The Right Shock to Initiate Change:
A Sensemaking Perspective

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ABSTRACT

Changes in patterns of organizing often follow disruptions, so-called shocks, in the way that people understand their organization and organizing practices. People engage in a process of sensemaking, and new meanings emerge to guide future practices. Yet, organizations often deal with such shocks in ways that do not lead to any fundamental differences in the observed patterns of organizing practices. Managers and scholars often conclude that such shocks were simply not "big enough" to occasion change. The purpose of this paper is to raise awareness that shocks that are "too big" may also fail as occasions for change. The paper develops a framework that describes how organizational activity following a shock might unfold in a manner that does not occasion cognitive restructuring and organizational change. Four alternative means of disposing of shocks are discussed. Organizations might not notice these shocks, might not take action, might not take novel action, or might not undergo cognitive restructuring. Shocks, which may arise from both external and internal sources, may be either too small or too large relative to the organization’s current cognitive schema. The paper juxtaposes the four means of disposing of shocks against a dimension representing the magnitude of the shocks to form a framework used for discussion of how small shocks and large shocks might occasion each of these four modes of disposition, drawing on relevant literature and providing examples. An important implication for the practice of organizational change is that agents who wish to induce organizational change should benefit from attending to cues from their organizations that indicate whether shocks to occasion sensemaking are too small or too large.
Shocks that interrupt the ongoing flow of activity in organizations often lead to organizational change, yet not always. Managers and scholars often conclude that shocks that do not occasion organizational change were simply not "big enough." The purpose of this paper is to raise awareness that shocks that are "too big" may also fail as occasions for change. The paper employs a sensemaking perspective to develop a framework that describes how organizational activity following a shock might unfold in a manner that does not occasion cognitive restructuring and organizational change.

Scholars and managers have long been concerned with the processes and dynamics associated with changes in the beliefs and practices in organizations. Often a change in patterns of organizing follows some disruption in the way that organizational members understand their organization and organizing practices, demanding that they make new sense of it (Poole, Gioia, & Gray, 1989). At its most basic level, any substantive organizational change is associated with a modification of existing value and meaning systems (Gioia, 1986). The organization engages in a process of sensemaking, and new meanings emerge to guide new practices (Weick, 1995). Yet, organizations often deal with disruptions in ways that do not lead to any fundamental differences in the observed patterns of organizing practices.

Sensemaking provides a useful perspective for understanding organizational change. Sensemaking involves “placing stimuli into frameworks (or schemata) that make sense of the stimuli” (Starbuck & Milliken, 1988, p. 51). The stimuli might also be called shocks (Van de Ven, 1986). As organizations make sense of past actions, people sometimes modify their schemata or commonly held beliefs about how the world works. The updated beliefs guide and give meaning to behavior (Bartunek, 1984; Bartunek & Moch, 1987). Shocks that interrupt an ongoing flow might be occasions for sensemaking, but not all shocks lead to modifications in schema and organizational change. A conventional explanation is that such a shock simply was not sufficiently compelling, or "big enough," to occasion change. In this paper, I show that shocks that are "too big" may also fail as occasions for change. The key challenge will be to better understand the
nature of cues that occasion sensemaking and consequent organizational change and those that do not. In addition to the scholarly merits of an enriched understanding of these shocks, there are useful applications in the field of managerial practice. When an organizational participant, such as a manager, wishes to effect change, the initiation of sensemaking becomes a fundamental challenge.

Bartunek and Moch (1987) use the term second-order change for situations in which there are fundamental alterations of the cognitive schemas, as distinguished from first order-change, which describes the expansion and elaboration of existing schema as people incorporate new information (Bartunek et al., 1987). The discussion that follows focuses on occasions for sensemaking that lead to updating of cognitive schemas, or second-order change, so it will call upon two concepts that deserve a brief introduction here: sensemaking and cognitive schemas. Briefly, sensemaking is an interpretive process in which people assign meanings to ongoing occurrences (Gioia & Chittipeddi, 1991) and involves interpretation in conjunction with action (Thomas, Clark, & Gioia, 1993). Weick (1979) summarizes the theme of sensemaking with a basic recipe for sensemaking: “How can I know what I think until I see what I say?” (p. 133). The sensemaking process both draws upon cognitive schemas as a guide for action and updates these cognitive schemas in making sense of experience.

“A schema is an abridged, generalized, corrigible organization of experience that serves as an initial frame of reference for action and perception” (Weick, 1979, p. 154). Schemas are dynamic, cognitive knowledge structures used by individuals to encode and represent incoming information efficiently (Markus, 1977). “Schemas” is a commonly used term to refer to cognitive structures, as described by Markus and Zajonc (1985) in their review:

“Cognitive structures are organizations of conceptually related representations of objects, situations, and of sequences of events and actions. What is stored in a cognitive structure can be the specific elements and features defining the object, event, or situation or it can be the rules defining the interrelationships among the elements, or both. Cognitive structures derive from past experiences with many instances of the complex concepts
they represent. Cognitive structures simplify when there is too much, and thus they allow the perceiver to reduce an enormously complex environment to a manageable number of meaningful categories. They fill in where there is too little and allow the perceiver to go beyond the information given. These structures help the perceiver achieve some coherence in the environment and in the most general sense provide for the construction of social reality. They are built up in the course of information processing and they function as interpretive frameworks.”
(Markus & Zajonc, 1985, p. 143)
THE FRAMEWORK

The framework developed here examines some reasons that shocks are ineffective in occasioning organizational change. Shocks may emanate from sources external to the organization or they may be introduced to the organization by people intending to initiate change. Thus, a shock might be a manager's articulation of a business case for change that describes impending demise if people do not undertake an improvement program. One component of the framework suggests four possible failure modes, each of which is a means by which an organization disposes of the shocks in a manner that does not occasion cognitive restructuring. I use the term failure mode to emphasize that the shock "fails" as a precursor to organizational change, not to convey any sense of failure of the organization. The manager's business case (the shock) may not lead to adoption of the improvement program (a failure in occasioning change), although foregoing the improvement program may be an optimal response for the organization. Table 1 lists the four failure modes. Shocks might fail to occasion change because organizational participants do not pay attention to them, because they do not act on them, because the actions they take are not novel actions, or because the actions they take do not occasion any cognitive restructuring. The second component characterizes the degree or magnitude of the shock along an aggregate dimension representing proximity to existing cognitive structures. In combination, the components reflect the notion that each of these four failure modes might occur when shocks are too small or when they are too large. I turn now first to a consideration of the two components of the framework. In the following section, I will examine the eight cells formed by considering the two components together.

