

# The use of narrative to understand and respond to complexity: A comparative analysis of the Cynefin and Weickian models

Larry Browning & Thierry Boudès

Department of Business, University of Illinois, USA  
Graduate School of Business, ESCP-EAP, FR

**This article compares two prominent managerial models - Snowden and Weick's - that use narrative as a sensemaking response to complexity. After presenting an overview to their approach to narrative and complexity, we then analyze their stylistic differences as a precursor to identifying eight features of the more substantial likeness of their models. In the conclusion we distill the essential features of narrative and complexity that their concepts entail and show that individual behavior, interpersonal communication, participation, and management by exception are their hallmarks.**

## Introduction

This special issue is based on the premises that a good narrative is a complex one and that complexity is best understood with a narrative. Consistent with these premises, we define "narratives" as a type of communication that happens in conversation, is composed of discourse, appears in a sequence, and is interpreted retrospectively (Boje, 2002; Putnam and Fairhurst, 2001; Czarniawska, 1998; Weick, 1979; Barthes, 1977). "Complexity" can be defined as non-linear relations, driven by small forces that result in the emergence of sudden changes that produce unexpected outcomes (Morowitz, 2002; Taylor, 2001). Our question is: How do these two ideas come together? The subject of this article is the work of the two authors, Snowden and Weick (and their research teams), that addresses the communicative implications of complexity and narrative.

## The differences between Snowden and Weick

The two most well-known and comprehensively developed models using narrative analysis for responding to complexity in organizations are that of Weick and his associates, at the University of Michigan (Weick *et al.*, 2005; Weick and Sutcliffe, 2001), and that of Snowden and his work with Kurtz at the Cynefin Centre for Organizational Complexity. Remarkably, these two authors virtually ignore each other's work despite the

major overlap between their premises and practices. The sole written cross-reference between the two is Snowden's criticism of Weick's use of High Reliability Organizations (HROs), that is, organizations such as aircraft carriers and nuclear power plants that require acute mindfulness if they are to avoid situations in which small errors build upon one another to precipitate a catastrophic breakdown. Snowden believes that HROs are too anomalous to be useful as a comparison for mainstream organizational practice (Snowden, 2003).

These two authors also differ in that whereas Weick, a university scholar, developed his theory before focusing on its applications, Snowden, who originally developed his work within IBM, constructed applied methods including tools and practices for analyzing narrative complexity - e.g., "Story Circles" and "Knowledge Disclosure Points" (KDPs) - in concert with his research program.

These authors' ideas also differ in origins. Snowden's Cynefin group anchors its program in literary and science-fiction references (Snowden, 2000a), as seen in its very name, "Cynefin" (pronounced *cyn-ev-in*), a Welsh term that, as noun, roughly means "habitat" and as an adjective roughly means "acquainted" or "familiar." The term more specifically means one's environment, or place of comfort or birth (Snowden, 2003a). The theme of the Cynefin model is that the ability to respond to complexity requires a *sense of place*, which enables one to advance diverse views and to imagine narratives about what happened, what could have happened, and how to act differently in the future.

Weick's theories, on the other hand, reflect his education as a social psychologist and include such topics as threat-rigidity, commitment-decommitment, doubt-self-fulfilling prophecies, and dissonance-assurance. In his recent works (1995, 2001) Weick uses these ideas to develop the concept of "sensemaking."

Weick and Snowden also differ on the grammar of the central theme of both their ideas about sensemaking. Sensemaking, as Weick fuses the term, is a neologism (invented word) meant to convey the idea that the term is so all-encompassing that it deserves being distinguished as a new usage about a new concept. Snowden, meanwhile, uses the compound term “sense-making” to represent the same family of ideas. Snowden’s term, more conventional, aims to describe a whole set of processes that have brand names such as the previously mentioned Story Circles and KDPs and to use narrative theory to understand the complexity of organizational environments.

Another significant difference is the type of evidence they use for their respective programs. Snowden presents his ideas to workshop participants, and then uses an interpretation of their responses as evidence for his concepts in his articles about narrative and complexity. Weick’s evidence comes from his field studies of jazz orchestras, firefighters, and the aforementioned aircraft carriers and power plants. This work is amplified, in an applied version, in his co-authored 2001 book with Katherine Sutcliffe on managing the unexpected in an age of complexity.

