivocal events disrupt these patterns of interlocking group behaviors, then organization can only be restored through sensemaking. If sensemaking fails, organized groups can rapidly disintegrate into disorganized individuals who lack the capacity for action (Weick, 1993b). In this view, organization only navigates the chaotic flux of perpetual change by the sense that it makes (Tsoukas & Chia, 2002). Thus, sensemaking functions not only as a *process* that organizational members engage in when responding to equivocal events, but also as a *perspective* on what organization is and how it is accomplished. Stated differently, sensemaking is both a method and object of inquiry in organizational contexts (Blatt, Christianson, Sutcliffe, & Rosenthal, 2006).

Article Overview

The purpose of this article is thus to provide an accessible introduction to sensemaking as it relates to organizations. It begins by contextualizing the sensemaking perspective within its historical milieu and delimiting its boundaries relative to rational decision-making and cognitive psychology perspectives. It then describes the sensemaking process by reviewing the types of events that trigger sensemaking, how actors notice and bracket information from such events, the means by which they interpret that information, the immediate products resulting from this interpretive process, the proximal and distal consequences of enacting interpretations, and the contextual factors that influence this overall sensemaking process. Taken as a whole, this article should provide a solid conceptual foundation for readers interested in the role that sensemaking plays in the field of organizational psychology.

date: 05 June 2017

Sensemaking as Perspective

Reductionist Approach to Organizations

How is it that individuals organize and act collectively? It is worthwhile to begin by considering two very different schools of thought, both of which purport to answer this question. In reviewing the behavioral strategy literature, Powell, Lovallo, and Fox (2011) distinguish between the "reductionist" school on one end and the "contextualist" school on the other. The reductionist approach "relies on positivist, realist, and objectivist philosophies of science and favors quantitative hypothesis testing using methods such as mathematical modelling, simulation, and laboratory decision experiments" (Powell et al., 2011, p. 1371).

This approach models individuals as decision-makers who face an objectively defined reality, are given ex ante options for how they can act, and choose actions based on a forward-looking process that maximizes their expected value (e.g., Edwards, 1954; Von Neumann & Morgenstern, 1947). It thus best describes an idealized hypothetical individual who makes decisions about a world that he or she knows with clarity. When work in this reductionist paradigm embraces more realistic psychological assumptions, it focuses on how actual human rationality is "bounded" in its ability to process all the available information and calculate the objectively best course of action. It therefore highlights the resulting "cognitive biases" that inhibit rational decision-making (Kahneman, 2003). It also prescribes ways for managers to improve their rationality while capitalizing on the irrationality of others (cf. Raiffa, 1982).

Contextualist Approach to Organizations

In contrast, the contextualist school—in which the sensemaking perspective plays a central role—describes a world in which "subjective beliefs, shared ideologies, and cognitive frames matter more than explicit ex ante decisions, which seldom correspond with what people or firms actually do" (Powell et al., 2011, p. 1373). In doing so, this school suggests that organizational environments are not objectively defined, but are socially constructed. People are not passively given all available options for how they can act, but must actively search for or even improvise them. And when searching for options, people draw on past memories more than they imagine future outcomes. Through these memories, they generate plausible interpretations that enable tentative action rather than pursuing maximal accuracy and absolute certainty.

This approach clearly appreciates a central insight offered by cognitive psychology: people use their beliefs to interpret their circumstances (Fiske & Taylor, 1991). Yet, it also goes beyond this work in several ways (cf. Gilliland & Day, 1999). The first way is by noting

date: 05 June 2017

the key role that people play in sculpting the very circumstances they later need to interpret. The second way is modeling how order at the higher level of a group can emerge even when the individual members that constitute the group lack a full mental understanding of it. The third way is how people's sense of identity is tightly interwoven into the emergence and continuation of this higher-level order. And the fourth way is that plausibility rather than accuracy is the criterion. Indeed, if we undertake action to express our identity and sculpt our circumstances, we do not need perfectly accurate knowledge about our current situation before we can act meaningfully or produce order at the higher level.

As a result, sensemaking is not about cognitive biases (the extent to which a person's knowledge reflects "reality") or even shared cognition (the extent to which multiple people's knowledge structures align or not). It is about *collective cognition*: how people come to think together, forming higher order patterns of interpretation and action that are fundamentally irreducible down to any one individual (Daft & Weick, 1984; Elsbach, Barr, & Hargadon, 2005; Sandelands & Stablein, 1987; Weick & Roberts, 1993). Given these defining characteristics, researchers within the contextualist school typically "conduct empirical work 'in context,' favoring qualitative and interpretive methods such as ethnography and textual analysis and rejecting positivism and quantitative hypothesis testing" (Powell et al., 2011, p. 1373).

Building Blocks of the Sensemaking Perspective

Historically, the reductionist and decision-making approach ascended to prominence in organizational scholarship before the contextualist and sensemaking approach did. Throughout the 1950s and into the early 1960s, rationality assumptions were dominant in the field. By the late 1960s, however, there was both an appetite for a new way of thinking about human behavior and the conceptual building blocks to construct such a way of thinking. This appetite existed due to growing dissatisfaction with stimulus–response models of human behavior and increasing interest in existentialism. It called for greater emphasis on the active role that people play in sculpting their lives. The building blocks of the sensemaking perspective were also developed by this time and ready for assembly into a coherent perspective. These building blocks include the following:

- As groups of people act, they take their collective patterns of action and interpretation for granted, seeing these patterns as part of a reality that exists independently of them and which would continue even without their participation in it (Berger & Luckmann, 1966).

- People apply these taken-for-granted understandings to navigate their everyday activities. In doing so, people ask others to account for behavior that challenges their taken-for-granted understandings (Garfinkel, 1967).

date: 05 June 2017

- Producing such "accounts" of behavior requires people to step outside the flow of their ongoing experience and retrospectively interpret their past behavior (Schutz, 1967).

- People form these interpretations by rationalizing their past behavior, such that they reduce the unpleasant experience of cognitive dissonance (Festinger, 1957).

Formative Historical Context

These disparate ideas were first assembled into a coherent sensemaking perspective on organizations by Karl Weick in his 1969 text, *The Social Psychology of Organizing*. Weick (2003) later described the historical context in the late 1960s where these ideas, so radically distinct from the dominant rational decision perspectives, first emerged:

> These ideas coincided with a growing societal realization that administrators in Washington were trying to justify committing more resources to a war in Vietnam that the United States was clearly losing. One could not escape the feeling that rationality had a demonstrable retrospective core, that people looked forward with anxiety and put the best face on it after the fact, and that the vaunted prospective skills of McNamara's "whiz kids" in the Pentagon were a chimera. It was easy to put words to this mess. People create their own fate. Organizations enact their own environments. The point seemed obvious.

> (p. 186)

Here we can see that, far from being some arcane academic exercise, sensemaking came about precisely to explain messy and complicated real-world phenomena. Yet, at the time, these insights remained somewhat underappreciated. Rather, the 1970s saw the rise in three highly influential theories of organization: transaction cost economics (Williamson, 1975), population ecology (Hannan & Freeman, 1977), and resource dependence (Pfeffer & Salancik, 1978). As Kaplan (2011) rightfully noted, each of these theories "privileged position and situation" in objective terms—bypassing insights that managers interpret their positions and enact situations (p. 667). It was only when Weick substantially extended *The Social Psychology of Organizing* into what became the seminal second edition in 1979 that scholars took note. And these ideas, derived from Vietnam-era concerns, remain relevant even today. Indeed, *The Social Psychology of Organizing* continues to be well-cited for precisely the idea that sensemaking is a retrospective process by which organizations help create the very environments that perplex them (Anderson, 2006). These ideas have also influenced practitioners through their integral role in Peters and Waterman's (1982) bestselling management book, *In Search of Excellence* (see Colville, Waterman, & Weick, 1999).

date: 05 June 2017

Consequences of Taking a Sensemaking Perspective

To understand the continued interest in the sensemaking perspective, we must consider the consequences for scholars who embrace it. When compared to its "reductionist" counterpart, the sensemaking perspective performs an important rhetorical function: it induces a figure-ground reversal between rationality and human behavior. Decision-making theories begin with rationality as their theoretical grounding, and thus assess human behavior in light of it. From this perspective, they find human behavior to be boundedly rational. The sensemaking perspective, however, begins with, and is grounded in, lived human behavior. By examining rationality in light of human behavior, it finds that rationality lacks explanatory power. In other words, while decision-making characterizes humans as "boundedly rational," sensemaking characterizes rationality as a "boundedly relevant" way to explain human behavior. As such, sensemaking offers a rather distinct perspective on what organizations are, how they function, and how they should be studied.

This perspective has generative potential for organizational scholars precisely because it differs from commonly shared assumptions in the field. Namely, we typically theorize about "entities" connected by box and arrow diagrams (Whetten, 1989). The sensemaking perspective emphasizes how theoretical entities—like people, identities, interpretations, and environments—are not distinct from each other. Rather, they can only be defined in relation to each other. This emphasizes how processes unfold over time and encourages us to study relations rather than entities (cf. Bradbury & Lichtenstein, 2000; Langley, 2007). The sensemaking perspective thus "acts as a lens that . . . focuses our attention on agency because action is viewed as part of people's efforts to make sense; on equivocality because sensemaking is triggered by people's need to understand an equivocal flow of experience; and on relationships as sensemaking is social" (Blatt et al., 2006, p. 898). Indeed, in his analysis of a friendly fire accident in Iraq, Snook (2000) compares a sensemaking perspective to that of decision-making. Adopting a sensemaking perspective, he suggests, enables scholars to maintain a richer understanding of how events come to be, portraying even terrible tragedies "as 'good people struggling to make sense,' rather than as 'bad ones making poor decisions'" (pp. 206–207).

date: 05 June 2017

A Sensemaking Perspective on Environments

To understand the sensemaking perspective on organizations, we must first consider the nature of the environment in which organizations exist. We can begin with a helpful distinction between certainty, risk, and uncertainty. Certainty describes environments where actions "lead invariably to a specific outcome," risk describes when actions lead to many possible outcomes that occur "with a known probability," and uncertainty describes when these possible outcomes occur with "completely unknown" probabilities (Luce & Raiffa, 1957, p. 13). To clarify, if you see that it is clearly raining outside, you are operating under conditions of certainty. This makes your decision to carry an umbrella unproblematic. More interesting is when you see looming clouds and must weigh the convenience of avoiding wet clothes in the case of rain with the inconvenience of needlessly holding an umbrella in the case of no rain. Here, the best advice is to move from a situation of uncertainty to one of risk: instead of estimating a subjective probability of rain, you can consult the official weather forecast to find the objective probability.

These environmental conditions of certainty, risk, and uncertainty are mutually exclusive. However, they are not exhaustive because of their implicit assumptions. Namely, they assume that more information inherently brings more clarity to environments. To make good decisions, organizations should therefore gather enough information to derive probabilities for outcomes that are as objective as possible (Galbraith, 1973; Thompson, 1967). To unsettle these implicit assumptions, sensemaking scholars make further distinctions about environmental conditions that foreground different properties of information. Namely, they distinguish ambiguity and equivocality from uncertainty (Weick, 1995, pp. 91–100). Whereas uncertainty can be remedied by more information, ambiguity and equivocality cannot. The latter two conditions capture how any one piece of information can support many possible meanings. As such, gathering more information can actually make action harder rather than easier, as the number of possible meanings multiply as the amount of information increases. People must therefore reduce the possible meanings of existing information instead of adding more information (Weick, 1979).

Ambiguity and equivocality differ in one important regard. Ambiguity implies that there is some "true" state of the environment out there to be discovered. Equivocality suggests instead that the state of the environment must be invented: by focusing on certain pieces of information and acting on the basis of certain interpretations of that information, organizations help invent their environments. Now, organizations certainly vary in the degree to which their members treat environments as ambiguous or equivocal (Daft & Weick, 1984; Weick & Daft, 1983). But in either case, their members reduce the number of possible meanings through interpretation: the information they receive does not inherently bring clarity. And objective probabilities seldom exist because organizations influence the outcomes they seek to predict. Sensemaking scholars have elaborated the nature of uncertainty, ambiguity, and equivocality in several helpful ways (see Milliken,

date: 05 June 2017

1987; Smircich & Stubbart, 1985; Sutcliffe, 2001). For example, these distinctions shed light on important questions including how to balance knowledge and action (Colville, Brown, & Pye, 2012), respond to ethical issues (Sonenshein, 2007; Thiel, Bagdasarov, Harkrider, Johnson, & Mumford, 2012), and routinize processes (Becker & Knudsen, 2005).

