Organizations as Machines, Organizations as Conversations:

Two Core Metaphors and their Consequences

Anthony L. Suchman, MD, MA
Relationship Centered Health Care
University of Rochester School of Medicine and Dentistry
Rochester, NY

Corresponding author and address for reprints:
Anthony L. Suchman, MD
42 Audubon St.
Rochester, NY 14610
Fax: 206-350-7113
Phone: 585-271-4233
Email: asuchman@rchcweb.com

Running head: Core Metaphors for Organizations
Word count: 4244
Abstract

One factor contributing to the limited success of organizational change initiatives is the use of an outmoded conceptual model: the organization as machine. This metaphor leads to the creation of detailed blueprints for desired changes; invites unrealistic expectations of control; and creates anxiety, blame and defensiveness when events inevitably don’t proceed according to plan, thus hindering the work.

An alternative conceptualization – the organization as conversation – portrays an organization not as a reified object upon which we can act but as self-organizing patterns of thinking (organizational identity and knowledge) and relating (organizational culture) that exist in the medium of human interaction in which we participate.

Principles of complexity dynamics (self-organization) have important implications for organizational change practices. (1) We can’t know in advance the outcomes of our actions so we need to hold plans lightly, value “not knowing” and practice emergent design. (2) Organizational change requires mindful participation – reflecting on and talking about what we are doing together here and now, what patterns of thinking and interacting we are enacting and what new behaviors might interrupt old patterns or give rise to new ones. (3) Diversity and responsiveness favor the emergence of novel patterns. Skilled facilitation can enhance these characteristics when novelty is desirable; checklists and protocols can diminish these characteristics when consistency and reliability are needed.
The organization-as-conversation perspective also has important implications for T3 translational research, redefining its purpose, suggesting new methodologies and requiring new approaches for evaluating proposed and completed projects.

Keywords: organizational change, organizational improvement; administration; management; complexity; health services research; quality improvement; hospital administration;
Introduction

Six years ago, my consulting partner and I received a call from the Indiana University School of Medicine (IUSM) seeking our help in changing the culture of the entire school so the day to day interactions between and among students, faculty and staff (the “informal curriculum” (1)) would reinforce rather than undermine the values of the school’s formal competency-based curriculum.(2)

Our first reaction was delight. As long-time participants in a movement to incorporate communication and relationship skills as core component of medical education, this project was something we had long dreamed of – the opportunity to develop a school-wide focus on relationship-centered care.

Closely following our first reaction was a second one – panic! IUSM is the second largest medical school in the United States – 1100 medical students, 1200 faculty, 9 campuses around the state, thousands of staff members. How could we possibly create change on such a large scale? Here we were, offered the chance of a lifetime, with no idea how to plan and implement such a huge change project.

Change leadership is becoming a core competency for healthcare managers and executives. Healthcare organizations face unprecedented demands for major change in many quarters simultaneously: improving quality and safety; enhancing the patient’s experience of care; embracing new roles for patients, family members and professionals; and responding to new publicly reported performance measures and financial incentives,
and others. The limited success (3) and widespread cynicism (4) associated with change initiatives suggest that we still have much to learn about this process.

One opportunity for improvement is to change the conceptual model that guides the work of change leaders. Working with many healthcare leaders, I have observed that notwithstanding recent developments in the field (5-7), the prevailing view of organizations is still that of the organization-as-machine, a control-oriented outcome-based approach dating back to Frederick Taylor a century ago. In this paper, we will explore how ill-suited this mechanical model is to what is a fundamentally social process. It creates barriers to change. We will then consider an alternative conceptualization – the organization-as-conversation – that focuses attention on how patterns of thinking and interacting arise in the course of human interaction. This model leads to very different expectations and actions on the part of change agents, ones that are more conducive to success.