These differences between Weick and Snowden’s ideas are differences in style - that is, they differ in their historical, cultural, and pedagogical approaches to complexity. Yet our reading of Weick and Snowden’s treatment of complexity and narrative shows that there is considerable overlap on the substance of their thinking. The purpose of this article is to list and interpret these points of likeness. To set up this listing, we will review their common approach to narrative and complexity.

### **The similarities between Snowden and Weick**

**W**eick and Snowden commonly assert that the complexity and ambiguity of the environments that individuals face are best understood when language, including the richness of metaphor and the flexibility of the story, is invoked as a sensemaking device (Weick and Browning, 1986; Snowden, 1999). For Weick, “sensemaking” defines organizational action as an ongoing accomplishment that emerges from efforts to create order and make retrospective sense of what occurs (Weick *et al.*, 2005; Weick, 1993). Accordingly, organizations become interpretation systems of participants who, through the back and forth of their own understandings, provide meanings for

each other via their everyday interactions.

The exercises Snowden uses in the Cynefin project emphasize contextualizing to generate collective sense-making as a consequence of discourse. These workshop discussions emphasize diversity and concreteness by using narrative methods that allow specific patterns to emerge in understanding the story of a project or event. A consistent theme of Weick’s theory development from the very beginning is that complex environments must be matched with equally complex processing mechanisms. The capacity of the narrative to vary in *punctuation* (when they begin and end), *pace* (what is the speed and variation between sequences), and *participant composition* (casts can range from one person, to few, to ensembles) means the narrative is a communicative form that is frequently consistent with organizational complexity (Luhman & Boje, 2001; Polster, 1987).

Snowden’s strategy for sense-making is to lay out an understanding of language depending on the specificity of the environment. Snowden, like the narratologist Walter Fisher before him (1984), worries that experts’ language is so restricted and abstract that it too easily remains *about* the problem, but far *above* it. Weick and Snowden jointly emphasize the role of language in sensemaking about complexity and especially the role of the communicator to create meaningful messages that are informative, comprehensive, and not oversimplified (Snowden, 1999). Stories can complexify meanings in a way that linguistic statements cannot (Snowden, 1999). For Weick, interpersonal processes play out as actors know who they are by what they say to others and how others respond to them. He observes, “People verbalize their interpretations and the processes they use to generate them” (Weick 1995: 8). A distinctive feature of sensemaking, and one that also distinguishes it from interpretation, is the way action and organization collaborate to make up the structure. Weick sees communication as a type of action because generating discourse is an act of performance and production. Sensemaking is about “authoring as well as reading” (Weick 1995: 7).

This view of narrative as a special answer to complexity is further laid out in the writings by Snowden, Weick, and associates. In common, they propose a set of conditions, a set of useful practices, including the kinds of structures necessary to adapt to complexity successfully. We have identified eight major statements that capture these commonalities:

1. *Acknowledging and accepting complexity is better than placating it with planning models.* Snowden contends that the physics on which Fredrick Taylor based the rational theory of scientific management is no match for the contemporary environment. There are simply too many situations where the standard tools and techniques of policy-making and decision-making do not apply (Kurtz and Snowden, 2003). This position is consistent with Snowden's general emphasis on learning. Because most environments are turbulent, individuals experience considerable change; hence, the best thing we can do is to learn from it. Weick parallels this idea with the concept of "threat rigidity," which refers to the tightening of categories that occur when people's understandings are threatened. In their book on managing the unexpected (2001), Weick and Sutcliffe promote a mix of action and stability - a mix of structure and change - that is akin to the complexity concept of "far from equilibrium." They contend that the best response to complexity is diversity and an information consciousness that enables a person to become a mindful observer and actor, a vigilant and attentive actor, rather than one dependent on mindless control systems.

Snowden reaches much the same conclusion from a different route. He believes that the traditional organization, with its emphasis on planning, policy, procedures, and controls, leads to a *training* culture of obedience rather than a *learning* culture of understanding and action. Weick and Sutcliffe (2001) share the preference for moving away from planning recipes toward a focus on individual mindfulness and anticipation.

2. *It is important to acknowledge failure and learn from instances of it.* While this concept has been most extensively developed by Sitkin (1994), it exists both directly and indirectly in Weick and Snowden's work, and it appears in several different forms. In his workshops, Snowden has his participants review past projects to identify a fateful moment when their project might have failed, which enables them to see how close they came to failure and how they might avoid it in the future.