A Sensemaking Perspective on Organizations

As sensemaking scholars emphasize how people interpret and sculpt their environments, some describe sensemaking as supporting an "interpretive" view of organizations rather than a "computational" view that is predicated on gathering and processing more information (Lant & Shapira, 2000). This brings us from a view of the environment to a view of the organization. Within a sensemaking perspective, it is often less helpful to talk about "organizations" than it is to talk about "organizing" (Gioia, 2006; Weick, 1969). Talking about an organization as though it was a single actor (e.g., "the company launched a new product" or "the government went to war") is misleading. It minimizes the presence of multiple conflicting rationalities that exist among different groups within a single organization. It also gives the illusion of stability to what is actually an ongoing process that is always subject to disruption and therefore always in need of re-accomplishment. An organization is merely a snapshot at a single point in time of the consequences of an ongoing organizing process. Thus, taking organizing as the focus of research helps sensitize scholars to group-level processes that enable people to coordinate patterns of interlocking behaviors and respond to other groups with alternate rationalities.

Click to view larger

Figure 1. Organizing as Enactment-Selection-Retention.

The organizing process occurs when changes in their environment prompt groups of organizational members to enter cycles of enactment, selection, and retention (Weick, 1979; Weick et al., 2005). This enactment-selection-retention process explicitly adopts the variation-selection-retention model described in natural selection and evolution, but as applied to social systems like organizations (Campbell, 1970). Because enactment-selection-retention collectively define what "organizing" means and how "organization" comes about, each of the three stages merits attention and explanation (see Figure 1):

date: 05 June 2017

• *Enactment* refers to the ways in which organizational members do not merely *re*act to their environments, but help to *en*act it much in the same way that legislators enact laws. Enactment occurs both through perception and behavior. Perceptually, organizational members notice only limited portions of their environment. They notice information that is puzzling or problematic and then bracket that information so they can interpret what it means. Once they have a plausible interpretation at hand, enactment occurs again through behavior. Through behaviors taken through speech or with the body, organizational members act out their interpretations, thereby embedding their interpretations into their environment. Enactment thus reminds us how organizations "construct, rearrange, single out, and demolish many of the 'objective' features of their surroundings" as they engage with it through perception and behavior (Weick, 1979, p. 164).

• *Selection* refers to the interpretive process, in which organizational members work to determine what the bracketed information means. It is an equivocality reduction process: reducing the number of possible meanings allowed by the information until it becomes actionable. In essence, selection imposes knowledge structures that configure the bracketed pieces of information in different arrangements: making some variables more or less central and relating these variables in new ways. Selection is thus "both a cognitive process and a political process as organizational members struggle with the definition of the situation and the resulting choices consistent with the definition" (Ocasio, 2000, p. 51). As we will see, various cognitive, discursive, and embodied means of interpretation can be used for selection. Either way, selection produces a plausible understanding of what the environment means that can serve as a guide for enactment.

• *Retention* is a social process by which the selected interpretations become integrated into the group's identity, interwoven into its narrative of the environment, and used as a reference to guide subsequent enactment and selection. Whereas selection describes how interpretations influence the information currently being processed, retention describes how current interpretations influence subsequent behavior. Importantly, for organizing to work, retained understandings must be not only believed, but also doubted (signified respectively by the + and – feedback loops in Figure 1). Belief means that we notice the same type of information we previously noted, interpret that information in similar ways, and enact that interpretation in similar ways. With unmitigated belief, however, the accumulation of retained experience will pose increasing constraints on organizing. Thus, we must infuse doubt into organizing by noticing new information, questioning our entrenched interpretations, or acting out our old interpretations in new ways.

Taken together, organizing can thus be seen as a process whereby groups of individuals reduce the equivocality in their environment through a series of interlocking behaviors; through these behaviors, the group notices and brackets information from the environment, applies knowledge structures to interpret that information, and then acts

date: 05 June 2017

out their interpretations in ways that develop the group's knowledge and bring order to its environment (Weick, 1979).

Although early work emphasized organizing and characterized "organization" as a term that adds more confusion than it does clarity (Weick, 1969), more recent perspectives see room for both terms—if properly understood. Namely, when people organize, they enact their retained interpretations to navigate moment-to-moment changes in their environment. As such, we can think of "organization" in two ways (see Tsoukas & Chia, 2002). Organization can refer to the retained interpretations that characterize groups of people: their beliefs, identities, etc. It can also refer to the moment-to-moment patterns of actions that apply these interpretations to the current environment. In neither case is the organization a place where people work. It is a result of people's attempts to stabilize understandings of their environment (see Walsh & Ungson, 1991). In Wiley's (1988) terminology, this directs us to the intersubjective and generically subjective levels of analysis. As opposed to the private interpretations of single individuals (intrasubjective level) or interpretations that exist with little need for personal involvement like mathematics (extrasubjective level), the intersubjective and generically subjective levels are socially negotiated. At the *intersubjective* level, fragile interpretations emerge from social interactions among specific people. At the *generically subjective* level, interpretations remain stable regardless of the people involved. The organizational form is unique in that it foregrounds the "bridging operations" between these two levels (Weick, 1995, p. 75). Organizations must enable the innovation and vivid understandings that occur within groups at the intersubjective level. But they must also value the managerial control and ability to hire and fire people without losing substantial operational knowledge that is entailed by generic subjectivity.

As such, this sensemaking perspective on organizations is uniquely versatile. It can describe small groups, large corporations, or even entire options trading markets. Although some find the idea of producing objective knowledge about subjectivity to be "paradoxical" (Allard-Poesi, 2005) or guilty of "ontological oscillation" (Burrell & Morgan, 1979, p. 266), such challenges may be less incisive than they seem at first. As Weick (1995) noted, "People who study sensemaking oscillate ontologically because that is what helps them understand the actions of people in everyday life who could care less about ontology" (p. 35). People who interact within organizational forms necessarily treat the generically subjective as objective—until challenges, contradictions, and breakdowns in meaning require innovative new intersubjective understandings. This oscillation is not a flaw of sensemaking research, but a crucial feature.

date: 05 June 2017

Sensemaking as Process

Properties of the Sensemaking Process

As organizational scholarship grew increasingly interested in cognition throughout the 1980s and early 1990s (Kaplan, 2011; Walsh, 1995), a body of work began exploring the sensemaking process in organizational contexts (e.g., Louis, 1980; Porac, Thomas, & Baden-Fuller, 1989; Starbuck & Milliken, 1988; Thomas, Clark, & Gioia, 1993). And as the 1990s progressed, scholars—especially in Europe—turned toward language and discourse (see Alvesson & Karreman, 2000; Czarniawska, 1998). As Maitlis and Christianson suggest (2014), an impetus behind the growth of sensemaking research in the 1990s was Weick's (1995) *Sensemaking in Organizations*. This book documented the state of the research at this important transitional time, while also providing some structure and direction (see Manning, 1997).

In it, Weick identified seven properties of the sensemaking process. Although the literature proliferated and the theorizing has matured since this text, these seven properties remain influential in guiding how scholars understand the sensemaking process (cf. Helms Mills, Thurlow, & Mills, 2010). For this reason, we consider each of the seven sensemaking properties briefly as an informative introduction to the sensemaking process. After, we will delve deeper into the nuances of sensemaking as they exist in the current literature.

Sensemaking is:

(1) *Grounded in identity construction* because in responding to equivocal events, individuals and groups must determine who they are now in relation to a suddenly strange environment and who they will become as they start trying to change the environment.

(2) *Retrospective in nature* because disruptions prompt individuals to turn their attention to information from the past in order to interpret how the current disruption came about.

(3) *Based on enacting sensible environments* because a key output of sensemaking is an enacted environment that is more orderly than the equivocal environment that triggered sensemaking in the first place.

(4) *Social* in that interpretations are negotiated and enacted through social interactions.

(5) *An ongoing process* because sense is never made in perpetuity, but is always subject to disruption and therefore in need of re-accomplishment.

(6) *Focused on cues extracted from the environment* because informational cues containing equivocality provide the raw material for interpretation.

date: 05 June 2017

(7) *Driven by plausibility* rather than accuracy because sensemaking helps people reach only enough clarity to coordinate action, not to maximize expected outcomes with certainty.

Sensemaking Within the Context of Organizing

These seven properties can help guide our growing understanding of the sensemaking process. As a first step, we can relate sensemaking back to the overall project of organizing. Sensemaking captures the way organizing proceeds when the environment suddenly becomes more equivocal or ambiguous. Thus, whereas organizing is a process that is always operative, sensemaking is typically described in terms of particular episodes triggered by unexpected events that infuse equivocality into the environment (Sandberg & Tsoukas, 2015).

Without denying that the many small, routine events that demand little attention and characterize much of organizational life also require interpretation and influence action (Gioia & Mehra, 1996), sensemaking typically describes the process by which interpretation and action are shaped by rarer and more unexpected events. As such, we can consider sensemaking to be a special case of organizing: organizing in response to the unexpected. The value in making this distinction is that organizing operates in a somewhat different manner when members are faced with unexpected events and equivocal inputs. The stakes of organizing in these cases are also certainly higher, lending a certain salience and intrigue to sensemaking episodes.

Thus, it is valuable to note how sensemaking occurs through same enactment-selection-retention process as does organizing more generally. We can therefore link the organizing process with each of the aforementioned seven sensemaking principles from (1) to (7).

- Enactment describes the perceptual process of noticing and bracketing information from the environment (6: focused on cues) and the behavioral process by which acting on the basis of interpretations helps shape the world and bring order to it (3: enacting sensible environments).
- Selection describes how people draw on the past to interpret bracketed information (2: retrospective in nature) and seek to find workable interpretations rather than completely accurate ones (7: driven by plausibility).
- Retention describes how the outputs of interpretation are stored in ways that affect individual and collective identities (1: grounded in identity), and how these outputs are negotiated through interactions with others (4: social) as they are applied continuously to the environment as its equivocality levels constantly fluctuate (5: ongoing).

Many have characterized this relationship between sensemaking and organizing in similar ways. For example, Sandberg and Tsoukas (2015) explain:

date: 05 June 2017

organizing is a process in which individuals interactively undertake action (enactment), the results of which they subsequently confront as their "environment," which they then seek to make sense of by retrospectively chopping their lived experiences into meaningful chunks, labeling them, and connecting them (i.e., selection). This sense made is retained in their minds in the form of cognitive 'cause maps,' indicating what is crucial for carrying out their tasks and how they are interconnected (retention). Through sustained interaction, individuals interlock their behaviors over time, and, in so doing, they deal with residual equivocality, which they seek to remove through negotiating a consensus about their common task and how it ought to be handled. Thus, a group of individuals become organized when their cause maps converge (Weick, 1979). In other words, sensemaking is homologous to organizing: The latter is achieved to the extent that the former is accomplished.

(p. 8)

Similarly, others suggest that "people organize to make sense of equivocal inputs and enact this sense back into the world to make that world more orderly" (Weick et al., 2005, p. 410). Alternatively, "to make sense is to organize, and sensemaking refers to processes of organizing using the technology of language . . . to identify, regularize and routinize memories into plausible explanations" (Brown, Stacey, & Nandhakumar, 2008, p. 1055). With this key relation in place, we can turn to sensemaking in greater detail by reviewing its components.

date: 05 June 2017

Triggers of Sensemaking

In differentiating sensemaking from organizing in general, the initial question arises: What types of events prompt sensemaking in the first place? By definition, these are events that contain higher degrees of equivocality. However, it is also worthwhile to consider broader taxonomies of such events that occur in organizations (e.g., Maitlis & Christianson, 2014; Sandberg & Tsoukas, 2015). Triggering events can vary in how equivocal and thus disruptive they are (mild to extreme), where they originate (inside or outside the organization), and the degree to which they are planned or unexpected. For example, events can be completely unexpected and occur for reasons largely external to the organization, as when the roof of a railroad museum collapsed due to inclement weather, prompting the museum to reassess its strategy (Christianson, Farkas, Sutcliffe, & Weick, 2009). In other cases, triggering events stem from broader social phenomena, such as when university administrators faced demographic trends of diminishing of 18–22 year olds enrolling in college (Milliken, 1990).

