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Improvisation as a Mindset for Organizational Analysis

The emphasis in organizational theory on order and control often handicaps theorists when they want to understand the processes of creativity and innovation. Symptoms of the handicap are discussions of innovation that include the undifferentiated use of concepts like flexibility, risk, and novelty; forced either-or distinctions between exploration and exploitation; focus on activities such as planning, visioning, and strategizing as sites where improvements are converted into intentions that await implementation; and reliance on routine, reliability, repetition, automatic processing, and memory as the glue that holds organization in place. Since the term "organization" itself denotes orderly arrangements for cooperation, it is not surprising that mechanisms for rearranging these orders in the interest of adaptation, have not been developed as fully. (See Eisenberg (1990) for an important exception.) That liability can be corrected if we learn how to talk about the process of improvisation.

Thus, the purpose of this essay is to improve the way we talk about organizational improvisation, using the vehicle of jazz improvisation as the source of orienting ideas. I start with two brief descriptions of the complexity involved when musicians compose in the moment. Then I review several definitions intended to capture holistically what is happening when people improvise. Next, I take a closer look at selected details in improvisation, namely, degrees of improvisation, forms for improvisation, and cognition in improvisation. These understandings are then generalized from jazz to other settings such as conversation, therapy, and relationships of command. I conclude with implications for theory and practice.

Descriptions of Jazz Improvisation

Here are two accounts of what happens when order and control are breached extemporaneously in jazz performances, and a new order created.

> The sense of exhilaration that characterizes the artist's experiences under such circumstances is heightened for jazz musicians as storytellers by the activity's physical, intellectual, and emotional exertion and by the intensity of struggling with creative processes under the pressure of a steady beat. From the outset of each performance, improvisers enter an artificial world of time in which reactions to the unfolding events of their tales must be immediate. Furthermore, the consequences of their actions are irreversible. Amid the dynamic display of imagined fleeting images and impulses – entrancing sounds and vibrant feelings, dancing shapes and kinetic gestures, theoretical symbols and perceptive commentaries – improvisers extend the logic of previous phrases, as ever-emerging figures on the periphery of their vision encroach upon and supplant those in performance. Soloists reflect on past events with breathtaking speed, while constantly pushing forward to explore the implications of new outgrowths of ideas that demand their attention. Ultimately, to journey over musical avenues of one's own design, thinking in motion and creating art on the edge of certainty and surprise, is to be "very alive, absolutely caught up in the moment." (Berliner 1994, p. 220)

> While they are performing their ideas, artists must learn to juggle short- and intermediate-range goals simultaneously. To lead an improvised melodic line back to its initial pitch requires the ability to hold a layered image of the pitch in mind and hand while, at the same time, selecting and performing other pitches. The requirements of this combined mental and physical feat become all the more taxing if, after improvising an extended phrase, soloists decide to manipulate more complex material, developing, perhaps, its middle segment as a theme. In all such cases, they must not only rely on their memory of its contour, but their muscular memory must be flexible enough to locate the segment's precise finger pattern instantly within their motor model of the phrase. (Berliner 1994, p 200)

Attempts to capture definitionally what is common among these examples have taken a variety of forms.

The word improvisation itself is rooted in the word "proviso" which means to make a stipulation beforehand, to provide for something in advance, or to do something that is premeditated. By adding the prefix "im" to the word proviso, as when the prefix "im" is added to the word mobile to create immobile, improvise means the *opposite* of proviso. Thus improvisation deals with the unforeseen, it works without a prior stipulation, it works with the unexpected. As Tyler and Tyler (1990) put it, improvisation is about the un-for-seen and unprovided-for which means it "is the negation of foresight, of planned-for, of doing provided for by knowing, and of the control of the past over the present and future" (p. x).

Some descriptions of improvisation, often those associated with jazz, describe this lack of prior stipulation and lack of planning as composing extemporaneously, producing something on the spur of the moment. Thus, we have Schuller's (1968, p. 378) influential definition that jazz involves "playing extemporaneously, i.e., without the benefit of written music ... (C)omposing on the spur of the moment." Schön describes this extemporaneous composing in more detail as "on-the-spot surfacing, criticizing, restructuring, and testing of intuitive understandings of experienced phenomena" while the ongoing action can still make a difference (1987, pp. 26–27).

I have found it hard to improve on the following definition, which is the one that

guides this chapter: "Improvisation involves reworking precomposed material and designs in relation to unanticipated ideas conceived, shaped, and transformed under the special conditions of performance, thereby adding unique features to every creation" (Berliner 1994, p. 241).

It is also possible to highlight definitionally, subthemes in improvisation. Thus, one can focus on order and describe improvisation as "flexible treatment of preplanned material" (Berliner 1994, p. 400). Or one can focus on the extemporaneous quality of the activity and describe improvisation as "intuition guiding action in a spontaneous way" (Crossan and Sorrenti 1996, p. 1) where intuition is viewed as rapid processing of experienced information (p. 14). Attempts to situate improvisation in organization lead to definitions such as the Miner et al. (1996) suggestion that improvisation consists of deliberately chosen activities that are spontaneous, novel, and involve the creation of something while it is being performed (pp. 3–4).

While it is tempting to adopt these compressed themes in the interest of economy, we may be better served as theorists if we retain the larger and more complex set of options and see which subsets are most useful to explain which outcroppings. For example, spontaneity and intuition are important dimensions of improvisation. Yet, in a rare outspoken passage, Berliner argues as follows.

> [T]he popular definitions of improvisation that emphasize only its spontaneous, intuitive nature – characterizing it as the 'making of something out of nothing' – are astonishingly incomplete. This simplistic understanding of improvisation belies the discipline and experience on which improvisers depend, and it obscures the actual practices and processes that engage them. Improvisation depends, in fact, on thinkers having absorbed a broad base of musical knowledge, including myriad conventions that contribute to formulating ideas logically, cogently, and expressively. It is not surprising, therefore, that improvisers use metaphors of language in discussing their art form. The same complex mix of elements and processes coexists for improvisers as for skilled language practitioners; the learning, the absorption, and utilization of linguistic conventions conspire in the mind of the writer or utilization of linguistic conventions conspire in the mind of the writer or speaker – or, in the case of jazz improvisation, the player – to create a living work. (Berliner 1994, p. 492)

What Berliner makes clear is that the compression of experience into the single word "intuition" desperately needs to be unpacked because it is the very nature of this process that makes improvisation possible and separates good from bad improvisation.

Similarly, Berliner is worried lest, in our fascination with the label "spontaneous," we overlook the major investment in practice, listening, and study that precedes a stunning performance. A jazz musician is more accurately described as a highly disciplined "practicer" (Berliner 1994, p. 494) than as a practitioner.