The first component concerns the manner in which organizational actors respond to a possible shock. Shocks are interruptions to an ongoing flow of organizational activity. Yet not all interruptions, not all stimuli, not all information, not all events, and not all messages from managers in organizations act as shocks. Several authors have discussed the importance of shocks or interruptions that occasion change (Barley, 1986; Weick,
The analysis here focuses on the several means by which organizational actors are able to dispose of stimuli that do not occasion change. The first component of the framework identifies four such means of disposing of shocks, labeled failure modes.

The first three of these failure modes are evident in an observation by Schroeder, Van de Ven, Scudder and Polley (1989). They observed that successful shocks “stimulated people’s action thresholds to pay attention and initiate novel action.” (Schroeder, Van de Ven, Scudder, & Polley, 1989, p 123). Thus, the shock must be such that 1) the actor pays attention, 2) the actor initiates action, and 3) the action is novel. The first failure mode arises when the organizational actors do not pay attention to the stimuli. It is useful here to recall the distinction between noticing and sensemaking made by several authors (Daft & Weick, 1984; Kiesler & Sproull, 1982; Starbuck et al., 1988). Noticing, which is analogous to Daft and Weick’s scanning and data collection, is an act that classifies stimuli as signals or noise. What people notice becomes an input to their sensemaking (Starbuck et al., 1988). What they do not notice becomes an example of this first failure mode.

The second failure mode arises when the organizational actors notice but take no action. There are at least three somewhat divergent perspectives on action evident in the literature on organization theory (Pfeffer, 1985). One widely held perspective represents organizations as intendedly rational but cognitively limited systems that act in pursuit of goals (March & Simon, 1958). A second view considers organizations as largely under the control of external forces. Population ecology (Hannan & Freeman, 1977) and resource dependence (Pfeffer & Salancik, 1978) theories are prominent in this view. Both the goal-directed and external control perspectives consider action the consequence of some stimulus, the source of which might be in the first case a goal or in the second case an external constraint or dependency. However, in either case, dissatisfaction with existing conditions prompts action directed at improving those conditions. Thus, this failure mode arises when the stimulus from the potential shock attracts the attention of organizational actors, but the stimulus does not stimulate the action threshold (Schroeder et al., 1989).
The third perspective on action characterizes the social constructionist assumptions, which consider action as part of an emergent process and encompasses the sensemaking perspective. Action unfolds over time, and meaning is constructed around these events in an ongoing process. The basic assumption is that organizational members actively create, or enact, their own reality. Enactment is conceptualized as the bracketing and constructing of portions of the flows of experience. “Experience is the consequence of activity,” but “there is no such thing as experience until the manager does something” (Weick, 1979, p. 148). The distinction between noticing and acting is less precise here, but there can be noticing without any action (other than the “action” of ignoring, filtering, or not acting). For example,

“Each person watches someone else avoid certain procedures, goals, activities, sentences, and pastimes and concludes that this avoidance is motivated by ‘real’ noxiants in the environment. The observer profits from that ‘lesson’ by himself then avoiding those acts and their presumed consequences. As this sequence of events continues to be repeated, managers conclude that they know more and more about something that none of them has actually experienced firsthand.” (Weick, 1979, p.151-152).

The third failure mode arises when the organizational actors take action, but the action they take is not novel. Behavior in organizations is based on routines (Cyert & March, 1963; Nelson & Winter, 1982). Routines are based on interpretations of history and emphasize relatively constant responding (Levitt & March, 1988). This failure mode describes the common situation in which the organization experiences a shock that might occasion organizational change, but the tactic for disposing of this shock is the reliance on a habitual routine. Existing norms and routines are adequate to deal with the situation. Actors simply call upon the catalog of causal maps at their disposal, perhaps distorting information slightly to make it fit into existing, and familiar, maps. The habitual response occurs, and the consequence is interpreted as sufficiently close to what might be expected. Action is taken, but the interruption, if any, in the flow of activity and meaning is inconsequential.
A considerable body of literature suggests that the vast preponderance of organizational action is governed by routines (Levitt et al., 1988; Starbuck, 1983). Thus, routine action indeed may be the most common organizational response to a shock. Note again that the use of the term failure mode here is not meant to imply that the routines are causing failure. Although in some situations the over-reliance on routines leads to non-adaptive behavior with dysfunctional consequences (Leonard-Barton, 1992; Starbuck, 1983; Tushman & Romanelli, 1985), routines nevertheless play an important role in simplifying. The term failure mode refers to the “failure” of the shock to induce a restructuring of the cognitive schema, not to a failure of the organization. The response, based on habitual routines, may indeed be an appropriate response.

The fourth failure mode arises when there is novel action, but it does not occasion any cognitive restructuring. The shock occurs, and action occurs. Since this is novel action, it is not interpreted as just a routine response to the stimulus, and thus triggers the search for meaning. But the search for meaning to make sense of this action identifies an explanation found in the current cognitive schema. The difference between this mode and the previous one is subtle but important. Consider these modes from the perspective of an outside observer (perhaps the interested leader of change). The previous failure mode appears as a routine response. There is no discernible difference in action or behavior compared to historical observations. In contrast, in this fourth failure mode, the organization appears to address an interruption with a novel response. However, by making sense of the novel response with an existing explanation, the organization avoids any modification to the cognitive schema. Although invoking an existing explanation may not be observable, the consequence of continued use of the same schema might be. Rather than adopting a new schema, the result here is that the realm of application of the old schema has been expanded, so that it will now have a historical relevance to a wider range of future stimuli. Thus, the observer might notice a short-lived interruption followed by a reversion to old behaviors, even in the face of a repeat occurrence of the novel stimulus.
Weick (1995) suggests that two common occasions for sensemaking in organizations are uncertainty and ambiguity. This failure mode might result when neither of these conditions is present. Uncertainty and ambiguity are avoided because an available explanation can be adapted to make sense of the action just experienced. In essence, there is no experience of shock in the cognitive realm. No additional information is necessary, because the explanation is available, so there is no uncertainty. If in addition the available explanation, appropriately modified, is the only one available that fits with the action in question, there will be no confusion among competing explanations and thus no ambiguity.