At other times, triggering events can stem more directly from feedback to organizational behavior. This occurs when employees of a retail store notice disappointed or apathetic customer reactions to their change initiative (Sonenshein, 2009) or when customers adapt an organization's technology product in new and unexpected ways (Griffith, 1999). Sensemaking is also triggered by the collapse of organizations, and plays an important role in guiding how employees respond to the news (Walsh & Bartunek, 2011). Indeed, sensemaking can be triggered by events entirely due to past organizational behaviors and interpretations. For example, a group of firefighters assumed they were facing a routine fire that would be contained by 10 o'clock the following morning, only to face an entirely different type of fire (Weick, 1993B). For them, the triggering event came entirely from their expectations, not the fire itself, which could have been handled if they faced it with a different set of interpretations.

Sensemaking can also be triggered more intentionally in organizations (see Barnett & Pratt, 2000). For instance, art initiatives in organizations can be intentionally utilized to this end (Barry & Meisiek, 2010). Perhaps the most common intentional sensemaking trigger stems from the actions of other people. For example, Pratt (2000B) described how, in the process of being socialized into a multilevel marketing organization, individuals underwent a "sensebreaking" process that disrupted how they understood their current identity. This, in turn, allowed for the organization to more deeply influence individuals as they subsequently made sense through socialization into the organization. Similarly, a large body of work focuses on the process of sensegiving (e.g., Fiss & Zajac, 2006; Gioia & Chittipeddi, 1991; Hill & Levenhagen, 1995; Maitlis & Lawrence, 2007). Sensegiving describes "the process of attempting to influence the sensemaking and meaning construction of others toward a preferred redefinition of organizational reality" (Gioia & Chittipeddi, 1991, p. 442). Leaders often engage in sensegiving during periods of strategic

date: 05 June 2017

planned change or crises to ensure that organizing does not unravel, but instead progresses toward their envisioned outcome (e.g., Christianson et al., 2009).

Noticing and Bracketing

When existing patterns of organizing adequately control the equivocality levels in the environment, individuals find themselves immersed in a flowing stream of experience (Schutz, 1967). Sensemaking begins when information cues from the environment disrupt this flow, requiring individuals to interpret the nature and meaning of this information. When sensemaking scholars talk about "noticing and bracketing," they are describing how information can prompt individuals to step out of the ongoing flow. Foundational research identified characteristics of informational cues that are more likely be noticed within the flow of experience. For example, as social psychology research has noted, information is more likely to be noticed when it is novel, intense, and unpleasant (Fiske & Taylor, 1991). It is important to note, however, that not all information that is novel, intense, or unpleasant is also relevant to organizing. Information gains relevance to organizing based on how it compares against expectations (Weick, 1995).

Organizing implies certain retained expectations about the environment, and information that confronts those expectations is most likely to be bracketed for interpretive work. For this reason, noticed information becomes bracketed based on its relevance to organizing. Information is bracketed for interpretation when it makes the meaning of their environment unclear, indicates that current actions are failing, or enables no obvious set of behavioral responses (e.g., Ashforth & Fried, 1988; Kiesler & Sproull, 1982; Starbuck & Milliken, 1988; Weiss & Ilgen, 1986). These ideas about bracketing align with managerial problem-solving approaches that see problems not as defined inherently, but as constructed based on context and expectations (Smith, 1988). Therefore, while novel and intense information is especially likely to be noticed, novel and intense information that makes the environment more equivocal will not only be noticed, but will also be bracketed for interpretive work—thus sparking the sensemaking process.

Interpretive Processes: Cognitive Means

Once information is noticed and bracketed for interpretation, how precisely does the interpretive process occur? As the sensemaking literature has developed, scholarly interest has shifted sequentially from cognitive to discursive to embodied means of interpretation. Early work in sensemaking focused on cognitive means of sensemaking such as frames, cause maps, and schemata (e.g., Bartunek, 1984; Bougon, Weick, & Binkhorst, 1977; Starbuck & Milliken, 1988; Weick, 1969). These generally synonymous terms refer to relatively stable knowledge structures that individuals can apply to interpret ongoing events (Walsh, 1995). Doing so imposes "a structure of assumptions, rules, and

date: 05 June 2017

boundaries that guide sensemaking and over time become embedded and taken-for-granted" (Lüscher & Lewis, 2008, p. 222).

This work focused on how informational cues that individuals notice and bracket from the environment and cognitive frames retained in their memory jointly enable interpretation. As Weick (1995) describes, "Frames tend to be past moments of socialization and cues tend to be present moments of experience. If a person can construct a relation between these two moments, meaning is created. This means that the content of sensemaking is to be found in the frames and categories that summarize past experience, in the cues and labels that snare specifics of present experience, and in the ways these two settings of experience are connected" (p. 111). A similar, but distinct concept to frames is the script, which is a "cognitive structure that specifies a typical sequence of occurrences in a given situation, such as an employment interview or formal meeting" (Ashforth & Fried, 1988, p. 306). Unlike frames, which clarify the present moment of experience, scripts also set expectations that guide how actions should proceed over time (Gioia, 1986; Weber & Glynn, 2006).

Although these knowledge structures can be shared across organizational members to varying degrees, their character is mostly cognitive and individual. They primarily reside passively in the mind of individuals, rather than actively in socially vocalized speech or physical body movements (for a review of frames both within and beyond sensemaking, see Cornelissen & Werner, 2014). It is certainly true that cognitive means of sensemaking have become somewhat less prevalent than the subsequent discursive and embodied approaches, which we will soon explore. Nonetheless, cognitive means of interpretation should not be discounted. For instance, the data-frame theory of sensemaking describes expert behavior with remarkable precision (Klein, Moon, & Hoffman, 2006A, 2006B; Klein, Phillips, Rall, & Peluso, 2007; Klein, Wiggins, & Dominguez, 2010). Contrary to decision-making models, this naturalistic approach notes how experts do not typically evaluate multiple options. Instead, experts draw on diagnostic cues in the environment to invoke a single best-fitting frame, which they then mentally simulate in order to assess fit between the cues and frame. This process describes, for instance, how fireground commanders quickly recognize the appropriate routines to handle a particular fire. In this way, cognitive means of sensemaking can still be profitably investigated within particular contexts.

Although not discussed as frequently in the sensemaking literature, another such context concerns formulas like the Black–Scholes formula mentioned earlier (MacKenzie & Millo, 2003). Formulas, algorithms, and formal models are also tools of interpretation (cf. Boland, 1984; Gephart, 1997). After all, formulas specify what variables we should extract from the environment, how these variables relate to each other, and what outcomes are meaningful. Such formulas are likely to become especially important as they underlie "the Internet of things," whereby aspects of our everyday life are increasingly quantified, networked, and optimized. Formulas also matter because of what they exclude. For

date: 05 June 2017

example, in advocating for considering stakeholders in addition to shareholders, Freeman (1994) argued that most formulas quantifying organizational success exclude ethical consequences on third parties.

Interpretive Processes: Discursive Means

The discussion of shareholders and stakeholders attunes us to another important means of interpretation: language. Indeed, sensemaking research in the 1990s and beyond increasingly shifted away from cognition and toward language. Weick (1995) provided an early example of the power of language and verbal labels in interpretation: battered child syndrome. Pediatricians had long puzzled over children whose observed injuries were discrepant from their reported medical histories. Only after creating the label "battered child syndrome" could they interpret this odd phenomenon: The observed injuries differed from reported medical histories precisely because the parents of the children were both inflicting the injuries and misreporting their medical histories (Westrum, 1982). In this way, verbal labels provide an important means of interpretation (Weick et al., 2005). Similarly, it becomes easier to advocate for strategies that benefit "stakeholders" rather than mere "shareholders" once we have a label to describe the otherwise diffuse grouping of people impacted by organizational practices.

In addition to labels, a good deal of discursive interpretive work also occurs through metaphors (e.g., Cornelissen, 2005; Cornelissen, Holt, & Zundel, 2011; Gioia, 1986; Patriotta & Brown, 2011). Perhaps one reason metaphors are especially useful for sensemaking is that they are "incomplete statements of one thing—in terms of another" (Hill & Levenhagen, 1995, p. 1062). As a result, they help reduce equivocality to a limited degree, but still allow for paradox, incongruity, and contradiction. This makes them especially useful as means to foreground some pieces of information over others and connect novel aspects of ongoing events to existing knowledge structures in creative ways. Yet, metaphors do not merely serve to link ongoing events to knowledge structures. They also serve to socially justify certain actions over others (Cornelissen, 2012). For example, by invoking the metaphor of a "learning curve," a hospital interpreted their poor performance in ways that legitimized it (Weick & Sutcliffe, 2003).

Building from the simpler discursive tools of labels and metaphors, interpretation also occurs through more complex accounts and narratives. Accounts and narratives differ from cognitive means of interpretation (frames, schemata, cause maps) most crucially in that they are fundamentally discursive: based in language (e.g., labels, metaphors). Therefore, by focusing on accounts and narratives, we are made to notice how events are translated into language, how that language selection is socially negotiated, and how organization is thus talked into existence. Instead of residing passively in mental knowledge structures, accounts and narratives live socially in acts of speech. This has the added benefit of making them more observable, including through secondary sources. In

date: 05 June 2017

contrast, cognitive means of interpretation are most reliably elicited through interviews (e.g., Bougon et al., 1977; Weber & Manning, 2001).

An account is a "situation that is comprehended explicitly in words and serves as a springboard to action" (Taylor & Van Every, 2000, p. 40). As "discursive constructions of reality," accounts "provide members with ordered representations of previously unordered external cues . . . [that] describe or explain the world and thus make it meaningful" (Maitlis, 2005, p. 23). The underlying idea of "accounting for" behavior stems from ethnomethodology (Garfinkel, 1967; Heritage, 1984). On the other hand, narratives stem from a wide multiplicity of scholarly traditions (e.g., Bakhtin, 1981; Ricœur, 1984). Narratives are "a discursive construction that actors use as a tool to shape their own understanding (sensemaking), as a tool to influence others' understandings (sensegiving), and as an outcome of the collective construction of meaning" (Sonenshein, 2010, p. 480). The crucial distinction between narratives and accounts are that narratives are explicitly temporal: Narratives make sense by describing how events have proceeded over time to produce the triggering event. Narratives thus have at least three components: "an original state of affairs, an action or an event, and the consequent state of affairs" (Czarniawska, 1998, p. 2). Given this temporal component, narratives can serve to support both stability and change in organizations (Vaara, Sonenshein, & Boje, 2016).

From poststructuralist and postmodernist perspectives, narratives differ from stories in a key way. Narratives need not have "coherent storylines, shared meaning, and common values" but can entertain multiple, even contradictory meanings (Cunliffe, Luhman, & Boje, 2004, p. 264). Further, some of these meanings are favored while others are suppressed. This brings questions of power and privilege into the picture. Indeed, asking how some meanings gain favor over others can help link sensemaking with more critical approaches (Brown, 2000; Helms Mills et al., 2010; Mumby, 1987). It is evident that powerful individuals play an important role in shaping narratives. This role is well exemplified in how a central bank's chairman listened to several competing narratives about economic recovery in a meeting and decided which of these narratives would actually be enacted publicly (Abolafia, 2010). It is also evident in the way that leaders narrate their own personal stories in ways intended to grant them social legitimacy (Maclean, Harvey, & Chia, 2012). Similarly, but at a higher level of analysis, organizations that foster a strong "official narrative" invariably relegate other narratives to a secondary position—as exemplified by analyses of the Walt Disney company (e.g., Boje, 1995; Van Maanen, 1991).

Taken as a whole, discursive means of interpretation therefore add important value beyond cognitive means (Cooren, 2000; Taylor & Van Every, 2000). Discursive interpretations are neither an intrasubjective matter of an individual's cognition, nor are they necessarily an extrasubjective matter of taken-for-granted reality. Rather, they highlight how groups first establish their intersubjective understandings and then make these understandings generic over time through discourse (e.g., Schall, 1983). Sensemaking research has accordingly explored these discursive processes in a variety of

date: 05 June 2017

contexts: fire fighters, intensive care units, blue collar work, hostage situations, and monetary policy groups (e.g., Abolafia, 2010; Albolino, Cook, & O'Connor, 2007; Baran & Scott, 2010; Mills, 2002; Quinn & Worline, 2008).