Reminders that we should take little for granted in initial studies of improvisation seem best conveyed by more complex definitions that spell out what might be taken for granted. In the following section, I will suggest three properties of improvisation that may be especially sensitive to changes in other organizational variables. The implied logic is that changes in these variables affect the adequacy of improvisation which in turn affects adaptation, learning, and renewal.

Degrees of Improvisation

To understand improvisation more fully, we first need to see that it lies on a continuum that ranges from "interpretation," through "embellishment" and "variation" ending in "improvisation" (Lee Konitz cited in Berliner 1994, pp. 66–71). The progression implied is one of increased demands on imagination and concentration. "Interpretation" occurs when people take minor liberties with a melody as when they choose novel accents or dynamics while performing it basically as written. "Embellishment" involves greater use of imagination, this time with whole phrases in the original being anticipated or delayed beyond their usual placements. The melody is rephrased but recognizable. "Variation" occurs when clusters of notes not in the original melody are inserted, but their relationship to that original melody is made clear. "Improvisation" on a melody means "transforming the melody into patterns bearing little or no resemblance to the original model or using models altogether alternative to the melody as the basis for inventing new phrases" (Berliner 1994, p. 70). When musicians improvise, they "radically alter portions of the melody or replace its segments with new creations bearing little, if any, relationship to the melody's shape" (Berliner 1994, p. 77). To improvise, therefore, is to engage in more than paraphrase or ornamentation or modification.

With these gradations in mind it is instructive to re-examine existing examples of improvisation to see whether they consist of radical alterations, and new creations. Miner et al. (1996, pp. 9–4) describe several instances of organizational improvisation and the verbs they use suggest that their examples fit all four points on the continuum. Thus, they describe improvisations during new product development that consists of a "shift" in a light assembly (interpretation); a "switch" in a product definition or "adding" a light beam source (embellishment); "altering" the content of a prior routine or "revising" a test schedule (variation); and "creating" an internal focus group or "discovering" a way to do a 22-second information search in 2 seconds (improvisation). If my attempt to assign the Miner et al. (1996) verbs to Konitz's four categories is plausible, then it suggests several things. First, activities that alter, revise, create, and discover are purer instances of improvisation than are activities that shift, switch, or add. Second, activities toward the "interpretation" end of the continuum are more dependent on the models they start with than are activities toward the improvisation end. As dependency on initial models increases, adaptation to more radical environmental change should decrease. Third, as modifications become more like improvisations and less like interpretations, their content is more heavily influenced by past experience, dispositions, and local conditions. When people increasingly forego guidance from a common melody, they resort to more idiosyncratic guidance. It is here where differentials in prior experience, practice, and knowledge are most visible and have the most effect. Fourth, the stipulation that people deliberately act extempore should be easier to execute if they stick closer to a guideline than if they depart radically from it. Thus, interpretation and embellishment should be initiated more quickly under time pressure than is true for variation and improvisation. Deliberate injunctions to be radically different may falter if they fail to specify precisely what the original model is, in what sense it is to remain a

constraint, and which of its properties are constants and which are variables. These questions don't arise in the three approximations to improvisation represented by interpretation, embellishment, and variation. The point is, deliberate improvisation is much tougher, much more time consuming, and places higher demands on resources, than does deliberate interpretation. If deliberateness is a key requirement for something to qualify as organizational improvisation, and if we construe improvisation in the sense used by Konitz, then full-scale improvisation should be rare in time-pressured settings. But, if it could be accomplished despite these hurdles, then it should be a substantial, sustainable, competitive advantage.

Fifth, and finally, any one activity may contain all four gradations, as sometimes happens in jazz.

> Over a solo's course, players typically deal with the entire spectrum of possibilities embodied by these separable but related applications of improvisation. At one moment, soloists may play radical, precomposed variations on a composition's melody as rehearsed and memorized before the event. The very next moment, they may spontaneously be embellishing the melody's shape, or inventing a new melodic phrase. There is a perpetual cycle between improvised and precomposed components of the artists knowledge as it pertains to the entire body of construction materials. . . . The proportion of precomposition to improvising is likewise subject to continual change throughout a performance. (Berliner 1994, p. 222)

Re-examination of the Miner et al. (1996) examples suggests that some involve the entire spectrum of improvisation and others do not. For example, when design engineers tackled the problem of flawed filters at Fast Track, they improvised a new feature, reworked the assemblies, shifted how lights were to stand, changed the formal technical features, and added a light beam source. The intriguing possibility is that full spectrum improvisation like this has different properties than simple standalone improvisation. Full spectrum improvisation makes fuller use of memory and past experience, can build on the competencies of a more diverse population, is more focused by a melody, and may be more coherent. If this is plausible then it should be more persuasive, diffuse faster, and be more acceptable since a greater variety of people within the firm can understand how it has developed. Furthermore, they are able to recognize some of its pre-existing components. It is also possible that the smooth versus sudden changes celebrated by those who invoke the concept of punctuated equilibrium are simply manifestations of full spectrum (smooth) or solitary (sudden) improvisation.

The point of all this is that we may want to be stingy in our use of the label improvisation and generous in our use of other labels that suggest approximations to improvisation. When we focus on approximations, we focus both on connections to the past and on the original model that is being embellished. The spectrum from interpretation to improvisation mirrors the spectrum from incremental to transformational change. It becomes less common in organizations than we anticipated, but its antecedents become clearer as do its connections with themes of order and control.

Forms of Improvisation

These connected themes of order and improvisation become even clearer when we look more closely at the object to which the process of improvisation is applied. As bassist-composer, Charles Mingus, insisted, "you can't improvise on nothing; you've gotta improvise on something" (Kernfeld 1995, p. 119). This is the same Mingus who once actually reduced a promising young saxophonist to tears before an audience, with his running commentary of "Play something different, man; play something different. This is jazz, man. You played that last night and the night before" (Berliner 1994, p. 271). The ongoing tension to "improvise on something" but to keep the improvisations fresh is the essence of jazz. That tension may be weaker in non-musical organizations where routine embellishment of routines is sufficient and expected and where surprise is unwelcome. But, whether embellishment is major or minor, improvisation involves the embellishment of something.

In jazz, that "something" usually is a melody such as originated in African-American blues and gospel songs, popular songs, ragtime piano and brass-band marches, Latin American dances, or rock and soul music (Kernfeld 1995, p. 40). What is common to these melodies is form imposed by a sequence of harmonic chords and a scheme of rhythm. Other objects available for embellishment that are more common to organizations range from routines and strategic intent (Perry 1991), to a set of core values, a credo, a mission statement, rules of engagement, or basic know-how. Gilbert Ryle (1979) argued that virtually all behavior has an ad hoc adroitness akin to improvisation because it mixes together a partly fresh contingency with general lessons previously learned. Ryle describes this mixture as paying heed. Improvisation enters in the following way.