Notice that it is possible for novel action to be reconciled with existing cognitive schemas. There are two characteristics of this possibility that are central to the sensemaking perspective. First, the existing schemas are invoked in order to associate a belief with an action that has already become part of experience. The sensemaker is an observer of action, taking the action as a given. The process of sensemaking is not so much interested in finding an explanation for why the action occurred as in making sense of the action in order to continue managing a stream of activity. Thus, the sensemaker is not concerned that the novelty per se of the action is not explained. Because sensemaking is retrospective, there is no need to explain how an old schema might generate a new response. Second, novel action is conceptually possible. Cognitive schemas are simplifications, and thus do not anticipate the infinite variety of possible incoming stimuli that make up the stream of activity. Schemas do not deterministically specify outcomes, but rather guide behavior. The emergent course of events may indeed include novel responses, and these may be enacted prior to the pairing of them with any new meanings.

In this failure mode, the possible occasion for sensemaking begins with action. It differs from the previous failure mode, because in the previous failure mode, the observed action, one that was governed by a routine, already has associated with it a belief that makes sense of the action. In the present mode, there is no such belief already attached.
The following excerpt from Weick (1995) explains the nature of sensemaking as a process of relating beliefs and actions to form meanings:

“There seem to be at least four ways in which people impose frames on ongoing flows and link frames with cues in the interest of meaning. Sensemaking can begin with beliefs and take the form of arguing and expecting. Or sensemaking can begin with actions and take the form of committing or manipulating. In all four cases, people make do with whatever beliefs or actions they start with. Sensemaking is an effort to tie beliefs and actions more closely together as when arguments lead to consensus on action, clarified expectations pave the way for confirming actions, committed actions uncover acceptable justification for their occurrence, or bold actions simplify the world and make it clearer what is going on and what it means. In each of these cases, sensemaking involves taking whatever is clearer, whether it be a belief or an action, and linking it with that which is less clear. These are fundamental operations of sensemaking. Two elements, a belief and an action, are related. The activities of relating are the sensemaking process. The outcome of such a process is a unit of meaning, two connected elements.” (Weick, 1995, p.135).

Thus, this fourth failure mode might transpire as a novel, committed action uncovers an acceptable justification among the existing cognitive schemas, connecting the old belief with the new response.

The second component of the framework is shown as the horizontal axis in Table 1. The purpose of introducing this dimension is to allow us to unpack some of the reasons that shocks do not occasion change. Whereas the first component of the framework summarizes the nature of the organization’s response, this second component characterizes the shock. This dimension is an analytical simplification that characterizes the shock according to its proximity to existing cognitive structures. When we say in everyday language that a shock is inadequate or insufficient to occasion change, this evokes images of a shock that is too small. Introducing a dimension to describe the magnitude of the shock allows us to also consider that shocks may be too large. This concept then allows us to examine ways that small shocks and large shocks can lead to each of the four failure modes identified above.
Although shocks will vary in both character and magnitude, this simplification aggregates the multiple dimensions of the character of a shock into one unspecified dimension. For the present purposes, our need is simply to distinguish two extremes that describe shocks in relation to the current cognitive schemas. To conceptualize this single dimension, consider a multi-dimensional space with as many dimensions (possibly an infinite number) as necessary to describe the ongoing stream of organizational activity. Imagine that expectations based on the current cognitive schemas and the history of experience are all mapped as points in this complex, multi-dimensional space. Next, describe the shock along these multiple dimensions, and map it in the same space. A straight line from the closest expectation point to the shock point thus represents the size of the gap between the expectations based on current schema and the stimulus from the shock. For our purposes here, it is the size of the gap that matters.

A hypothetical example in a stylized one-dimensional world will help to elucidate the notion of the magnitude of a shock. Consider a manufacturing facility charged with meeting a daily throughput target. After many consecutive periods of meeting the production target, the facility will be operating in an ongoing equilibrium. An increase in the target production level can be considered a shock. The magnitude of the shock can be characterized by the amount of increase in the production target, which is the gap between the new target and the historical output levels. When the shock is quite small, the organization is able to achieve the new target with existing procedures, perhaps by using the available slack to simply work a bit harder. When the shock is moderate, the organization might incorporate some process improvement technique aimed at increasing throughput. When the shock is quite large, the organization might be overwhelmed by the large and continuing production shortfall relative to the new target and thus be incapable of allocating resources to incorporate the process improvements. What constitutes too large a shock depends in part on the amount of organizational slack. In computer simulations of process improvement scenarios similar to these, the improvement program is seen to fail when the shock is either too large or too small (Morrison & Repenning, 2000).
By combining the first component that describes four possible failure modes characterizing organizational responses with the second component capturing two extremes in the magnitude of a shock, I arrive at the framework of Table 1. I turn now to a brief examination of the eight cells formed by this combination.

**Shocks that Get No Attention**

The two cells in the first row capture situations when the shock gets no attention. Consider first the situation in which a small shock fails to get attention. At this end of the shock magnitude dimension are the many possible stimuli that are filtered out without even any noticing. Psychologists use the term “just-noticeable differences” to refer to the smallest differences that people can classify (Starbuck et al., 1988, p 46). Thus, some stimuli are simply too tiny for the human perceptive apparatus to identify. Both individuals and organizations have well-developed processes for separating signals from noise in order to focus attention on those signals that are in some way deemed important. For example, one model of the manner in which executives arrive at their own rendition of a situation is based on a three-stage filtering process that includes limited field of vision, selective perception, and interpretation (Finkelstein & Hambrick, 1996). Both the limits in the field of vision and the selectiveness of the perceptual filter accomplish the screening out of noise so that limited attention resources may be focused on the stimuli that warrant attention.

