Organizations as Machines, Organizations as Conversations:

Two Core Metaphors and their Consequences

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Running head: Core Metaphors for Organizations

Word count: 3990

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) 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. (2) 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. (3) 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.

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

In 2002, my consulting partner and I received a call from the Indiana University School of Medicine (IUSM) seeking help changing the school's culture so the day to day interactions 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 advocates of incorporating communication and relationship skills as core components of medical education, we had dreamed of such an opportunity – 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; 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 improvement opportunity is to change the conceptual model that guides most change projects. 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 manager-centered approach dating back to Frederick Taylor more than a century ago.(8) In this paper we'll explore how inadequate this mechanical model is for what is a fundamentally social process; it can actually impede change. We'll then consider an alternative conceptualization – the organization-as-conversation – that is less structural and more dynamic, focusing attention on how ideas and relationships form, propagate and evolve in the medium of human interaction. This model leads to very different actions and expectations on the part of change agents, ones 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," "firing on all cylinders," "re-engineering," and "I'm just a cog in the wheel." Viewing an organization as a machine shapes our perceptions, expectations and actions profoundly. We can design and operate machines to do exactly what we want. Each part has a precise function which it carries out repetitively and without variation resulting in reliable overall performance. To modify a machine's function, we make a new blueprint and build exactly according to specification. The machine doesn't participate; change comes only from the engineers

who expect and are expected to be in complete control of the design, implementation, and results. Unexpected results imply culpability for deficiencies in design or execution.

This is a problematic way to view organizations, comprised as they are of people. Unlike machine parts, people think about their work. Repetition breeds boredom; we're curious, stimulated by novelty, always tinkering. Managers working as engineers don't notice this vast creative capacity of their "machine" or harness its ever present spontaneous experimentation.   We dislike being told what to do, preferring to work more autonomously (9) and we tend to avoid change because it is often associated with uncomfortable emotional responses such as fear and grief.(10) The machine model doesn't address these important phenomena..

Most problematic are the unrealistic expectations of control. Organizational work is inevitably uncertain and unpredictable, yet not knowing what to do is seen as a deficiency, giving rise to anxiety. When things don't go as planned, there is an implicit assumption that someone screwed up. Our efforts to avoid blame and preserve self-esteem divert considerable energy and attention from the work itself.

Organizations as Conversations

An alternative perspective shows us an organization not as a reified object, separate from us, that we can manipulate and control, but as a set of ongoing interactions – a conversation – of which we are an inseparable part. Not just a metaphor, this is literally true.(11,12) 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. When this shared notion gains sufficient coherence and commitment, people begin to act in concert and the organization starts to function. The conversation spawns work processes, physical facilities, organizational charts, budgets, and all the other trappings of an organization. As the conversation changes 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, and symbolic gestures).

We approach the work of organizational change differently when we view organizations as conversations rather than machines. We change a conversation not by creating a new blueprint but by changing the way we participate and encouraging others to do likewise. We pay attention to the quality of the conversation, believing that the best path to a good outcome is good process. Accordingly, the core value is not to be in control but to be in right relation.(13) Without unrealistic expectations of control, there is less anxiety and defensiveness opening more space for curiosity, experimentation, dialog

and critical reflection – ideal circumstances, as we shall see, for adaptability and innovation.

Self-organizing Patterns in Conversations

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 and thinking) include organizational identity (purpose, mission, vision, values), knowledge (intellectual capital, how to organize and carry out the work), and strategy (current thinking about the future and what to do now to prepare for it). *Patterns of relating* (how people are interacting) constitute the organization's culture – for example, how people treat each other, how they talk and dress, what can or cannot be discussed openly, who makes which decisions, and the whole panoply of power relations.

Patterns of meaning and relating in a conversation are continuously under construction; they must be re-enacted in each new moment or they will cease to be patterns, just as musicians in a performance must keep on playing new notes or the piece comes to an end. If we describe an organization's culture as hostile, or as collaborative, that means that people keep on acting in a hostile or collaborative fashion time after time. While the patterns of any given moment tend to repeat and carry forward the patterns from the moment before, this is not inevitable. A new pattern can be enacted at any time; each new moment holds the potential for change.