> (T)o be thinking what he is here and now up against, he must both be trying to adjust himself to just this present once-only situation *and* in doing this to be applying lessons already learned. There must be in his response a union of some Ad Hockery with some know-how. If he is not at once *improvising* and improvising *warily*, he is not engaging his somewhat trained wits in a partly fresh situation. It is the pitting of an acquired competence or skill against unprogrammed opportunity, obstacle or hazard. It is a bit like putting some *new* wine into *old* bottles. (Ryle 1979, p. 129)

Thus, improvisation shares an important property with phenomena encompassed by chaos theory (e.g., McDaniel 1996, Stacey 1992), namely, origins are crucial small forms that can have large consequences [e.g., cracks in shoulder bones determine hunting success among Naskapi Indians (Weick 1979, pp. 262–263.)] Melodies vary in the ease with which they evoke prior experience and trigger generative embellishments. Some melodies set up a greater number of interesting possibilities than do other melodies. The same holds true for organizational "melodies" such as mission statements, which range from the banal to the ingenious and invite well-practiced or novel actions on their behalf.

While improvisation is affected by one's associates, past experiences, and current setting, it is also determined by the kernel that provides the pretext for assembling

these elements in the first place. These pretexts are not neutral. They encourage some lines of development and exclude other ones. And this holds true regardless of the improviser. While it is true that a masterful musician like tenor saxophonist, Sonny Rollins, can find incredible richness in mundane melodies such as "Tennessee Waltz" and "Home on the Range," it is equally true that these melodies themselves unfold with unusual progressions relative to the standard jazz repertory (e.g., "I Got Rhythm"). It is the capability of these progressions to challenge and evoke, as well as the competence of the performer, that contribute to improvisation. It is easy to overlook the substantive contribution of a melody because it is so small and simple. It's important to remember that a melody is also an early and continuing influence.

The important point is that improvisation does not materialize out of thin air. Instead, it materializes around a simple melody that provides the pretext for real-time composing. Some of that composing is built from precomposed phrases that become meaningful retrospectively as embellishments of that melody. And some comes from elaboration of the embellishments themselves. The use of precomposed fragments in the emerging composition is an example of Ryle's (1979) "wary improvisation" anchored in past experience. The further elaboration of these emerging embellishments is an example of Ryle's opportunistic improvisation in which one's wits engage a fresh, once-only situation. Considered as a noun, an improvisation is a transformation of some original model. Considered as a verb, improvisation is composing in real time that begins with embellishments of a simple model, but increasingly feeds on these embellishments themselves to move farther from the original melody and closer to a new composition. Whether treated as a noun or a verb, improvisation is guided activity whose guidance comes from elapsed patterns discovered retrospectively. Retrospect may range back as far as solos heard long before or back only as far as notes played just this moment. Wherever the notes come from, their value is determined by the pattern they make *relative to* a continuing set of constraints formed by melody. The trick in improvisation is, as Paul Desmond put it, to aim for "clarity, emotional communication on a not-too-obvious level, form in a chorus that doesn't hit you over the head but is there if you look for it, humor, and construction that sounds logical in an unexpected way" (Gioia 1988, p. 89).

Cognition in Improvisation

As this more detailed picture of improvisation begins to emerge, there is a recurring implication that retrospect is significant in its production. In jazz improvisation people act in order to think, which imparts a flavor of retrospective sensemaking to improvisation. Ted Gioia puts it this way: unlike an architect who works from plans and looks ahead, a jazz musician cannot "look ahead at what he is going to play, but he can look behind at what he has just played; thus each new musical phrase can be shaped with relation to what has gone before. He creates his form retrospectively" (Gioia 1988, p. 61). The jazz musician, who creates form retrospectively, builds something that is recognizable from whatever is at hand, contributes to an emerging structure being built by the group in which he or she is playing, and creates possibilities for the other players. Gioia's description suggests that intention is loosely coupled

to execution, that creation and interpretation need not be separated in time, and that sensemaking rather than decision making is embodied in improvisation. All three of these byproducts of retrospect create a different understanding of organized action than the one we are more accustomed to where we commonly look for the implementation of intentions, the interpretation of prior creations, and for decisions that presume prior sensemaking.

When musicians describe their craft, the importance of retrospect becomes clear, as these excerpts make clear.

> After you initiate the solo, one phrase determines what the next is going to be. From the first note that you hear, you are responding to what you've just played: you just said this on your instrument, and now that's a constant. What follows from that? And then the next phrase is a constant. What follows from that? And so on and so forth. And finally, let's wrap it up so that everybody understands that that's what you're doing. It's like language: you're talking, you're speaking, you're responding to yourself. When I play, it's like having a conversation with myself. (Max Roach cited in Berliner 1994, p. 192)

> If you're not affected and influenced by your own notes when you improvise, then you're missing the whole essential point. (Lee Konitz cited in Berliner 1994, p. 193)

> When I start off, I don't know what the punch line is going to be. (Buster Williams cited in Berliner 1994, p. 218)

The importance of retrospect for improvisation imposes new demands that suggest why organizational improvisation may be rare. To add to a store of ironies that are beginning to accumulate, not only is improvisation grounded in forms, but it is also grounded in memory. Forms and memory and practice are all key determinants of success in improvisation that are easy to miss if analysts become preoccupied with spontaneous composition. Implied in each musician's account is the relationship that "the larger and more complex the musical ideas artists initially conceive, the greater the power of musical memory and mental agility required to transform it" (Berliner 1994, p. 194).

To improve improvisation is to improve memory, whether it be organizational (Walsh and Ungson 1991), small group (Wegner 1987), or individual (Neisser and Winograd 1988). To improve memory is to gain retrospective access to a greater range of resources. Also implied here is the importance of listening *to oneself* as well as to other people. Prescriptions in organizational studies tout the importance of listening to others (e.g., the big news at GE is that Jack Welch discovered ears) but miss the fact that good improvisation also requires listening to one's own comments and building on them.

The reader is referred back to the description of composing in the moment on p. 285 that starts "while they are performing," to see again how important memory is to improvisation. This importance is reflected in formal jazz study.

> In one class, a teacher arbitrarily stopped the solos of students and requested that they perform their last phrase again. When they could not manage this, he chastised them

> for being "like people who don't listen to themselves while they speak." Aspiring improvisers must cultivate impressive musical recall in both aural and physical terms if they are to incorporate within their ongoing conversation new ideas conceived in performance. (Berliner 1994, p. 200)

Viewed through the lens of retrospect, jazz looks like this.