The stimuli classified into this category are too small for noticing because they are too similar to the existing flow of stimuli to which the organization has become conditioned. What is too similar depends on the sensitivity of the organization’s data collection processes. The perturbations from the continuous flow of activity to which the organization does attend are too minor to be detected by the organization’s scanning apparatus. From the standpoint of the blunt instrument used by the organization, there is no disturbance. For example, when a supplier to an organization changes the price of a part by an increment of a few pennies compared to a several thousand dollar total price, the organization is not likely to notice such a difference. Moreover, the fewer units of this part that are used, the less likely is the organization to notice. Indeed, many of the
existing management reports that generate cost tracking information will not capture such a small difference. Many such small changes are lost as rounding errors. Other such small changes are somehow offset by yet other small changes occurring almost simultaneously so that the resulting net effect falls below the just-noticeable difference threshold.

Shocks can also go unnoticed because they are too large. These shocks are potential stimuli that are so far removed from the current stream of organizational experience that they do not fall within the range of the organization’s scanning systems. They are outside of the organization’s field of vision. “Effective perceptual filtering amplifies relevant information and attenuates irrelevant information, so that the relevant information comes into the perceptual foreground and the irrelevant information recedes into the background” (Starbuck et al., 1988, p. 41). This situation is described well by the colloquial saying that something is “not on my radar screen.” Whereas shocks that are too small to be noticed are filtered out as noise, these shocks that are too large to be noticed are filtered out as not related to any relevant concern.

Without intervention, “structures and systems focus the attention of organizational members to routine, not innovative activities” (Van de Ven, 1986, p 596). The organization’s scanning systems and the individuals’ foci of attention are somehow centered on what is happening in the here and now. Consequently, noticing is a complex function of what is familiar and what is not familiar to the decision-maker (Starbuck et al., 1988). To get noticed, a stimulus must be unfamiliar enough to get detected, but it must also be familiar enough to fall within the range of relevant concerns. Otherwise, the shock is just one of the enormous number of events that are not captured by the organization’s scanning systems.

An example of a large, unnoticed shock is found in the decline of the Swiss watch industry as chronicled by Glasmeier (1991). The Swiss watch industry’s share of the world export market fell from 40% to 10% in the decade beginning in 1974, largely
because the Swiss did not adopt quartz technology for watch movements. Glasmeier offers an explanation for why the Swiss did not notice the emerging quartz technology:

“The watch cartel insulated Swiss manufacturers from the effects of inter-firm competition. Enjoying (volume) control of the world market (based on mechanical devices), it was easy for firms to become myopic about external events and new technology introduced by distant competitors. Because [they] looked only to members of the Swiss Watch Industry Federation for market information, new developments outside Switzerland did not filter into existing information channels.” (Glasmeier, 1997, p.33).

These large but unnoticed shocks might be more common than we realize. Van de Ven (1986) identified managing attention as one of the central problems in innovation. Thomas Kuhn (1996) describes the emergence and maintenance of scientific paradigms and argues that the activities of normal science are predominantly conducted within the frame of existing paradigms. These paradigms influence the collection of data, suppressing the perception of data inconsistent with current paradigms. Sterman and Wittenberg (1999) have developed formal dynamic models of Kuhn’s theory in which the self-reinforcing feedback between expectations and perceptions reduces the recognition of anomalies hence constraining the emergence of new paradigms [See also \Sterman, 1985 #199].

**Shocks that Get No Action**

Organization participants act on events, attending to some and ignoring most, often talking to people to see what they are doing (Braybrooke, 1964). In the second row of Table 1, I distinguish those shocks that get noticed but do not occasion action by the organizational participants, the “most” that get ignored. First consider shocks that are too small. The notion underlying this failure mode is that there is a threshold below which a stimulus does not engage the organization in a mode of action. Several researchers suggest such a threshold. Van de Ven (1993) highlights the importance of shocks, from either external or internal sources, as triggering mechanisms for concrete actions to undertake specific innovations:

“Concentrated actions to allocate resources and initiate development are triggered by ‘shocks’ … These shocks are
sufficiently large to trigger the attention and action of organizational participants. When people reach a threshold of dissatisfaction with existing conditions, they initiate action to resolve their dissatisfaction.” (Van de Ven, 1993, p. 275).

This view follows the description of problem sensing in crisis situations. “A problem is perceived when a discrepancy or gap is perceived between the existing state (perceived reality, initial state) and a desired state (goal, standard of how things should be, terminal state)” (Billings, Milburn, & Schaalman, 1980, p. 302-303). Indeed, a classic model of organizations set forth by March and Simon (1958) is based on the premise that dissatisfaction with current conditions stimulates the search for improved conditions. A more interpretivist view is found in Dutton and Dukerich (1991). Their view is “that some organizational actions are tied to sets of concerns that we call issues. Issues are events, developments, and trends that an organization’s members collectively recognize as having some consequence to the organization” (Dutton et al., 1991, p 518). The situation reflected in the present failure mode is that the gap between the current and desired conditions is insufficiently large to trigger action. The stimulus is not recognized as having some consequence to the organization.

One reason that gaps may be insufficiently large is that the assessments of both the goal and the current situation change over time in response to evolving conditions. Models of adaptive goals or aspiration levels are found in the literature on psychology (Lewin, Dembo, Festinger, & Sears, 1944) and organizations (Cyert et al., 1963; Levinthal & March, 1981), along with empirical investigations of aspiration level adaptation (Lant, 1992). Judgements about current conditions are also influenced by a tendency to overweight recent and available information, so people may anchor their judgements on recent experience (Tversky & Kahneman, 1974). Consequently, small or gradual changes over time do not reach people’s recognition thresholds for action (Helson, 1964). Suggesting that organizations are a bit like frogs, Senge (1990) recounts the parable of the boiled frog:

“If you place a frog in a pot of boiling water, it will immediately try to scramble out. But if you place the frog in room temperature water, and don’t scare him, he’ll stay put. Now, if the pot sits on a heat source, and if you gradually turn up the
temperature, something very interesting happens. As the temperature rises from 70 to 80 degrees F., the frog will do nothing. As the temperature gradually increases, … the frog will sit there and boil. … The frog’s internal apparatus for sensing threats to survival is geared to sudden changes in his environment, not to slow, gradual changes.” (Senge, 1990, p. 22).