Both Snowden and Weick tie failure to learning - seeing things in a new way - such that the surprise becomes a communicable story, even if it is "near miss." Narrators are able to say, "This might have happened." Snowden sometimes asks the following question in his seminars: "What spreads fastest in your organization - stories of failure or stories of success?" He says the usual answer is "failure"

because we realize that stories of failure are more valuable than success stories (Snowden, 2003). Because people tend to agree more on what is going wrong than what is going right, what are called "best practice" efforts in fact rely on the ability to identify *both* past successes and past failures (Snowden, 2003). Given Weick and Sutcliffe's (2001) premise that HROs must focus on potential catastrophic failure, such organizations constantly complete reviews and exercises that gauge their preparedness - without a fear of punishment from reporting a failure. Focusing on failure is so important because its opposite, success, is such an emotional and fulfilling rush that it leads to hubris (Weick & Sutcliffe, 2001). A major component of sensemaking for Weick and Sutcliffe is a "preoccupation with failures rather than successes" (Weick & Sutcliffe, 2001, in their executive summary).

3. *Self-organization is an order that has no hierarchical designer or director.* Snowden contends, "there is a fascinating kind of order in which no director or designer is in control but which emerges through the interaction of many entities" (Kurtz & Snowden, 2003: 464). In his approach to self-organization he reaffirms Peter Drucker's idea that "in the Knowledge Economy everyone is a volunteer" (Snowden, 2000c: 3). A key feature of narrative is that characters are most interesting when they make, or struggle with, independent choices. Snowden says that organizing business on the Web creates a community of volunteers who operate in an open and free system. This change shifts organizations away from hierarchical forms to ones where they become networks of communities directed toward a purpose (Snowden, 2000b).

For Snowden, when an environment is ambiguous, the proper scope for interpretation and action is at the individual rather than the hierarchical level (Snowden, 2000a). This view is commensurate with Weick and Sutcliffe's fostering individually distinctive interpretations of what is going on and accepting diverse inputs in responding to complexity. They encourage managers to act with an anticipation that counteracts oversimplification and easy confirmation by structuring differences in personal background and experience into the organization. Weick and Sutcliffe also reflect the move away from hierarchy toward self-organization in this recommendation: "Create a set of operating dynamics that shifts leadership to the person who currently has the answer to the problem at hand. This means people put a premium on *expertise over* and decisions migrate both downward and upward as conditions

warrant” (Weick and Sutcliffe, 2001: 49, italics added).

4. *Narratives are valuable for showing role differentiation and polyvalence.* Weick’s most prominent example of problem-recognition resulting from role difference appears in his story on how child abuse came to be a medical diagnosis in American medicine. The story of the development of the battered child syndrome (BCS) in Weick’s (1995) sensemaking book beautifully illustrates the features of labeling and institutional resistance. Weick’s analysis also illustrates how individual reputation becomes implicated in “seeing” a problem. Before BCS became well-enough known to become an institutional label, child injuries that appeared in X-rays or other parts of a medical report were treated as anomalies. The first report of BCS appeared in a radiology journal rather than a pediatric journal, which illustrates how an outsider, a distant voice, became a key participant in developing the medical diagnosis for BCS. As a result of that radiology journal’s report, a mix of participants overcame the “fallacy of centrality” - which is reflected in the egocentric argument “If I don’t know about this event, it must not be going on” (Weick 1995: 2). In that story, it is the radiologists, not the pediatricians, who, from a distance and from different data, come to perceive childhood injury as something other than an accident. The delay in recognizing the battered-child syndrome is ironic; the truth was right in front of the doctors, but they did not recognize abuse because of the social and political setting of the examination.

Diverse information causes a person not only to see different information but also to see information differently. In the last quarter of the 20<sup>th</sup> century, the complexity of the story allows for many voices, from marginal to central, to register as a response to complexity because it matches the local, fragmented, emergent story so well (Boje, 2002; Luhman & Boje, 2001). Boje’s idea that a fragmented and ambiguous narrative makes any single event transient and multivocal is consistent with Snowden and Weick’s positions. Snowden has a section in his most comprehensive statement on this topic called “humans are not limited to one identity” (Kurtz & Snowden, 2003). He develops exercises in his workshops that are designed to develop narrative databases without particular attention to their truthfulness. Instead, the purpose is to generate ingredients that might be raw material for story-based interventions. They suspend truth to generate provocative content. Such diversity is part of how Snowden defines complexity, which is “how patterns emerge through the interac-

tions of many agents” (Kurtz & Snowden, 2003: 469). Both Snowden and Weick see a non-egoistic, diverse, probing, interacting style of communication as a response to complexity.