This raises a further question: How should discourse best proceed if it is to facilitate sensemaking? Some highlight specific techniques, which balance members voicing their ideas, needs, and attitudes as well as respectfully questioning the ideas of others (Blatt et al., 2006; Wright & Manning, 2004; Wright, Manning, Farmer, & Gilbreath, 2000). As we will shortly see, although not focused entirely on discourse, the ideas of mindfulness and "heedful interrelating" (Weick & Roberts, 1993) also provide valuable insights into how groups form intersubjectivity (e.g., Bijlsma-Frankema, de Jong, & van de Bunt, 2008; Jordan & Daniel, 2010; Stephens & Lyddy, 2016). Others highlight the types of situations under which discursive means of interpretation are most likely to flourish (Browning & Boudès, 2005; Rouleau & Balogun, 2011). Nonetheless, we should not assume that any single technique or situation will fit all possible sensemaking contexts. For instance, depending on the context, there is certainly room for strategically ambiguous communications, using language that is intentionally decoupled from actual business practices, using language to revise understandings of prior events rather than changing practices, or formalizing language into written contracts and rules (Eisenberg, 1984; Fiss & Zajac, 2006; Gioia, Corley, & Fabbri, 2002; Vlaar, Van den Bosch, & Volberda, 2006).

From a discursive perspective, organizations can thus be seen as a "storytelling system" (see Boje, 1991) or even a "text" (Westwood & Linstead, 2001). Yet, such perspectives are open to a critique, namely, that "organizations may emerge through conversation, but they do not emerge for the sake of conversation" (Engeström, 1999, p. 170). Sensemaking intends to answer the latter question: modeling not just how organizations emerge, but also why. Thus, while some describe sensemaking and discourse as equal members of interpretive organizational research (Morgan, Frost, & Pondy, 1983), sensemaking scholars typically disagree. They note how sensemaking differs from interpretation: Sensemaking emphasizes how organizations do not merely interpret their environments, but instead help create them through perception and action (Sutcliffe, 2014; Weick, 1995). Thus, discourse has a subsidiary place within sensemaking: It is an important means of interpretation, but cannot be considered aside from the information that people notice and the actions they take on their environment (cf. Taylor & Robichaud, 2004). And it is only in understanding how environments are enacted that we can start to understand why organizations emerge.

Interpretive Processes: Embodied Means

Thus, even this discursive perspective has its limits. Through it, we may inadvertently start to "portray sensemaking as more cerebral, more passive, more abstract than it typically is . . . [because sensemaking] starts with immediate actions, local context, and concrete cues" (Weick et al., 2005, p. 412). Indeed, there can be a tendency to forget

date: 05 June 2017

immediate actions in favor of the more cerebral use of language over time. And, as noted, discourse research has not always made the connection between language, action, and environments (Taylor & Robichaud, 2004). For instance, although the technique is not frequently used in sensemaking research, agent-based models can serve as a helpful reminder about the power of action (cf. Gavetti & Levinthal, 2000; Gavetti & Warglien, 2015; Rudolph, Morrison, & Carroll, 2009; Rudolph & Repenning, 2002). In such models, we see that organization can emerge from individuals with remarkably simple interpretations (see Nowak & Vallacher, 2007). Physical action can be a means of interpretation given the central importance of retrospect: We make sense by looking back on what we have done. It is through physical action that we often identify our interpretations. And, as institutional theory perspectives highlight (Weber & Glynn, 2006), even seemingly unthinking and mundane actions also carry interpretive weight. Our rooting in a larger "lifeworld" provides such everyday actions with taken-for-granted meanings (Wright & Manning, 2004).

An important aspect of physical action is the role of the body. Indeed, the literature on sensemaking is puzzlingly rather mute on the role of the physical senses as an interpretive tool (Maitlis & Sonenshein, 2010; Sandberg & Tsoukas, 2015). This trend is reversing, as work continues to explore how sensemaking occurs in and through the body (Cornelissen, Mantere, & Vaara, 2014; Cunliffe & Coupland, 2012; Harquail & King, 2010). For example, physiological states, gestures, and body posture are inextricably interwoven into the verbal narratives that individuals use to interpret events (Cunliffe & Coupland, 2012). Our interpretations are encoded in our movements—and shared with others through our embodied actions (Whiteman & Cooper, 2011). What is less fully appreciated is that embodied emotional states are not merely influences on interpretation, but are interpretations themselves (see Myers, 2007). An embodied state contains a map of what the event is, who the relevant social actors are, and what generally might be done to address the event (see Averill, 1983). In this way, embodied action and emotion not only influence interpretation, but are a means by which interpretation occurs. Furthermore, an embodied approach dovetails nicely with phenomenological approaches to sensemaking and organizing (Chia & Holt, 2006; Guiette & Vandenbempt, 2016; Yanow & Tsoukas, 2009). Such approaches, which draw most heavily from Heidegger (Dreyfus, 1991), help us attend to the actual firsthand embodied experience of breakdowns in meaning and recovery from them.

date: 05 June 2017

Immediate Products of Interpretation

What exactly is produced by interpretation? We may use frames, narratives, or gestures during the selection process, but what exactly do they produce? As Elsbach, Barr, and Hargadon (2005) argued, scholars have historically given inadequate attention to the temporary outcomes of the interpretive process. Instead, much of the scholarly attention highlights the more stable knowledge structures that are retained as the result of enactment. Yet, the momentary and fleeting understandings that stem from selection are the key drivers of enactment. Weick and colleagues (2005) describe these interpretive products as answers to two questions: "What's the story here?" and "Now what should I do?" (p. 410). In other words, individuals and groups first draw on retrospective processes to understand what the disruptive event means and then use this understanding to turn an eye more prospectively toward action in the present moment.

Similarly, Elsbach and colleagues (2005) delimited four products of the interpretive process as identified in the literature. Considering these interpretive products is valuable because they provide some structure to the transient but influential products that come from selection and guide enactment. These four interpretive products describe the following:

(1) *Our understanding of the problem at hand*. This interpretive product answers the question, "what's the story here?" whereas the remaining three answer "now what should I do?" Problem understandings concern the variables of interest that we bracket from ongoing events and the relations we propose among them. For example, a workgroup geographically dispersed into two separate locations formed two separate understandings of their joint task, thereby forestalling their ability to decide on an action moving forward (Cramton, 2001). Until a group comes to a plausible shared understanding of "the story," the second question of "what to do next" becomes fundamentally unworkable.

(2) *The attractiveness of various options*. Option attractiveness refers to the value people associate with a particular path forward. For example, two sets of research teams developing cochlear ear implants responded to different cues from institutional forces like government agencies and business partners. As a result, they differentially valued the attractiveness of starting with a simpler initial model and adding complexity relative to beginning with a more complex initial model (Garud & Rappa, 1994). The cues available to them and the way those cues were interpreted guided the attractiveness of various options for enactment.

(3) *The features about ourselves we perceive as being distinctive*. These perceptions capture the elements of our identity such as our skills, traits, or expertise that are especially salient in the current situation. For example, in a crucial moment after a fire grew uncontainable, several firefighters failed to drop their heavy tools and run from the fire (Weick, 1993B). Within the context of their interpreted environment, it was unfathomable to drop the very tools that constituted their distinct identity as

date: 05 June 2017

firefighters. To drop their tools would be to enact a rather different identity. This shows how interpretations influence identity, and thus the kinds of behaviors that are available for enactment.

(4) *Our receptivity to a collectivist mindset*. The interpretive process can open individuals up to greater degrees of a collectivist mindset in which knowledge is pooled and integrated. For example, in trying to interpret what a particular business opportunity means, some firms generate cultures that increase a collectivist mindset. This mindset taps more broadly into organizational memory to ultimately influence the way these business opportunities are interpreted (Sutton & Hargadon, 1996). Based on how we interpret our situations, we may be more or less open to these collective modes of thinking.

date: 05 June 2017

Proximal Consequences of Enactment

Together, these four interpretive products set the stage for enactment. In enactment, interpretation leads to some type of action, be it verbal or embodied. For this reason, we must "designate binding action as the object of sensemaking" (Weick, 1993A, p. 17). In other words, cognitive, discursive, or embodied interpretations only shape reality through action that binds. By enacting an interpretation, we produce two important and related consequences. First, we grow more committed to the interpretations we enact. And, second, we produce new changes in the environment that either bring the environment closer in line with the interpretation or violate the expectations embedded in our interpretations, and thus trigger a new round of sensemaking.

In regard to the first consequence, enacted interpretations are especially commitment producing when they are the result of a volitional choice that is public and hard to reverse (Salancik, 1977; Weick, 1993A). In regard to the second consequence, a key question becomes: How will groups respond to violations of their enacted interpretations? At times, groups are able to "query an initial frame and . . . mobilize instead an alternative frame from background knowledge or make novel associations as a way of structuring expectations and make inferences" (Cornelissen et al., 2014, p. 703). This phenomenon is sometimes referred to as "adaptive sensemaking" (Cornelissen et al., 2014; Strike & Rerup, 2015; Weick et al., 2005). Adaptive sensemaking shows how violations produced by enactment can prompt groups to rethink their commitment to an interpretation. Adaptive sensemaking is evident in the example of a railroad museum facing a roof collapse (Christianson et al., 2009). After the roof collapsed, the museum changed how they framed their organization from one of a historical repository to an attraction, thereby enabling new strategic initiatives and greater involvement from the community.

In many cases, however, commitment to continued enactment outweighs considerations of alternatives. Such "staunch commitment to a particular set of meanings" can be especially problematic in crisis situations because it "creates substantial blind spots that impede adaptation" (Maitlis & Sonenshein, 2010, p. 562). We can see this effect in firefighters who perished after enacting a "10 o'clock fire" label—that the fire will be contained by 10 a.m. the following morning—despite evidence to the contrary (Weick, 1993B). Similarly, with high shared levels of nervousness and fear, an anti-terrorist police force committed to enact their interpretation of an innocent citizen as a terrorist (Cornelissen et al., 2014). Although there were opportunities for doubt and reflection, their strong commitment led them to ultimately kill the wrong person.

These groups remained committed to enacting their interpretation despite violations of their interpretations. In some cases, however, the violations of expectations may arrive too late to reverse the course of enactment. For example, consider the fatal actions of NASA in launching the Challenger and Columbia shuttles. Employees frequently used labels like "acceptable risk" or metaphors like "in-family" to "waive" security concerns (Dunbar & Garud, 2009; Vaughan, 1996). In the process, employees grew committed to the

date: 05 June 2017

environment as they enacted it. Only in retrospect—after these shuttles exploded in a harsh violation of their enacted environment—were these cues interpreted in alternative ways.

In sum, we can see that there is "a delicate tradeoff between dangerous action which produces understanding and safe inaction which produces confusion" (Weick, 1988, p. 305). The tradeoff is that enactment helps us understand past events, but also creates new future events. Thus, there is value in considering what enables some groups to skillfully notice, bracket, and interpret information, and to manage the delicate tradeoff as they enact their interpretations.

date: 05 June 2017

Mindful Organizing as Effective Sensemaking

Indeed, as these examples reveal, not all groups are equally effective at sensemaking (e.g., Blatt et al., 2006; Winch & Maytorena, 2009). Some of the most important differences can be captured through the idea of *mindfulness*: the ability of groups to sustain attention toward and interpret ongoing events in a manner that captures enough discriminatory detail to act with speed and flexibility (Levinthal & Rerup, 2006; Weick & Sutcliffe, 2006, 2015; Weick, Sutcliffe, & Obstfeld, 1999). Mindfulness has an important basis in the attentional and interpretive capabilities of individual members, including those described by meditative practices (Kudesia & Nyima, 2015; Reb & Atkins, 2015; Weick & Putnam, 2006). However, it can also be nurtured by more enduring mechanisms such as HR policies, leader modeling, and organizational climate (Ray, Baker, & Plowman, 2011; Vogus & Sutcliffe, 2012; Vogus & Welbourne, 2003). As shown in Figure 2, mindful organizing describes five processes that make sensemaking more adaptive.
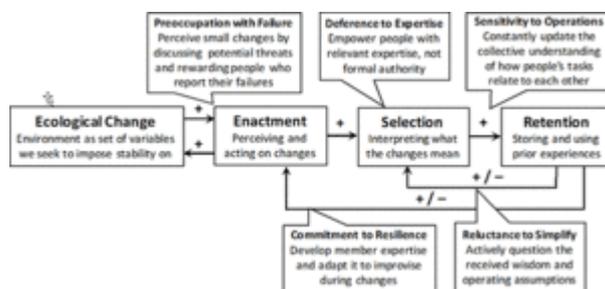
Click to view larger

Figure 2. Processes of Mindful Organizing.