Perhaps the most common manifestation of these shocks that are too small to generate action is found when organizations let talk substitute for action (Pfeffer & Sutton, 2000). Faced with a potential shock, organization members often react by finding, perhaps creating, reasons why they should not act. Examples of these situations highlight two main topic areas that often dominate discussions and shift attention away from action. First, organization members articulate reasons that a particular shock does not apply to their circumstances. For example, when managers are presented with information from benchmarking studies of competitors, a common reaction is to focus on differences that might explain why data from the comparison firm should not be compared with the managers’ own firm. Attribution theory predicts that managers will attribute the favorable outcomes achieved by other companies to situational causes in a manifestation of actor-observer effects, and these results have been documented in experimental settings (Wagner & Gooding, 1997). The second topic that diverts attention away from action is barriers to action. Managers engage in discussions that focus their attention on the various reasons they might be unsuccessful or that convince them that they are unable to act. Such responses are perhaps more likely in organizations that Daft and Weick (1984) characterize as passive organizations, which “do not engage in trial and error” (p. 288).

At the other end of the shock dimension, we find shocks that are too large to occasion action. The organization finds itself not responding to these shocks because the collective does not know what to do. This is the organizational equivalent of the proverbial “deer in the headlights” that is frozen at a standstill because the shock of the bright lights is so great as to overwhelm it. When the organization is exposed to an overwhelmingly large shock, the existing cognitive schemas are baffled, and the ensuing situation is marked by considerable uncertainty about what to do. “It is precisely in the face of massive uncertainty that beliefs of some sort are necessary to evoke some action,
which can then begin to consolidate the situation so that explicit inferences about cause/effect linkages can then be attempted” (Weick, 1983, p. 229-230). But, with a shock that is so extreme that it raises uncertainty well above the threshold for action, the organization will employ other mechanisms to dispense with the shock.

Isenberg (1986) observes that managers employ a process he calls “plausible reasoning” to “increase the certainty conditions beyond some critical threshold that changes as certainty conditions, riskiness, stakes, and other factors change” (p 247). The process begins as the manager “develops a different understanding of a phenomenon, often due to an experience of surprise” (Isenberg, 1986, p247), which we might call a large shock. The manager begins a selective search “to achieve a degree of certainty that will allow the manager to proceed … at minimal cost and minimal risk. The manager engages in action in the face of an incomplete but tentative understanding of the situation and uses the feedback of his or her actions to complete the understanding” (Isenberg, 1986, p247-248).

Unfortunately, a common approach to figuring out what to do involves consideration and analysis of many possible options, often at the expense of action. Moreover, once some decision as to a course of action is made, the organization embarks on a phase of predicting and planning that once again delays the initiation of action that will occasion sensemaking. Societal ideologies have reinforced the value of such planning, as Weick (1995) suggests in the following passage. (The words in parentheses identify seven properties of sensemaking.)

“Once people begin to act (enactment), they generate tangible outcomes (cues) in some context (social), and this helps them discover (retrospect) what is occurring (ongoing), what needs to be explained (plausibility), and what should be done next (identity enhancement). Managers keep forgetting that it is what they do, not what they plan, that explains success. They keep giving credit to the wrong thing – namely, the plan – and having made this error, they then spend more time planning and less time acting.” (Weick, 1995) p. 55

Another instantiation of a large shock that does not occasion change is found when the organizational participants see no relationship between the shock and the current realm of
action in which they are practicing. For example, evidence that suggests that a firm’s products will be obsolete in 10 years due to new technologies is not likely to have much effect on managers who believe their job is the manufacturing rather than the designing of products. Moreover, if they are accustomed to and occupied with acting and thinking about matters on a day-to-day or month-to-month time horizon, 10 years into the future may have no bearing on their current actions. In this scenario, uncertainty, confusion, or paralysis is not the reason that organization members do not know what to do. Rather, they do not know what to do because they are unable to translate the shock into an action that they believe is within their ability to control. Organizations decompose domains to prevent multiple simultaneous adjustments and treat the resulting subdomains as autonomous (Simon, 1997). If managers believe the limits on their domain of action prevent intrusion into other areas, they will turn to other matters relevant to their current domain and timeframe. Levinthal and March (1993) have described these tendencies to ignore the larger picture and to ignore the long run as two forms of organizational learning myopia.

A final example of large shocks that do not occasion action is a surprise layoff of employees at a paternalistic organization that has never before laid off employees. Brockner & Weisenfeld (1993) investigate the reactions of the people who remain, the survivors. Layoffs elicit survivor concerns about fairness and job security and arouse uncertainty about the situation and its meaning. The resulting state of confusion might restrain action.

“Situations that induce hesitation, alienation, or despair in anyone should be experienced as confusing because they make it harder for people to take actions around which meanings could crystallize. This hypothetical scenario sounds very much like what is reported by those (e.g., Brockner & Weisenfeld, 1993) who remain in their jobs after their co-workers are removed by downsizing. The confusion felt by those who remain stems not so much from their ‘survivor guilt’ as from their inability to act. Interventions that make it easier to bind people to action should reduce the confusion more quickly than would interventions designed to deal with feelings of guilt.” (Weick, 1995, p. 174).
Shock that Get No Novel Action

In this section, corresponding to the third row of Table 1, I discuss shocks that are noticed and acted upon, but the action taken is not novel. Organizational members can easily classify issues that are routine and expected and thus fit existing categories (Dutton et al., 1991). These issues elicit well-learned responses based on organizational “recipes” that are easily available and accepted by the organization as legitimate (Weick, 1979). Much organizational activity is the continuation of an ongoing flow. “Organizations frequently create action generators – automatic behavior programs that require no information-bearing stimuli” (Starbuck, 1983, p.93). Some activity follows these well-learned responses to easily classified stimuli in routine patterns of behavior (Cyert et al., 1963; Nelson et al., 1982).