> The artist can start his work with almost random maneuver – a brush stroke on a canvas, an opening line, a musical motif – and then adapt his later moves to this initial gambit. A jazz improviser, for example, might begin his solo with a descending five-note phrase and then see, as he proceeds, that he can use this same five-note phrase in other contexts in the course of his improvisation.
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> This is, in fact, what happens in Charlie Parker's much analyzed improvisation on Gershwin's "Embraceable You." Parker begins with a five-note phrase (melodically similar to "you must remember this" phrase in the song "As Time Goes By") which he employs in a variety of ingenious contexts throughout the course of his improvisation. Parker obviously created his solo on the spot (only a few minutes later he recorded a second take with a completely different solo, almost as brilliant as the first), yet this should not lead us to make the foolish claim that his improvisation is formless. (Gioia 1988, p. 60)

Viewed through the lens of retrospect, larger issues look like this. If events are improvised and intention is loosely coupled to execution, the musician has little choice but to wade in and see what happens. What will actually happen won't be known until it is too late to do anything directly about it. All the person can do is justify and make sensible, after the fact, whatever is visible in hindsight. Since that residue is irrevocable, and since all of this sensemaking activity occurs in public, and since the person has a continuing choice as to what to do with that residual, this entire scenario seems to contain a microcosm of the committing forces that affect creative coping with the human condition (Weick 1989). Small wonder that Norman Mailer, in his famous essay "The White Negro," described jazz as "American existentialism."

This simple exposition of degrees of improvisation, forms for improvisation, and cognition in improvisation does not begin to exhaust the dimensions of jazz improvisation that are relevant for organizational theory. Other potential themes of interest might include the ways in which "mistakes" provide the platform for musical "saves" that create innovations (e.g., Berliner 1994, p. 191, 209, 210–216; Weick, 1995); skills of bricolage that enable people to make do with whatever resources are at hand (Harper 1987, Levi-Strauss 1966, Weick 1993); and social conventions that complement structures imposed by tunes (Bastien and Hostager, 1992).

Non-jazz Settings for Improvisation

What I have tried to show so far is that descriptions of composing on the spur of the moment, and attempts to portray this process definitionally and dimensionally, comprise a language that allows analysts to maintain the images of order and control

that are central to organizational theory and simultaneously introduce images of innovation and autonomy. The ease with which improvisation mixes together these disparate images of control and innovation (Nemeth and Staw 1989) becomes even clearer if we look at other settings where improvisation seems to occur.

A swift way to see the potential richness of improvisation as a metaphor is simply to look in the index of Berliner's (1994) authoritative volume under the heading, "Metaphors for aspects of improvisation" (p. 869). In his analyses Berliner finds that jazz improvisation is likened to cuisine, dance, foundation building, a game of chess, a journey, landing an airplane, language, love, marriage, preparing for acting, painting, singing, sports, and acting like a tape recorder (some drummers "are like tape recorders. You play something and then they imitate it"; p. 427). By a process of backward diagnosis, we therefore expect to find improvisation where people cook, move, construct, compete, travel, etc.

Perhaps the setting that most resembles jazz improvisation, at least judging from its frequency of mention, is language acquisition and use (e.g., Ramos 1978, Suhor 1986). Jazz musician Stan Getz describes improvisation as a way of conversing.

> It's like a language. You learn the alphabet, which are the scales. You learn sentences, which are the chords. And then you talk extemporaneously with the horn. It's a wonderful thing to speak extemporaneously, which is something I've never gotten the hang of. But musically I love to talk just off the top of my head. And that's what jazz music is all about. (Maggin 1996, p. 21)

An example of the easy movement that is possible between the two domains is Berliner's equating of improvisation with rethinking.

> The activity [of jazz improvisation] is much like creative thinking in language, in which the routine process is largely devoted to rethinking. By ruminating over formerly held ideas, isolating particular aspects, examining their relationships to the features of other ideas, and, perhaps, struggling to extend ideas in modest steps and refine them, thinkers typically have the sense of delving more deeply into the possibilities of their ideas. There are, of course, also the rarer moments when they experience discoveries as unexpected flashes of insight and revelation.
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> Similarly, a soloist's most salient experiences in the heat of performance involve poetic leaps of imagination to phrases that are unrelated, or only minimally related, to the storehouse, as when the identities of formerly mastered patterns melt away entirely within new recombinant shapes. (Berliner 1994, pp. 216–217)

Discussions of improvisation in groups are built on images of call and response, give and take (Wilson 1992), transitions, exchange, complementing, negotiating a shared sense of the beat (see Barrett's (1998) discussion of groove), offering harmonic possibilities to someone else, preserving continuity of mood, and cross-fertilization. In jazz, as in conversation, self-absorption is a problem. Wynton Marsalis observed that in playing, as in conversation, the worst people to talk to and play with are those who, "when you're talking, they're thinking about what they are going to tell you next, instead of listening to what you're saying" (Berliner 1994, p. 401). What is also

striking about jazz conversation, as with conversations in other settings, is the many levels at which they function simultaneously. Thus, jazz improvisation involves conversation between an emerging pattern and such things as formal features of the underlying composition, previous interpretations, the player's own logic, responsiveness of the instrument, other musicians, and the audience.

Managerial activities, which are dominated by language and conversation, often become synonymous with improvisation. Thus, we find Mangham and Pye (1991) proposing close parallels between improvisation and organizing. Here is what they observe in top management teams.

> Our respondents assert that they learn what they are about in talking to and trusting their colleagues, that they often recognize and develop their own views in the very process of seeking consensus, that talking to others heightens their awareness, sharpens their focus. But they also assert that they are in command, that they do plan and shape the future with clear intent, that they know where it is they are heading. (p. 77)

Like jazz musicians, managers simultaneously discover targets and aim at them, create rules and follow rules, and engage in directed activity often by being clearer about which directions are not right than about specified final results. Their activity is controlled but not predetermined (Mangham and Pye 1991, p. 79).

Here is how Mangham and Pye make sense of what they observe.

> What we are proposing is that in their daily interactions our managers, no less than managers elsewhere, sustain appreciative systems or improvise readinesses which reflect their values and beliefs which, in turn, are likely to be influenced by and to influence received ideas about the doing of organizing. We hold that much of the doing of organizing is either a matter of running through a script or an instance of improvisation, and that both of these activities relate to readings which have reference to appreciative systems which are, in turn, reflections of deeply held beliefs and values. (Mangham and Pye 1991, p. 36)

What Mangham and Pye (1991) make clear is that managing shares with jazz improvisation such features as simultaneous reflection and action (p. 79), simultaneous rule creation and rule following (p. 78), patterns of mutually expected responses akin to musicians moving through a melody together (p. 45), action informed by melodies in the form of codes (p. 40), continuous mixing of the expected with the novel (p. 24), and the feature of a heavy reliance on intuitive grasp and imagination (p. 18). These managers are not just Herbert Simon's (1989) chess grandmasters who solve problems by recognizing patterns. And neither are jazz musicians. They are that, but more. The more is that they are also able to use their experience of "having been there" to recognize "that one is now somewhere else, and that that 'somewhere else' is novel and may be valuable, notwithstanding the 'rules' which declare that one cannot get here from there" (Mangham and Pye 1991, p. 83).