5. *Conformity carries risks, and thus we need diverse inputs when responding to complexity.* Much of Snowden’s thinking about this is captured in his conception of learning, which he sees as a replacement for order and structure. A difficulty with systems built on technology is that people are seduced by order often at the cost of usability and adaptability. Snowden’s use of the term “Cynefin” is counter to the idea of conformity because it represents “the place of our multiple affiliations, the sense that we all, individually and collectively, have many roots, cultural, religious, geographic, tribal, and so forth” (Kurtz & Snowden, 2003: 467).

Narratives are dominant in organizations because conformity often reflects local power and circumstances. Narrative is a democratic concept (anyone can tell a story and anyone can criticize and analyze a story) rather than a privileged one (rationality requires special technical skills). When people tell a story, they are invoking a personal “philosophy of reason, value, and action” (Weick & Browning, 1986: 249). Weick’s emphasis is on interaction that involves both speaker and receiver to achieve understanding, and on the role of story-telling to capture the nuance and uncertainty present in a given situation (Weick *et al.*, 2005). To combat conformity they urge looking for evidence that disconfirms “cherished expectations” (Weick & Sutcliffe, 2001: 155). Finally, Weick and Sutcliffe urge developing a mindfulness that encourages variety in people’s analysis and integrating the information people have that is not held in common and to “train people to manage these differences” (Weick & Sutcliffe, 2001: 66).

6. *Action is valuable under conditions of complexity.* Weick returns to the importance of action repeatedly and identifies it as a process that is ongoing, instrumental, subtle, swift, and social: “When action is the central focus interpretation, not choice, is the core phenomenon,” which means that communication is a type of action (Weick, *et al.*, 2005: 409). One of Snowden’s categories of the environment is the “un-ordered and chaotic domain” (Kurtz and Snowden, 2003: 469) in which there are no perceivable cause-and-effect relations. He sees the proper response to this environment is “to act, quickly and decisively, to reduce the turbulence; and then to sense immediately the reaction to that intervention so that we



can respond accordingly” (Kurtz & Snowden, 2003: 469). Snowden’s writing on action is developed, in part, in his writing on virtual communities and the value of these structures for allowing people to express understandings they might feel too radical for face-to-face communication. Individuals can act to “experiment with ideas and experience” (Kurtz & Snowden, 2003: 469) when they are confident that the ideas will not be attributed to them.

For Snowden, the most useful information is contextual and need-driven. Thus, there is a mismatch between mechanistic models and organic human decision-making (Snowden, 2000a). His goal is to enable organizations to identify what knowledge they have in a contextual, detailed, description that leads them directly to action. A good example is his thinking on anthropological observation. His general sense of action allows Snowden to contend, provocatively but accurately, that a single day of learning observational techniques is enough to make researchers successful in the field, especially when they are imbued with a deep curiosity for their subject (Snowden, 2000a).

For Weick, action leads to identity because the nature of a person is “constructed out of the processes of interaction” (Weick, 1995: 20). Since interpersonal communication and conversation constitute the organization, those very interactions are part of the structure. As Weick says, “Actions and structures of organizations are determined in part by micro-momentary actions of their members” (Weick, 1995: 8). Action is also showcased in Weick’s example of KLM Airlines’ communication that shows when individuals communicate about concrete matters that clarify their understanding, they are acting to create meaning (Weick, 2001).

7. *The focus is properly on small forces and how they affect complex systems.* One of Weick’s most popular concepts is his idea of “small wins,” which are essentially small steps that have the potential of affecting the direction and understanding of larger systems. He defines a “small win” as “a concrete, complete, implemented outcome of moderate importance” (Weick, 2001: 431). His examples of small wins are frequently symbolic and communicative - whether it is the Task Force on Gay Liberation succeeding in getting the U.S. Library of Congress to change its cataloging system by re-labeling its codes and taking the term “deviance” out of the definition of “gay,” or the Administrator of the Environmental Protection Agency’s locating an obscure law on the books that allowed him to legally challenge pollution

practices in several large American cities and in doing so demonstrate how serious he was about increasing the safety and quality of water. His strategy was to take small visible steps that drew the notice of others and enlisted their “small” actions on a larger project (Weick, 2001: 429-431).