Organizations use these routines to generate responses that deal with potential shocks. Such routine responses are found at the individual, group, and organizational levels. People are programmed into cognitive routines or habits that desensitize them to novel events (Starbuck, 1983). Indeed, “what people do most is often what they think about least” (Van de Ven, 1986, p 595). Groups make use of habitual routines, with both functional and dysfunctional consequences. Habitual routines in groups can reduce the likelihood of innovative performance processes (Gersick & Hackman, 1990). Organizations employ routines to generate the same response to a different stimulus. Weick (1996) refers to this as a non-learning sequence, and suggests that it “is probably the most common sequence found in organizations” (p. 166).

The point here is that when the shock is such that it is sufficiently similar to the ongoing flow of activity and the organization calls upon routine responses, the action that occurs already has meaning associated with it. The response is the routine response. The act is the application of existing cognitive schema to the situation, and the meaning attached is that it was based on the beliefs embodied in the existing schema. Small shocks are easily classified, and the perceived outcome is that the routine response has addressed the shock. The earlier example of a small increase in a production target at a manufacturing firm is just such a small shock. Since the new target is quite similar to the previous
production target, the organization classifies the stimulus in a category that elicits a routine response. The routine response to work a bit harder satisfies the production target, and the organization does not need to consider alternative responses, such as productivity or quality improvement. This is an example of first-order change, because it is “consistent with already-present schemata” (Bartunek et al., 1987, p.486).

Large shocks can also lead to responses that lack novelty. Consider the response of an organization to a shock that is perceived as a severe threat to the organization’s survival. Staw, Sandelands and Dutton (1981) draw upon findings from individual, group, and organizational levels of analysis to explain threat-rigidity effects. They argue that threat-rigidity effects lead to changes in both information processing and control processes that make the organization’s behavior less varied or flexible. Perceived threats restrict the number of alternatives for action that managers consider. In the face of threats, managers rely on fewer sources of information and emphasize information consistent with current schemas, simplifying and stereotyping in order to assimilate information into the current schemas. There is also a shift to more centralization of authority, more extensive formalization, and more standardization of procedures (Staw et al., 1981). Moreover, perceived threats seem to increase the importance of efficiency concerns, as organizations employ cost cutting, budget tightening, restriction of marginal activities, and intensified accountability (Starbuck & Hedberg, 1977). “Organizational actions associated with conservation of resources and tight control mechanisms are likely to be manifested in maintenance of the status quo, which in turn favors existing interpretation-action patterns” (Thomas et al., 1993, p. 244).

The notion that a large shock might lead to persistence of current beliefs and routines is evident in Ocasio’s (1995) analysis aimed at reconciling theories of failure-induced change with threat-rigidity theories. He concludes that:

“Economic adversity will increase the adoption of those types of organizational change that (1) have been well-learned, whether through prior organizational experience or through institutional mimetic processes; (2) are congruent with core assumptions and beliefs, as interpreted by decision makers; and (3) favor the
interests and identities of participants in the decision-making process” (Ocasio, 1995, p. 321).

Ocasio (1995) reminds us that the effect of economic adversity “is contingent on the social construction of mental models by participants in organizational subunits, as regulated by the institutional logic of the cultural system” (p. 320-321). Managers’ interpretations of the shock as either a threat or an opportunity influence information processing and decision-making (Dutton & Jackson, 1987). Thus, if the shock is interpreted as a severe threat, the organization’s response may lack novelty.

Ocasio (1995) points to a useful example in the U.S. automobile industry’s response to the increased threat from foreign competition in the 1970s and 1980s. Japanese manufacturers, most notably Toyota, developed and implemented various elements of lean production systems, which relied on low automation, high employee involvement, and management philosophies based on concepts such as just-in-time and one-piece flow (Womack, Jones, & Roos, 1990). General Motors’ responses included acquiring technology-based companies and increasing its level of automation, responses that were consistent with its core beliefs. However, they did not adopt the changes in manufacturing principles or human resource practices that challenged their core values and assumptions (Ocasio, 1995). The continued reliance on learned responses in the face of a large shock is also evident in the demise of the Saturday Evening Post, as chronicled by Hall (1976). Managers in this case continued to increase prices, a strategy that had been successful in the past, even as circulation was dropping (Hall, 1976). Greve and Taylor (2000) studied format changes in radio broadcasting to understand the effects of innovations by one firm on non-mimetic changes in other firms in the industry. They found that innovations by firms that were large and nearby were associated with less change and attributed this finding to threat-rigidity effects. The shock from an innovation by a large firm in the focal firm’s home or nearby markets is perceived as threatening, and novel responses are suppressed.
Shocks that Do Not Occasion Cognitive Restructuring

The fourth and last row of the framework of Table 1 deals with shocks that generate novel actions but do not occasion cognitive restructuring. On one extreme, we find small shocks that generate novel actions but no cognitive restructuring. The key premise underlying this category is that the beliefs that get attached to actions in the process of sensemaking are themselves versatile. Sensemaking is driven more by plausibility than by accuracy (Weick, 1995). There is a fuzzy vagueness about beliefs that endows them with the potential to be enacted in a variety of ways. When the sensemaker is searching to make sense of an action in the recent experience, an available explanation based on current beliefs, if plausible although not necessarily a perfect fit, will be satisfactory. Sensemakers, like decision-makers, engage in satisficing (Simon, 1955; Steinbruner, 1974). Consequently, when an action is novel but not too novel, the parsimonious sensemaker may dispense with this interruption, now the novel action, by plausibly mapping it into an existing belief.