Groups that organize mindfully do a better job of anticipating potential disruptive events. This is because they constantly update their shared understanding of real-time events by pooling information and expertise across all members instead of relying on assumptions derived from past experience. As such, they are better able to notice and respond to minor disruptions in their environment before these disruptions cascade into full-blown crises. In this way, mindfulness captures a "quality of organizational attention" that prevents the normalizing away of important information and thereby enables more effective sensemaking (Weick & Sutcliffe, 2006). Mindfulness also shapes how groups respond to violations of their expectations (Levinthal & Rerup, 2006; Rerup & Levinthal, 2013; Weick & Sutcliffe, 2015). Groups that organize mindfully respond to these violations by adopting a resilient mindset that flexibly adapts past knowledge and by empowering the group members who have relevant expertise, rather than members with the most formal power. Mindfulness can therefore hedge the tendency to enact interpretations in an unthinking manner (Fiol & O'Connor, 2003). It helps groups anticipate triggering events and contain these events when they arise through skillful enactment. This is one reason why mindful organizing is especially prevalent in high-reliability organizations, where sensemaking failures can prompt disasters (Weick & Sutcliffe, 2015). Nonetheless, mindful organizing is relevant across a number of organizational contexts, including investment banks (Michel, 2007),

date: 05 June 2017

management and design consultants (Hargadon & Bechky, 2006), information technology (Swanson & Ramiller, 2004), and others (see Sutcliffe, Vogus, & Dane, 2016).

Distal Consequences of Enactment

Why might an organization care to support mindful organizing? What are the big picture benefits of sensemaking? The answer is that enactment produces important distal consequences in terms of how an organization changes, learns, and negotiates its identity (for a comprehensive review, see Maitlis & Christianson, 2014). This is evident in how a railroad museum not only responded to the crisis of its roof collapsing, but turned this roof collapse into an opportunity to develop a new and more effective business strategy (Christianson et al., 2009). It is evident in how Air Force pilots who faced and effectively made sense of dangerous circumstances shared their stories with other pilots, prompting vicarious learning throughout the organization (Catino & Patriotta, 2013). It is evident in how sensemaking after an organization collapsed prompted members to pool their resources and found a new organization (Walsh & Bartunek, 2011). And a number of quantitative studies have also explored how various aspects of the sensemaking process influence overall firm financial performance (e.g., Daft, Sormunen, & Parks, 1988; Osborne, Stubbart, & Ramaprasad, 2001; Thomas et al., 1993).

Enactment, however, does not simply influence single organizations, but entire industries. For example, consider Porac, Thomas, and Baden-Fuller's (1989) seminal analysis of the Scottish knitwear industry. They found that managers across knitwear firms had shared cognitive frames in how they categorized various subsets of textiles. Given these shared frames, most managers interpreted only other Scottish knitwear firms as their real competitors. They enacted these interpretations through the strategies and pricing, their supplier and distributor relationships, and so forth. Despite other companies producing similar goods at similar prices, these managers essentially enacted a "cognitive oligopoly" that shaped the behavior of an entire market. In this way, enactment completes the sensemaking process. Enactment produces an environment that may appear objectively true, and existing independent of our own actions (see Kaplan, 2011). However, our environment is really constructed through our actions and the actions of those with whom we are interlocked.

Contextual Influences on Sensemaking

As the Scottish knitwear example illustrates, the sensemaking process links individuals, groups, organizations, and broader institutional forces into interlocking patterns of mutual action and understanding. Sensemaking simultaneously operates at the level of ongoing environmental changes, social interactions within an organization, and the broader institutional context (e.g., Jensen, Kjærgaard, & Svejvig, 2009; Jeong & Brower, 2008). It also draws on cultural values that help define what properties make accounts

date: 05 June 2017

sensible and to whom one should be accountable (e.g., Malsch, Tremblay, & Gendron, 2012; O'Leary & Chia, 2007). Nonetheless, much of the relevant research focuses on single levels without exploring cross-level processes (for a notable exception, see Stigliani & Ravasi, 2012). It is therefore helpful to outline some of the contextual, multiparty, and cross-level phenomena that affect sensemaking. For instance, individuals certainly have strong moral intuitions—but collective factors like social pressures and interaction partners shape how individuals define, communicate, and act upon ethical issues (Sonenshein, 2007). In this way, collectives can influence how individuals make sense of their environments in a top-down manner. The reverse process also occurs. For example, Strike and Rerup (2015) found that trusted outside advisors can attenuate the tendency toward commitment by inserting doubt into the sensemaking process. Such doubt is crucial for adaptive sensemaking. This shows how individuals can also influence how collectives make sense. In considering the degree to which individuals can influence collective sensemaking, we must note how social positions grant various forms of economic, social, and cultural capital that shape how people construct issues (Ibarra & Andrews, 1993; Lockett, Currie, Finn, Martin, & Waring, 2014; Westley, 1990).

When we consider multiple parties, this inevitably brings up questions of power, politics, and influence. For instance, Maitlis (2005) explored how sensemaking occurs across multiple parties in more complex organizational settings. She found that leaders influenced the degree to which sensemaking was controlled. Leaders controlled sensemaking processes by scheduling meetings, forming committees, and planning events. Importantly, they also controlled which organizational members had access to these sensemaking channels. In this way, leaders had greater ability to engage in sensegiving and they typically did so in less public forums. On the other hand, stakeholders influenced the degree to which sensemaking was animated. Active and involved stakeholders induced more sharing of information, reporting to board members, and so on. This prompted greater and more constant communication of issues and interpretations within the organization. In this way, multiple parties within organizations influence sensemaking (Fiss & Zajac, 2006). They can also prevent effective sensemaking. For instance, Dunbar and Garud (2009) found that two groups at NASA developed different patterns of interpretation, focusing respectively on safety issues and scheduling issues. As a result, they were unable to effectively interpret and act on a cue of foam shedding on the Columbia space shuttle, resulting in disaster as it re-entered Earth's atmosphere. This case clearly highlights how the transition from group-level intersubjectivity to organization-level generic subjectivity is fraught with danger.

Similarly, there is also value in considering *second-order sensemaking* (Sandberg & Tsoukas, 2015). Second-order sensemaking refers to how outside groups subsequently make sense of another group's sensemaking process. A famous case is the Rogers Commission, which investigated the sensemaking process that led to the Challenger launch decision (cf. Vaughan, 1996). Such public inquiries extract cues from the original sensemaking episode and often seek to find fault or blame. For example, if an individual reports being emotional during sensemaking in crisis, this can later be interpreted during

date: 05 June 2017

second-order sensemaking as a lack of professionalism (Gephart, 1993). It is important to remember that this second-order sensemaking process is not simply "finding facts" and "uncovering the truth." Second-order sensemaking often occurs as part of a broader strategy of "depoliticizing disaster events," "legitimating the actions and interests of dominant groups," and reducing post-disaster anxiety "by elaborating fantasies of omnipotence and control" (Brown, 2000, p. 45; see also Boudès & Laroche, 2009; Brown, 2004). However, it is certainly possible that sensemaking about crises can foster greater preparedness for similar future crises as well (Nathan, 2004).

Finally, we can also consider how sensemaking at the group and organizational level connect with the broader social forces described by institutional theory (see Jennings & Greenwood, 2003; Weick, 2003). On one hand, the interpretive tools most readily available to organizational members necessarily reflect the institutions in which they participate (Weber & Glynn, 2006). This means that individuals in organizations draw on institutional resources like identities (e.g., union member), expectations (e.g., loyalty), and frames (e.g., going on strike) in making sense. In fact, given how thoroughly we internalize our institutional realities, it may even be hard to make sense outside of the resources they offer. At the very least, local context can cognitively prime individuals to draw on institutional resources and socially prompt others to push behavior in line with these resources. On the other hand, sensemaking processes can also help us understand these forces as well (Ocasio, Loewenstein, & Nigam, 2015; Porac, Ventresca, & Mishina, 2005). For instance, sensemaking analyses have shed light on institutions as diverse as religion (Pratt, 2000A), globalization (Fiss & Hirsch, 2005), policing (Maguire & Katz, 2002), markets (Abolafia & Kilduff, 1988), and health care (Nigam & Ocasio, 2010). In this way, a wealth of contextual factors across multiple types of social agents and levels of analysis influence the sensemaking process.

date: 05 June 2017

Conclusions and Future Directions

In sum, we can see that sensemaking offers both a general perspective on organizations and describes a specific process by which people collectively organize their world. It challenges us to complicate ourselves such that we are comfortable with retrospect, enactment, feedback loops, human agency, multiple conflicting narratives, plausible interpretations, emergent order, and process. Nonetheless, we still have much to learn (cf. Miner, 2005). Some avenues include developing richer conceptualizations of how embodiment and emotions sculpt the sensemaking process and how sensemaking occurs across individual, group, organization, and institutional levels. Questions of how much sensemaking operates through prospective, future-oriented thinking in addition to the established retrospective processes also remain open and worth exploring (Gephart, Topal, & Zhang, 2010; Gioia, Thomas, Clark, & Chittipeddi, 1994; MacKay, 2009; Stigliani & Ravasi, 2012; Wright, 2005). New technologies including social media likely change how sensemaking occurs by distributing interpretations across wider groups (Boland, Tenkasi, & Te'eni, 1994). They also offer opportunities to collect valuable data on discursive means of sensemaking (Gephart, 2004; Herrmann, 2007). To this end, there is also value in expanding methodological and research design considerations. For instance, alternate methodological approaches such as action research (Allard-Poesi, 2005; Lüscher & Lewis, 2008) and agent-based modeling (Gavetti & Warglien, 2015; Rudolph et al., 2009) may prove valuable. We can also better tie sensemaking to the actual practice of social science and management. In this way, sensemaking can become not only a topic to research, but more closely integrated into the process of social science research itself (Cornelissen, 2006; Weick, 1993c, 2007). Managers can similarly understand and apply a sensemaking perspective to their own work in fruitful ways (Parry, 2003).

Finally, although sensemaking may help us understand how humans *do* behave descriptively, it cannot make claims regarding how humans prescriptively *should* behave. A sensemaking perspective reminds us that it is not merely the facts of history that matter, but how those facts are interpreted. The "logical conclusion" of this reminder is potentially discouraging: that "the organizational world will tend ever more relentlessly toward a postmodern world where image dominates substance—and in particular a world in which images of change supplant substantive change" (Gioia et al., 2002, p. 632). Therefore, we must realize that the descriptive validity of sensemaking as a perspective does not mean it cannot have a potentially harmful influence in practice. This calls our attention to the need to participate responsibly in the sensemaking process. To make sense with and through organizations, we must be willing to not only reinterpret the past, but also help author the future through mindful action. Such mindful action requires not only commitment to our values and beliefs, but also the courage to doubt.

date: 05 June 2017

References

Abolafia, M. Y. (2010). **Narrative construction as sensemaking: How a central bank thinks**. *Organization Studies*, *31*(3), 349–367.

Abolafia, M. Y., & Kilduff, M. (1988). **Enacting market crisis: The social construction of a speculative bubble**. *Administrative Science Quarterly*, *33*(2), 177–193.

Albolino, S., Cook, R., & O'Connor, M. (2007). **Sensemaking, safety, and cooperative work in the intensive care unit**. *Cognition, Technology & Work*, *9*(3), 131–137.

Allard-Poesi, F. (2005). **The paradox of sensemaking in organizational analysis**. *Organization*, *12*(2), 169–196.

Alvesson, M., & Karreman, D. (2000). **Varieties of discourse: On the study of organizations through discourse analysis**. *Human Relations*, *53*(9), 1125–1149.

Anderson, M. H. (2006). **How can we know what we think until we see what we said?: A citation and citation context analysis of Karl Weick's *The social psychology of organizing***. *Organization Studies*, *27*(11), 1675–1692.

Ashforth, B. E., & Fried, Y. (1988). **The mindlessness of organizational behaviors**. *Human Relations*, *41*(4), 305–329.