Daft and Weick (1984) suggest that when managers deem an environment to be unanalyzable, they seek information by means of strategies that are "more personal, less linear, more ad hoc and improvisational" (p. 287). Sutcliffe and Sitkin (1996) have argued that total quality interventions basically involve what they call a "redis-

tribution of improvisation rights." [See also Wruck and Jensen (1994, p. 264) on allocation of decision rights to initiation, ratification, implementation, and monitoring.] Successful quality management occurs when people are newly authorized to paraphrase, embellish, and reassemble their prevailing routines, extemporaneously. Furthermore, they are encouraged to think while doing rather than be guided solely by plans. Thus, when a firm "disseminates improvisation rights" it tends to encourage the "flexible treatment of preplanned material," which means that quality improvement and jazz improvisation are closely aligned.

Improvisation is common in public-sector organizations and occurs often on the front-line, as Weiss (1980, p. 401) suggests.

> Many moves are improvisations. Faced with an event that calls for response, officials use their experience, judgment, and intuition to fashion the response for the issue at hand. That response becomes a precedent, and when similar questions come up, the response is uncritically repeated. Consider the federal agency that receives a call from a local program asking how to deal with requests for enrollment in excess of the available number of slots. A staff member responds with off-the-cuff advice. Within the next few weeks, programs in three more cities call with similar questions, and staff repeat the advice. Soon what began as improvisation has hardened into policy. (p. 401)

Improvisation also occurs in settings as disparate as psychotherapy, medical diagnosis, and combat.

Improvisation is the heart of psychotherapy. Thus, it is not surprising to find that one of the most prominent and original jazz pianists, Denny Zeitlin, is also a practicing psychiatrist who sees patients approximately 30 hours per week (Herrington 1989). Keeney (1990, p. 1) describes the parallels between therapy and improvisation.

> Given the unpredictable nature of a client's communication, the therapist's participation in the theatrics of a session becomes an invitation to improvise. In other words, since the therapist never knows exactly what the client will say at any given moment, he or she cannot rely exclusively upon previously designed lines, pattern, or scripts. Although some orientations to therapy attempt to shape both the client and therapist into a predetermined form of conversation and story, every particular utterance in a session offers a unique opportunity for improvisation, invention, innovation, or more simply, change. (Keeney 1990, p. 1)

If therapy is viewed as improvisation, then therapies are viewed as songs. The song can be played exactly as scored or with improvisation, but one would not expect an improvisational therapist to play only one song over and over anymore than one would expect a jazz musician to play only one song throughout a lifetime.

Improvisation sometimes lies at the heart of medical diagnosis as well, but only when practitioners jettison narrow versions of decision rationality in favor of improvisation. Starbuck (1993) suggests that good doctors do not base their treatments on diagnosis. They leave diagnosis out of the chain between symptoms and treatment because it discards too much information and injects random errors. There are many more combinations of symptoms than there are diagnoses, just as there are many more treatments than diagnoses.

> (T)he links between symptoms and treatments are not the most important keys to finding effective treatments. Good doctors pay careful attention to how patients respond to treatments. If a patient gets better, current treatments are heading in the right direction. But, current treatments often do not work, or they produce side-effects that require correction. The model of symptoms-diagnoses-treatments ignores the feedback loop from treatments to symptoms, whereas this feedback loop is the most important factor. (Starbuck 1993, p. 87)

The logic can be applied to academic research.

> Academic research is trying to follow a model like that taught in medical schools. Scientists are translating data into theories, and promising to develop prescriptions from the theories. Data are like symptoms, theories like diagnoses, and prescriptions like treatments. Are not organizations as dynamic as human bodies and similarly complex? Theories do not capture all the information in data, and they do not determine prescriptions uniquely. Perhaps scientists could establish stronger links between data and prescriptions if they did not introduce theories between them. Indeed, should not data be results of prescriptions? Should not theories come from observing relations between prescriptions and subsequent data? (Starbuck 1993)

Starbuck reminds us that, when faced with incomprehensible events, there is often no substitute for acting your way into an eventual understanding of them. How can I know what I am treating until I see how it responds? To organize for diagnosis is to design a setting that generates rich records of symptoms, a plausible initial treatment, alertness to effects of treatments, and the capability to improvise from there on. Theories, diagnoses, strategies, and plans serve mostly as plausible interim stories that mix ignorance and knowledge in different patterns.

Isenberg (1985, pp. 178–179), following the work of Bursztjahn et al. (1981), has also discussed what he calls treating a patient empirically. Like Starbuck, he notes that a diagnosis, if it is inferred at all, occurs retrospectively after the patient is cured. Isenberg then generalizes this medical scenario to battlefield situations. This application fleshes out a much earlier statement by Janowitz (1959, p. 481) that a combat soldier is not a rule-following bureaucrat who is "detached, routinized, self-contained; rather his role is one of constant improvisation. . . . The impact of battle destroys men, equipment, and organization, which need constantly and continually to be brought back into some form of unity through on-the-spot improvisation." For Isenberg, the parallel between empirical medicine and empirical fighting is that in both cases

> tactical maneuvers (treatment) will be undertaken with the primary purpose of learning more about (diagnosing) the enemy's position, weaponry, and strength, as well as one's own strength, mobility, and understanding of the battlefield situation. . . . Sometimes the officer will need to implement his or her solution with little or no problem definition and problem solving. Only after taking action and seeing the results will the officer be able to better define the problem that he or she may have already solved! (pp. 178–179)

The steady progression from jazz to other sites where improvisation is plausible culminates in the idea that living itself is an exercise in improvisation. People com-

pose their lives, as Mary Catherine Bateson (1989) suggests in this composite description.