**Organizations as Machines**

The machine metaphor is ubiquitous. We can hear it in everyday speech: “things are humming,” “well-oiled,” “on autopilot,” “we had a break-down,” “re-engineering,” “firing on all cylinders” and “I’m just a cog in the wheel.” Viewing an organization as a machine shapes our perceptions, expectations and actions in profound ways. We take for granted our ability to design and operate machines to do exactly what we want them to do. We expect consistent performance, each part executing its function without variation. To modify a machine’s performance, we turn to the blueprint to alter the design. The machine doesn’t participate; it is inanimate, changing only when acted upon by its
engineers. Spontaneous change can only be bad – parts wearing out. Unexpected results imply deficiencies in design or implementation that must be identified and corrected.

The core value in the machine metaphor is control. The engineers are responsible for design, implementation, operation and output; they expect and are expected to be in complete control.

This is a problematic way to look at organizations. Organizations are comprised of people, not machine parts. Unlike machine parts, people are dynamic, never exactly the same from one moment to another. Our attention and thinking are in constant fluctuation. We like stimulation; we’re curious and inventive. We get bored with endless repetition so we are always experimenting and making spontaneous changes. We’re not at our best when people tell us what to do but rather when we have a sense of ownership, when our autonomy is being supported.(9) We hate to be wrong. When unexpected bad outcomes prompt a root cause analysis, our instinct to preserve self-esteem and avoid blame takes precedence over making things work better.

To summarize, the organization-as-machine metaphor leads us to think of an organizations as material objects upon which we can act and to see leaders and managers as engineers whose job is to create and implement blueprints. In focusing attention on the gap between intended goals and actual performance it draws our attention away from the vast creative capacity that exists within the organization and from the constant spontaneous experimentation and change that is always taking place. Most importantly, it creates wholly unrealistic expectations of control which inevitably cannot be realized, giving rise to anxiety, defensiveness and conflict, thus creating emotional barriers to change and diverting attention and effort away from the work itself.
Organizations as Conversations

An alternative way of understanding an organization is as a conversation. This is not just a metaphor but is literally true. (10, 11) Think of how an organization comes to be. Someone envisions an undertaking she cannot accomplish alone. As she starts talking with others a shared notion of collective action begins to form. At some point there is sufficient convergence of thinking and interests that people begin to act in concert. Only when the idea in the conversation gains this critical degree of coherence does the organization start to function. After the organization has formed, the conversation changes and evolves, with more tangible aspects of the organization following suit: buildings are torn down or new ones are built; budgets and organizational charts change; people are hired or laid off; products come and go; work processes change. The conversation precedes and gives rise to everything.

The organizational conversation includes everyone who is aware of, involved with or affected by the organization: workers, managers, leaders, customers (actual and potential), payers, regulators, competitors, and neighbors. It includes myriad sub-conversations that vary in such characteristics as numbers of participants, duration (from longstanding to one-time events), formality and legitimacy (from officially scheduled meetings to water-cooler gossip), influence (the likelihood that it will affect the net activity of the organization) and the medium of communication (e.g. spoken words, memos, legal documents, procedure manuals, human resource policies, board resolutions, or symbolic gestures).

Within organizational conversations there are two kinds of patterns: patterns of meaning and patterns of relating (this is, of course, an oversimplification but helpful for
clarity). Patterns of meaning (what people are saying) include organizational identity (purpose, mission, vision and values), strategy (current thinking about the future) and knowledge (intellectual capital, how to do the work). Patterns of relating (how people are interacting) are the organization’s culture – for example, what can or cannot be discussed openly, who makes which decisions, how people talk and dress, and the whole panoply of power relations.

The organization-as-conversation perspective shows us an organization not as a reified object but as an ever shifting set of ideas and relationships. Accordingly, the core value is not to be in control but to be in right relation. We pay attention to the quality of the conversation, how people are participating, believing that the best path to a good outcome is good process. Without unrealistic expectations of control, there is less blame and fear, opening more space for curiosity, experimentation, dialog and critical reflection – ideal circumstances, as we shall soon see, for adaptability and innovation.