Averill, J. R. (1983). **Studies on anger and aggression: Implications for theories**. *American Psychologist*, *38*(11), 1145.

Bakhtin, M. M. (1981). *The dialogic imagination: Four essays*. Austin: University of Texas Press.

Baran, B. E., & Scott, C. W. (2010). **Organizing ambiguity: A grounded theory of leadership and sensemaking within dangerous contexts**. *Military Psychology*, *22*(Suppl. 1), S42–S69.

Barnett, C. K., & Pratt, M. G. (2000). **From threat-rigidity to flexibility—Toward a learning model of autogenic crisis in organizations**. *Journal of Organizational Change Management*, *13*(1), 74–88.

Barry, D., & Meisiek, S. (2010). **Seeing more and seeing differently: Sensemaking, mindfulness, and the workarts**. *Organization Studies*, *31*(11), 1505–1530.

Bartunek, J. M. (1984). **Changing interpretive schemes and organizational restructuring: The example of a religious order**. *Administrative Science Quarterly*, *29*(3), 355–372.

Becker, M. C., & Knudsen, T. (2005). **The role of routines in reducing pervasive uncertainty**. *Journal of Business Research*, *58*(6), 746–757.

date: 05 June 2017

Berger, P. L., & Luckmann, T. (1966). *The social construction of reality*. New York: Penguin.

Bijlsma-Frankema, K., de Jong, B., & van de Bunt, G. (2008). **Heed, a missing link between trust, monitoring and performance in knowledge intensive teams**. *The International Journal of Human Resource Management*, *19*(1), 19–40.

Blatt, R., Christianson, M. K., Sutcliffe, K. M., & Rosenthal, M. M. (2006). **A sensemaking lens on reliability**. *Journal of Organizational Behavior*, *27*(7), 897–917.

Boje, D. M. (1991). **The storytelling organization: A study of story performance in an office-supply firm**. *Administrative Science Quarterly*, *36*(1), 106.

Boje, D. M. (1995). **Stories of the storytelling organization: A postmodern analysis of Disney as "Tamara-Land"**. *Academy of Management Journal*, *38*(4), 997–1035.

Boland, R. J. (1984). **Sense-making of accounting data as a technique of organizational diagnosis**. *Management Science*, *30*(7), 868–882.

Boland, R. J., Tenkasi, R. V., & Te'eni, D. (1994). **Designing information technology to support distributed cognition**. *Organization Science*, *5*(3), 456–475.

Boudès, T., & Laroche, H. (2009). **Taking off the heat: Narrative sensemaking in post-crisis inquiry reports**. *Organization Studies*, *30*(4), 377–396.

Bougon, M., Weick, K. E., & Binkhorst, D. (1977). **Cognition in organizations: An analysis of the Utrecht Jazz Orchestra**. *Administrative Science Quarterly*, *22*(4), 606–639.

Bradbury, H., & Lichtenstein, B. M. B. (2000). Relationality in organizational research: Exploring the space between. *Organization Science*, *11*(5), 551–564.

Brown, A. D. (2000). **Making sense of inquiry sensemaking**. *Journal of Management Studies*, *37*(1), 45–75.

Brown, A. D. (2004). **Authoritative sensemaking in a public inquiry report**. *Organization Studies*, *25*(1), 95–112.

Brown, A. D., Stacey, P., & Nandhakumar, J. (2008). **Making sense of sensemaking narratives**. *Human Relations*, *61*(8), 1035–1062.

Browning, L., & Boudès, T. (2005). The use of narrative to understand and respond to complexity: A comparative analysis of the Cynefin and Weickian models. *E: CO*, *7*(3–4), 32–39.

Burrell, G., & Morgan, G. (1979). *Sociological paradigms and organizational analysis: Elements of the sociology of corporate life*. London: Heinemann.

date: 05 June 2017

Campbell, D. T. (1970). Natural selection as an epistemological model. In M. Sherif & C. W. Sherif (Eds.), *A handbook of method in cultural anthropology* (pp. 51–85). Garden City, NY: Natural History Press.

Catino, M., & Patriotta, G. (2013). **Learning from errors: Cognition, emotions and safety culture in the Italian Air Force**. *Organization Studies*, *34*(4), 437–467.

Chia, R., & Holt, R. (2006). **Strategy as practical coping: A Heideggerian perspective**. *Organization Studies*, *27*(5), 635–655.

Christianson, M. K., Farkas, M. T., Sutcliffe, K. M., & Weick, K. E. (2009). **Learning through rare events: Significant interruptions at the Baltimore & Ohio Railroad Museum**. *Organization Science*, *20*(5), 846–860.

Colville, I. D., Brown, A. D., & Pye, A. (2012). **Simplexity: Sensemaking, organizing and storytelling for our time**. *Human Relations*, *65*(1), 5–15.

Colville, I. D., Waterman, R. H., & Weick, K. E. (1999). Organizing and the search for excellence: Making sense of the times in theory and practice. *Organization*, *6*(1), 129–148.

Cooren, F. (2000). *The organizing property of communication*. Amsterdam: John Benjamins.

Cornelissen, J. P. (2005). **Beyond compare: Metaphor in organization theory**. *Academy of Management Review*, *30*(4), 751–764.

Cornelissen, J. P. (2006). **Making sense of theory construction: Metaphor and disciplined imagination**. *Organization Studies*, *27*(11), 1579–1597.

Cornelissen, J. P. (2012). **Sensemaking under pressure: The influence of professional roles and social accountability on the creation of sense**. *Organization Science*, *23*(1), 118–137.

Cornelissen, J. P., Holt, R., & Zundel, M. (2011). **The role of analogy and metaphor in the framing and legitimization of strategic change**. *Organization Studies*, *32*(12), 1701–1716.

Cornelissen, J. P., Mantere, S., & Vaara, E. (2014). **The contraction of meaning: The combined effect of communication, emotions, and materiality on sensemaking in the Stockwell shooting**. *Journal of Management Studies*, *51*(5), 699–736.

Cornelissen, J. P., & Werner, M. D. (2014). **Putting framing in perspective: A review of framing and frame analysis across the management and organizational literature**. *Academy of Management Annals*, *8*(1), 181–235.

Cramton, C. D. (2001). **The mutual knowledge problem and its consequences for dispersed collaboration**. *Organization Science*, *12*(3), 346–371.

Cunliffe, A. L., & Coupland, C. (2012). **From hero to villain to hero: Making experience sensible through embodied narrative sensemaking**. *Human Relations*, *65*(1), 63–88.

Cunliffe, A. L., Luhman, J. T., & Boje, D. M. (2004). **Narrative temporality: Implications for organizational research**. *Organization Studies*, *25*(2), 261–286.

Czarniawska, B. (1998). *A narrative approach in organization studies*. Thousand Oaks, CA: SAGE.

Daft, R. L., Sormunen, J., & Parks, D. (1988). **Chief executive scanning, environmental characteristics, and company performance: An empirical study**. *Strategic Management Journal*, *9*(2), 123–139.

Daft, R. L., & Weick, K. E. (1984). **Toward a model of organizations as interpretation systems**. *Academy of Management Review*, *9*(2), 284–295.

Dreyfus, H. L. (1991). *Being-in-the-world: A commentary on Heidegger's being and time, division I*. Cambridge, MA: MIT Press.

Dunbar, R. L. M., & Garud, R. (2009). **Distributed knowledge and indeterminate meaning: The case of the Columbia shuttle flight**. *Organization Studies*, *30*(4), 397–421.

Edwards, W. (1954). **The theory of decision-making**. *Psychological Bulletin*, *51*(4), 380–417.

Eisenberg, E. M. (1984). **Ambiguity as strategy in organizational communication**. *Communication Monographs*, *51*(3), 227–242.

Elsbach, K. D., Barr, P. S., & Hargadon, A. B. (2005). **Identifying situated cognition in organizations**. *Organization Science*, *16*(4), 422–433.

Engeström, Y. (1999). **Communication, discourse and activity**. *Communication Review*, *3*(1–2), 165–185.

Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.

Fiol, C. M., & O'Connor, E. J. (2003). **Waking up! Mindfulness in the face of bandwagons**. *Academy of Management Review*, *28*(1), 54–70.

Fiske, S. T., & Taylor, S. E. (1991). *Social cognition* (2d ed.). New York: McGraw-Hill.

Fiss, P. C., & Hirsch, P. M. (2005). **The discourse of globalization: Framing and sensemaking of an emerging concept**. *American Sociological Review*, *70*(1), 29–52.

date: 05 June 2017

Fiss, P. C., & Zajac, E. J. (2006). **The symbolic management of strategic change: Sensegiving via framing and decoupling**. *Academy of Management Journal*, *49*(6), 1173–1193.

Freeman, R. E. (1994). **The politics of stakeholder theory: Some future directions**. *Business Ethics Quarterly*, *4*(4), 409–421.

Galbraith, J. R. (1973). *Designing complex organizations*. Reading, MA: Addison-Wesley.

Garfinkel, H. (1967). *Studies in ethnomethodology*. Englewood Cliffs, NJ: Prentice-Hall.

Garud, R., & Rappa, M. A. (1994). **A socio-cognitive model of technology evolution: The case of cochlear implants**. *Organization Science*, *5*(3), 344–362.

Gavetti, G., & Levinthal, D. A. (2000). **Looking forward and looking backward: Cognitive and experiential search**. *Administrative Science Quarterly*, *45*(1), 113.

Gavetti, G., & Warglien, M. (2015). **A model of collective interpretation**. *Organization Science*, *26*(5), 1263–1283.

Gephart, R. P. (1993). The textual approach: Risk and blame in disaster sensemaking. *Academy of Management Journal*, *36*(6), 1465–1514.

Gephart, R. P. (1997). **Hazardous measures: An interpretive textual analysis of quantitative sensemaking during crises**. *Journal of Organizational Behavior*, *18*(S1), 583–622.

Gephart, R. P. (2004). **Sensemaking and new media at work**. *American Behavioral Scientist*, *48*(4), 479–495.

Gephart, R. P., Topal, C., & Zhang, Z. (2010). Future-oriented sensemaking: Temporalities and institutional legitimation. In T. Hernes & S. Maitlis (Eds.), *Process, sensemaking, and organizing* (pp. 275–312). Oxford: Oxford University Press.

Gilliland, S. W., & Day, D. V. (1999). Business management. In F. T. Durso (Ed.), *Handbook of applied cognition* (pp. 315–342). Chichester, U.K.: Wiley.

Gioia, D. A. (1986). Symbols, scripts, and sensemaking: Creating meaning in the organizational experience. In H. P. Sims & D. A. Gioia (Eds.), *The thinking organization* (pp. 49–74). San Francisco: Jossey-Bass.

Gioia, D. A. (2006). **On Weick: An appreciation**. *Organization Studies*, *27*(11), 1709–1721.

Gioia, D. A., & Chittipeddi, K. (1991). **Sensemaking and sensegiving in strategic change initiation**. *Strategic Management Journal*, *12*(6), 433–448.

date: 05 June 2017

Gioia, D. A., Corley, K. G., & Fabbri, T. (2002). **Revising the past (while thinking in the future perfect tense)**. *Journal of Organizational Change Management*, *15*(6), 622–634.

Gioia, D. A., & Mehra, A. (1996). **Book review: Sensemaking in organizations**. *Academy of Management Review*, *21*(4), 1226–1230.

Gioia, D. A., Thomas, J. B., Clark, S. M., & Chittipeddi, K. (1994). Symbolism and strategic change in academia: The dynamics of sensemaking and influence. *Organization Science*, *5*(3), 363–383.

Griffith, T. L. (1999). **Technology features as triggers for sensemaking**. *Academy of Management Review*, *24*(3), 472–488.

Guiette, A., & Vandenbempt, K. (2016). **Learning in times of dynamic complexity through balancing phenomenal qualities of sensemaking**. *Management Learning*, *47*(1), 83–99.

Hannan, M. T., & Freeman, J. (1977). **The population ecology of organizations**. *American Journal of Sociology*, *82*(5), 929–964.

Hargadon, A. B., & Bechky, B. A. (2006). **When collections of creatives become creative collectives: A field study of problem solving at work**. *Organization Science, 17*(4), 484–500.

Harquail, C. V., & King, A. W. (2010). **Construing organizational identity: The role of embodied cognition**. *Organization Studies*, *31*(12), 1619–1648.