> I have been interested in the arts of improvisation, which involve recombining partly familiar materials in new ways, often in ways especially sensitive to context, interaction, and response. . . . (The idea of life as an improvisatory art) started from a disgruntled reflection on my own life as a sort of desperate improvisation in which I was constantly trying to make something coherent from conflicting elements to fit rapidly changing settings . . . Improvisation can be either a last resort or an established way of evoking creativity. Sometimes a pattern chosen by default can become a path of preference. . . . Much biography of exceptional people is built around the image of a quest, a journey through a timeless landscape toward an end that is specific, even though it is not fully known. . . . (These assumptions are increasingly inappropriate today because) fluidity and discontinuity are central to the reality in which we live. Women have always lived discontinuous and contingent lives, but men today are newly vulnerable, which turns women's traditional adaptations into a resource. . . . The physical rhythms of reproduction and maturation create sharper discontinuities in women's lives than in men's, the shifts of puberty and menopause, of pregnancy, birth, and lactation, the mirroring adaptations to the unfolding lives of children, their departures and returns, the ebb and flow of dependency, the birth of grandchildren, the probability of widowhood. As a result, the ability to shift from one preoccupation to another, to divide one's attention, to improvise in new circumstances, has always been important to women. (pp. 2, 3, 4, 5, 6, 13)

The newfound urgency in organizational studies to understand improvisation and learning is symptomatic of growing societal concerns about how to cope with discontinuity, multiple commitments, interruptions, and transient purposes that dissolve without warning. To understand more about improvisation undoubtedly will help us get a better grasp on innovation in organizations. That's important. But it is not nearly as important as is understanding how people in general "combine familiar and unfamiliar components in response to new situations, following an underlying grammar and an evolving aesthetic" (Bateson 1989, p. 3). To watch jazz improvisation unfold is to have palpable contact with the human condition. Awe, at such moments, is understandable.

Implications for Theory

While several implications for organizational theory have already been mentioned, I want to suggest some of the richness implicit in improvising by brief mention of its relation to postmodern organizational theory and to paradox.

The idea of improvisation is important for organizational theory because it gathers together compactly and vividly a set of explanations suggesting that to understand organization is to understand organizing or, as Whitehead (1929) put it, to understand "being" as constituted by its "becoming." This perspective, found in previous work by people such as Allport (1962), Buckley (1968), Follett (1924), Mangham and Pye (1991), Maruyama (1963), Mintzberg and McHugh (1985), and Weick (1969, 1979) has been newly repackaged as the "unique intellectual preoccupation

of 'postmodern' organizational theorists" (Chia 1996. p. 44). Thus, we find people talking once more about the ontology of becoming, using images already familiar to process theorists and musicians alike, images such as emergence, fragments, micropractices that enact order, reaccomplishment, punctuation, recursion, reification, relations, transcience, flux, and "a sociology of verbs rather than a sociology of nouns" (Chia 1996, p. 49). If theorists take improvisation seriously, they may be able to give form to the idea of "becoming realism" (Chia 1996) and add to what we already know.

They may, for example, be able to do more with the simultaneous presence of seeming opposites in organizations than simply label them as paradoxes. There is currently an abundance of conceptual dichotomies that tempt analysts to choose between things like control and innovation, exploitation and exploration, routine and nonroutine, and automatic and controlled, when the issue in most organizations is one of proportion and simultaneity rather than choice. Improvisation is a mixture of the precomposed and the spontaneous, just as organizational action mixes together some proportion of control with innovation, exploitation with exploration, routine with nonroutine, automatic with controlled. The normally useful concepts of routine (Gersick and Hackman 1990, Cohen and Bacdayan 1994) and innovation (Amabile 1988, Dougherty 1992) have become less powerful as they have been stretched informally to include improvisation. Thus, a routine becomes something both repetitious and novel, and the same is true for innovation. A similar loss of precision [Reed (1991) refers to it as a "rout"] has occurred in the case of decision making where presumptions of classical rationality are increasingly altered to incorporate tendencies toward spontaneous revision. Neither decisions nor rationality can be recognized in the resulting hodgepodge. What is common among all of these instances of lost precision is that they attempt to acknowledge the existence of improvisation, but do so without giving up the prior commitment to stability and order in the form of habit, repetition, automatic thinking, rational constraints, formalization, culture, and standardization. The result, when theorists graft mechanisms for improvisation onto concepts that basically are built to explain order, is a caricature of improvisation that ignores nuances highlighted in previous sections. These caricatures leave out properties of organizational improvisation such as the tension involved in mixing the intended and the emergent and the strong temptation to simplify in favor of one or the other; the possibility that order can be accomplished by means of ongoing ambivalent mixtures of variation and retention that permit adaptation to dynamic situations; the chronic temptation to fall back on well-rehearsed fragments to cope with current problems even though these problems don't exactly match those present at the time of the earlier rehearsal; the use of emergent structures as sources for embellishment which enables quick distancing from previous solutions; the close resemblance between improvising and editing; the sensitivity of improvisation to originating conditions; and the extensive amount of practice necessary to pull off successful improvisation. The remedy would seem to lie in a variety of directions such as positing routines, innovation, and decision making as inputs to improvisation akin to melodies (e.g., people improvised on this routine); treating improvisation as a distinct form of each (e.g., this routine was executed improvisationally); treating each of the three as a distinct way to engage in organi-

zational improvisation (e.g., routinizing of improvisation); and, treating improvisation as a stand-alone process like the other three consisting of a fixed sequence of conceiving, articulating, and remembering.

Implications for Practice

The concept of improvisation also engages several concepts in mainstream organizational practice and likewise suggests ways to strengthen them. For example, if time is a competitive advantage then people gain speed if they do more things spontaneously without lengthy prior planning exercises (Crossan and Sorrenti 1996, p. 4). To do more things spontaneously is to become more skilled at thinking on your feet, a skill that is central in improvisation even though it is not given much attention in accounts of managerial action. Improvisation has implications for staffing. Young musicians who are laden with technique often tend to be poor at improvisation because they lack voices, melodies, and feeling (Berliner 1994, p. 792, ftn. 17; Davis 1986, p. 87), which sounds a lot like the liability that corporations associate with newly minted MBAs. The remedy for students is to mix listening with history, practice, modeling, and learning the fundamentals, which can be tough if they are driven, instrumental, in a hurry, and have little sense of what they need to know. The irony is that it is this very haste which dooms them to be a minor player who sounds like every other technique-laden minor player, none of whom have much to say.

If we treat the preceding description of improvisation as if it contained the shell of a set of prescriptions for adaptive organizing, then here are some possible characteristics of groups with a high capability for improvisation:

1. Willingness to forego planning and rehearsing in favor of acting in real time;
2. Well-developed understanding of internal resources and the materials that are at hand;
3. Proficient without blueprints and diagnosis;
4. Able to identify or agree on minimal structures for embellishing;
5. Open to reassembly of and departures from routines;
6. Rich and meaningful set of themes, fragments, or phrases on which to draw for ongoing lines of action;
7. Predisposed to recognize partial relevance of previous experience to present novelty;
8. High confidence in skill to deal with nonroutine events;
9. Presence of associates similarly committed to and competent at impromptu making do;
10. Skillful at paying attention to performance of others and building on it in order to keep the interaction going and to set up interesting possibilities for one another.
11. Able to maintain the pace and tempo at which others are extemporizing;
12. Focused on coordination here and now and not distracted by memories or anticipation;
13. Preference for and comfort with process rather than structure, which makes

it easier to work with ongoing development, restructuring, and realization of outcomes, and easier to postpone the question, what will it have amounted to?