**Self-organizing Patterns in Conversations**

Patterns of meaning and relating in a conversation are continuously under construction; they must be re-enacted time after time or they will cease to be patterns, just as musicians in a performance must play notes in each new moment or the piece ends. If we describe an organization’s culture as hostile, or as collaborative, that means that people act in a hostile or collaborative fashion not just once, but repeatedly and consistently. While the patterns of any given moment tend to perpetuate the patterns from the moment before, this is not inevitable. Each new moment holds the possibility of transformation. It is not possible to predict, let alone control, whether the patterns will
remain stable or change because conversation is a self-organizing process.(13) A bit more explanation is in order.

The archetype of a self-organizing process is an ongoing interaction involving two or more entities that simultaneously influence and are influenced by each other. In this continuous back and forth process, very small changes or disturbances can be amplified and spread rapidly, sometimes resulting in transformative new patterns. One example of this is popularly known as the Butterfly Effect, referring to the potential for the miniscule air currents caused by the beating of a butterfly’s wings to interact with adjacent miniscule air currents, amplifying and propagating the disturbance, and ultimately resulting in a tornado half-way around the world.(14)

For an example closer to our exploration of conversations and organizations, think of a time when you were talking with a friend or colleague and your conversation partner said something that struck you in a particular way, jogging your thinking and giving you the germ of a new idea. Perhaps it was a particular turn of phrase he used or the serendipitous juxtaposition of his comment with a book you happened to be reading or a movie you just saw. Whatever the circumstances, that small accidental bit of novelty – that disturbance in your pattern of thinking – sparked a new thought which you then expressed to your partner. He, in turn, grew excited by your idea and took it a step further. As the idea ping-ponged between you, it grew rapidly, ultimately transforming the way you think – a new theory or project, or a whole new way of doing something.

In both of these examples of self-organization, a new pattern – a new weather system or a new way of thinking – emerged spontaneously in the course of an iterative
interaction with reciprocal influence. No intentional design was involved; no one was in charge or in control of the process. It just happened.

Self-organization does not just produce novelty; it can produce stability – continuity of patterns – as well. For example, think about an experience you’ve had of joining a new group – perhaps your first day at a new job, on a new committee or in a new class. In these situations, we all pay close attention to how the other people are acting so we will know how to fit in. Our neurobiology demands this of us: the principal determinant of opioid levels in our brains is the degree of attachment we are experiencing.\(^{(15)}\) If we are excluded from the group, our brain opioid levels fall and we experience the endogenous equivalent of narcotic withdrawal. To avoid this extremely dysphoric experience, we observe how the others in the group are behaving and we start behaving in the same way.

The next time the group meets, someone else is now the new person, and that person looks to you to see how to behave. Over time, the composition of the group might turn over completely yet the behavior patterns can continue unchanged as each person copies the behavior of the people who came before. We see examples of this in enduring group norms and traditions and also, tragically, in patterns of ethnic conflict that can persist across generations. These persistent patterns of relating are self-organizing; they maintain themselves without anyone’s guiding hand.

**Implications for Practice**

The organization-as-conversation perspective and its underlying principles of non-linear or complexity dynamics offer us a more accurate understanding of
organizations than that provided by the machine metaphor, and lead us to approach the
work of organizational change in very different ways.

**Emergent design**

The most important implication is that while our work can and should be guided by an overall direction or vision (itself a self-organizing theme that emerges in conversation), we need to hold specific plans lightly and let go of expectations of control. We’ve just encountered the Butterfly Effect, the spontaneous emergence of new patterns instigated unpredictably by small disturbances that amplify and spread in the course of iterative interactions. Not all small disturbances propagate in this way; in fact, very few do. If we consider another model of self-organizing complex behavior, dropping individual grains of sand randomly onto a sand pile, we observe that most grains of sand will cause only minor disturbances or none at all. But occasionally one grain of sand causes an avalanche. Far from being freak events, avalanches are intrinsic to the system.(16) Nevertheless, it’s not possible to predict what effect any given grain of sand will have. No matter how fine the measurements we can make of the sand grain’s shape and momentum, the sand pile’s structure or the air currents through which the grain will fall, even finer immeasurable differences can amplify and cascade, altering the outcome for the entire system.