Helms Mills, J., Thurlow, A., & Mills, A. J. (2010). **Making sense of sensemaking: The critical sensemaking approach**. *Qualitative Research in Organizations and Management: An International Journal*, *5*(2), 182–195.

Heritage, J. (1984). *Garfinkel and ethnomethodology*. Cambridge, U.K.: Polity.

Herrmann, A. F. (2007). **Stockholders in cyberspace: Weick's sensemaking online**. *Journal of Business Communication*, *44*(1), 13–35.

Hill, R. C., & Levenhagen, M. (1995). **Metaphors and mental models: Sensemaking and sensegiving in innovative and entrepreneurial activities**. *Journal of Management*, *21*(6), 1057–1074.

Holt, R., & Cornelissen, J. P. (2014). **Sensemaking revisited**. *Management Learning*, *45*(5), 525–539.

Ibarra, H., & Andrews, S. B. (1993). **Power, social influence, and sense making: Effects of network centrality and proximity on employee perceptions**. *Administrative Science Quarterly*, *38*(2), 277.

date: 05 June 2017

Jennings, P. D., & Greenwood, R. (2003). Constructing the iron cage: Institutional theory and enactment. In R. Westwood & S. Clegg (Eds.), *Debating organization: Point-counterpoint in organization studies* (pp. 195–207). Malden, MA: Wiley-Blackwell.

Jensen, T. B., Kjærgaard, A., & Svejvig, P. (2009). **Using institutional theory with sensemaking theory: A case study of information system implementation in healthcare**. *Journal of Information Technology*, *24*(4), 343–353.

Jeong, H.-S., & Brower, R. S. (2008). **Extending the present understanding of organizational sensemaking: Three stages and three contexts**. *Administration & Society*, *40*(3), 223–252.

Jordan, M. E., & Daniel, S. R. (2010). Heedful interrelating in the academic discourse of collaborative groups. *The Journal of Classroom Interaction*, *45*(2), 4–19.

Kahneman, D. (2003). **A perspective on judgment and choice: Mapping bounded rationality**. *American Psychologist*, *58*(9), 697–720.

Kaplan, S. (2011). **Research in cognition and strategy: Reflections on two decades of progress and a look to the future**. *Journal of Management Studies*, *48*(3), 665–695.

Kiesler, S., & Sproull, L. (1982). **Managerial response to changing environments: Perspectives on problem sensing from social cognition**. *Administrative Science Quarterly*, *27*(4), 548–570.

Klein, G., Moon, B., & Hoffman, R. R. (2006a). **Making sense of sensemaking 1: Alternative perspectives**. *IEEE Intelligent Systems*, *21*(4), 70–73.

Klein, G., Moon, B., & Hoffman, R. R. (2006b). **Making sense of sensemaking 2: A macrocognitive model**. *IEEE Intelligent Systems*, *21*(5), 88–92.

Klein, G., Phillips, J. K., Rall, E. L., & Peluso, D. A. (2007). A data-frame theory of sensemaking. In R. Hoffman (Ed.), *Expertise out of context* (pp. 113–155). New York: Lawrence Erlbaum Associates.

Klein, G., Wiggins, S., & Dominguez, C. O. (2010). **Team sensemaking**. *Theoretical Issues in Ergonomics Science*, *11*(4), 304–320.

Kudesia, R. S., & Nyima, V. T. (2015). **Mindfulness contextualized: An integration of Buddhist and neuropsychological approaches to cognition**. *Mindfulness*, *6*(4), 910–925.

Langley, A. (2007). **Process thinking in strategic organization**. *Strategic Organization*, *5*(3), 271–282.

Lant, T. K., & Shapira, Z. (2000). *Organizational cognition: Computation and interpretation*. Mahwah, NJ: Lawrence Erlbaum Associates.

date: 05 June 2017

Levinthal, D. A., & Rerup, C. (2006). **Crossing an apparent chasm: Bridging mindful and less-mindful perspectives on organizational learning**. *Organization Science*, *17*(4), 502–513.

Lockett, A., Currie, G., Finn, R., Martin, G., & Waring, J. (2014). **The influence of social position on sensemaking about organizational change**. *Academy of Management Journal*, *57*(4), 1102–1129.

Louis, M. R. (1980). **Surprise and sense making: What newcomers experience in entering unfamiliar organizational settings**. *Administrative Science Quarterly*, *25*(2), 226.

Luce, R. D., & Raiffa, H. (1957). *Games and decisions: Introduction and critical survey*. New York: Wiley.

Lüscher, L. S., & Lewis, M. W. (2008). **Organizational change and managerial sensemaking: Working through paradox**. *Academy of Management Journal*, *51*(2), 221–240.

MacKay, R. B. (2009). Strategic foresight: Counterfactual and prospective sensemaking in enacted environments. In L. Costanzo & R. MacKay (Eds.), *Handbook of research on strategy and foresight* (pp. 90–112). Northampton, MA: Edward Elgar.

MacKenzie, D., & Millo, Y. (2003). **Negotiating a market, performing theory: The historical sociology of a financial derivatives exchange**. *American Journal of Sociology*, *109*, 107–145.

Maclean, M., Harvey, C., & Chia, R. (2012). **Sensemaking, storytelling and the legitimization of elite business careers**. *Human Relations*, *65*(1), 17–40.

Maguire, E. R., & Katz, C. M. (2002). **Community policing, loose coupling, and sensemaking in American police agencies**. *Justice Quarterly*, *19*(3), 503–536.

Maitlis, S. (2005). **The social processes of organizational sensemaking**. *Academy of Management Journal*, *48*(1), 21–49.

Maitlis, S., & Christianson, M. (2014). **Sensemaking in organizations: Taking stock and moving forward**. *Academy of Management Annals*, *8*(1), 57–125.

Maitlis, S., & Lawrence, T. B. (2007). **Triggers and enablers of sensegiving in organizations**. *Academy of Management Journal*, *50*(1), 57–84.

Maitlis, S., & Sonenshein, S. (2010). **Sensemaking in crisis and change: Inspiration and insights from Weick (1988)**. *Journal of Management Studies*, *47*(3), 551–580.

Malsch, B., Tremblay, M.-S., & Gendron, Y. (2012). **Sense-making in compensation committees: A cultural theory perspective**. *Organization Studies*, *33*(3), 389–421.

Manning, P. K. (1997). **Organizations as sense-making contexts**. *Theory, Culture & Society*, *14*(2), 139–150.

Michel, A. A. (2007). **A distributed cognition perspective on newcomers' change processes: The management of cognitive uncertainty in two investment banks**. *Administrative Science Quarterly*, *52*(4), 507–557.

Milliken, F. J. (1987). **Three types of perceived uncertainty about the environment: State, effect, and response uncertainty**. *Academy of Management Review*, *12*(1), 133–143.

Milliken, F. J. (1990). **Perceiving and interpreting environmental change: An examination of college administrators' interpretation of changing demographics**. *Academy of Management Journal*, *33*(1), 42–63.

Mills, C. (2002). **The hidden dimension of blue-collar sensemaking about workplace communication**. *Journal of Business Communication*, *39*(3), 288–313.

Miner, J. B. (2005). Organizing and sensemaking. In *Organizational behavior 2: Essential theories of process and structure* (pp. 90–108). Armonk, NY: M. E. Sharpe.

Morgan, G., Frost, P. J., & Pondy, L. R. (1983). Organizational symbolism. In L. R. Pondy, P. J. Frost, G. Morgan, & T. C. Dandridge (Eds.), *Organizational symbolism* (pp. 3–35). Greenwich, CT: JAI Press.

Mumby, D. K. (1987). **The political function of narrative in organizations**. *Communications Monographs*, *54*(2), 113–127.

Myers, P. (2007). **Sexed up intelligence or irresponsible reporting? The interplay of virtual communication and emotion in dispute sensemaking**. *Human Relations*, *60*(4), 609–636.

Nathan, M. L. (2004). **How past becomes prologue: A sensemaking interpretation of the hindsight-foresight relationship given the circumstances of crisis**. *Futures*, *36*(2), 181–199.

Nigam, A., & Ocasio, W. (2010). **Event attention, environmental sensemaking, and change in institutional logics: An inductive analysis of the effects of public attention to Clinton's health care reform initiative**. *Organization Science*, *21*(4), 823–841.

Nowak, A., & Vallacher, R. R. (2007). Dynamical social psychology: Finding order in the flow of human experience. In A. W. Kruglanski & E. T. Higgins (Eds.), *Social psychology: Handbook of basic principles* (2d ed., pp. 734–758). New York: Guilford.

date: 05 June 2017

Ocasio, W. (2000). How do organizations think? In T. K. Lant & Z. Shapira (Eds.), *Organizational cognition: Computation and interpretation* (pp. 39–60). Mahwah, NJ: Lawrence Erlbaum Associates.

Ocasio, W., Loewenstein, J., & Nigam, A. (2015). **How streams of communication reproduce and change institutional logics: The role of categories**. *Academy of Management Review*, *40*(1), 28–48.

O'Leary, M., & Chia, R. (2007). **Epistemes and structures of sensemaking in organizational life**. *Journal of Management Inquiry*, *16*(4), 392–406.

Osborne, J. D., Stubbart, C. I., & Ramaprasad, A. (2001). **Strategic groups and competitive enactment: A study of dynamic relationships between mental models and performance**. *Strategic Management Journal*, *22*(5), 435–454.

Parry, J. (2003). **Making sense of executive sensemaking: A phenomenological case study with methodological criticism**. *Journal of Health Organization and Management*, *17*(4), 240–263.

Patriotta, G., & Brown, A. D. (2011). **Sensemaking, metaphors and performance evaluation**. *Scandinavian Journal of Management*, *27*(1), 34–43.

Peters, T. J., & Waterman, R. H. (1982). *In search of excellence: Lessons from America's best-run companies*. New York: Harper & Row.

Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations: A resource dependence perspective*. New York: Harper & Row.

Porac, J. F., Thomas, H., & Baden-Fuller, C. (1989). **Competitive groups as cognitive communities: The case of Scottish knitwear manufacturers**. *Journal of Management Studies*, *26*(4), 397–416.

Porac, J. F., Ventresca, M. J., & Mishina, Y. (2005). Interorganizational cognition and interpretation. In J. A. C. Baum (Ed.), *The Blackwell companion to organizations* (pp. 579–598). Oxford: Blackwell.

Powell, T. C., Lovallo, D., & Fox, C. R. (2011). **Behavioral strategy**. *Strategic Management Journal*, *32*(13), 1369–1386.

Pratt, M. G. (2000a). **Building an ideological fortress: The role of spirituality, encapsulation and sensemaking**. *Studies in Cultures, Organizations and Societies*, *6*(1), 35–69.

Pratt, M. G. (2000b). **The good, the bad, and the ambivalent: Managing identification among Amway distributors**. *Administrative Science Quarterly*, *45*(3), 456–493.

date: 05 June 2017

Quinn, R. W., & Worline, M. C. (2008). **Enabling courageous collective action: Conversations from United Airlines Flight 93**. *Organization Science*, *19*(4), 497–516.

Raiffa, H. (1982). *The art and science of negotiation*. Cambridge, MA: Belknap.

Ray, J. L., Baker, L. T., & Plowman, D. A. (2011). **Organizational mindfulness in business schools**. *Academy of Management Learning & Education*, *10*(2), 188–203.

Reb, J., & Atkins, P. W. B. (2015). *Mindfulness in organizations: Foundations, research, and applications*. Cambridge, U.K.: Cambridge University Press.

Rerup, C., & Levinthal, D. A. (2013). Situating the concept of organizational mindfulness: The multiple dimensions of organizational learning. In G. Becke (Ed.), *Mindful change in times of permanent reorganization: Organizational, institutional and sustainability perspectives* (pp. 33–48). New York: Springer.

Ricœur, P. (1984). *Time and narrative* (3 vols.). (K. McLaughlin & D. Pellauer, Trans.). Chicago: University of Chicago Press.

Rouleau, L., & Balogun, J. (2011). **Middle managers, strategic sensemaking, and discursive competence**. *Journal of Management Studies*, *48*(5), 953–983.

Rudolph, J. W., Morrison, J. B., & Carroll, J. S. (2009). **The dynamics of action-oriented problem solving: Linking interpretation and choice**. *Academy of Management Review, 34*(4), 733–756.