Limits to Improvisation

If theorists conceptualize organizations as sites where the activity of improvisation occurs, this may offset their tendency to dwell on themes of control, formalization, and routine. It may also help them differentiate the idea of "flexibility," which tends to be used as a catchall for the innovative remainder. Nevertheless, there are good reasons why the idea of improvisation may have limited relevance for organizations. If organizations change incrementally – punctuations of an equilibrium seldom materialize out of thin air without prior anticipations – then those incremental changes are more like interpretation and embellishment than variation or improvisation. Thus, even if organizations wanted to improvise, they would find it hard to do so, and probably unnecessary. Improvisation in one unit can also compound the problems faced by other units to which it is tightly coupled. Furthermore, bursts of improvisation can leave a firm with too many new products and processes to support (Miner et al. 1996, p. 26).

The intention of a jazz musician is to produce something that comes out *differently* than it did before, whereas organizations typically pride themselves on the opposite, namely, reliable performance that produces something that is standardized and comes out the same way it did before. It is hard to imagine the typical manager feeling "guilty" when he or she plays things worked out before. Yet most jazz musicians perform with the intention of "limiting the predictable use of formerly mastered vocabulary" (Berliner 1994, p. 268). Parenthetically, it is interesting to note that the faster the tempo at which a musician plays, the more likely he or she is to fall back on the predictable use of a formerly mastered vocabulary. It is difficult to be affected by one's own newly created notes when musical ideas have to be conceived and executed at 8½ eighth notes per second (tempo of one quarter note = 310). At extremely fast tempos there is no choice but to use preplanned, repetitive material to keep the performance going. This suggests that there are upper limits to improvisation. If this is true then high-velocity organizations (Eisenhardt 1989) – which resemble jazz ensembles in many ways – become especially interesting as sites where the increasing tempo of activity may encourage, not improvisation, but a sudden reversion back to old ideas that have no competitive edge. A key issue in high-velocity organizations is just how much of a constraint velocity really is. Recall that in the case of jazz improvisation, creative processes continually struggle under the unrelenting demands of a steady beat. In jazz improvisation, deadlines are reckoned in seconds and minutes whereas high-velocity organizations deal with deadlines reckoned in hours and days. While it is true that pressure is pressure, it is also true that at some speeds memory plays an increasingly large role in the product produced. This suggests that high-velocity organizations may have more latitude for improvisation than do jazz ensembles, but only up to a point. High-velocity organizations may be vulnerable in ways similar to those described by Starbuck and Milliken (1988) and

Miller (1993). Success encourages simplification, more risk taking, less slack, and accelerated production, all of which shrink the time available for adaptive improvisation and force people back on older ideas and away from the very innovating that made them successful in the first place.

Even if organizations are capable of improvisation, it is not clear they need to do it. One of the realities in jazz performance is that the typical audience is none the wiser if a musician makes a mistake and buries it, plays a memorized solo, solves a tough problem, inserts a clever reference to a predecessor, or is playing with a broken instrument and working around its limits. If composing in real time is difficult and risky, and if the customer is unable to appreciate risk taking anyway, then the only incentives to take those risks lie with one's own standards and with fellow musicians. Those incentives may be sufficient to hold sustained improvisation in place. However, most organizations may not reward originality under the assumption that customers don't either. If we add to these characteristics the fact that the musical consequences in a jazz performance are irreversible whereas managers try never to get into anything without a way out, and the fact that musicians love surprises but managers hate them, then we begin to see that improvisation may be absent from the organizational literature, not because we haven't looked for it, but because it isn't there.

My bet is that improvising is close to the root process in organizing and that organizing itself consists largely of the embellishment of small structures. Improvising may be a tacit, taken-for-granted quality in all organizing that we fail to see because we are distracted by more conspicuous artifacts such as structure, control, authority, planning, charters, and standard operating procedures. The process that animates these artifacts may well consist of ongoing efforts to rework and reenact them in relation to unanticipated ideas and conditions encountered in the moment. In organizing as in jazz, artifacts and fragments cohere because improvised storylines impose modest order among them in ways that accommodate to their peculiarities. Order through improvisation may benefit some organizations under some conditions and be a liability under other conditions. These contingencies need to be spelled out. But so too does the sense in which improvisation may be part of the infrastructure present in all organizing.

Conclusion

A final sense in which jazz improvisation mirrors life is captured in an entry from Norman Mailer's journal dated December 17, 1954 (source of this quotation is unknown).

> Jazz is easy to understand once one has the key, something which is constantly triumphing and failing. Particularly in modern jazz, one notices how Brubeck and Desmond, off entirely on their own with nothing but their nervous system to sustain them, wander through jungles of invention with society continually ambushing them. So the excitement comes not from victory but from the effort merely to keep musically alive. So, Brubeck, for example will to his horror discover that he has wandered into a musical cliché, and it is thrilling to see how he attempts to come out of it, how he takes the

> cliché, plays with it, investigates it, pulls it apart, attempts to put it together into something new and sometimes succeeds, and sometimes fails, and can only go on, having left his record of defeat at that particular moment. That is why modern jazz despite its apparent lyricalness is truly cold, cold like important conversations or Henry James. It is cold and it is nervous and it is under tension, just as in a lunch between an editor and an author, each makes mistakes and successes, and when it is done one hardly knows what has happened and whether it has been for one's good or for one's bad, but an "experience," has taken place. It is also why I find classical music less exciting for that merely evokes the echo of a past "experience" – it is a part of society, one of the noblest parts, perhaps, but still not of the soul. Only the echo of the composer's soul remains. And besides it consists too entirely of triumphs rather than of life.

Life in organizations is filled with potential inventions that get ambushed when people slide into old clichés. Pulling oneself out is tense work. It can be cold work. Occasionally there is triumph. Usually, however, as people at Honda put it, "A 1 per cent success rate is supported by mistakes made 99 per cent of the time" (Nonaka and Takeuchi 1995, p. 232). Jazz improvisation, itself built of "moments of rare beauty intermixed with technical mistakes and aimless passages" (Gioia 1988, p. 66), teaches us that there is life beyond routines, formalization, and success. To see the beauty in failures of reach is to learn an important lesson that jazz improvisation can teach.[1]

Note

1. This chapter expands on themes mentioned in my brief remarks in Vancouver on August 8, 1995 (e.g., "defining characteristics of improvisation," "examples of improvisation in non-musical settings") and it retains all specifics used to ground those themes (e.g.. Ryle and Gioia on adroit ad hoc action. Mingus on melodies, Keeney on psychotherapy, and Mailer on society's proneness to ambush invention). These expansions are a perfect example of "reworking precomposed material in relation to unanticipated ideas" conceived during the writing itself, which is simply another way of saying, it is an exhibit of improvisation.