Snowden inserts as a topic head in one of his articles the phrase “the small guy wins out” (Snowden, 1999: 34). The phrase refers to the tendency of experts to use too much of their deep knowledge of a task and minimize its practical requirements. Snowden relates a story of two software development groups - one expert, the other a lesser group - whose experience in programming was limited to the fairly routine requirements of payroll systems. In a competitive exercise between these two groups for learning purposes, the experts created a plan for an elegant piece of code that would take two months to develop. The payroll programmers, meanwhile, downloaded a “good enough” list from the Internet that cost five dollars (Snowden, 1999). Thus one feature for smallness for Snowden is the decisions that can be made that allow the group to move on - to accept “good enough,” implement it, and then see what that action means.

In their work on HROs, Weick and Sutcliffe observe that the risk of not attending to small moments increases the possibility of escalating toward much more serious and unfavorable events. One indicator of mindfulness is the ability to perceive “clues had been accumulating for some time that small, unexpected things were happening” (Weick & Sutcliffe, 2001: 49).

8. *It is important to understand the irony of bureaucratic control.* The irony here is that the attempt to control something often produces results opposite of what was intended. Charles Perrow’s *Normal Accidents* (1984) is a collection of stories chronicling what goes wrong when the fix is worse than the original problem. One irony is that organizations produce volumes of information that, instead of comforting individuals, result in insecurity and overload. When an organization *does* happen onto an organic and innovative achievement, it often swamps it with measurement and control (Snowden, 2000c). A classic example is that of Jack Kilby from Texas Instruments, an electronics firm in the United States. Dr. Kilby, co-inventor of the integrated circuit and, for his effort, winner of the Nobel Prize in physics in 2000, attributes his invention of the chip to his having arrived at Texas Instruments as a new hire in the summer of 1958. Since most of his colleagues

were off on vacation, he enjoyed two weeks to tinker and play in the lab completely alone, which resulted in his world-changing invention. Ironically, Texas Instruments responded to this miraculous and independent achievement by cancelling all vacations for inventor employees for several summers thereafter so that they, too, might invent something brilliant (Turner Hasty interview, 1992). In organizations, the higher one sits, the more difficult it is to resist the tendency to transform the effective into the mandatory.

Snowden frames his work in this area by criticizing the influence of the Newtonian metaphor on management science's focus on linear development. As he sees it, management science aims to "develop algorithms that would predict human behavior in the same way as the movement of heavenly spheres could be predicted" (Snowden, 2000c: 3). Snowden represents this point with the following story: A group of West Point cadets were assigned the task of managing the playtime of some kindergartners. Given some time to plan, the cadets identified objectives and backup plans so as to order the children's play rationally. What they achieved instead was chaos. Experienced teachers, on the other hand, given the same task, allowed the children degrees of freedom from the start and tweaked their behavior by stabilizing desirable patterns and destabilizing undesirable ones (Kurtz & Snowden, 2003).

With this example, Snowden shows that efforts to reorganize and reduce authority can ironically often have the opposite effect: "A familiar example in organization life is the cyclic reorganization of authority by industry, then by function, then by industry, and so on in an endless cycle; or the fact that well-intentioned revolutionaries sometimes put into place bureaucracies even more stifling than those they overthrew" (Kurtz & Snowden, 2003: 476). Surprise - that of expecting one thing and being shocked by the appearance of another - is consistent with narrative theory because a "catch" or a "hook" in a narrative frequently takes the form of a surprise, and in the language of sensemaking, such an irony suggests the need to understand the story (Weick, *et al.*, 2005).

In the conclusion, we summarize these eight points and examine what their likeness means for understanding narratives and complexity.

## Conclusion

In this final section we will distill and elaborate on these eight comparisons and show how the programs of Snowden and Weick - originating with two separate research teams on two separate continents - reach much the same conclusion about the nature of complexity and the value of narrative as a response to it. Freud was fond of saying that it is more efficient to analyze two cases than just one, just as it is easier to crack two walnuts in your hand than one alone (Gay, 1988). The study of organizations has built on this notion by using the geographical survey term "triangulation," which refers to using two points to identify an unknown third. These eight points suggest the following conclusions.