The dynamics of the Butterfly Effect and Sand Pile Model apply to pattern formation in social as well as physical systems.(15) They show us just how unpredictable is the work of organizational change and why an organization can never be like a machine. Patterns emerge without our creating them and persist despite our efforts to disturb them; we can’t know in advance the consequences of our actions. So creating
and holding fast to a detailed blueprint that specifies every step in advance is futile, and
worse, it creates its own obstacles in the form of anxiety, blame and defensiveness when
things don’t go as planned. A detailed plan predisposes us to tunnel vision, focusing our
attention so completely on our intended actions and goals that we may fail to notice
spontaneously emerging patterns and other serendipitous opportunities.

An alternative approach is “emergent design,” (17, 18) a dignified way of saying
“making it up as you go along.” Emergent design involves a mindset of curiosity,
flexibility and experimentation; “not knowing” is a virtue, not a deficiency. Rather than
planning many steps in advance, we take one step at a time, planning the next step only
when we’ve seen the results of the previous one. This gives us the opportunity to identify
and make use of emergent new patterns that we never could have anticipated. We
introduce numerous small changes (disturbances) in the hope that some of them might
ripple, stimulating further change, mindful that any one disturbance is unlikely to have
much effect. A very similar approach (“try a lot of things, keep what works”) has been
found to be the basis for sustainable success in large corporations.(19)

Paradoxical as it may seem, there is an important role for planning in emergent
design. Its main value isn’t so much in the plan, which will soon be out of date, as it is in
the process. Planning occasions conversations, which are the medium for the emergence
and evolution of shared ideas and relationship building: the creation of common purpose,
alignment and trust. A planning conversation that continues for the duration of a project
is more useful than any master plan.
Focusing Attention on the Here and Now

Another important implication of the organization-as-conversation perspective is to approach large scale organizational change at the level of everyday behaviors. It shifts our attention from what we should be doing (the grand blueprint) to what we are doing (the pattern-making that is taking place here and now).(6) Our principal work as change agents is to engage everyone (not just the leaders) in creating change by building the organization’s capacity for reflective conversation and mindful action. What ideas and cultural patterns are we enacting together? What are we doing in this very moment that contributes to those patterns? How might we act differently to interrupt existing patterns and start new ones? An important form of leadership is to be first to step outside an existing pattern, to put our opioids and sense of attachment at risk for the chance to initiate an alternative pattern. Gandhi understood this when he said, “You must be the change you want to see in the world” [emphasis added].

Attending closely to the here and now of the organizational conversation also helps us recognize and strengthen unheralded desirable patterns that are already present or are forming spontaneously. What opportunities might they offer? What might help sustain or inhibit them? Methods such as Appreciative Inquiry and Positive Deviance use storytelling, positive feedback and cohesive group dynamics (attachment) to reinforce such virtuous patterns.(20-22, 22, 23)

We can also notice the constraints that are shaping patterns in the organizational conversation. Self-organization requires the simultaneous presence of order and disorder, freedom and constraint. Constraints place conditions or limits on what each entity does within an ongoing interaction and thus bounds the range of possible patterns that might
emerge. Some constraints are absolute and immutable (gravity, for example – we can’t have meetings on the ceiling). Others are weaker and/or more susceptible to change (for example, expectations about turn-taking in conversation or systems of financial incentives). In the presence of a constraint, there is still freedom – there are many ways that any given constraint can be satisfied. In the above example of joining a new group, the range of relational patterns that might have emerged was bounded by a powerful constraint – the need for attachment to avoid the intense discomfort of opioid withdrawal – but there were still any number of possible behaviors within that bounded space. We can better understand the ongoing process of pattern-making by noticing what physical, biological, psychological, social, financial, regulatory and other constraints are present in a given situation and which ones seem most important in shaping the existing patterns. We can then consider how these constraints might be satisfied in other ways, or if the constraints themselves can be modified.