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Retention

Meanings of enactment, selected for their fit with previous interpretations, are preserved as organizational memory. These meanings, often in the form of cause maps, are the source of culture and strategy in the case of organizations, and of identities and continuities in the case of individuals. Episodes of successful sensemaking culminate in meanings that fit present moments into the context of past moments. Because plausibility rather than accuracy is the prevailing criterion that guides retention, ecological changes that filter through enactment and selection, have numerous features that are overlooked and forgotten. The process of learning occurs when people notice some of what was previously overlooked and overlook some of what was previously noticed (Weick and Westley, 1996). These shifts in apprehension that we call learning occur when enactment and selection are loosely coupled to retention. Retention is crucial for sensemaking because it articulates plausible maps, often in narrative form, that summarize a sense of the situation. What people and organizations retain are the meaningful results of a process where enactment is mixed with ecological change and this mixture is untangled by means of biased hindsight. As I mentioned in the analysis of Bhopal, the enacted environment is as much an outcome of sensemaking stored in retention, as it is an input to enactment and selection. When I learn what I think by seeing what I say, the thoughts I wind up with are a meaningful environment of my own making and thus an outcome. But, since those thoughts also affect what I say and see subsequently, they comprise a meaningful enacted environment that serves as an input to subsequent sensemaking. There is immense slippage in this whole sequence. I say more things than I see, I see more things than I say, I think more things than I see, I forget more things than I remember, and I imagine more things than I see. In these slippages lie the ongoing surprises in everyday life that necessitate ongoing sensemaking.

We get a sense of the summarization associated with retention in the following three chapters that focus on cognitive maps, culture, and strategy as retained narratives.

Chapter 13, "Organizations as Cognitive Maps," co-authored with Michel Bougon, differentiates cause maps that connect events spread across time, from the larger

class of cognitive maps that connect personal experience using all kinds of relationships. When interpretations are cast in terms of relations of influence among events (e.g. as the quality of my performance increases my satisfaction with the occasion increases), the connected events suggest a plausible story that supplies a sense of what is happening. Causality is a tool of sensemaking, not necessarily a deep commitment to positivism. It is an inference that reduces equivocality. And it is a plausible inference in a world where the activity of enactment is experienced as trials that sometimes produce consequences that sometimes produce feelings of efficacy and control. Maps have become a common metaphor for the content of cognition, partly because they lend themselves to methods and graphics associated with cartography. What is missing in many cases is much theory about why maps matter or how they weave together with action. This chapter fills some of that void. A good example is the discussion suggesting that cause maps develop in a manner that parallels the four forms of interpretation systems mentioned in Chapter 10. People who organize interpretation systems in which there is high activity but low analyzability, tend to see causality between pairs of events. As analyzability increases, stories should contain more cause chains. As organizations resort less to exploration and more to exploitation (i.e. shift from active to passive search) the stories that make sense to them should contain more cause loops and more themes of tragedy and being the author of one's fate (e.g. the Icarus paradox) which then give way to themes of an unanalyzable world of chaos and unconnected elements where sense is fleeting. Retention is much more than just a repository. It is a site of summaries that matter.

Chapter 14, "Organizational Culture as a Source of High Reliability," shows that retention is about culture as well as maps. Culture is an enacted environment that results from retrospective interpretation of recurrent patterns in enactment. These recurrent patterns are "how we do things around here." The specific pattern of interest in this chapter is the continuous use of stories to enlarge the pool of experience when actual trial and error is too dangerous. When the next error could be the last trial, people need substitute routes for learning. In this chapter I argue that the more fully an organizational culture values storytelling, the more effective that organization will be. Effectiveness here means reliable performance of high-risk operations under conditions where unexpected threats to continuation can erupt without much warning. This essay is one of the earlier attempts to understand what allows some organizations to perform reliably even though they embody thousands of accidents waiting to happen. Not surprisingly the answer is found partly in capabilities for making sense of the unexpected. That answer complements Perrow's (1984) earlier proposal that organizational structure influences reliability and susceptibility to normal accidents. The theme of requisite variety is the glue that holds the culture chapter together. To make sense of complex ecological change people can try either to simplify the changes or to complicate themselves. Given the degree of complexity people face, it makes sense to do everything possible to keep up. Thus, to make sense of complex change people need to intervene and enact in the interest of simplification; they need to tell stories, value imagination, and use rich communication media in the interest of complication; and they need to encourage collective mindfulness through teams and networks in the interest of both simplification and complication. This complex adaptation is stored in retention in the form of narratives with a moral.

The moral is that lapses in mindfulness can be fatal. That moral is less obvious than it sounds if you remember that reliability is a dynamic non-event. To remain mindful of the non-existent is a major exercise in sensemaking.

Chapter 15, "Substitutes for Strategy," argues that strategy is a retained outcome that is formed and affirmed through action. It is hard to ignore strategy in any discussion of sensemaking when strategy is defined as "good luck rationalized in hindsight." Or when realized strategy is treated as an emergent outcome of action that has undergone minimal guidance from a plan. Two favorite stories of sensemaking bracket this chapter. Soldiers lost in the alps in a snowstorm and hungry Naskapi Indians searching for game both find what they are looking for by means of just enough strategy, just in time, to get them moving and acting mindfully. In both cases an important cultural expectation, the presumption of logic, instills confidence and motivates improvised self-validating action. The retained presumption plus a handful of retained symbols such as a core value, are sufficient to provide a direction. Action that moves in this direction churns up data from which meaning can be constructed. Thus, execution becomes analysis and implementation becomes formulation. If confidence and improvisation are important determinants of just-in-time strategy making, then this suggests that people will benefit from a larger repertoire of interpretations, labels, and capabilities that enables them to sense richly the variations they enact. And this in turn suggests that generalists and those with varied experience are in the better position to impose meanings that include more of the sensed data. It is easy to think of sensemaking as the province of specialists and experts, people who are accustomed to nuance, subtle cues, and deep readings. But in a world tied together by forceful actions and presumptions of logic, meaning may come more quickly and remain more stable for those whose capabilities are more varied, whose logics are more diverse, and whose presumptions are more robust. Fewer things should surprise generalists than surprise specialists. If any old map will do when you're lost, then generalists, with their varied experience, may have more maps lying around than do specialists.

References

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