First, complex narratives are about individual behavior. While the organizations Snowden and Weick describe are complex systems, they see local behavior - self-organization - as the key response to non-linear conditions. Whether it is Weick's X-ray technicians arriving at a diagnosis for the Battered Child Syndrome or Snowden's kindergarten teachers shaping chaotic behavior, they place the person at the center of the interpretation. The advantage of focusing on the person is this: the more self-organizing, rather than controlled, the behavior, the more likely that the right solution has a life *somewhere* in the system. If the communication practices among self-organizers are in fact vulnerable and attentive to the margins, their use will result in the best self-organized solution evolving to a dominant position, which is how individual action becomes a role model for others to emulate. Those influenced by the role-modeling, in turn, may become a force for an idea or a project, and so on.

Second, narratives focus on "who said what to whom with what effect." One thing that adds to the complexity of "who said what to whom with what effect" is point of view. Who is making the interpretation of the complexity of the environment? The ability to interpret complex environments rises and falls on such things as subtle cues, the ability to pick up human and technical details, fantasies, and alternative histories. It rises and falls on who showed up ten minutes early or ten minutes late. Communication under conditions of complexity takes the form of facts, ideas, theories, and ideologies that amalgamate into a narrative.

Third, *participation* and *management by exception* are concepts that provide an alternative to the dominant model of managerial control. While they do not use these terms directly, Weick and

Snowden affirm the concepts of *participation* and *management by exception* as managerial approaches to complexity. Those in charge of hierarchies are obligated to take control of the sudden change that complexity stimulates because that is what Western cultures expect. The idea of management is, in fact, usually understood as the engineering of social control (Tsoukas, 1994). Yet Snowden and Weick's models direct us toward developing enough trust that we can empower people to participate in local complex conditions, including the right to respond instantly. If complex change can begin with small, local forces, then having the ears and eyes of observers acting on these forces follows as a strategy. The paradox of "letting go" and remaining involved is one of the hardest complexity responses for a manager to learn. In French, *lâcher prise* means "letting go," which is contrary to control, but it is a purposeful absence of control. Weick and Snowden provide an original approach to management as control because they equalize control and "letting go" in importance. In this vein they embrace a classic axiom of management, namely, J. D. Thompson's notion, in his book *Organizations in Action*, that contends that management is best when it limits itself to managing exceptions. The normal state of affairs is to let go; the exception is to manage.

In conclusion, these diverse approaches to the same topic amplify their power and increase the credibility of both ideas. Weick and Snowden's style differences are no small matter; one might do quite different things as a result of studying and knowing only one or the other of them, yet their common attention to how one diagnoses and responds to complexity advances the larger idea of complexity and narrative. Complexity, as an intellectual force, is in its "understanding phase." Its larger aim is to answer the question, "What are the managerial consequences for viewing the world as an adaptive, dissipative, and, most importantly, a non-linear system?" Narratives are useful for complexity because there are no hypotheses in complexity research; instead there are historical, technical, and simulation analyses of processes over time that result in unexpected outcomes.