This detailed attention to process – to communication and relationship dynamics – differs sharply from the machine metaphor’s focus on outcomes, both actual and desired, and on blueprints for closing the gap between them. The organization-as-conversation perspective shows us that to change broad organization-wide patterns there is nowhere to work other than at the level of here-and-now individual interactions. Detached, objective analyses and tidy blueprints do not lead to behavior change. Change agentry is a messy, participatory, subjective and reflective process. Here-and-now relational dynamics is not a fluffy “touchy-feely” domain; it is where we live and where all the action is; we ignore it at our peril.
Diversity and Responsiveness

A third implication for the work of organizational change is to recognize the importance of diversity and responsiveness in the emergence of new conversational patterns. An organization’s diversity – the multiplicity of perspectives arising from differences in roles, personal histories and professional backgrounds – seeds novelty; it is the main source of serendipitous disturbances that instigate new patterns, provided, of course, that individuals feel safe and supported enough to risk bringing their differences forward. In situations in which new patterns are desirable, it’s helpful to notice how much diversity is present and what could be done to bring more of it into the conversation and/or enhance its expression. This might mean seeking participants with more varied perspectives and/or using appropriate facilitation methods to help more people to say what they are thinking.

Differences are necessary but not sufficient. There must also be responsiveness; the participants must be susceptible to being influenced or changed by one another. If I am holding rigidly to a pre-existing belief, or worse, not even listening to you, it doesn’t matter how rich is the difference you are trying to introduce; a new pattern will not be able to take hold and grow. So it’s important to notice the quality of listening and to help the participants learn how to work with their differences constructively, seeing them as a resource rather than an obstacle. A variety of facilitation skills and meeting practices can support this goal.

We should note that there are situations where new patterns are undesirable and where a high degree of control and consistency is essential. These tend to be situations with technical solutions – in which what needs to be done is already known – and that are
complicated rather than complex. (26, 27) If someday I need cardiac bypass surgery or a joint replacement, I do not want novel patterns emerging in the operating room; I want things to be done exactly according to protocol. In such situations, we want to reduce the expression of difference and diminish our capacity to change each other (except, of course, if unexpected circumstances arise). Checklists and protocols focus conversation along relatively narrow channels and constrain the behavioral patterns that can emerge. The main point here is for us to be mindful of whether it is consistency or change that is needed, and to manage diversity and responsiveness accordingly. Most organizational change scenarios do not have technical solutions; the way forward is not well-established, there are no experts who have the answers and what is needed is for everyone to participate in the organizational conversation in a way that is conducive to the emergence of new patterns.

On my flight to Indianapolis for the first meeting of the culture change project at IUSM, my worries about not knowing how to conduct this project intensified. A whole scenario played itself out before me: feeling the need to have a master plan, the project team would create a grand 3-year design involving lots of training sessions and quarterly milestones that we would fail to meet, making us increasingly anxious that we would blow this historic opportunity, causing us to try even harder to control things which would only push us farther off course. No, we had to avoid that whole direction; we would go down in flames.

Then it dawned on me that not knowing how to plan this big project wasn’t a problem, it was the answer. Embracing not-knowing would release us from the tunnel
vision of our own solutions and open us to more possibilities. It would remind us to engage more people in shaping the project and to trust IUSM as the best source of its own answers. It would lead us to go about our work as change agents in an entirely different way. Rather than telling people how to implement the new culture we could call attention to the patterns of relating being enacted in each moment and invite people to reflect on how they are participating and what opportunities they have to participate differently.