The patterns of meaning and relating in a conversation can emerge without anyone's intention, direction or control; they are self-organizing.(14) (Self-organization can occur when two or more entities simultaneously influence and are influenced by each other in the course of ongoing back and forth interaction.) Self-organization can yield both stable and novel patterns. As an example of stability, think of a time when you joined a new group – perhaps your first day at a new job, on a new committee or in a new class. You probably attended closely to how the other people were acting so you would know how to fit in. Our neurobiology demands this of us: attachment is an important regulator of the opioid levels in the brain.(15) Being excluded from the group would produce the endogenous equivalent of opiate withdrawal – a discomforting state we seek to avoid – so we act like the others to be included. At a subsequent group meeting, someone else was the new person, and that person looked to you to see how to behave. Over time, the composition of the group might turn over completely yet the behavior patterns continue unchanged. In this way, group norms and traditions endure (sometimes persisting across generations) without anyone's guiding hand; it just happens: hence, the self-organization of stable patterns, continuity in patterns of relating.

New patterns can also self-organize; in the course of iterative reciprocal interactions very small changes or disturbances can amplify and spread. This phenomenon is popularly known as the Butterfly Effect, referring to the potential for miniscule air currents from the beating of a butterfly's wings to interact with adjacent air currents, thus amplifying and spreading, ultimately resulting in a tornado half-way around the world.(16)

For an example closer to conversations and organizations, think of a moment when someone inadvertently said something to you that jogged your thinking and stimulated 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 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 rapidly grew into a transformative new theory or project, or a whole new way of doing something. This new pattern of meaning emerged spontaneously. It was not on your agenda to create it; no one was in charge or in control of the process. It just happened.

Not all small disturbances propagate in this way; in fact, very few do. If we consider another self-organizing complex system, a sand pile onto which we are dropping individual grains of sand, we observe that most grains just stick where they land causing little or no disturbance. But occasionally just that one grain causes an avalanche. Far from being freak events, avalanches are intrinsic to the system, but it's not possible to predict which grains will cause one.(17) No matter how fine the measurements we can make of a grain's shape and momentum, the sand pile's structure or the air currents through which the grain will fall, even finer differences can amplify and cascade, altering the outcome for the entire system.

Implications for Practice

The organization-as-conversation perspective and its underlying principles of self organization (complexity dynamics) offer us a more accurate understanding of organizations than that provided by the machine metaphor, and leads 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 and evolves in conversation), we need to hold specific plans lightly, letting go of expectations of control. The Butterfly Effect and Sand Pile Model show us just how unpredictable is the work of organizational change and why an organization can *never* be like a machine. We can't know in advance the consequences of what we do. Patterns may propagate themselves despite our most diligent efforts to change them, and transformative ideas and interactional patterns may emerge spontaneously from a single word or action. 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 tunnel vision, anxiety, blame and defensiveness, as we've seen previously.

An alternative approach is "emergent design," (18,19) a dignified way of saying "making it up as we go along." Emergent design involves a mindset of curiosity, flexibility and experimentation; "not knowing" is a virtue, not a deficiency. 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. Others have advocated similar approaches for rapid cycle change in waste and error reduction, and for achieving sustainable success in large corporations.(20-22)

Paradoxical as it may seem, there is an important role for planning in emergent design. Even though a plan may evolve considerably over time, we need its content at any one point to help us coordinate our individual actions in that moment. Also, planning occasions conversations that are the medium for the emergence and evolution of shared ideas and relationships, the continuous renewal of shared understanding, common purpose, alignment and trust.

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, p412) Our principal work as change agents is to engage everyone (not just the leaders) in reflecting on what ideas and cultural patterns we are enacting together, and to foster mindful participation, each person asking, "What am *I* doing in this very moment that contributes to those patterns? How can *I* act differently to interrupt existing patterns and start new ones?" An important form of leadership is to be first to disturb an existing pattern, putting our opioids and attachment at risk, in the hope of instigating a change. Gandhi expressed this perfectly 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 allows us to recognize and strengthen unheralded desirable patterns that are already present or are emerging. What opportunities might they offer? What might sustain or inhibit them? Methods such as Appreciative Inquiry and Positive Deviance use storytelling, positive feedback and cohesive group dynamics (attachment behavior) to reinforce such virtuous patterns.(23-26)

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 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 more susceptible to change (for example, role expectations or systems of financial incentives). There is still freedom in the presence of a constraint – there are many ways it can be satisfied. We saw above how powerfully the risk of opioid withdrawal constrains the behavior of individuals in a group, yet there are any number of possible behaviors by which that constraint can be satisfied. 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 to be having the greatest effect. 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 interactions.