## References

- Barthes, R. (1977). "Introduction to the structural analysis of narratives," in R. Barthes (ed.), S. Heath (trans.), *Image, music, text*, Glasgow, Scotland: William Collins, original work published in 1966, ISBN 0809057409, pp. 79-124.
- Boje, D. (2002). *Narrative methods for organization and communication research*, London, UK: Sage Publications, ISBN 0761965866.
- Czarniawska, B. (1998). *A narrative approach to organization studies*, Thousand Oaks, CA: Sage Publications, ISBN 0761906622.
- Gay, P. (1988). *Freud: a life for our time*, New York, NY: W. W. Norton, ISBN 0393025179.
- Goffman, E. (1959). *The presentation of self in everyday life*, New York, NY: Basic Books, ISBN 0385094027.
- Hasty, T. (1992). Unpublished interview for the SEMATECH semiconductor manufacturing project, Austin, TX.
- Kurtz, C. F. and Snowden, D. J. (2003). "The new dynamics of strategy: Sense-making in a complex and complicated world," *IBM Systems Journal*, ISSN 0018-8670, 42(3): 462-483.
- Luhman, J. T. and Boje, D. M. (2001). "What is complexity science? A possible answer from narrative research," *Emergence*, ISSN 1521-3250, 3(1): 158-168.
- Morowitz, H. J. (2002). *The emergence of everything: How the world became complex*, Oxford, UK: Oxford University Press, ISBN 0195135513X.
- Perrow, C. (1984). *Normal accidents: Living with high risk technologies*, New York, NY: Basic Book, ISBN 0691004129.
- Polster, E. (1987). *Every person's life is worth a novel*, New York, NY: W. W. Norton, ISBN 1903458080.
- Putnam, L. L. and Fairhurst, G. T. (2001). "Discourse analysis in organizations: Issues and concerns," in F. M. Jablin and L. Putnam (eds.), *The new handbook of organizational communication*, Sage Publications, ISBN 0803955030.
- Sitkin, S. B. (1992). "Learning through failure: The strategy of small losses," *Research in Organizational Behavior*, ISSN 0191-3085, 14: 231-266.
- Snowden, D. J. (2003a). "Managing for serendipity or why we should lay off 'best practices' in KM," *Knowledge Management*, 6(8), <http://www.cynefin.net/kbase.php>.
- Snowden, D. J. (2000a). "The ASHEN model: an enabler of action: Part one of basics of organic knowledge management," *Knowledge Management*, 3 (4), <http://www.cynefin.net/kbase.php>.
- Snowden, D. J. (2000b). "Cynefin, a sense of time and place: An ecological approach to sense making and learning in formal organizations," *Proceedings of KMAC*, <http://www.knowledgeboard.com/library/cynefin.pdf>.
- Snowden, D. J. (2000c). "Story circles and heuristic based interventions: Part three of basics of organic knowledge management," *Knowledge Management*, 3 (10), <http://www.cynefin.net/kbase.php>.
- Snowden, D. J. (1999). "Story telling: An old skill in a new context," *Business Information Review*, 16 (1): 30-37.
- Taylor, M. C. (2001). *The moment of complexity: Emerging network culture*, Chicago: University of Chicago Press, ISBN 0226791173.
- Tsoukas, H. (1994). "Introduction: From social engineering to reflective action in organizational behavior," in H. Tsoukas (ed.), *New thinking in organizational behavior*, Oxford, UK: Butterworth-Heinemann, ISBN 0750617632, pp. 1-22.
- Weick, K. E., Sutcliffe, K. and Obstfeld, D. (2005). "Organizing and the process of sensemaking,"

*Organizational Science*, ISSN 1047-7039, 16(4): 409-421.

Weick, K. E. (2001). *Making sense of the organization*, Oxford, UK: Blackwell, ISBN 0631223177.

Weick, K. E. (1987). "Substitutes for strategy," in D. J. Teece (ed.), *The competitive challenge*, Cambridge, MA: Ballinger, ISBN 0887301789, pp. 221-233.

Weick, K. E. (1983). "Organizational communication: Toward a research agenda," in L. Putnam and M. Pacanowsky (eds.), *Communication and organizations: An interpretative approach*, Thousand Oaks, CA: Sage, pp. 13-29.

Weick, K. E. and Sutcliffe, K. M. (2001). *Managing the unexpected: Assuring high performance in an age of complexity*, San Francisco, CA: Jossey-Bass, ISBN 0787956279.

Weick, K. E. and Browning, L. D. (1986). "Argument and narration in organizational communication," *Journal of Management*, ISSN 0149-2063, 12: 243-59.

**Larry Browning** is a professor of organizational communication in the Department of Communication Studies at the University of Texas at Austin. He holds a PhD in Communication from the Ohio State University. His research areas include the role of lists and stories in organizations, information-communication technology and narratives, cooperation and competition in organizations, and grounded theory as a research strategy. His most recent work, along with his co-authors, is: Browning, L. D., Sætre, A. S., Stephens, K., and Sørnes, J. O. (2004), *Information and communication technologies in action: Linking theory and narratives of practice*, Copenhagen: Copenhagen Business School Press.

**Thierry Boudès** is an associate professor of strategic management at ESCP-EAP in Paris, France. He holds a PhD from École Polytechnique, France. His research areas focus on storytelling in organizations and strategy process. His latest research deals with the narrative representation of crises: Boudès, T. and Laroche, H. (2005), "Narrative constraints and resources for understanding crisis representation in official reports: The case of the 2003 heat wave in France," 21<sup>st</sup> Egos Colloquium, Berlin, Germany, July.