In some sense, the situations included in this cell (no cognitive restructuring, shocks too small) of the framework are a subset of those in the cell immediately above it (no novelty, shocks too small). In the first case, the shock occasions action that is not novel; in the second case, the shock occasions action that is not novel enough. But, from the point of view of the sensemaker, these are indeed different sequences. In the first case, the sensemaker considers the stimulus, \( x \), to have been similar to previous ones, so the well-learned response, \( y \), is sensible because the routine recipe is “if \( x \) then do \( y \).” In the second case, the sensemaker acts in a manner that is not exactly \( y \) but is close and then considers the recipe to be adequate to explain “did almost \( y \) given \( x \).” Students of sensemaking are interested in “what happens when novel moments in organizations capture sustained attention and lead people to persist in trying to make sense of what they notice” (Weick, 1995, p. 86). What is missing in this failure mode is the element of sustained attention and persistence.
The tendency to associate a pre-existing belief with an observed action is related to two biases reported by psychologists studying judgment and decision-making. The hindsight bias denotes the tendency to perceive already observed outcomes as having been relatively inevitable and has been demonstrated in several studies by Fischhoff, who has also called this effect “creeping determinism” (1975, p. 288). People are generally not able to reconstruct the way an uncertain situation appeared to them before knowing the results. One way for the sensemaker to make sense of the observed action is to believe that it was inevitable under the circumstances. As long as the action is not especially novel, the sensemaker can resolve any uncertainty about why the action \( y \) should follow the stimulus \( x \) by believing is was clear all along. Now that action \( y \) did follow stimulus \( x \), it must be what was expected. Confirmation bias may contribute to this effect as well. This bias describes people’s tendency to exclude the search for disconfirming evidence from their decision processes (Einhorn & Hogarth, 1978; Wason, 1960). An analogous tendency in sensemaking situations would mean that people are less likely to consider novel aspects of the shock and the action just observed, since the novel aspects could be disconfirming of the current schemas. People would give greater consideration to those situational aspects that are similar to experience. These similarities would provide adequate basis for the current schemas to make retrospective sense of an action that is only a little bit novel.

The final cell of the framework is for large shocks that occasion novel action but do not occasion cognitive restructuring. This cell describes the situation when observed actions change but the underlying belief systems do not. Having acted in a manner that is inconsistent with a person’s beliefs, an individual will experience an uncomfortable state of cognitive dissonance (Festinger, 1957). Dissonance theory suggests that individuals will attempt to reduce such states of dissonance. One way to reduce this dissonance is to update the beliefs to bring them into consonance with the recently observed action, which would be considered second-order change (Bartunek et al., 1987). However, in lieu of updating these beliefs, another approach to resolving the dissonance is increase the emphasis on information that makes the cognitions less dissonant, in short, to find an
alternative explanation. The context of the action taken may well make plausible alternative explanations available to the sensemaker.

The most apparent instantiation of this is a situation in which organizational members take novel action specifically as directed by an authority figure. These are situations in which the members adopt behavioral compliance with the proscriptions of their supervisors. The members recognize they are being urged to respond in a specific manner, and this urging by a legitimate authority figure provides a basis for compliance (Cialdini & Trost, 1998). Aronson (1995) refers to this as the “external justification” for the action (p. 198). A classic experiment by Festinger and Carlsmith (1959) studied this effect. Students performed some boring, repetitive tasks for a full hour as part of the experiment. Afterwards, the students were asked to lie by telling a confederate who was waiting to participate next that the task she was about to perform was interesting and enjoyable. One group of students was offered twenty dollars to lie, whereas the other group was offered only one dollar to lie. The key finding was in how these two groups differed in their subsequent ratings of the task. Those paid one dollar rated the task as an enjoyable one, and those paid twenty dollars rated it as dull. Those in the one-dollar condition in the absence of an external justification moved their beliefs (toward more enjoyable) in the direction of justifying their actions (of saying it was enjoyable). They reduced dissonance by updating their belief about the task. In the twenty-dollar condition, the subjects were able to justify their “lying” with the explanation that they did it for the money. They reduced dissonance without updating their beliefs about the task by relying on an external justification.

In an organizational context, sensemakers might preserve their cognitive schemas by justifying their behaviors with an external justification in the form of the explanation “my boss told me to do it.” Under the circumstances of a large shock that induces the organization to force managers to “walk the talk” (e.g., Kotter, 1995), this might result in avoiding the chance to explore alternative schemas:

“If they are forced to walk the talk, this may heighten accountability, but it also is likely to heighten caution and inertia and reduce the risk taking and innovation. This outcome occurs
not just because people are scared. It occurs because people who are forced to walk the talk prematurely often forgo exploration and walk on behalf of words that they barely understand. Because things that are poorly understood are things that tend to be seen as uncontrollable, they seem like threats rather than opportunities. Innovation shuts down. … What people forgo is the chance for walking to uncover something for which the current words are inadequate and for which new words are needed.” (Weick, 1995, p. 183).

Another characteristic of large shocks that might contribute to the likelihood of this failure mode is that responses to them take time to unfold. There might be a period of time during which organizational members are acting in a novel manner but have not yet come to closure about why they are doing so. For example, Isabella (1990) suggests that managers’ interpretations of key events evolve through a series of stages. They first “assemble rumors and other tidbits of information into an in-progress frame of reference,” then draw “on conventional explanations and comparisons to past events,” and later “compare conditions before and after an event” and “review the consequences of the event” (Isabella, 1990, p14-16). After the introduction of a new alternative schema, time is needed for evaluation and comparison before the new schema becomes established (Labianca, Gray, & Brass, 2000). However, during this evaluation period, selective attention to information confirming existing beliefs might eventually lead the sensemaker to move the in-progress frame of reference towards the original cognitive schemas. The organization that introduces flavor-of-the-month change programs is prone to this effect, as organizational members adopt a wait-and-see approach, compliantly biding time while waiting for the program to die an early death. Moreover, a more radical new idea (a bigger the shock) might lead members to more readily seek information to confirm their belief that it will go away, such as information that the management does not really believe their own rhetoric. Thus, the novel action will recede and the old belief system will be maintained.

**IMPLICATIONS**

The purpose of this paper is to present a framework of how organizational activity in the aftermath of a shock might unfold in a manner that does not occasion cognitive restructuring and organizational change. Shocks, which may arise from both external and
internal sources, may be either too small or too large on a composite dimension representing proximity to the organization’s current cognitive schema. Four means by which organizations might dispose of these shocks are described. Organizations might not notice these shocks, might not take action, might not take novel action, or might not undergo cognitive restructuring. The paper uses this framework to discuss how small shocks and large shocks might occasion each of the four modes. The framework is presented as an initial organization of ideas, and it has implications for theory and for the practice of management.