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.(6, p386-395) 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 differences and disturbances that instigate new patterns. When new patterns are desirable, we can think about how to enhance the expression of diversity, seeking participants with more varied perspectives and/or using appropriate facilitation methods to help people feel sufficiently safe and supported to disclose their differences.

Differences are necessary but not sufficient. There must also be responsiveness; people in conversation must be susceptible to being 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 work with their differences constructively. A variety of facilitation skills and meeting practices can support this goal.(27,28)

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.(10,29) 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. Checklists and protocols focus conversation along relatively narrow channels and constrain the behavioral patterns that can emerge. We can manage diversity and responsiveness according to whether we need novelty or stability, bearing in mind that most organizational change scenarios do not have technical solutions; the way forward is not known.

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 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. Rather than telling people how to implement the new culture we could invite them to reflect on the patterns of relating they enact in each moment, 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 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 responded to unfavorable course evaluations. Thanks to these and many other changes that rippled out from that initial disturbance, the organizational culture at IUSM really did begin to change.(18)

Implications for Research

Issues of access, quality and unsustainable costs are driving a growing demand for studies at the organizational/implementation (T3) end of the research spectrum.(30) The leading edge of health services research has already moved well beyond the organization-as-machine perspective. For example, Aiken and her colleagues have been studying the effect on clinical outcomes of workplace environments that encourage more participatory (as contrasted with top down) decision-making.(31) Marvel, Safran and their colleagues are exploring the relational patterns of everyday administrative conversation.(32,33) Gittell and her associates have developed a measure of teams' capacity for constructive self-organization.(34) Glouberman and Zimmerman, Greenhalgh and Russell, Dopson and Fitzgerald and Gabbay and le May show clearly that the translation of evidence into practice and policy is not simply a matter of synthesizing research findings and drawing up care maps (blueprints) but rather an emergent social process subject to the unpredictable influence of local political and contextual factors.(29,35-37)

Notwithstanding these and other innovations, the main body of organizational/implementation research might further embrace implications of the organization-as-conversation perspective. First, the process and content of research must not inadvertently reinforce the machine model. Recognizing that we can act within but not upon organizations, we can abandon the fiction of the detached scientific observer and instead implement consistently the principles of participatory and action research.(38,39) We can also abandon the expectation that research will provide generalizable context-independent solutions for changing organizations. Its purpose is not to provide *the* answer but to provide insights and innovations of help to local actors who must find their own local answers.

Accordingly, in the design and peer-review of organizational change research, we should not be looking as much to methods that attempt to eliminate local contextual factors (notably the randomized controlled trial) as to processual and qualitative methods

that explicate these factors in detail.(40) We need rich accounts of how the patterns that constitute organizational knowledge and culture form and spread, and explorations of the nature, impact and mutability of the many various constraints in that process. 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.(41,42)

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 receptivity of the setting, and the capacity of the project team to undertake emergent work.

Closing reflections

We've reviewed the assumptions of the machine metaphor and seen its limitations as a guide for action in a world of self-organizing ideas and relational patterns. We've considered what it means to see an organization as a conversation: understanding that we are always acting within and not upon the organization; recognizing that organizational identity, knowledge and culture are being created continuously here-and-now in the process of human interaction; cultivating a discipline of reflecting on the patterns we are creating in each moment so we can participate more mindfully; fostering diversity and responsiveness to favor the emergence of new patterns; and taking an emergent approach to organizational change that values planning but holds plans lightly.

Changing how we think about organizational change is itself a change project. This article is one of various attempts on my part to introduce disturbances in the current self-propagating patterns of thinking about organizations.   My hope is that these ideas will spread into your thinking and conversation, and as you develop them further, they will come back to change me.

Acknowledgements

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