Rudolph, J. W., & Repenning, N. P. (2002). **Disaster dynamics: Understanding the role of quantity in organizational collapse**. *Administrative Science Quarterly*, *47*(1), 1–30.

Salancik, G. R. (1977). Commitment and the control of organizational behavior and belief. In B. M. Staw & G. R. Salancik (Eds.), *New directions in organizational behavior* (pp. 2–54). Chicago: St. Clair.

Sandberg, J., & Tsoukas, H. (2015). **Making sense of the sensemaking perspective: Its constituents, limitations, and opportunities for further development**. *Journal of Organizational Behavior*, *36*(S1), S6–S32.

Sandelands, L. E., & Stablein, R. E. (1987). The concept of organizational mind. In N. DiTomaso & S. Bachrach (Eds.), *Research in the sociology of organizations* (Vol. 5, pp. 135–161). Greenwich, CT: JAI Press.

Schall, M. S. (1983). **A communication-rules approach to organizational culture**. *Administrative Science Quarterly*, *28*(4), 557–581.

Schutz, A. (1967). *The phenomenology of the social world*. Evanston, IL: Northwestern University Press.

Smircich, L., & Stubbart, C. (1985). **Strategic management in an enacted world**. *Academy of Management Review*, *10*(4), 724–736.

Smith, G. F. (1988). **Towards a heuristic theory of problem structuring**. *Management Science*, *34*(12), 1489–1506.

Snook, S. (2000). *Friendly fire: The accidental shootdown of US Black Hawks over Northern Iraq*. Princeton, NJ: Princeton University Press.

Sonenshein, S. (2007). **The role of construction, intuition, and justification in responding to ethical issues at work: The sensemaking-intuition model**. *Academy of Management Review*, *32*(4), 1022–1040.

Sonenshein, S. (2009). **Emergence of ethical issues during strategic change implementation**. *Organization Science*, *20*(1), 223–239.

Sonenshein, S. (2010). **We're changing—or are we? Untangling the role of progressive, regressive, and stability narratives during strategic change implementation**. *Academy of Management Journal*, *53*(3), 477–512.

Starbuck, W. H., & Milliken, F. J. (1988). Executives' perceptual filters: What they notice and how they make sense. *The Executive Effect: Concepts and Methods for Studying Top Managers*, *35*, 65.

Stephens, J. P., & Lyddy, C. J. (2016). **Operationalizing heedful interrelating: How attending, responding, and feeling comprise coordinating and predict performance in self-managing teams**. *Frontiers in Psychology*, 7(362), 1–17.

Stigliani, I., & Ravasi, D. (2012). **Organizing thoughts and connecting brains: Material practices and the transition from individual to group-level prospective sensemaking**. *Academy of Management Journal*, *55*(5), 1232–1259.

Strike, V., & Rerup, C. (2015). **Mediated sensemaking**. *Academy of Management Journal*, *59*(3), 880–905.

Sutcliffe, K. M. (2001). Organizational environments and organizational information processing. In F. M. Jablin & L. L. Putnam (Eds.), *The new handbook of organizational communication: Advances in theory, research, and methods* (pp. 197–230). Thousand Oaks, CA: SAGE.

Sutcliffe, K. M. (2014). Sensemaking. In M. Augier & D. J. Teece (Eds.), *The Palgrave encyclopedia of strategic management* (pp. 1–4). Basingstoke: Palgrave Macmillan. Retrieved from **http://link.springer.com/referenceworkentry/ 10.1057/978-1-349-94848-2_371-1**.

Sutcliffe, K. M., Vogus, T. J., & Dane, E. (2016). **Mindfulness in organizations**. *Annual Review of Organizational Psychology and Organizational Behavior*, *3*(1), 55–81.

Sutton, R. I., & Hargadon, A. (1996). **Brainstorming groups in context: Effectiveness in a product design firm**. *Administrative Science Quarterly*, *41*(4), 685–718.

Swanson, E. B., & Ramiller, N. C. (2004). Innovating mindfully with information technology. *MIS Quarterly*, *28*(4), 553–583.

Taylor, J. R., & Robichaud, D. (2004). **Finding the organization in the communication: Discourse as action and sensemaking**. *Organization*, *11*(3), 395–413.

Taylor, J. R., & Van Every, E. J. (2000). *The emergent organization: Communication as its site and surface*. Mahwah, NJ: Lawrence Erlbaum Associates.

Thiel, C. E., Bagdasarov, Z., Harkrider, L., Johnson, J. F., & Mumford, M. D. (2012). **Leader ethical decision-making in organizations: Strategies for sensemaking**. *Journal of Business Ethics*, *107*(1), 49–64.

Thomas, J. B., Clark, S. M., & Gioia, D. A. (1993). **Strategic sensemaking and organizational performance: Linkages among scanning, interpretation, action, and outcomes**. *Academy of Management Journal*, *36*(2), 239–270.

Thompson, J. D. (1967). *Organizations in action: Social science bases of administrative theory*. New York: McGraw-Hill.

Tsoukas, H., & Chia, R. (2002). **On organizational becoming: Rethinking organizational change**. *Organization Science*, *13*(5), 567–582.

Vaara, E., Sonenshein, S., & Boje, D. M. (2016). **Narratives as sources of stability and change in organizations: Approaches and directions for future research**. *Academy of Management Annals*, *10*(1), 495–560.

Van Maanen, J. (1991). The smile factory: Work at Disneyland. In P. J. Frost (Ed.), *Reframing organizational culture* (pp. 59–76). Newbury Park, CA: SAGE.

Vaughan, D. (1996). *The Challenger launch decision: Risky technology, culture, and deviance at NASA*. Chicago: University of Chicago Press.

Vlaar, P. W. L., Van den Bosch, F. A. J., & Volberda, H. W. (2006). **Coping with problems of understanding in interorganizational relationships: Using formalization as a means to make sense**. *Organization Studies*, *27*(11), 1617–1638.

Vogus, T. J., & Sutcliffe, K. M. (2012). **Organizational mindfulness and mindful organizing: A reconciliation and path forward**. *Academy of Management Learning & Education*, *11*(4), 722–735.

Vogus, T. J., & Welbourne, T. M. (2003). **Structuring for high reliability: HR practices and mindful processes in reliability-seeking organizations**. *Journal of Organizational Behavior*, *24*(7), 877–903.

date: 05 June 2017

Von Neumann, J., & Morgenstern, O. (1947). *Theory of games and economic behavior*. Princeton, NJ: Princeton University Press.

Walsh, I. J., & Bartunek, J. M. (2011). **Cheating the fates: Organizational foundings in the wake of demise**. *Academy of Management Journal*, *54*(5), 1017–1044.

Walsh, J. P. (1995). **Managerial and organizational cognition: Notes from a trip down memory lane**. *Organization Science*, *6*(3), 280–321.

Walsh, J. P., & Ungson, G. R. (1991). **Organizational memory**. *Academy of Management Review*, *16*(1), 57–91.

Weber, K., & Glynn, M. A. (2006). **Making sense with institutions: Context, thought and action in Karl Weick's theory**. *Organization Studies*, *27*(11), 1639–1660.

Weber, P. S., & Manning, M. R. (2001). **Cause maps, sensemaking, and planned organizational change**. *Journal of Applied Behavioral Science*, *37*(2), 227–251.

Weick, K. E. (1969). *The social psychology of organizing*. Reading, MA: Addison-Wesley.

Weick, K. E. (1979). *The social psychology of organizing* (2d ed.). Reading, MA: Addison-Wesley.

Weick, K. E. (1988). **Enacted sensemaking in crisis situations**. *Journal of Management Studies*, *25*(4), 305–317.

Weick, K. E. (1993a). Sensemaking in organizations: Small structures with large consequences. In J. K. Murnighan (Ed.), *Social psychology in organizations: Advances in theory and research* (pp. 10–37). Englewood Cliffs, NJ: Prentice-Hall.

Weick, K. E. (1993b). **The collapse of sensemaking in organizations: The Mann Gulch disaster**. *Administrative Science Quarterly*, *38*(4), 628–652.

Weick, K. E. (1993c). Turning context into text: An academic life as data. In A. G. Bedeian (Ed.), *Management laureates: A collection of autobiographical essays* (pp. 285–323). Greenwich, CT: JAI Press.

Weick, K. E. (1995). *Sensemaking in organizations*. Thousand Oaks, CA: SAGE.

Weick, K. E. (2003). Enacting an environment: The infrastructure of organizing. In R. Westwood & S. Clegg (Eds.), *Debating organization: Point-counterpoint in organization studies* (pp. 184–194). Malden, MA: Wiley-Blackwell.

Weick, K. E. (2007). The experience of theorizing: Sensemaking as topic and resource. In K. G. Smith & M. A. Hitt (Eds.), *Great Minds in Management: The Process of Theory Development* (pp. 394–406). Oxford: Oxford University Press.

Weick, K. E., & Daft, R. L. (1983). The effectiveness of organizational interpretation systems. In K. S. Cameron & D. A. Whetten (Eds.), *Organizational effectiveness: A comparison of multiple models* (pp. 71–93). New York: Academic Press.

Weick, K. E., & Putnam, T. (2006). **Organizing for mindfulness: Eastern wisdom and Western knowledge**. *Journal of Management Inquiry*, *15*(3), 275–287.

Weick, K. E., & Roberts, K. H. (1993). **Collective mind in organizations: Heedful interrelating on flight decks**. *Administrative Science Quarterly*, *38*(3), 357–381.

Weick, K. E., & Sutcliffe, K. M. (2003). **Hospitals as cultures of entrapment: A re-analysis of the Bristol Royal Infirmary**. *California Management Review*, *45*(2), 73–84.

Weick, K. E., & Sutcliffe, K. M. (2006). **Mindfulness and the quality of organizational attention**. *Organization Science*, *17*(4), 514–524.

Weick, K. E., & Sutcliffe, K. M. (2015). *Managing the unexpected: Sustained performance in a complex world* (3d ed.). Hoboken, NJ: John Wiley.

Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. (1999). Organizing for high reliability: Processes of collective mindfulness. In R. I. Sutton & B. M. Staw (Eds.), *Research in organizational behavior* (Vol. 21, pp. 81–123). Stanford, CA: JAI Press.

Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. (2005). Organizing and the process of sensemaking. *Organization Science*, *16*(4), 409–421.

Weiss, H. M., & Ilgen, D. R. (1986). **Routinized behavior in organizations**. *Journal of Behavioral Economics*, *14*(1), 57–67.

Westley, F. R. (1990). **Middle managers and strategy: Microdynamics of inclusion**. *Strategic Management Journal*, *11*(5), 337–351.

Westrum, R. (1982). **Social intelligence about hidden events: Its significance for scientific research and social policy**. *Science Communication*, *3*(3), 381–400.

Westwood, R. I., & Linstead, S. (2001). *The language of organization*. London: SAGE.

Whetten, D. A. (1989). **What constitutes a theoretical contribution**? *Academy of Management Review*, *14*(4), 490–495.

Whiteman, G., & Cooper, W. H. (2011). **Ecological sensemaking**. *Academy of Management Journal*, *54*(5), 889–911.

Wiley, N. (1988). **The micro-macro problem in social theory**. *Sociological Theory*, *6*(2), 254.

Williamson, O. E. (1975). *Markets and hierarchies, analysis and antitrust implications: A study in the economics of internal organization*. New York: Free Press.

date: 05 June 2017

Winch, G. M., & Maytorena, E. (2009). **Making good sense: Assessing the quality of risky decision-making**. *Organization Studies*, *30*(2–3), 181–203.

Wright, A. (2005). **The role of scenarios as prospective sensemaking devices**. *Management Decision*, *43*(1), 86–101.

Wright, C. R., & Manning, M. R. (2004). **Resourceful sensemaking in an administrative group**. *Journal of Management Studies*, *41*(4), 623–643.

Wright, C. R., Manning, M. R., Farmer, B., & Gilbreath, B. (2000). **Resourceful sensemaking in product development teams**. *Organization Studies*, *21*(4), 807–825.

Yanow, D., & Tsoukas, H. (2009). **What is reflection-in-action? A phenomenological account**. *Journal of Management Studies*, *46*(8), 1339–1364.

Ravi S. Kudesia

Washington University in Saint Louis

date: 05 June 2017