Implications for Theory and Research

The discussion has implications for organizational theory and research regarding the role of shocks in the processes of sensemaking and organizational change and regarding the role of leaders. Several limitations of the foregoing treatment of shocks point to interesting questions for theory and research. First, the preceding discussion considered shocks essentially as one-time, isolated events. However, organizing is an ongoing activity (Weick, 1979), and shocks themselves may often have an ongoing nature. This gives rise to a dynamic process in which the cumulative nature of shocks may have important implications for the organizations that experience them (Rudolph & Repenning, 2002). Second, the representation of shocks along a one-dimensional continuum may be overly parsimonious. While this one-dimensional description is useful here as a simplification, it might be possible to identify a small set of dimensions that maintain the benefits of simplicity yet provide a richer framework for analysis and understanding. For example, a representation that included some temporal dimension and some other physical dimension might be useful to more clearly identify the boundaries between too small, moderate, and too large. Third, the foregoing discussion has ignored the influence of context. A similar shock in different contexts might occasion different responses. What are some of the contextual factors that might influence the likelihood of experiencing the various failure modes in the aftermath of a shock? How do these contextual factors effect the thresholds for too little or too much?
The discussion also points to some implications for studying the role of leaders during organizational change. Managers play a role in shaping shared understanding and conceptual schemes (Daft et al., 1984). The actions of management may play a symbolic role, and indeed one of the critical roles for managers is to construct belief systems (Pfeffer, 1981). The executive is exposed to different flows of information and often employs different perceptual filters than others in the organization (Finkelstein et al., 1996; Starbuck et al., 1988). Thus, managers are likely to influence their organization in both the selection and the interpretation of cues. In other words, managers influence the flow of shocks that organizational members might experience. Managers might create, translate, shape, or govern the timing of the flow of shocks throughout a firm. The discussion suggests that studying how managers influence these flows of shocks and the relationships between these flows of shocks and the various failure modes in the framework would be a fruitful stream of research. For example, consider managers’ use of stories, pictures, and symbols. “Collections of illustrations or stories, held together by a theory of action, provide a frame within which cues are noticed and interpreted” (Weick, 1995, p 120-121). Symbols are not just expressive media, associated with the symbolic role of management but are also one of the main means by which management accomplishes substantive action (Gioia, Thomas, Clark, & Chittipeddi, 1994). So, if stories and symbols are stimuli that either are themselves shocks or guide the interpretation of shocks, how do characteristics of these stories or symbols map into the framework presented here? How do managers employ stories and symbols to avoid the failure modes represented in the framework?

One value of the framework presented here, then, is an organizing concept for the study of the role of leaders as they offer cues and interpretations in the ongoing flow of organizing. This line of study may find some common ground between a top-down and a bottom-up view of organizational change. Organizational change has been characterized as a process of improvisation (Orlikowski, 1996), and the comparison with a performance of jazz music is often used (Weick, 1998). The interruptions from shocks might occasion improvisation (Weick, 1998). The leader has a role, not as the planner and director of change but as one who provides or guides the interpretation of shocks while allowing for improvisation and emergent change. The leader’s role in shaping the shocks to the
organization becomes one of forming belief systems for organization, generating the boundaries, and initiating improvisation.

Implications for Practice

The framework presented here has two implications for managers. Managers in some situations may wish to orchestrate shocks that are between the two extremes of too small and too large. The identification in this framework of failure modes associated with shocks that are too large should sensitize managers to the possibility that more change may result from a lesser shock. Second, managers should not expect to be gifted enough to orchestrate exactly the right level of shock on an ongoing basis. Rather, the informed manager will benefit from attending to cues that indicate whether the organization is responding to the shocks. Such a manager would monitor signals from the organization’s response to the shocks and adjust subsequent activity accordingly. When the organization seems to be responding with novel action and sensemaking activities, maintaining or perhaps increasing the shocks may be appropriate. Note that increasing the shock level here does not necessarily mean that the manager should overdo it. When the organization is not responding in the desired manner, the manager can use this framework to diagnose how the shocks need to be adjusted. When the manager observes responses that indicate a shock is too small, such as apathy, inaction, continued focus on excuses and barriers to action, reliance on old routines, or evidence of continued adherence to old ways of thinking, the manager should consider generating shocks that are greater in magnitude. Conversely, symptoms such as blatant lack of engagement, paralysis or outright fear of the future, excessive search for solutions without action or other strategies for marking time, or overt compliance accompanied by public attributions to policy as rationale indicate that the shocks are too large. The manager observing these symptoms should consider scaling back the magnitude of shocks. The key implication for many practicing managers will be to construct mechanisms by which they will have access to the appropriate cues to gauge these organizational responses. In other words, they must embed themselves in the appropriate feedback loops.
REFERENCES


## Table 1

Organizational Responses to Shocks that Do Not Occasion Cognitive Restructuring

<table>
<thead>
<tr>
<th>SHOCKS THAT ARE:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FAILURE MODE</strong></td>
<td><strong>Too Small</strong></td>
</tr>
<tr>
<td>No Attention</td>
<td>Don’t notice</td>
</tr>
<tr>
<td></td>
<td><em>Shock:</em> Below the perception threshold</td>
</tr>
<tr>
<td></td>
<td><em>Response:</em> Filtered as noise</td>
</tr>
<tr>
<td>No Action</td>
<td>Don’t bother</td>
</tr>
<tr>
<td></td>
<td><em>Shock:</em> Below the action threshold</td>
</tr>
<tr>
<td></td>
<td><em>Response:</em> Ignored as aberrations</td>
</tr>
<tr>
<td>No Novelty</td>
<td>Don’t adjust</td>
</tr>
<tr>
<td></td>
<td><em>Shock:</em> Similar to prior experience</td>
</tr>
<tr>
<td></td>
<td><em>Response:</em> Addressed with routine responses</td>
</tr>
<tr>
<td></td>
<td>Take novel action</td>
</tr>
<tr>
<td>No Cognitive Restructuring</td>
<td>Don’t sweat it</td>
</tr>
<tr>
<td>---------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td><strong>Shock:</strong> Below the implausibility threshold</td>
<td><strong>Response:</strong> Explained with a current belief</td>
</tr>
<tr>
<td><strong>Response:</strong> Made sensible as compliance</td>
<td><strong>Response:</strong> Find new meaning for novel action</td>
</tr>
</tbody>
</table>