Not-knowing would also free us from the unrealistic expectation that we could design and control this whole project. The only thing for us to design was the first step, and only when that was done – when we could see what happened, who was drawn to the project, and what ideas they had – could we discern the next step. We had to let this project emerge.

As our first step, we chose to conduct an Appreciative Inquiry, assembling a team of faculty, residents and students who gathered stories from 80 people about moments when IUSM’s culture was at its best. We analyzed the stories and presented the results back to the IUSM community, setting in motion propagating waves of next steps that we never could have planned. The practice of appreciative storytelling spread widely, helping people become more mindful of relational process. They started to see their organization in a more positive light (the organizational identity began to change). Many people were attracted to the project, bringing with them all kinds of ideas that never would have occurred to us: the Admissions Committee redesigned its interviewing and selection process; the deans changed the process for allocating discretionary funds; the Academic Standards Committee changed the way it communicated with faculty
members whose courses were receiving negative ratings from students. Thanks to these and many other changes that rippled out from that initial disturbance, the organizational culture at IUSM really did begin to change.(17)

Implications for Research

As researchers respond to the recent call for more investigation at the organizational/implementation (T3) end of the research spectrum,(28) the organization-as-conversation perspective has implications for their work, as well. Recognizing that we can influence but not control self-organizing processes, we can let go of the expectation that research will provide generalizable context-independent knowledge about how to change organizations (other than offering some very general principles). Instead, we can conduct research that will illuminate the vicissitudes of pattern-making and the nature of constraints, helping us make better sense of what’s happening in our own organizations. We can widen the scope of study from quantitative analyses of interventions and outcomes to include descriptive studies of pattern-making, tracing the course of patterns and how they change over time.

Recognizing that we can act within but not upon organizations, we can move beyond the detached observer model of scientific inquiry to apply principles of participatory and action research.(29, 30) Understanding organizational change projects as stories-in-progress (themes and relationships under continuous construction) and research reports as stories about these stories, we can recognize the essential role of case studies and the need for narrative analysis, rigorously applied.(31, 32)

A new grant-review process will be needed to support projects based on emergent design, for which a method cannot be pre-specified. Such a process might focus instead
on establishing the need for the project and opportunities it presents; the receptiveness of the setting; and the capacity of the project team to undertake emergent work.

**Closing reflections**

We’ve now reviewed the assumptions of the machine metaphor and seen its limitations as a guide for action in a world of self-organizing ideas and cultural patterns. We’ve considered what it means to see an organization as a conversation, recognizing that we are acting within and not on the organization; fostering reflective, mindful participation in the here-and-now process of human interaction; enhancing diversity and responsiveness; and taking an emergent approach that values planning but holds plans very lightly.

Changing how we think about organizational change is itself a change project. In that spirit, this article is an attempt to introduce a new idea, to disturb current self-propagating patterns of thinking about organizations. I’ve used metaphor, explanatory principles, references to everyday experience and an illustrative story to make the ideas more understandable and appealing, hence more susceptible to dissemination and further elaboration. And now I have to let go and see what happens.

**Acknowledgements**

This article represents my own interpretation of ideas developed by Ralph Stacey, Patricia Shaw, Doug Griffin, and many other colleagues at the Complexity and
Management Centre of the University of Hertfordshire. I also gratefully acknowledge Penny Williamson, Diane Robbins and our colleagues in Leading Organizations to Health; Alison Donaldson, Howard Beckman, Dan Duffy, Tom Smith, and my many clients – most notably Tom Inui, Deb Litzelman, Rich Frankel, Bud Baldwin, Ann Cottingham, Dave Mossbarger, Craig Brater and so many others at the Indiana University School of Medicine – for helping me to better understand and live into these ideas. This work was presented in part at the Regenstrief Institute Conference, Turkey Run, Indiana, October 2, 2007.

References


